CLEAN HARBORS SAN LEON, INC.

INDUSTRIAL HAZARDOUS WASTE
PERMIT RENEWAL # 50355
SWR# 34814

2700 Avenue S
San Leon, TX 77539
Galveston County

Submitted: May 30, 2025
Revision #1 , July 2025
Revision # 2, September 2025

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Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: 9/5/2025
Facility Name: Clean Harbors San Leon Inc
Permit or Registration No.: 50355

Nature of Correspondence:
☐ Initial/New
☐ Response/Revision to TCEQ Tracking No.: _____ (from subject line of TCEQ letter regarding initial submission)

Affix this cover sheet to the front of your submission to the Waste Permits Division. Check appropriate box for type of correspondence. Contact WPD at (512) 239-2335 if you have questions regarding this form.

Table 1 - Municipal Solid Waste Correspondence

Applications	Reports and Notifications
☐ New Notice of Intent	☐ Alternative Daily Cover Report
☐ Notice of Intent Revision	☐ Closure Report
☐ New Permit (including Subchapter T)	☐ Compost Report
☐ New Registration (including Subchapter T)	☐ Groundwater Alternate Source Demonstration
☐ Major Amendment	☐ Groundwater Corrective Action
☒ Minor Amendment	☐ Groundwater Monitoring Report
☐ Limited Scope Major Amendment	☐ Groundwater Background Evaluation
☐ Notice Modification	☐ Landfill Gas Corrective Action
☐ Non-Notice Modification	☐ Landfill Gas Monitoring
☐ Transfer/Name Change Modification	☐ Liner Evaluation Report
☐ Temporary Authorization	☐ Soil Boring Plan
☐ Voluntary Revocation	☐ Special Waste Request
☐ Subchapter T Disturbance Non-Enclosed Structure	☐ Other:
☐ Other:	

Table 2 - Industrial & Hazardous Waste Correspondence

Applications	Reports and Responses
☐ New	☐ Annual/Biennial Site Activity Report
☒ Renewal	☐ CPT Plan/Result
☐ Post-Closure Order	☐ Closure Certification/Report
☐ Major Amendment	☐ Construction Certification/Report
☐ Minor Amendment	☐ CPT Plan/Result
☐ CCR Registration	☐ Extension Request
☐ CCR Registration Major Amendment	☐ Groundwater Monitoring Report
☐ CCR Registration Minor Amendment	☐ Interim Status Change
☐ Class 3 Modification	☐ Interim Status Closure Plan
☐ Class 2 Modification	☐ Soil Core Monitoring Report
☐ Class 1 ED Modification	☐ Treatability Study
☐ Class 1 Modification	☐ Trial Burn Plan/Result
☐ Endorsement	☐ Unsaturated Zone Monitoring Report
☐ Temporary Authorization	☐ Waste Minimization Report
☐ Voluntary Revocation	☐ Other:
☐ 335.6 Notification	
☐ Other:	

Part A

Texas Commission on Environmental Quality
Instructions and Procedural Information for Filing a Permit Application for a Hazardous Waste Storage, Processing, or Disposal Facility

Part A

[**Form Availability:** This form, along with other Industrial and Hazardous Waste documents, is **available online at:** https://www.tceq.texas.gov/permitting/waste_permits/ihw_permits/ihw_permit_forms.html. The number for this form is 0283. **Questions may be e-mailed to** ihwper@tceq.texas.gov.]

General Instructions

1. A person (individual, corporation or other legal entity) who stores, processes or disposes of hazardous waste (except where such storage and/or processing is excluded from permit requirements in accordance with 30 Texas Administrative Code (TAC) Section 335.2) must obtain a permit pursuant to the Texas Health and Safety Code. In applying to the Texas Commission on Environmental Quality, hereafter referred to as the Commission, the applicant shall follow the procedures outlined below, on the application and in the Rules of the Commission.

2. The application (one original plus three (3) complete copies[1]) should be mailed to:

   Texas Commission on Environmental Quality
   Attention: Waste Permits Division, MC126
   P. O. Box 13087
   Austin, Texas 78711-3087

   Note: TCEQ will publish electronic copies of the application and associated documents online. Applicants must provide copy of the administratively complete application and technically complete application. The electronic copy provided would be the current, complete version with revisions and replacements made throughout the document and without redline/strikeout text. TCEQ will also publish electronic versions of NOD responses online.

3. Signature on Application [30 TAC 305.44]. The application shall be signed by the owner and operator or by a duly authorized agent, employee, officer, or representative of the owner or operator and shall be verified before a notary public. When another person signs on behalf of the owner and operator, this person's title or relationship to the owner or

[1] The third copy may optionally consist of paper copies of all plans and maps and a computer diskette of the remaining document. The document should be formatted in Word processing software up to and including version 6.1 or a 100% compatible format. Files may be compressed using PKZIP Ver. 2 or a 100% compatible program.

operator should be shown. In all cases, the person signing the form should be authorized to do so by the owner or operator (the Commission may require a person signing on behalf of an owner or operator to provide proof of authorization). An application submitted for a corporation must be signed by (or the signatory must be authorized by) a responsible corporate officer such as a president, secretary, treasurer, vice-president, or designated manager; or for a partnership or sole proprietorship, by a general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application shall be signed by either a principal executive officer or ranking elected official.

4. An application will not be processed until all information required to properly evaluate the application has been obtained. When an application is severely lacking in detail and/or the applicant fails to submit additionally requested information in a timely manner, the application will not be considered to be "filed in accordance with the rules and regulations of the Commission."

   Please submit any application revisions with a revised date and page numbers at the bottom of the page(s).

5. Fees and Costs

   a. The fee for filing an application is discussed in Section XII of Part B, form number TCEQ-0376.

   b. The applicant for a permit is required to bear the cost of publication of notice of the application in a newspaper as prescribed by 30 TAC Section 39.405(f).

6. A person may not commence operation of a hazardous waste management facility until the Commission has issued a permit to authorize the storage, processing, or disposal of hazardous waste, except with the approval of the Commission.

7. Designation of Material as Confidential

   The designation of material as confidential is frequently carried to excess. The Commission has a responsibility to provide a copy of each application to other review agencies and to interested persons upon request and to safeguard confidential material from becoming public knowledge. Thus, the Commission requests that the applicant (1) be prudent in the designation of material as confidential and (2) submit such material only when it might be essential to the staff in their development of a recommendation.

   The Commission suggests that the applicant NOT submit confidential information as part of the permit application. However, if this cannot be avoided, the confidential information should be described in non-confidential terms throughout the application, and submitted as a document or binder, and conspicuously marked "CONFIDENTIAL."

   Reasons of confidentiality include the concept of trade secrecy and other related legal concepts which give a business the right to preserve confidentiality of business information to obtain or retain advantages from its right in the information. This includes authorizations under 18 U.S.C. 1905 and special rules cited in 40 CFR Chapter I, Part 2, Subpart B.

   Section 361.037 of the Texas Health and Safety Code does not allow an applicant for an industrial and hazardous waste permit to claim as confidential any record pertaining to the characteristics of the industrial solid waste.

   The applicant may elect to withdraw any confidential material submitted with the application. However, the permit cannot be issued, amended, or modified if the application is incomplete.

Part II

Procedural Information

After the submittal of Parts A and B of the application, the TCEQ will provide public notice of receipt of the application. The Executive Director's staff will review the application for completeness of information submitted. During the review, the applicant may be contacted for clarification or additional information. When all pertinent information is present, the application or a summary of its contents will be forwarded for review by other state agencies and local governmental entities interested in water quality control and solid waste management. After technical evaluation, opportunity for public hearing will be afforded.

Note that for facilities which had "commenced on-site storage, processing, or disposal of hazardous waste" [see 30 TAC Section 335.43(b)] on or before the date such waste is identified or listed as hazardous by EPA, the Texas Health and Safety Code provides in Section 361.082(f) that these facilities may continue to manage hazardous waste until such time as the Commission approves or denies the application, provided that the applicant has filed the permit application in accordance with the rules and regulations of the Commission.

The Commission may act upon an application for a permit, permit amendment, permit modification, or renewal of a permit without the necessity of holding a public hearing:

1. (a) When notice of the application has been mailed to persons possibly affected by the proposed permit; and

   (b) When notice has been published at least once in a newspaper regularly published or circulated within each county where the proposed facility is located; and

   (c) Within forty-five (45) days following publication of the Commission's notice, a Commissioner, the Executive Director or an affected person has not requested a public hearing; or

2. For a Class 1 or a Class 2 permit modification or a minor amendment to a permit. The Commission may, in certain cases, hold a public hearing for a Class 2 permit modification or a minor amendment.

A public hearing may be scheduled on an application for a RCRA hazardous waste permit when requested by a Commissioner, the Executive Director, or an affected person within forty-five (45) days following the newspaper publication.

Requirements of Giving Notice of the Application:

1. By the Applicant: Every applicant for a permit, permit amendment, permit modification, or permit renewal shall publish notice (see note below) of the application at least once in a newspaper regularly published or circulated within each county where the proposed facility is located. Where a public hearing has been requested, notice will be mailed to the applicant in ample time for publication, which shall be not less than thirty (30) days prior to the date set for the hearing. Except in the case of a notice of a permit modification request, the Commission will mail the appropriate notice and instructions for publication to the applicant.

   NOTE: Additional publication and direct mail notice to affected persons will result if a public hearing is requested following newspaper publication of the notice of application. The cost of providing this additionally required publication and service of notice to affected persons will be assumed by the applicant.

2. By the Texas Commission on Environmental Quality: The Commission will mail notice of

the application (except for permit modifications) to affected persons and certain governmental entities. The notice will be mailed at the same time instructions for newspaper publications are mailed to the applicant.

3. Bilingual Notice Instructions:

   For certain permit applications, public notice in an alternate language is required. If an elementary school or middle school nearest to the facility offers a bilingual program, notice may be required to be published in an alternative language. The Texas Education Code, upon which the TCEQ alternative language notice requirements are based, requires a bilingual education program for an entire school district should the requisite alternative language speaking student population exist. However, there may not be any bilingual-speaking students at a particular school within a district which is required to offer the bilingual education program. For this reason, the requirement to publish notice in an alternative language is triggered if the nearest elementary or middle school, as part of a larger school district, is required to make a bilingual education program available to qualifying students and either the school has students enrolled at such a program on-site, or has students who attend such a program at another location to satisfy the school's obligation to provide such a program.

   If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language. Electronic versions of the Spanish template examples are available from the TCEQ to help the applicant complete the publication in the alternative language.

Bilingual Notice Application Form:

Bilingual notice confirmation for this application:

1. Is the school district of the elementary or middle school nearest to the facility required by the Texas Education Code to have a bilingual program?

   ☒YES ☐ NO

   (**If NO**, alternative language notice publication not required)

2. **If YES** to question 1, are students enrolled in a bilingual education program at either the elementary school or the middle school nearest to the facility?

   ☐ YES ☒ NO

   (**If YES** to questions 1 and 2, alternative language publication is required; **If NO** to question 2, then consider the next question)

3. **If YES** to question 1, are there students enrolled at either the elementary school or the middle school nearest to the facility who attend a bilingual education program at another location?

   ☒ YES ☐ NO

   (**If Yes** to questions 1 and 3, alternative language publication is required; **If NO** to question 3, then consider the next question)

4. **If YES** to question 1, would either the elementary school or the middle school nearest to the facility be required to provide a bilingual education program but for the fact that it secured a waiver from this requirement, as available under 19 TAC 89.1205(g)?

   ☐ YES ☒ NO

(**If Yes** to questions 1 and 4, alternative language publication is required; **If NO** to question 4, alternative language notice publication not required)

If a bilingual education program(s) is provided by either the elementary school or the middle school nearest to the facility, which language(s) is required by the bilingual program? SPANISH

Consideration of the Permit Application by the Commission:

The applicant will be notified by the Commission when the application is set for final consideration. If the Commission issues the permit, the applicant will be mailed a copy of the permit by the TCEQ Office of the Chief Clerk within one (1) month following Commission approval. (NOTE: Only one copy is mailed to the applicant, and that copy will be sent to the official mailing address of the applicant as shown on the permit application form.)

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Texas Commission on Environmental Quality
Permit Application for a Hazardous Waste Storage/Processing/Disposal Facility
Part A - Facility Background Information

I. General Information

A. **Facility Name:** CLEAN HARBORS SAN LEON

(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: 34814 EPA I.D. No.: TXD981053770 .

Street Address (If Available): 2700 AVENUE S

City: SAN LEON , State: TX Zip Code: 77539-7285

County: GALVESTON

Telephone Number: (281) 339-1352 Charter Number: 0800930625

If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.

B. Facility Contact

1. List those persons or firms who will act as primary contact for the applicant during the processing of the permit application. Also indicate the capacity in which each person may represent the applicant (engineering, legal, etc.). The person listed first will be the primary recipient of correspondence regarding this application. Include the complete mailing addresses and phone numbers.

   Jennifer Kelley-
   2700 Avenue S, San Leon, TX 77539-7285
   (281) 930-2412

   David Cummings - General Manager
   2700 Avenue S, San Leon, TX 77539-7285
   (281) 339-6412

   If the application is submitted by a corporation or by a person residing out of state, the applicant must register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident. **(N/A)**

C. **Operator[1]: Identify the entity who will conduct facility operations.**

Operator Name: CLEAN HARBORS SAN LEON, INC .

Address: 2700 AVENUE S .

City: SAN LEON , State: TX Zip Code: 77539-7285

Telephone Number: 281-339-1352 Charter Number: 0800930625

[1] The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on this application [Section 361.087 Texas Health and Safety Code].

D. Owner

1. Indicate the ownership status of the facility:

   a. Private ___X___

      (1) ___X___ Corporation
      (2) _____ Partnership
      (3) _____ Proprietorship
      (4) _____ Non-profit organization

   b. Public _____

      (1) _____ Federal
      (2) _____ Military
      (3) _____ State
      (4) _____ Regional
      (5) _____ County
      (6) _____ Municipal
      (7) _____ Other (specify)

2. Does the operator own the facility units and facility property?

   ☒ Yes ☐ No

   If you checked "no",

   a. Submit as "Attachment A" a copy of the lease for use of or the option to buy said facility units and/or facility property, as appropriate; and

   b. Identify the facility units' owner(s) and/or facility property owner(s). Please note that the owner(s) is/are required to sign the application on page 5.

Owner Name: _____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

Owner Name: _____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

E. **Type of Application Submittal:**

Initial _____ or Revision ___X___

F. **Registration and Permit Information**

Indicate (by listing the permit number(s) in the right-hand column below) all existing or pending State and/or Federal permits or construction approvals which pertain to pollution control or industrial solid waste management activities conducted by your plant or at your location. Complete each blank by entering the *permit number*, or the *date of application*, or *"none"*.

Relevant Program and/or Law	Permit No.	Agency*
1. Texas Solid Waste Disposal Act	34814 .	TCEQ .
2. Wastewater disposal under the Texas Water Code	04086 .	TCEQ .
3. Underground injection under the Texas Water Code	N/A .	N/A .
4. Texas Clean Air Act	PBR# 14291 . PBR# 85676. PBR# 87443.	TCEQ . TCEQ . TCEQ .
5. Texas Uranium Surface Mining & Reclamation Act	N/A .	N/A .
6. Texas Surface Coal Mining & Reclamation Act	N/A .	N/A .
7. Hazardous Waste Management program under the Resource Conservation and Recovery Act	TXD981053770 HW-50355 .	TCEQ . TCEQ .
8. UIC program under the Safe Drinking Water Act	N/A .	N/A .
9. TPDES program under the Clean Water Act	WQ0004086000 TX01177571 .	TCEQ . EPA .
10. PSD program under the Clean Air Act	N/A .	N/A .
11. Nonattainment program under the Clean Air Act	N/A .	N/A .
12. National Emission Standards for Hazardous Pollutants (NESHAP) Pre-construction approval under the Clean Air Act	N/A .	N/A .
13. Ocean dumping permits under the Marine Protection Research and Sanctuaries Act	N/A .	N/A
14. Dredge or fill permits under section 404 of the Clean Water Act	N/A .	N/A .
15. Other relevant environmental permits	A86130 .	TCEQ .

*Use the following acronyms for each agency as shown below:

TCEQ	= Texas Commission on Environmental Quality
TRC	= Texas Railroad Commission
TDH	= Texas Department of Health
TDA	= Texas Department of Agriculture
EPA	= U.S. Environmental Protection Agency
CORPS	= U.S. Army Corps of Engineers

G. **Give a brief description of the nature of your business.**

H. **TCEQ Core Data Form**

The TCEQ requires that a Core Data Form (Form 10400) be submitted on all incoming applications. For more information regarding the Core Data Form, call (512) 239-1575 or go to the TCEQ website at http://www.tceq.texas.gov/permitting/central_registry/guidance.html.

Signature Page

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Owner Signature: _____ Date: _____

Name and Official Title (type or print): _____

To be completed by the operator if the application is signed by an authorized representative for the operator

I, David Cummings (operator) hereby designate Clean Harbors San Leon, Inc (authorized representative) as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

David Cummings
Printed or Typed Name of Operator or Principal Executive Officer

Signature

(Note: Application Must Bear Signature & Seal of Notary Public)

Subscribed and sworn to before me by the said David Cummings on this 12th day of September, 2025.

My commission expires of the 27th day of January, 2028

Charles Tauriello

Notary Public in and for Harris County, Texas

Charles Daniel Tauriello
My Commission Expires
1/27/2028
Notary ID132331494

II. Facility Background Information

A. Location of Facility for which the application is submitted

1. Give a description of the location of the facility site with respect to known or easily identifiable landmarks.

The facility is located at 2700 Avenue S, near the intersection of 27th Street and Avenue S, approximately ¾ mile east of State Highway 146 at Dickinson Bayou and approximately 2 miles southeast of Bacliff, Galveston County, Texas.

2. Detail the access routes from the nearest U.S. or State Highway to the facility.

From State Highway 146 and State Road 517 proceed east on 517 approximately ½ mile to Avenue R. Turn right (east) on Avenue R to 27th Street. Turn right (south) on 27th Street to Avenue S. Facility is on the north side of Avenue S.

3. Enter the geographical coordinates of the facility:

Latitude:	29 deg	28 min	30 sec
Longitude:	94 deg	58 min	00 sec

4. Is the facility located on Indian lands?

☐ Yes ☒ No

B. Legal Description of Facility

Submit as "Attachment B" a legal description(s) of the tract or tracts of land upon which the waste management operations referred to in this permit application occur or will occur. Although a legal description is required, a metes and bounds description is not necessary for urban sites with appropriate "lot" description(s). A survey plat or facility plan drawing which shows the specific points referenced in the survey should also be included in Attachment B.

SEE ATTACHMENT B

C. SIC Codes

List, in descending order of significance, the four digit standard industrial classification (SIC) codes which best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words. These classifications may differ from the SIC codes describing the operation generating the hazardous wastes.

4-digit SIC Code	Description
1311	CRUDE PETROLEUM AND NATURAL GAS- oil separation
4953	REFUSE SYSTEMS

SIC code numbers are descriptions which may be found in the Standard Industrial

Classification Manual prepared by the Executive Officer of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual.

Wastes and Waste Management

A. Waste Generation and Management Activities

Is any hazardous waste [see Title 40, Code of Federal Regulations (CFR), Part 261] presently or proposed to be generated or received at your facility?

☒ Yes ☐ No

If no, skip to question Number 2 below.

If yes, answer the following question.

1. Are you presently registered with TCEQ as a solid waste generator?

   ☒ Yes ☐ No ☐ Pending

   If no, contact the Industrial and Hazardous Waste Division of TCEQ in Austin, Texas to obtain registration information. Also, continue with the application form (go to Number 2 below).

   If yes, go to Section I of your TCEQ Notice of Registration, determine which of your wastes are hazardous, and list these wastes (and mixtures) in Table III-1 (see Number 2 below).

2. Complete Table III-1, Hazardous Wastes and Management Activities, below, listing all hazardous wastes, all mixtures containing any hazardous wastes, and hazardous debris which were, are presently, or are proposed to be handled at your facility in interim status or permitted units. See 40 CFR 261 and 268.2, attaching additional copies as necessary.

   Guidelines for the Classification & Coding of Industrial Wastes and Hazardous Wastes, TCEQ publication RG-22, contains guidance on how to properly classify and code industrial waste and hazardous waste in accordance with 30 TAC 335.501-335.515 (Subchapter R).

   If you are not registered with TCEQ, enter "NA" for TCEQ Waste Code Number.

   For the EPA Hazardous Waste Numbers, see 40 CFR 261.20-33. For annual quantity, provide the amount in units of pounds (as generated and/or received) for each waste and/or waste mixture.

B. Waste Management Units Summary

1. For each waste and waste mixture listed in Table III-1 that is stored, processed, and/or disposed on-site (except where such storage and/or processing is excluded from permit requirements in accordance with Texas Administrative Code (TAC) Section 335), complete Table III-2, Hazardous Waste Management Unit Checklist, and enter the name of each hazardous waste management unit (Note: Please make copies of Table III-2 if necessary).

Give the design capacity of each hazardous waste management unit in any of the units of measure shown. In the case of inactive or closed units for which design details are unavailable, an estimate of the design capacity is sufficient.

Please provide a description for each waste management unit described in your own words on the line provided for "Waste Management Unit."

2. Has the applicant at any time conducted the on-site disposal of industrial solid waste now identified or listed as hazardous waste?

   ☐ Yes ☒ No

   If yes, complete Table III-2 indicating the hazardous waste management units which were once utilized at your plant site but are no longer in service (i.e., inactive or closed facility units).

   If no, and if no hazardous waste is presently or proposed to be stored [for longer than 90 days (see 30 TAC Section 335.53)], processed, or disposed of at your facility, then you need not file this permit application. Otherwise proceed with the application form.

3. Provide an estimate of the total weight (lbs) of hazardous waste material that has been disposed of and/or stored within your site boundaries and not removed to another site.

   NOT APPLICABLE

C. **Location of Waste Management Units**

1. Submit as "Attachment C" a drawn-to-scale topographic map (or other map if a topographic map is unavailable) extending one mile beyond the facility boundaries, depicting the following:

   a. The approximate boundaries of the facility (described in Section II.B) and within these boundaries, the location and boundaries of the areas occupied by each active, inactive, and proposed hazardous waste management unit (see Table III-2). Each depicted area should be labeled to identify the unit(s), unit status (i.e., active, inactive, or proposed), and areal size in acres.

   b. The overall facility and all surface intake and discharge structures; **See Drawings listed in Section III.C.1.a**

   c. All on-site injection wells where liquids are injected underground; **NOT APPLICABLE**

   d. All known monitor wells and boreholes within the property boundaries of the facility; and **NOT APPLICABLE**

   e. All wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within the map area and the purpose for which each water well is used (e.g., domestic, livestock, agricultural, industrial, etc.). **NOT APPLICABLE**

2. Submit as "Attachment D" photographs which clearly delineate all hazardous waste management storage, processing, and disposal units, as well as sites of future storage, processing and disposal units.

D. **Flow Diagram/Description**

Show as "Attachment E" process flow diagrams and step-by-step word descriptions of the process flow, depicting the handling, collection, storage, processing, and/or disposal of each of the hazardous wastes previously listed in this application.

The flow diagrams or descriptions should include the following information:

1. Originating point of each waste and waste classification code;

2. Means of conveyance utilized in every step of the process flow;

3. Name and function of each facility component through which the waste passes;

4. The ultimate disposition of all wastes (if off-site, specify "off-site") and waste residues.

SECTION D IS NOT APPLICABLE

III. Index Of Attachments

List and index below all attachments to this application and indicate if included or not included:

Item	Attachments	Attachment	Included	Not Included
I.D.2.a	Lease/Option to buy	A		X
II.B	Site legal description	B	X	
III.C.1	Facility boundaries and adjacent waters map	C	X	
III.C.2	Photographs	D	X	
III.D	Process flow diagram/description	E		X

Table III-1 – Hazardous Wastes and Management Activities

Verbal Description of Waste	TCEQ Waste Form Code and Classif-ication Code	EPA Hazardous Waste Number	Storage[1] of Wastes Rec'd Off-Site	Processing[2] of Wastes Rec'd Off-Site	Disposal of Wastes Rec'd Off-Site	Storage[1] of Wastes Generate On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generate On-Site	Annual Quantity Generated and/or Rec'd
Inorganic Solids from thermal desorption units	304H	D004 D005 D006 D007 D008 D009 D010 D011 F001 F002 F003 F004 F005 F037 F038 K001 K022 K023 K024 K025 K035 K048 K049 K050 K051 K052 K083 K085 K086 K087 K093 K094 K095 K096 K169 K170 K171 K172 U002 U003 U004 U012 U018 U019 U022 U028 U031 U037 U043 U044 U045 U050 U051 U052 U055 U056 U057 U063 U069 U070 U071 U072 U075 U076 U077 U078 U079 U080 U088 U101 U102 U107 U108 U112 U117 U118 U120 U121 U124 U125 U131 U137 U140 U154 U159 U161 U162 U165 U169 U171 U180 U184 U188 U190 U196 U208 U209 U210 U211 U213 U220 U226 U227 U228 U239 U259	X	X		X	X		13,000,000 POUNDS
Waste Oil for HWDF	206H	D001 D018 D023 D024 D025 D026 D035 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K086 K169 K170 K171 K172 U019 U051 U052 U165 U188 U220 U239	X	X					100,000 POUNDS
Oily Sludge for HWDF	603H	D001 D018 D023 D024 D025 D035 D039 F003 D037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172 U019 U220 U239	X	X		X	X		4,000,000 POUNDS
Hazardous Debris	489H	D001 D002 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017 D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032 D033 D034 D035 D036 D037 D038 D039 D040 D041 D042 D043 F001 F002 F003 F004 F005 F006 F007 F008 F009 F010 F011 F012 F019 F024 F025 F032 F034 F035 F037 F038 K001 K002 K003 K004 K005 K006 K007 K008 K009 K010 K011 K013 K014 K015 K016 K017 K018 K019 K020 K021 K022 K023 K024 K025 K026 K027 K028 K029 K030 K031 K032 K033 K034 K035 K036 K037 K038 K039 K040 K041 K042 K043 K048 K049 K050 K051 K052 K060 K061 K062 K069 K071 K073 K083 K084 K085 K086 K087 K088 K093 K094 K095 K096 K097 K098 K099 K100 K101 K102 K103 K104 K105 K106 K107 K108 K109 K110 K111 K112 K113 K114 K115 K116 K117 K118 K123 K124 K125 K126 K131 K132 K136 K141 K142 K143 K144	X	X		X	X		2,000,000 POUNDS

[1] "Storage" means the holding of solid waste for a temporary period, at the end of which the waste is processed, disposed of, or stored elsewhere.

[2] "Processing" means the extraction of materials, transfer, volume reduction, conversion to energy, or other separation and preparation of solid waste for reuse or disposal, including the treatment or neutralization of hazardous waste, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material from the waste or so as to render such waste non-hazardous or less hazardous; safer for transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. The "transfer" of solid waste for reuse or disposal as used above, does not include the actions of a transporter in conveying or transporting solid waste by truck, ship, pipeline, or other means. Unless the Executive Director determines that regulation of such activity is necessary to protect human health or the environment, the definition of "processing" does not include activities relating to those materials exempted by the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., as amended.

Verbal Description of Waste	TCEQ Waste Form Code and Classif-ication Code	EPA Hazardous Waste Number	Storage[1] of Wastes Rec'd Off-Site	Processing[2] of Wastes Rec'd Off-Site	Disposal of Wastes Rec'd Off-Site	Storage[1] of Wastes Generate On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generate On-Site	Annual Quantity Generated and/or Rec'd
		K145 K147 K148 K149 K150 K151 K156 K157 K158 K159 K161 K169 K170 K171 K172 K175 K176 K177 K178 P001 P002 P003 P004 P005 P006 P007 P008 P010 P011 P012 P013 P014 P015 P016 P017 P018 P020 P021 P022 P023 P024 P026 P027 P028 P029 P030 P031 P033 P034 P036 P037 P038 P039 P040 P041 P042 P043 P044 P045 P046 P047 P048 P049 P050 P051 P054 P056 P057 P058 P059 P060 P062 P063 P064 P065 P066 P067 P068 P069 P070 P071 P072 P073 P074 P075 P076 P077 P078 P081 P082 P084 P085 P087 P088 P089 P092 P093 P094 P095 P096 P097 P098 P099 P101 P102 P103 P104 P105 P106 P108 P109 P110 P111 P112 P113 P114 P115 P116 P118 P119 P120 P121 P122 P123 P127 P128 P185 P188 P189 P190 P191 P192 P194 P196 P197 P198 P199 P201 P202 P203 P204 P205 U001 U002 U003 U004 U005 U006 U007 U008 U009 U010 U011 U012 U014 U015 U016 U017 U018 U019 U020 U021 U022 U023 U024 U025 U026 U027 U028 U029 U030 U031 U032 U033 U034 U035 U036 U037 U038 U039 U041 U042 U043 U044 U045 U046 U047 U048 U049 U050 U051 U052 U053 U055 U056 U057 U058 U059 U060 U061 U062 U063 U064 U066 U067 U068 U069 U070 U071 U072 U073 U074 U075 U076 U077 U078 U079 U080 U081 U082 U083 U084 U085 U086 U087 U088 U089 U090 U091 U092 U093 U094 U095 U096 U097 U098 U099 U101 U102 U103 U105 U106 U107 U108 U109 U110 U111 U112 U113 U114 U115 U116 U117 U118 U119 U120 U121 U122 U123 U124 U125 U126 U127 U128 U129 U130 U131 U132 U133 U134 U135 U136 U137 U138 U140 U141 U142 U143 U144 U145 U146 U147 U148 U149 U150 U151 U152 U153 U154 U155 U156 U157 U158 U159 U160 U161 U162 U163 U164 U165 U166 U167 U168 U169 U170 U171 U172 U173 U174 U176 U177 U178 U179 U180 U181 U182 U183 U184 U185 U186 U187 U188 U189 U190 U191 U192 U193 U194 U196 U197 U200 U201 U202 U203 U204 U205 U206 U207 U208 U209 U210 U211 U213 U214 U215 U216 U217 U218 U219 U220 U221 U222 U233 U225 U226 U227 U228 U234 U235 U236 U237 U238 U239 U240 U243 U244 U246 U247 U248 U249 U271 U278 U279 U280 U328 U353 U359 U364 U367 U372 U373 U387 U389 U394 U395 U404 U409 U410							
Lab Waste Mixed	003H	D001 D004 D005 D006 D007 D008 D009 D010 D011 D026 D028 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172				X	X		15,000 POUNDS
Lab Spent Solvent	204H	D001 F002 F003 F005				X	X		1,000 POUNDS
Lab Spent Acid	105H	D002 D004 D005 D006 D007 D008 D009 D010 D011				X	X		3,000 POUNDS
Lab Spent Caustic	110H	D001 D002 D007 D008 D009 D010 D011 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172				X	X		2,000 POUNDS
Lab Chemicals, Waste	001H	D001 D002 D004 D005 D006 D007 D018 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172				X	X		2,000 POUNDS
Lab Waste Debris	002H	D001 D018 D035 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172				X	X		2,000 POUNDS

Verbal Description of Waste	TCEQ Waste Form Code and Classif-ication Code	EPA Hazardous Waste Number	Storage[1] of Wastes Rec'd Off-Site	Processing[2] of Wastes Rec'd Off-Site	Disposal of Wastes Rec'd Off-Site	Storage[1] of Wastes Generate On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generate On-Site	Annual Quantity Generated and/or Rec'd
Oil Emulsions	205H	D001 D005 D018 D021 D028 D039 D040 D043 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172 U019 U220	X	X		X	X		150,000 POUNDS
Organic Liquid Tetra-Regen	219H	D001 D018	X	X					1,000,000 POUNDS
Organic Liquid Amine Oil	219H	D001	X	X					1,000,000 POUNDS
Soil/Shell Contaminated with Organics	301H	D001 D002 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017 D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032 D033 D034 D035 D036 D037 D038 D039 D040 D041 D042 D043 F001 F002 F003 F004 F005 F006 F007 F008 F009 F010 F011 F012 F019 F024 F025 F032 F034 F035 F037 F038 K001 K002 K003 K004 K005 K006 K007 K008 K009 K010 K011 K013 K014 K015 K016 K017 K018 K019 K020 K021 K022 K023 K024 K025 K026 K027 K028 K029 K030 K031 K032 K033 K034 K035 K036 K037 K038 K039 K040 K041 K042 K043 K048 K049 K050 K051 K052 K060 K061 K062 K069 K071 K073 K083 K084 K085 K086 K087 K088 K093 K094 K095 K096 K097 K098 K099 K100 K101 K102 K103 K104 K105 K106 K107 K108 K109 K110 K111 K112 K113 K114 K115 K116 K117 K118 K123 K124 K125 K126 K131 K132 K136 K141 K142 K143 K144 K145 K147 K148 K149 K150 K151 K156 K157 K158 K159 K161 K169 K170 K171 K172 K175 K176 K177 K178 P001 P002 P003 P004 P005 P006 P007 P008 P010 P011 P012 P013 P014 P015 P016 P017 P018 P020 P021 P022 P023 P024 P026 P027 P028 P029 P030 P031 P033 P034 P036 P037 P038 P039 P040 P041 P042 P043 P044 P045 P046 P047 P048 P049 P050 P051 P054 P056 P057 P058 P059 P060 P062 P063 P064 P065 P066 P067 P068 P069 P070 P071 P072 P073 P074 P075 P076 P077 P078 P081 P082 P084 P085 P087 P088 P089 P092 P093 P094 P095 P096 P097 P098 P099 P101 P102 P103 P104 P105 P106 P108 P109 P110 P111 P112 P113 P114 P115 P116 P118 P119 P120 P121 P122 P123 P127 P128 P185 P188 P189 P190 P191 P192 P194 P196 P197 P198 P199 P201 P202 P203 P204 P205 U001 U002 U003 U004 U005 U006 U007 U008 U009 U010 U011 U012 U014 U015 U016 U017 U018 U019 U020 U021 U022 U023 U024 U025 U026 U027 U028 U029 U030 U031 U032 U033 U034 U035 U036 U037 U038 U039 U041 U042 U043 U044 U045 U046 U047 U048 U049 U050 U051 U052 U053 U055 U056 U057 U058 U059 U060 U061 U062 U063 U064 U066 U067 U068 U069 U070 U071 U072 U073 U074 U075 U076 U077 U078 U079 U080 U081 U082 U083 U084 U085 U086 U087 U088 U089 U090 U091 U092 U093 U094 U095 U096 U097 U098 U099 U101 U102 U103 U105 U106 U107 U108 U109 U110 U111 U112 U113 U114 U115 U116 U117 U118 U119 U120 U121 U122 U123 U124 U125 U126 U127 U128 U129 U130 U131 U132 U133 U134 U135 U136 U137 U138 U140 U141 U142 U143 U144 U145 U146 U147 U148 U149 U150 U151 U152 U153 U154 U155 U156 U157 U158 U159 U160 U161 U162 U163 U164 U165 U166 U167 U168 U169 U170 U171 U172 U173 U174 U176 U177 U178 U179 U180 U181 U182 U183 U184 U185 U186 U187 U188	X	X					600,000 POUNDS

Verbal Description of Waste	TCEQ Waste Form Code and Classif-ication Code	EPA Hazardous Waste Number	Storage[1] of Wastes Rec'd Off-Site	Processing[2] of Wastes Rec'd Off-Site	Disposal of Wastes Rec'd Off-Site	Storage[1] of Wastes Generate On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generate On-Site	Annual Quantity Generated and/or Rec'd
		U189 U190 U191 U192 U193 U194 U196 U197 U200 U201 U202 U203 U204 U205 U206 U207 U208 U209 U210 U211 U213 U214 U215 U216 U217 U218 U219 U220 U221 U222 U233 U225 U226 U227 U228 U234 U235 U236 U237 U238 U239 U240 U243 U244 U246 U247 U248 U249 U271 U278 U279 U280 U328 U353 U359 U364 U367 U372 U373 U387 U389 U394 U395 U404 U409 U410 U411							
Non-halogenated Solvent	203H	D018 F003 F004 F005	X	X					100,000 POUNDS
Oily Solids	489H	D001 D002 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017 D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032 D033 D034 D035 D036 D037 D038 D039 D040 D041 D042 D043 F001 F002 F003 F004 F005 F006 F007 F008 F009 F010 F011 F012 F019 F024 F025 F032 F034 F035 F037 F038 K001 K002 K003 K004 K005 K006 K007 K008 K009 K010 K011 K013 K014 K015 K016 K017 K018 K019 K020 K021 K022 K023 K024 K025 K026 K027 K028 K029 K030 K031 K032 K033 K034 K035 K036 K037 K038 K039 K040 K041 K042 K043 K048 K049 K050 K051 K052 K060 K061 K062 K069 K071 K073 K083 K084 K085 K086 K087 K088 K093 K094 K095 K096 K097 K098 K099 K100 K101 K102 K103 K104 K105 K106 K107 K108 K109 K110 K111 K112 K113 K114 K115 K116 K117 K118 K123 K124 K125 K126 K131 K132 K136 K141 K142 K143 K144 K145 K147 K148 K149 K150 K151 K156 K157 K158 K159 K161 K169 K170 K171 K172 K175 K176 K177 K178 P001 P002 P003 P004 P005 P006 P007 P008 P010 P011 P012 P013 P014 P015 P016 P017 P018 P020 P021 P022 P023 P024 P026 P027 P028 P029 P030 P031 P033 P034 P036 P037 P038 P039 P040 P041 P042 P043 P044 P045 P046 P047 P048 P049 P050 P051 P054 P056 P057 P058 P059 P060 P062 P063 P064 P065 P066 P067 P068 P069 P070 P071 P072 P073 P074 P075 P076 P077 P078 P081 P082 P084 P085 P087 P088 P089 P092 P093 P094 P095 P096 P097 P098 P099 P101 P102 P103 P104 P105 P106 P108 P109 P110 P111 P112 P113 P114 P115 P116 P118 P119 P120 P121 P122 P123 P127 P128 P185 P188 P189 P190 P191 P192 P194 P196 P197 P198 P199 P201 P202 P203 P204 P205 U001 U002 U003 U004 U005 U006 U007 U008 U009 U010 U011 U012 U014 U015 U016 U017 U018 U019 U020 U021 U022 U023 U024 U025 U026 U027 U028 U029 U030 U031 U032 U033 U034 U035 U036 U037 U038 U039 U041 U042 U043 U044 U045 U046 U047 U048 U049 U050 U051 U052 U053 U055 U056 U057 U058 U059 U060 U061 U062 U063 U064 U066 U067 U068 U069 U070 U071 U072 U073 U074 U075 U076 U077 U078 U079 U080 U081 U082 U083 U084 U085 U086 U087 U088 U089 U090 U091 U092 U093 U094 U095 U096 U097 U098 U099 U101 U102 U103 U105 U106 U107 U108 U109 U110 U111 U112 U113 U114 U115 U116 U117 U118 U119 U120 U121 U122 U123 U124 U125 U126 U127 U128 U129 U130 U131 U132 U133 U134 U135 U136 U137 U138 U140 U141 U142 U143 U144 U145 U146 U147 U148 U149 U150 U151 U152 U153 U154 U155 U156 U157 U158 U159 U160 U161 U162 U163 U164 U165 U166 U167 U168 U169 U170 U171 U172 U173 U174 U176	X	X		X	X		1,000,000 POUNDS

Verbal Description of Waste	TCEQ Waste Form Code and Classif-ication Code	EPA Hazardous Waste Number	Storage[1] of Wastes Rec'd Off-Site	Processing[2] of Wastes Rec'd Off-Site	Disposal of Wastes Rec'd Off-Site	Storage[1] of Wastes Generate On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generate On-Site	Annual Quantity Generated and/or Rec'd
		U177 U178 U179 U180 U181 U182 U183 U184 U185 U186 U187 U188 U189 U190 U191 U192 U193 U194 U196 U197 U200 U201 U202 U203 U204 U205 U206 U207 U208 U209 U210 U211 U213 U214 U215 U216 U217 U218 U219 U220 U221 U222 U233 U225 U226 U227 U228 U234 U235 U236 U237 U238 U239 U240 U243 U244 U246 U247 U248 U249 U271 U278 U279 U280 U328 U353 U359 U364 U367 U372 U373 U387 U389 U394 U395 U404 U409 U410 U411							
Oil/Water Emulsions	205H	D001 D018 D023 D024 D025 D026 D035 D039 F003 F037 F038 K048 K049 K050 K051 K052 K169 K170 U019 U222 U239	X	X					100,000 POUNDS
Spent Catalyst	393H 493H 597H 697H	D001 D004 D007 D008 D018 K171 K172	X	X		X	X		1,000,000 POUNDS
Non-halogenated Solvent	203H	D018 F003 F004 F005	X	X					100,000 POUNDS
Concentrated aqueous solution of other organics	207H	D001 D004 D005 D006 D007 D008 D009 D010 D011 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D032 D033 D034 D035 D036 D038 D039 D040 D043 F003 F037 F038 K048 K049 K050 K051 K052 K169 K170 U019 U222 U239	X	X					100,000 POUNDS
Dry lime or metal hydroxide solids "fixed"	305H	F001 F002 F003 F004 F005 F037 F038 K001 K022 K023 K024 K025 K035 K048 K049 K050 K051 K052 K083 K085 K086 K087 K093 K094 K095 K096 K169 K170 K171 K172 U002 U003 U004 U012 U018 U019 U022 U028 U031 U037 U043 U044,U045 U050 U051 U052 U055 U056 U057 U063 U069 U070 U071 U072 U075 U076 U077 U078 U079 U080 U088 U101 U102 U107 U108 U112 U117 U118 U120 U121 U124 U125 U131 U137 U140 U154 U159 U161 U162 U165 U169 U171 U180 U184 U188 U190 U196 U208 U209 U210 U211 U213 U220 U226 U227 U228 U239 U359	X	X					50,000 POUNDS
Metal scale, filings, scrap, or salts/ chemicals	307H 316H	F001 F002 F003 F004 F005 F037 F038 K001 K022 K023 K024 K025 K035 K048 K049 K050 K051 K052 K083 K085 K086 K087 K093 K094 K095 K096 K169 K170 K171 K172 U002 U003 U004 U012 U018 U019 U022 U028 U031 U037 U043 U044,U045 U050 U051 U052 U055 U056 U057 U063 U069 U070 U071 U072 U075 U076 U077 U078 U079 U080 U088 U101 U102 U107 U108 U112 U117 U118 U120 U121 U124 U125 U131 U137 U140 U154 U159 U161 U162 U165 U169 U171 U180 U184 U188 U190 U196 U208 U209 U210 U211 U213 U220 U226 U227 U228 U239 U359	X	X					100,000 POUNDS
Inorganic Liquid	119H	D001 F003 F037 F038 K048 K049 K050 K051 K052 K169 K170 U019 U222 U239	X	X					500,000 POUNDS
Inorganic Sludge	519H	D001 F003 F037 F038 K048 K049 K050 K051 K052 K169 K170 U019 U222 U239	X	X					570,000 POUNDS
Inorganic Solid	319H	D001 F003 F037 F038 K048 K049 K050 K051 K052 K169 K170 U019 U222 U239	X	X		X	X		1,000,000 POUNDS
Solids resins/ polymerized organics	403H	D001 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D032 D033 D034 D035 D036 D038 D039 D040 D043 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172	X	X					50,000 POUNDS
Spent Carbon	404H	D001 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030	X	X		X	X		20,000

Verbal Description of Waste	TCEQ Waste Form Code and Classif-ication Code	EPA Hazardous Waste Number	Storage[1] of Wastes Rec'd Off-Site	Processing[2] of Wastes Rec'd Off-Site	Disposal of Wastes Rec'd Off-Site	Storage[1] of Wastes Generate On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generate On-Site	Annual Quantity Generated and/or Rec'd
		D032 D033 D034 D035 D036 D038 D039 D040 D043 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172							POUNDS
Non-halogenated organic solids	409H	D001 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D032 D033 D034 D035 D036 D038 D039 D040 D043 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172	X	X		X	X		900,000 POUNDS
Dewatered biological treatment sludge	491H	D001 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D032 D033 D034 D035 D036 D038 D039 D040 D043 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170	X	X					600,000 POUNDS
Organic sediment/ Lagoon Dragouts	512H	D001 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D032 D033 D034 D035 D036 D038 D039 D040 D043 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170	X	X					200,000 POUNDS
Inorganic sediment / Lagoon Dragouts	513H	D001 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170,	X	X					200,000 POUNDS
Still Bottoms or Other Organic Sludges	602H 609H	D001 D004 D005 D006 D007 D008 D009 D010 D011 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D032 D033 D034 D035 D036 D038 D039 D040 D043 F001 F002 F003 F004 F005 F037 F038 K001 K022 K023 K024 K025 K035 K048 K049 K050 K051 K052 K083 K085 K086 K087 K093 K094 K095 K096 K169 K170 K171 K172 U002 U003 U004 U012 U018 U019 U022 U028 U031 U037 U043 U044,U045 U050 U051 U052 U055 U056 U057 U063 U069 U070 U071 U072 U075 U076 U077 U078 U079 U080 U088 U101 U102 U107 U108 U112 U117 U118 U120 U121 U124 U125 U131 U137 U140 U154 U159 U161 U162 U165 U169 U171 U180 U184 U188 U190 U196 U208 U209 U210 U211 U213 U220 U226 U227 U228 U239 U359	X	X					500,000 POUNDS
Petroleum Contaminated Sludges	695H	D001 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D032 D033 D034 D035 D036 D038 D039 D040 D043 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170	X	X					200,000 POUNDS
Resins, Tars, or Tarry Sludge	606H	D001 D018 D019 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D032 D033 D034 D035 D036 D038 D039 D040 D043 F001 F002 F003 F004 F005 F037 F038 K048 K049 K050 K051 K052 K169 K170	X	X					800,000 POUNDS
Wastewater Treatment Sludge	503H 504H	D001 F001 F002 F003 F004 F005 F037 F038 K035 K052	X	X					400,000 POUNDS
Wastewater	114H	D001 D018 D021 D028 D039 D040 D043 F037 F038 K048 K049 K050 K051 K052 K169 K170 K171 K172 U019 U220				X	X		9,000,000 POUNDS
Non-hazardous sandblasting	3891	NONE	X	X					50,000 POUNDS
Centrifuge cake	4891	NONE				X	X		
Desorber Solids	3041	NONE				X	X		
Catalyst Supports	3191	NONE				X	X		
Centrifuge water	1141	NONE				X	X		
Empty Containers	4061	NONE				X	X		

Verbal Description of Waste	TCEQ Waste Form Code and Classif-ication Code	EPA Hazardous Waste Number	Storage[1] of Wastes Rec'd Off-Site	Processing[2] of Wastes Rec'd Off-Site	Disposal of Wastes Rec'd Off-Site	Storage[1] of Wastes Generate On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generate On-Site	Annual Quantity Generated and/or Rec'd
Delisted Desorber solids	3041 3042	NONE				X	X		
Electronic waste	3191	NONE				X	X		
Non-haz debris	3902	NONE				X	X		
Plant trash	9992	NONE				X	X		

Table III-2 – Hazardous Waste Management Unit Checklist

Waste Management Unit	TCEQ N.O.R. Unit #	Status[1]	Design Capacity[2]	Number of Years Utilized	Date in Service
CSA-2	044	Active	40,500 cubic feet	31	04/1994
CSA-8	072	Active	10,800 cubic feet	13	11/2012
CSA-9	073	Active	3,375 cubic feet	13	11/2012
CSA-10	074	Active	20,793 cubic feet	12	08/2013
CSA-12	069	Active	48,600 cubic feet	12	08/2013
CSA-13	075	Active	53,325 cubic feet	12	08/2013
CSA-14	076	Active	8,700 cubic feet	12	08/2013
ST-5	004	Active	23,100 gallons	41	03/1984
ST-6	005	Active	18,900 gallons	41	03/1984
ST-207	090	Active	21,940 gallons	8	10/2017
ST-208	091	Active	17,550 gallons	8	10/2017
ST-209	092	Active	12,600 gallons	6	04/2019
PV-12	012	Active	9,786 gallons	31	04/1994
PV-13	013	Active	9,786 gallons	31	04/1994
PV-14	014	Active	9,786 gallons	31	04/1994
PV-15	015	Active	9,786 gallons	31	04/1994
PV-16	016	Active	9,786 gallons	31	04/1994
ST-17	011	Active	63,000 gallons	31	04/1994
PV-18	019	Active	25,200 gallons	16	04/2009
PV-19	020	Active	25,200 gallons	16	04/2009
PV-20	021	Active	25,200 gallons	16	04/2009
PV-21	022	Active	25,200 gallons	16	04/2009
FPV-30	023	Active	30,870 gallons	16	04/2009
FPV-31	024	Active	30,870 gallons	16	04/2009
FPV-32	025	Active	30,870 gallons	16	04/2009
FPV-33	026	Active	30,870 gallons	16	04/2009
FPV-34	031	Active	30,870 gallons	16	04/2009
FPV-35	032	Active	30,870 gallons	16	04/2009
FPV-36	033	Active	30,870 gallons	16	04/2009
FPV-37	034	Active	30,870 gallons	16	04/2009
Centrifuge 1	052	Active	84 gallons/minute	29	01/1996
Centrifuge 2	053	Active	84 gallons/minute	21	11/2004
Centrifuge 3	054	Active	84 gallons/minute	16	02/2009

Waste Management Unit	TCEQ N.O.R. Unit #	Status[1]	Design Capacity[2]	Number of Years Utilized	Date in Service
Centrifuge 4	055	Proposed	84 gallons/minute	N/A	N/A
Heater 1	056	Active	2.6 MM BTU/hour	23	03/2002
Heater 3	057	Active	2.6 MM BTU/hour	16	02/2009
Heater 4	058	Proposed	2.6 MM BTU/hour	N/A	N/A
Thermal Desorber 1	059	Active	140 tons/day	31	04/1994
Thermal Desorber 2	051	Active	140 tons/day	23	03/2002
ST-211	077	Active	12,600 gallons	11	04/2014
Dissolved Air Flotation	078	Proposed	50 gallons/minute	N/A	N/A
Filter Press	067	Proposed	50 gallons/minute	N/A	N/A
Waste Pre-treatment Container	079	Proposed	210 tons/day	N/A	N/A
T-0256	080	Active	1,147 gallons	29	01/1996
T-200	081	Active	5,499 gallons	29	01/1996
T-64A	082	Proposed	12,928 gallons	N/A	N/A
T-64B	083	Proposed	26,790 gallons	N/A	N/A
T-64C	084	Proposed	23,629 gallons	N/A	N/A
T-64D	085	Proposed	3,501 gallons	N/A	N/A
Wash/Decon Station	086	Proposed	5 gallons/minute	N/A	N/A

[1] Indicate only one of the following: Active, Inactive, Closed, or Proposed
[2] Cubic yards, gallons, pounds, gallons/minute, pounds/hour, BTUs/hour, etc.

Part A
Attachment A
Lease/Option to Buy
Not Applicable

EXHIBIT A

LEGAL DESCRIPTION

TRACT I:

METES AND BOUNDS DESCRIPTION SUBJECT TRACT 1 24.7267 ACRE (1,077,095 SQUARE FEET) ALL OF THE CALLED LOTS 3, 3A, 4, AND 4A A CALLED 4.749 ACRE TRACT OUT OF LOTS 1, 1A, 2, 2A, BLOCK 83 AND A CALLED 150' X 150' TRACT SAN LEON FARM HOME TRACTS AMOS EDWARDS LEAGUE, ABSTRACT 10, GALVESTON COUNTY, TEXAS.

Being 24.7267 acres (1,077,095 square feet) of land, a called 4.749 acres tract out of Lots 1, 1A, 2, 2A, and all of the called Lots 3, 3A, 4 and 4A, and a called 150 by 150 feet tract, out of Block 83 of San Leon Farm Home Tracts, a Subdivision in Galveston County, Texas, described in the map or plat thereof recorded in Volume 238, Page 25 of the Map Records of Galveston County, Texas (MR GCT). Said called 4.749 acres conveyed to Duratherm, Inc., by deed recorded under County Clerk's File Number (CCF) 2006047216 Official Public Records of Real Property of Galveston County, Texas (OPRRP GCT). Said Lots 3, 4 and 4A conveyed to Bird Environmental Gulf Coast, Inc , by deed recorded under CCF 9129652 OPRRP GCT. Said Lot 3a, conveyed to Gemini Interets, Inc., by deeds recorded under CCF 9319081 OPRRP GCT. Said 150 by 150 feet tract conveyed to Bird Environmental Gulf Coast, Inc , by deed recorded under CCF 9217711 OPRRP GCT. Said 24.7267 acres tract laying in the Amos

Edwards League, Abstract 10, Galveston County, Texas, and more particularly described by metes and bounds as follows:

BEGINNING at a found 1/2 inch iron rod with cap, in the East right of way line of 28th Street, 60' ROW, marking the Northwest corner of said 4.749 acres, the West corner of a called remainder of a called 19.9874 acres, conveyed to Max Bowen by deeds recorded under CCF 2003026912 OPRRP GCT and the herein described tracts;

THENCE South 79°43'00" East, a distance of 691.34 feet, to a set 5/8 inch iron rod with cap f an internal corner of said 4.749 acres and the herein described tract;

THENCE North 10°17'00" East, a distance of 40.42 feet, to a set 5/8 inch iron rod for a corner

THENCE South 79°43'00" East, a distance of 690.67 feet, to a found 1/2 inch iron rod with ca in the West right of way line of 27th Street, 60' ROW, marking the Northeast corner of said 4.749 acres and the herein described tracts;

THENCE South 10°21'08" West, along said West ROW, a distance of 799.86 feet, to a set 5/8 inch iron rod in the intersection with the North ROW of Avenue S, 60' ROW, marking the Southeast corner of the herein described tract;

THENCE North 79°43'00" West, along said North ROW, pass a distance of 1,035.34 feet to a found 1/2 inch iron pipe for a total distance of 1381.05 feet to a point in the intersection with said East ROW, where an iron rod could not be set because of a water canal, for the Southwest corner of the herein described tract;

THENCE North 10°17'00" East, along said East ROW, a distance of 759.45 feet, to the PONT OF BEGINNING and containing a computed 24.7267 acres (1,077,095 square feet) of land, more or less.

TRACT II:

METES AND BOUNDS DESCRIPTION SUBJECT TRACT 2 0.9210 ACRE (40,120 SQUARE FEET) PART OF TRACTS 1A & 2, BLOCK 87 SAN LEON FARM HOME TRACTS AMOS EDWARDS LEAGUE, ABSTRACT NO. 10, GALVESTON COUNTY, TEXAS.

Being 0.9210 acre (40,120 square feet) of land, out of a called part of Lots 1A and 2, Block 87 of San Leon Farm Home Tracts, a Subdivision in Galveston County, Texas, described in the map or plat thereof recorded in Volume 238, Page 25 of the Map Records of Galveston County, Texas (MR GCT). Said 0.9210 acres tract conveyed to Bird Environmental Gulf Coast, Inc., by deed recorded under CCF 9129652 OPRRP GCT and laying in the Amos Edwards League, Abstract No. 10, Galveston County, Texas, and more particularly described by metes and bounds as follows:

COMMENCING at a found 1/2 inch iron rod with cap in the South right-of-way (ROW) of Avenue S, 60' ROW, marking the North corner of a called 0.82 acres, conveyed to Larry Burks and Peggy Burks Family Limited Partnership by deeds recorded under CCF 2004007781 OPRRP GCT;

THENCE South 79°51'05" East, along the said South ROW and the North line of said 0.82 acres and a called 2.56 acres, conveyed to said Larry Burks and Peggy Burks Family Limited Partnership by deeds recorded under CCF 2003002577 OPRRP GCT, a distance of 280.26 feet to a point for corner, from which a found 3/8 inch iron rod bears North 15°50'54" East, a distance of 0.66 feet, marking the North corner of said part of Lots 1A and 2, also being the

POINT OF BEGINNING;

THENCE South 79°51'05" East, along said South ROW, a distance of 210.00 feet to a found 3/8 inch iron rod, marking the Northwest corner of a called remainder of a called 7.3904 acres, conveyed to Roy B. Robinson by deeds recorded under CCF 9404776 OPRRP GCT, also being the Northeast corner of the herein described tract;

THENCE South 14°08'55" West (called South 14°17' West), pass a distance of 126.74 feet to a set 5/8 inch iron rod, set for reference, and continuing for a distance of 199.80 feet (called 137.6 feet) to a point in North line of Dickinson Bay, also being the original South line of said 7.3904 acres, also being the Southeast corner of the herein described tract;

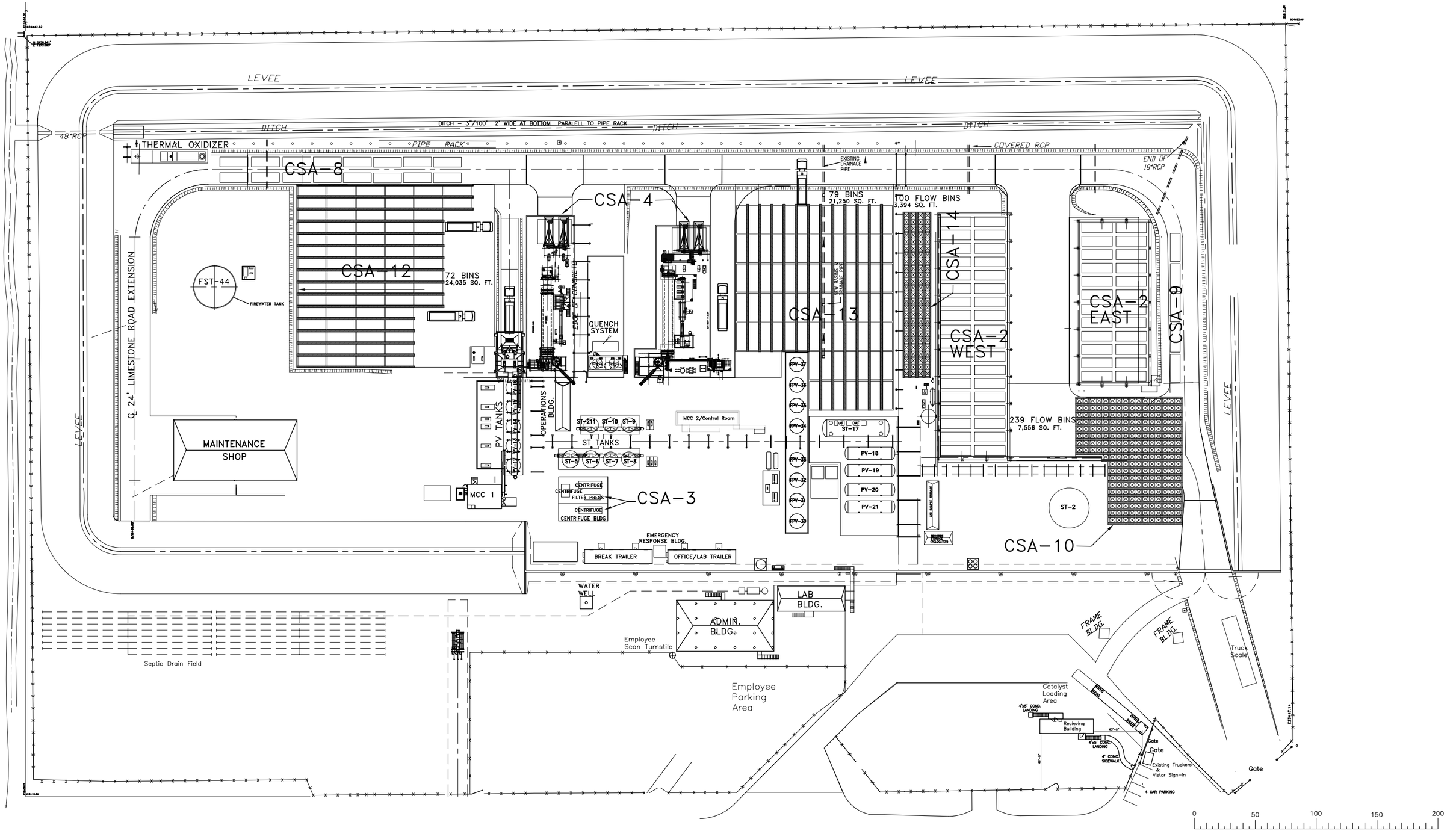
THENCE North 77°40'08" West, along the said Dickinson Bay, a distance of 139.47 feet to an angle point in said original South line of said 7.3904 acres, also being angle point in the South line of the herein described tract;

THENCE South 81°06'06" West, along the said Dickinson Bay, a distance of 57.70 feet to a point for corner in the Southeast line of said 2.56 acres, also being the Southwest corner of the herein described tract;

THENCE North 09°34'07" East (called North 14°51'37" East), pass a distance of 85.33 feet to a set 5/8 inch iron rod, set for reference, and continuing for a total distance of 212.84 feet (called 180.6 feet) to the POINT OF BEGINNING and containing a computed 0.9210 acre (40,120 square feet) of land, more or less.

Part A
Attachment B
Site Legal Description

Part A
Attachment C
Facility Boundaries and Adjacent Waters Map



REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	3	2/17/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	SC
	0	9/8/93	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	RT	9/8/93
CHECKED	SID	9/8/93
APPROVED	BH	9/8/93

CleanHarbors®
SAN LEON, INC.

SCALE: 1"=50'

FACILITY PLOT PLAN

DRAWING NUMBER 100 REV. 3

Galveston Central Appraisal District

Galveston Central Appraisal District

SCALE 1" = 200'
Date: 4/2/2015

SCALE 1" = 200'
Date: 4/2/2015

FACILITY

POINT OF DISCHARGE

DISCHARGE ROUTE

1/2 mi. Rad.

1/2 mi. Rad.

DICKINSON BAYOU

DICKINSON BAYOU

SAN LEON FARM HOME TRACTS

MACS SUB

GALLION SUB

JONES SUB

HART ACRES

FRANK'S SUB

COY ROBINSON SUB

LITTLE RIVIERA

1 2 3 4 5 6 7 8 9 10 11

W1 W2 W3 W4 W5 W6

NOTES:
SURVEY FOR TOPOGRAPHIC PURPOSES ONLY

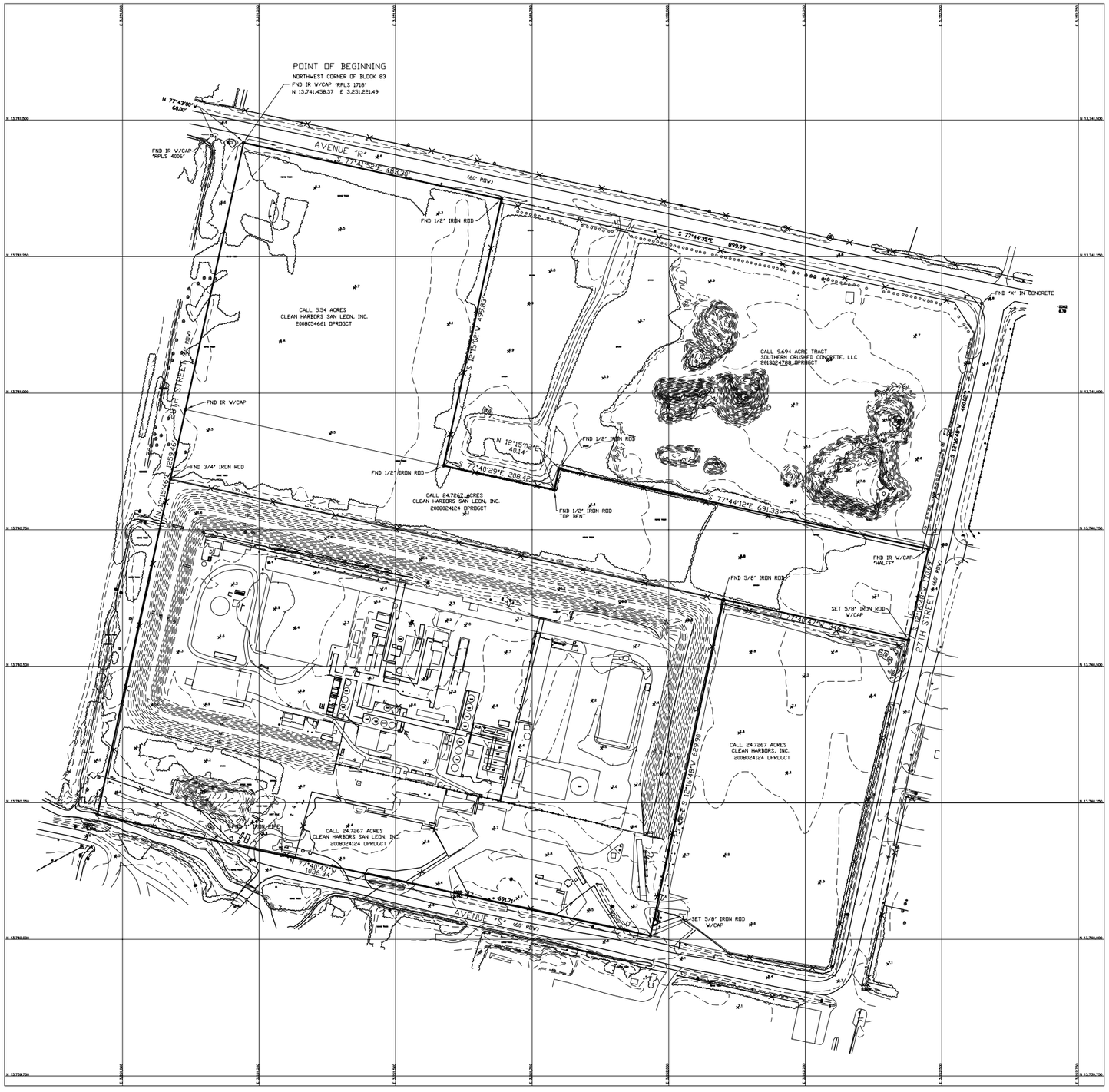
ENCUMBRANCES AFFECTING THE SUBJECT PROPERTY, IF ANY, ARE NOT SHOWN.

ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE PUBLISHED ELEVATION OF USGS BENCHMARK Y-1201.(NAVD88 DATUM)

PREPARED BY:
LAND SURVEY CO.
P.O. BOX 128
KEMAH TX 77565
281-338-4008

TOPOGRAPHIC SURVEY
CLEAN HARBORS
AVENUE S, SAN LEON, TX

DATE: SEPTEMBER 30, 2011 SCALE: 1 INCH = 60 FEET



100 0 100 200 300

GRAPHIC SCALE – FEET

N

BEARINGS AND COORDINATES BASED ON TEXAS COORDINATE SYSTEM
SOUTH CENTRAL ZONE NAD83 (2011)(EPOCH:2010.0000)
ELEVATIONS BASED ON NAVD88 (GEOID12A)

OPRDGCT DENOTES OFFICIAL PUBLIC RECORDS OF GALVESTON COUNTY, TEXAS

BOUNDARY OVERLAYED OVER DALLAS AERIAL SURVEYS, INC. MAP (JOB NO. 14104)
PHOTO DATE: 2-13-2014

AERIAL TARGETS SET BY MARTIN SURVEY ASSOCIATES, INC.

BOUNDARY SURVEYED ON THE GROUND: FEB. 07 THRU MARCH 20TH, 2014.

NAMES	DATE
DRAWN BY: KAD	03/2014
DESIGN:	
CHECKED:	
R. L. S.:	
APP'D:	
APP'D:	
APP'D:	

25.30 ACRE TRACT
BEING PART OF
BLOCK 83
SAN LEON FARM HOME TRACTS
VOL. 5, PG. 51, GALVESTON COUNTY MAP RECORDS
AMOS EDWARDS SURVEY, A-10
GALVESTON COUNTY, TEXAS

MARTIN SURVEY ASSOCIATES, INC.
PROFESSIONAL SURVEYORS, BOUNDARY CONSTRUCTION & TOPOGRAPHIC SURVEYS
8810 WILL CLAYTON PARKWAY SUITE "F"
HUMBLE, TEXAS 77338
(281) 446-8899

MARTIN FILE: DURATHERM FACILITY_TOPO_MSABDRY.DWG

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.
0	3/27/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

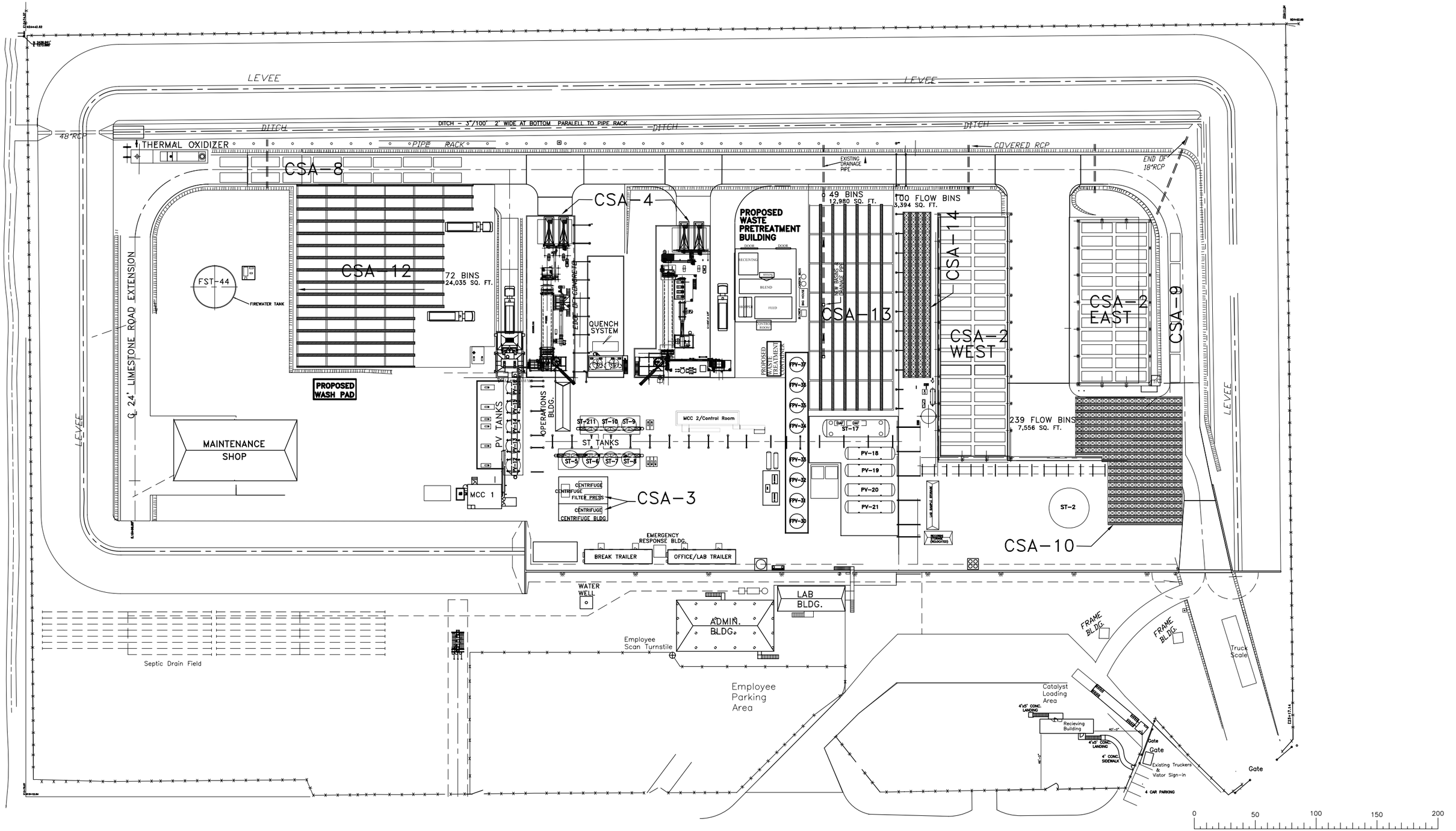
ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/27/14
CHECKED	REL	3/27/14
APPROVED	REL	3/27/14

CleanHarbors®
SAN LEON, INC.

SCALE: AS NOTED

TOPOGRAPHIC MAP
CLEAN HARBORS SAN LEON, INC.

DRAWING NUMBER 100-A REV. 0



REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
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ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/10/14
CHECKED	REL	3/14/14
APPROVED	REL	3/14/14

CleanHarbors®
SAN LEON, INC.

SCALE: 1"=50'

PROPOSED FACILITY PLOT PLAN

DRAWING NUMBER 104 REV. 0

Part A
Attachment D
Photographs

CSA 2 (west building)

CSA 2 (east building)

CSA-8

CSA-9

CSA-10

CSA-12

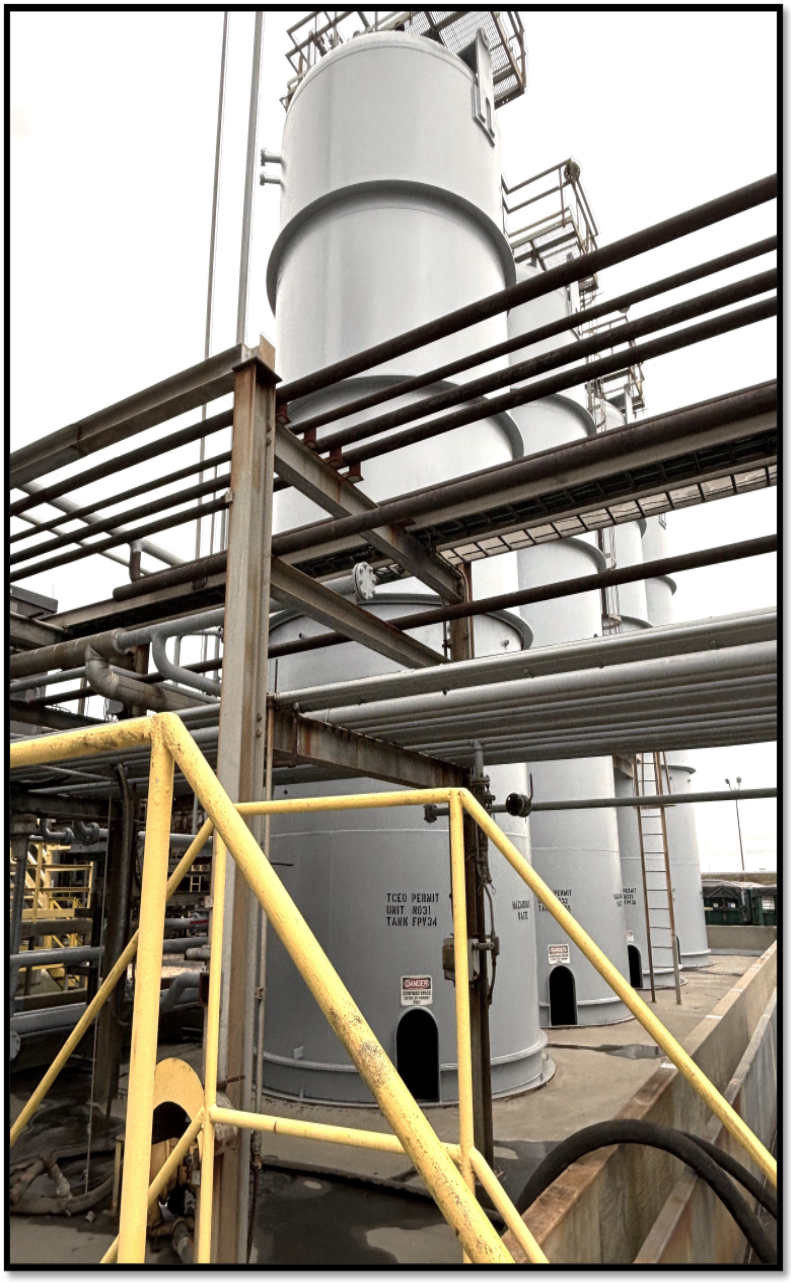
CSA-13

CSA-14

TANKS

FPV-30, FPV-31, FPV-32, FPV33

CLEAN HARBORS SAN LEON, INC.
September 2025 REV: 2



TANK

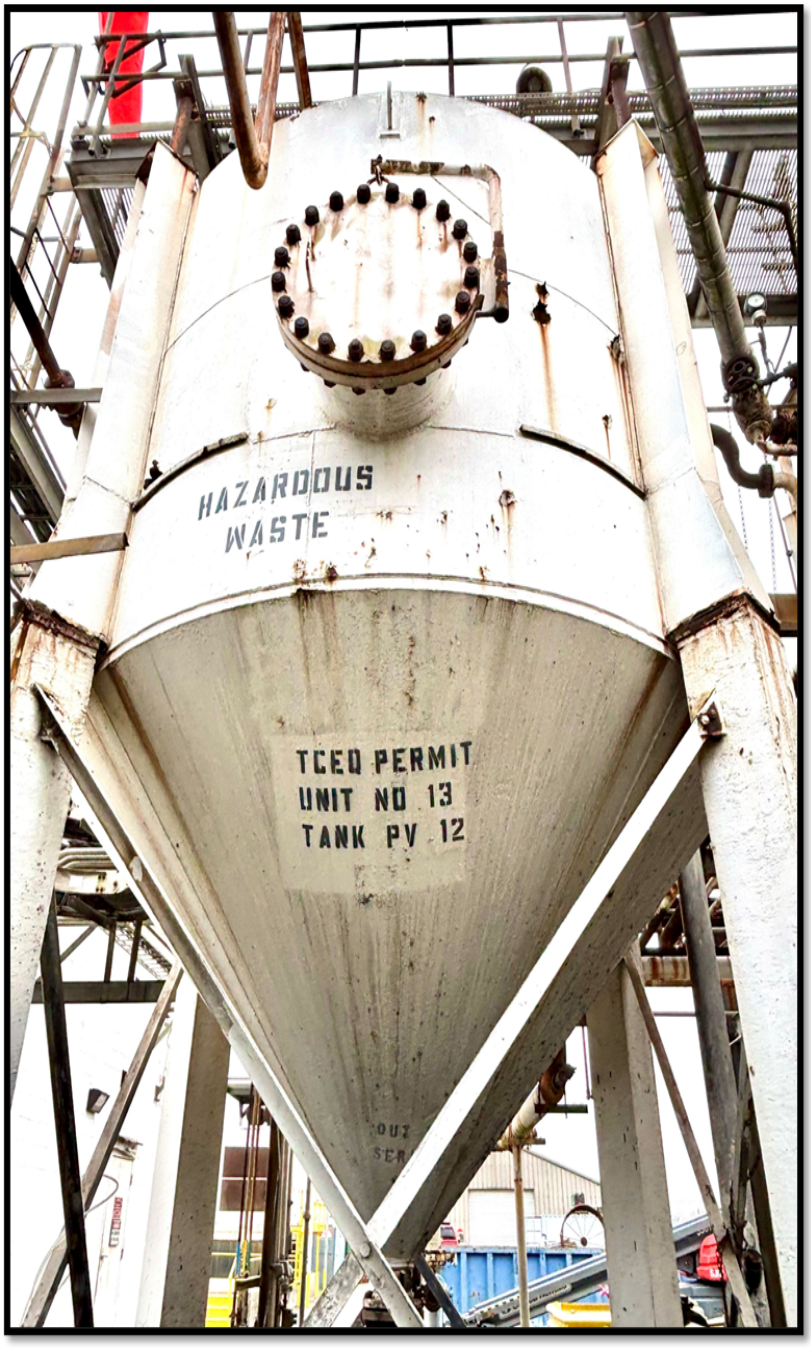
FPV-34

TANK

FPV-35

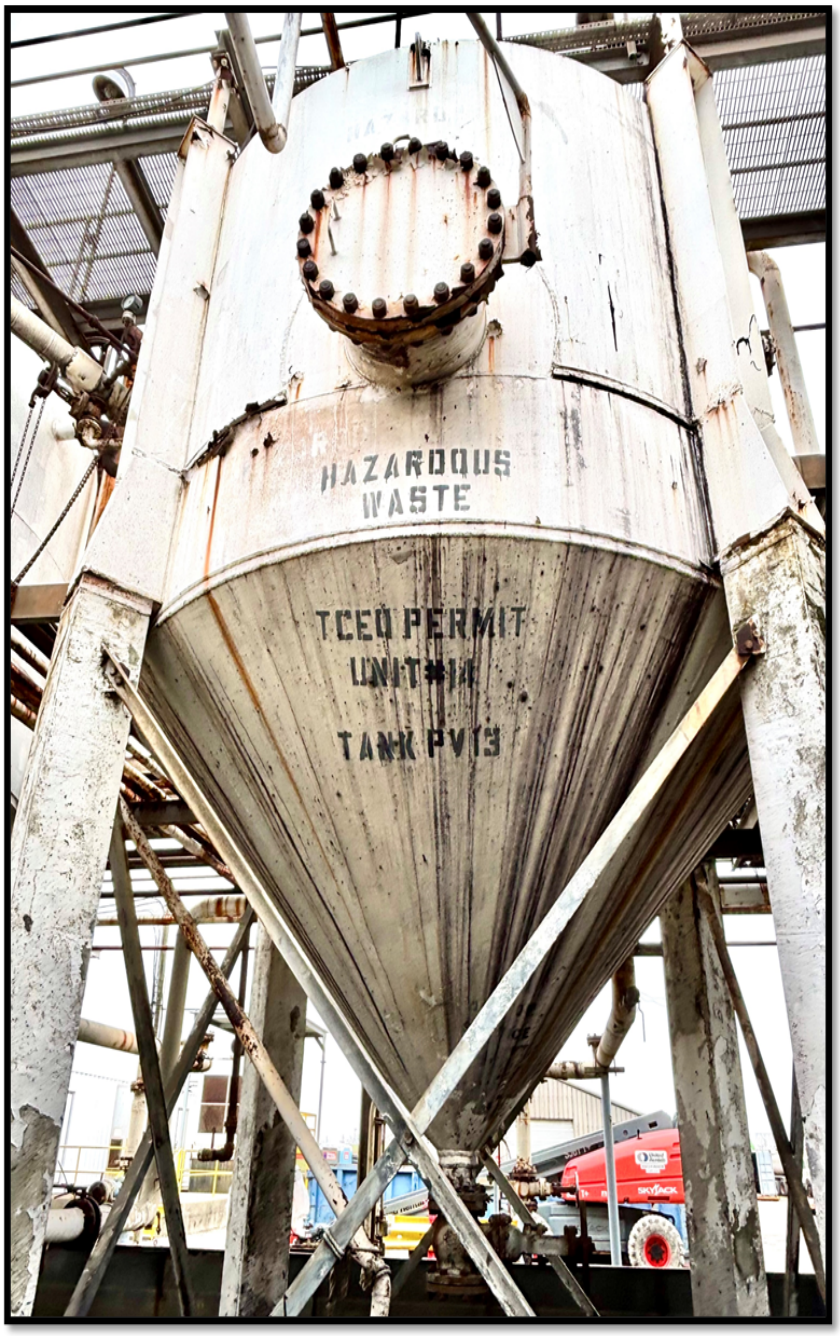
TANKS

FPV-36, FPV-37



TANKS

PV-12



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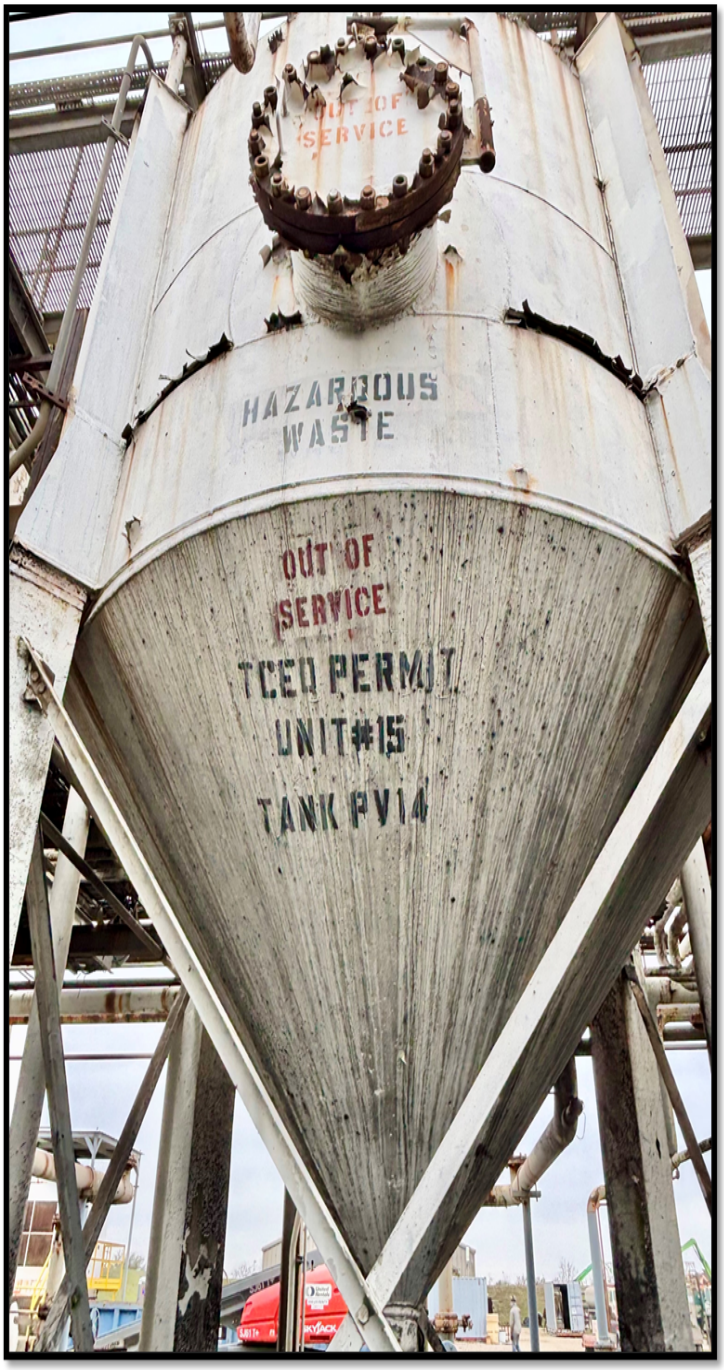
PV-13


OUT OF
SERVICE
HAZARDOUS
WASTE
OUT OF
SERVICE
TCEQ PERMIT
UNIT#15
TANK PV14

TANK

PV-14

HAZARDOUS
WASTE
OUT OF
SERVICE
TCEQ PERMIT
UNIT#16
TANK PV15

TANK

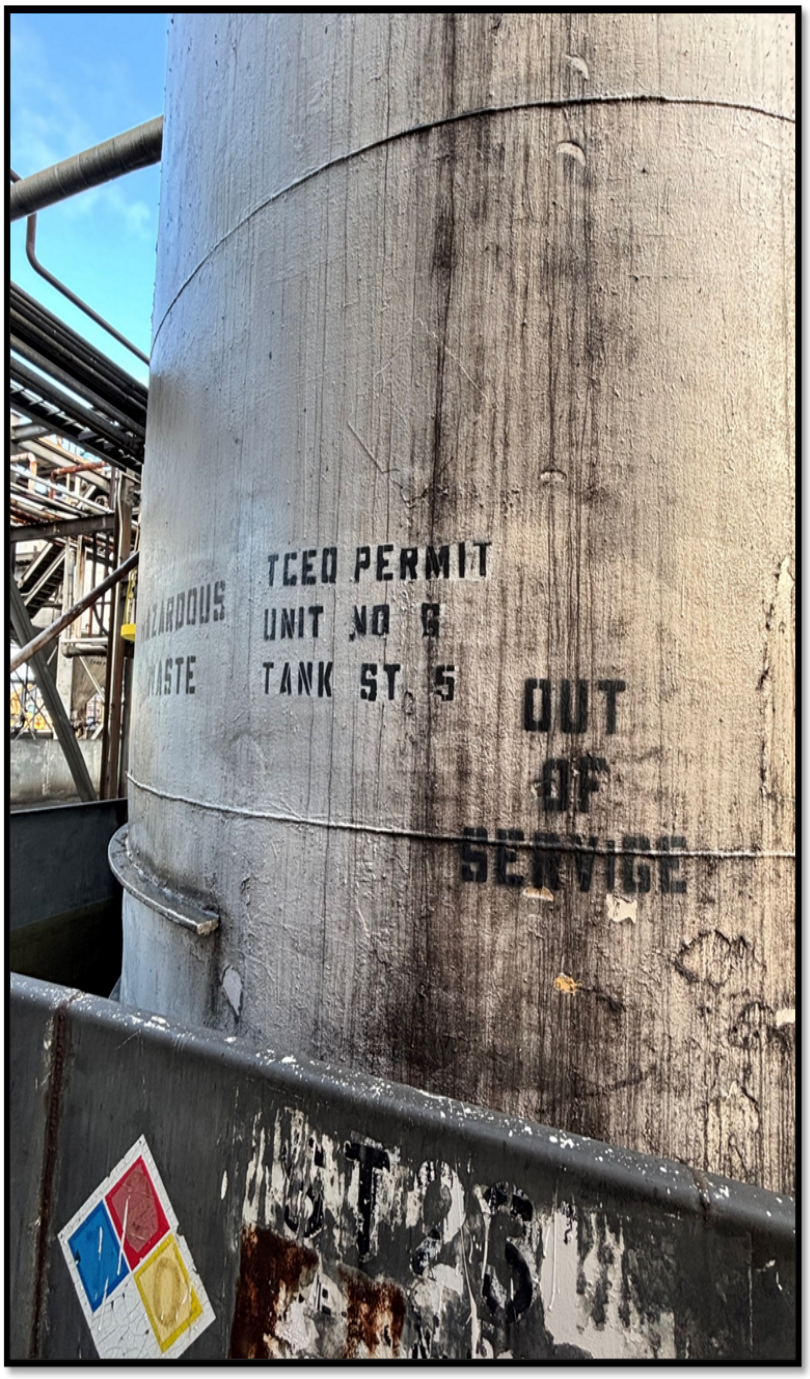
PV-15

TANK

PV-17

TANKS

PV-18, PV-19, PV-20, PV-21



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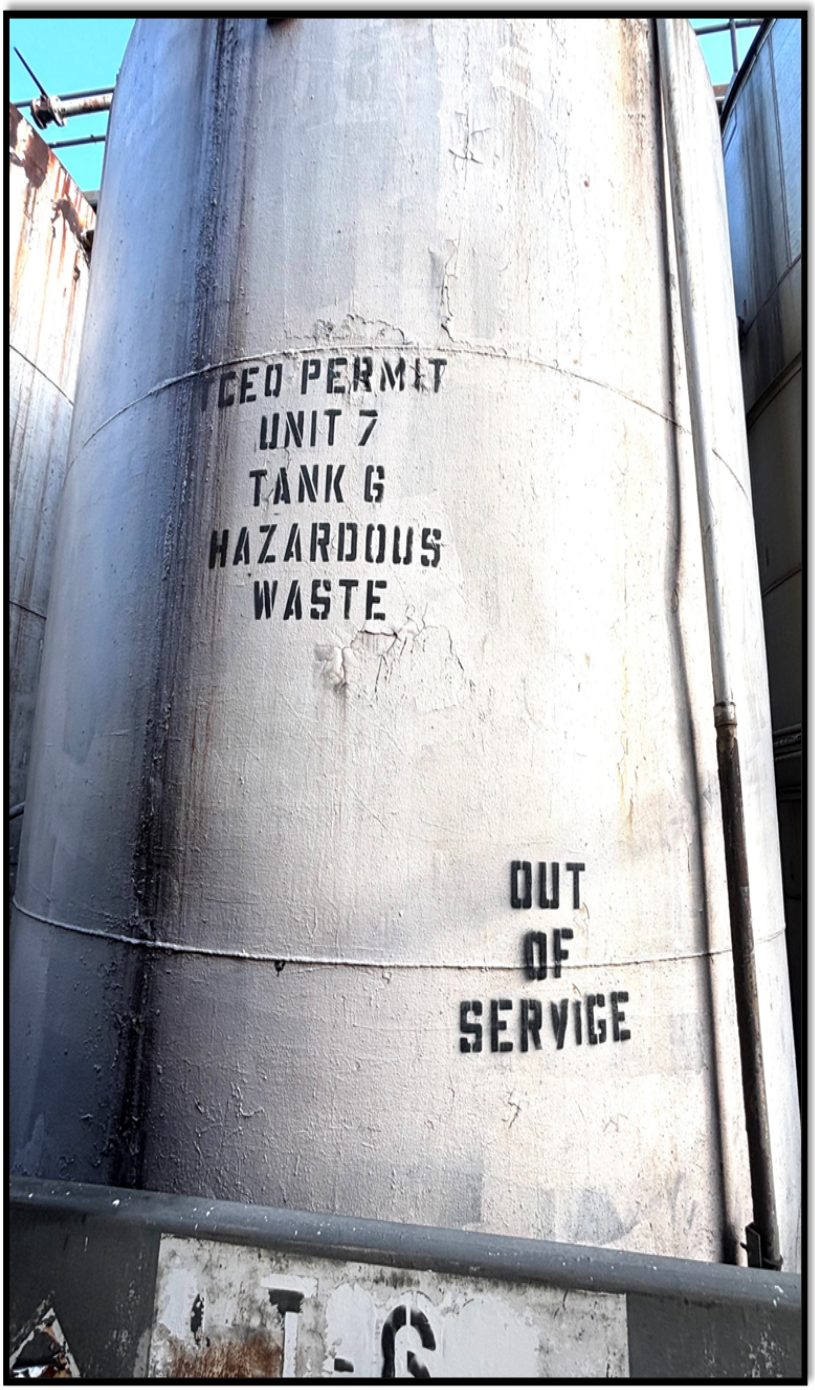
ST-5



TANK

ST-6

TANK

ST-207

TANK

ST-208

TANKS

ST-209

TANKS

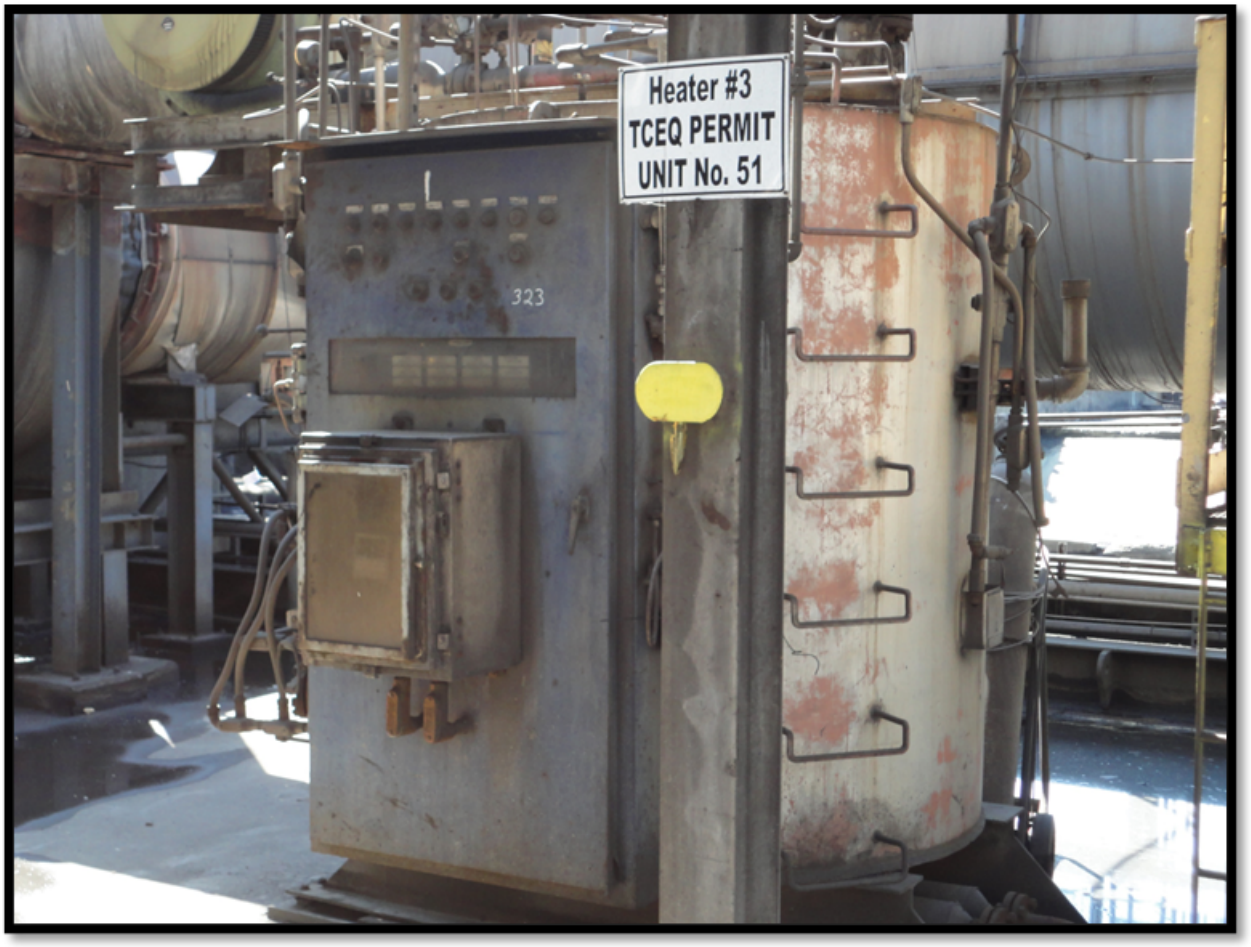
ST-211

Filter press (Inactive) and Centrifuge #1

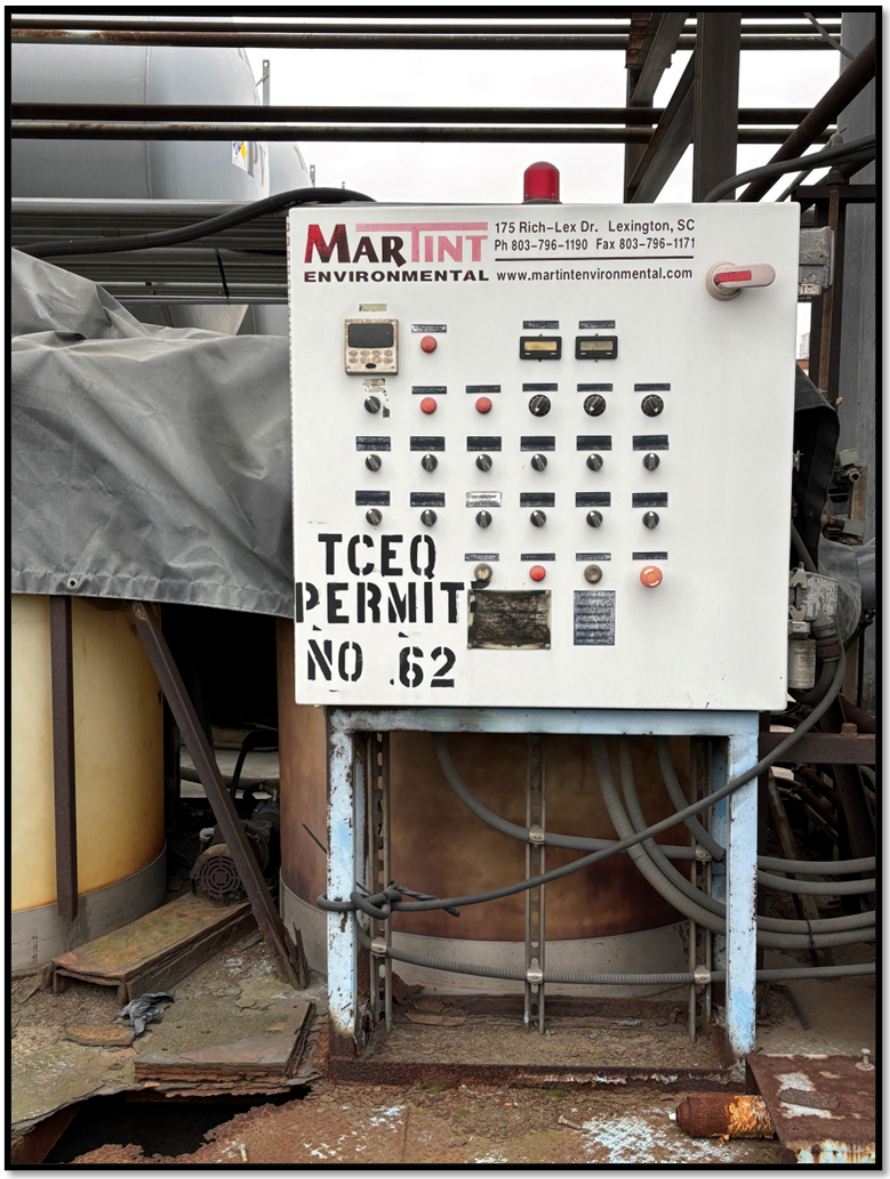
CENTRIFUGE #2

CENTRIFUGE #3

HEATER # 1



HEATER #3



DISSOLVED AIR FLOTATION (DAF) – INACTIVE

TANK T-200

TANK T-0256

Part A
Attachment F
PIP Form
Not Applicable

Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening

☐ New Permit or Registration Application

☐ New Activity – modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

☐ Requires public notice,

☐ Considered to have significant public interest, **and**

☐ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

If all the above boxes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2 and submit the form.

☐ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V

Waste ☐ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☐ Texas Pollutant Discharge Elimination System (TPDES)

- ☐ Texas Land Application Permit (TLAP)
- ☐ State Only Concentrated Animal Feeding Operation (CAFO)
- ☐ Water Treatment Plant Residuals Disposal Permit

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

☐ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

(City)

(County)

(Census Tract)
Please indicate which of these three is the level used for gathering the following information.

☐ City ☐ County ☐ Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

(b) Per capita income for population near the specified location

(c) Percent of minority population and percent of population by race within the specified location

(d) Percent of Linguistically Isolated Households by language within the specified location

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

☐ Yes ☐ No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

☐ Yes ☐ No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

☐ Yes ☐ No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

☐ Yes ☐ No

(e) If a public meeting is held, will a translator be provided if requested?

☐ Yes ☐ No

(f) Hard copies of the application will be available at the following (check all that apply):

☐ TCEQ Regional Office ☐ TCEQ Central Office

☐ Public Place (specify)

Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

☐ Yes ☐ No

What types of notice will be provided?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

Part B

Attachment A

CORE Data Form

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☒ Renewal *(Core Data Form should be submitted with the renewal form)*

☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 603349820		RN 100890235

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* — *If new Customer, enter previous Customer below:*

Clean Harbors San Leon, Inc.

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0800930625	32034592199	261821662	809773072

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☒ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator ☐ Other:
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:							
	2700 Avenue S						
	City: San Leon	State: TX	ZIP: 77539	ZIP + 4: 7285			

16. Country Mailing Information *(if outside USA)*

17. E-Mail Address *(if applicable)*

[redacted]

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(424) 400-4251		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Clean Harbors San Leon, Inc.

23. Street Address of the Regulated Entity: *(No PO Boxes)*	2700 Avenue S							
	City	San Leon	**State**	TX	**ZIP**	77539	**ZIP + 4**	7285
24. County	Galveston							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:			
26. Nearest City		**State**	**Nearest ZIP Code**

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	28	30	94	58	00

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4593	1311	562211	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Hazardous Industrial waste processing

34. Mailing Address:	**2700 Avenue S**							
	City	**San Leon**	**State**	**TX**	**ZIP**	**77539**	**ZIP + 4**	**7285**
35. E-Mail Address:	**kelley.jennifer@cleanharbors.com**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(424) 400-4251		**( ) -**

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

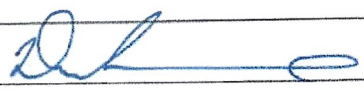
☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				50355
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☒ PWS
				0840217
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☒ Used Oil
				A86130
☐ Voluntary Cleanup	☒ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☒ Other: Permit By Rule
	WQ0004086000			14291 / 85676 / 87443

SECTION IV: Preparer Information

40. Name:	Jennifer Kelley		41. Title:	VP Environmental Compliance
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**	
(424) 400-4251		( ) -	[redacted]	

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Clean Harbors San Leon	**Job Title:**	Facility General Manager
Name *(In Print):*	David Cummings	**Phone:**	(281) 339- 1352
Signature:		**Date:**	9-12-25

Part B

Attachment B

Table I.1

Description of Changes

Table I.1-Description of Proposed Application Changes

Permit/Compliance Plan Application Appendix/Section	Brief Description of Proposed Change	Modification or Amendment Type	Supporting Regulatory Citation
Part B Application	General Administrative updates, all tables have been updated to the current TCEQ form and current permit.	Minor	NA
Part B Section V	Added Table V.K.3, V.K.4 V.K.5 per request by TCEQ	Minor	NA
Part B Section VII	Updated Table VII.B and VII.E.1 to reflect 2025 costs	Minor	NA
Part B Section XIII	Separated Confidential Information and Drawings and added confidential language to drawings and document	Minor	NA

Table I: General Information

A. Applicant: Facility Operator

Name[1]	Clean Harbors San Leon, Inc.
Address[2]	2700 Avenue S
City, State[2]	San Leon, TX
Zip Code[2]	77539
Telephone Number	281.339.1352
Alternate Telephone Number	
TCEQ Solid Waste Registration No.	34812
EPA I.D. No.	TXD981053770
Permit No.	80355
County	Galveston
Regulated Entity Name	Clean Harbors San Leon
Regulated Entity Reference Number (RN)	100890235
Customer Name[2]	Clean Harbors San Leon
Customer Reference Number:	603349820
Charter Number[3]	0800930625
Previous or Former Names of the Facility (if applicable)	Durathern, Inc

B. Facility Owner: Identify the Facility Owner if different than the Facility Operator[4]

☑ Same as Facility Operator?

Name	
Address	
City, State	
Zip Code	
Telephone Number	
Alternate Telephone Number	

C. Facility Contact

1. Persons or firms who will act as primary contact:

Name, Title:	Jennifer Kelley, VP Environmental Compliance US Incl
Address	2700 Avenue S
City, State:	San Leon, TX
Zip Code	77539
Telephone Number	424.400.4251
Alternate Telephone Number	NA
E-mail	[redacted]

Persons or firms who will act as primary contact (if more than one):

Name, Title:	David Cummings, Facility General Manager
Address	2700 Avenue S
City, State:	San Leon, TX
Zip Code	77539
Telephone Number	281.339.6412
Alternate Telephone Number	939.332-2944
E-mail	[redacted]

2. Agent in Service or Agent of Service (if you are an out-of-state company)[5]:

Name, Title:	
Address	
City, State:	
Zip Code	

3. Individual responsible for causing notice to be published:

Name:	Jennifer Kelley, VP Environmental Compliance
Address	2700 Avenue S
City, State:	San Leon, TX
Zip Code	77539
Telephone Number	424.400.4251
Alternate Telephone Number	
E-mail	[redacted]

4. Public place in county where application will be made available[6]:

Name	Dickinson Public Library
Address	4411 State Hwy 3
City, State	Dickinson, TX
Zip Code	77539

D. Application Type and Facility Status

1. **Application Type**

☑ **Permit**	☑ **Amendment**	☐ **Modification**
☐ New	☐ Major	☐ Class 3
☑ Renewal	☑ Minor	☐ Class 2
☐ Interim Status		☐ Class 1[1]
☐ Compliance Plan		☐ Class 1
☐ RD&D		

2. **Part of a Consolidated Permit Processing request?** [30 TAC Chapter 33] — No

3. **Does the application contain confidential material?**[7] — Yes

4. **Facility Status. Check all that apply**

☐ Proposed	☑ On-Site
☑ Existing	☑ Off-site
	☑ Commercial
	☑ Recycle
	☐ Land Disposal
	☐ Areal or capacity expansion
	☐ Compliance plan

5. **Is the facility within the Coastal Management Program boundary?** — Yes

6. **Description of Application Changes**
   Complete Table I.1 - Description of Proposed Application Changes
   Note: List all changes requested in Table. Unlisted requests risk remaining unaddressed or possibly denied if brought to the permit application reviewer's attention at a later time.

7. **Total acreage of the facility being permitted:** 26 approximately

8. Identify the name of the drainage basin and segment where the facility is located[8]

River Segment: Dickinson Bayou Tidal Segment 1103

River Basin: San Jacinto- Brazos Coastal Basin

E. Facility Siting Summary:

Is the facility located or proposed to be located:

1. Within a 100-year floodplain?	Yes
2. in wetlands?	No
3. In the critical habitat of an endangered species of plant or animal?	No
4. On the recharge zone of a sole-source aquifer?	No
5. In an area overlying a regional aquifer?	No
6. Withing 0.5 mile (2,640 feet) of an established residence, church, school , day care center, surface water body used for public drinking water supply, or dedicated public park?[9] [30 TAC 335.202] If Yes: the TCEQ shall not issue a permit for this facility.	No
7. In an area in which the governing body of the country or municipality has prohibited the processing or disposal of municipal hazardous waste or industrial solid waste? If yes: provide a copy of the ordinance or order.	No

F. Wastewater and Stormwater Disposition

1. Is the disposal of any waste to be accomplished by a waste disposal well at this facility? — No

If Yes: List WDW Permit No(s):

2. Will any point source discharge of effluent or rainfall runoff occur as a result of the proposed activities? — No

3. If Yes, is this discharge regulated by a TPDES or TCEQ permit?

☑ Yes

TCEQ Permit No.

TDPES Permit No. WQ0004086000

☐ No

Date TCEQ discharge permit application filed:

Date TPDES discharge application filed: 6/21/2023

G. Information Required to Provide Notice

State Officials List [30 TAC 39]

State Senator

Name:	Senator Mayes Middleton, District 11 (409)621-5060
Address	2101 Mechanic St,, Ste 245
City, State:	Galveston, TX
Zip Code:	77550 email: [redacted]

State Representative

Name:	Respresentative Terri Leo Wilson (512)463-0502
Address	305 21st Street, Ste 241
City, State:	Galveston, TX
Zip Code	77550 email: [redacted]

Local Officials List [30 TAC 39]

Mayor

Name:	Mayor Dedrick Johnson Sr (409)643-5902
Address	1801 19th Avenue North
City, State:	Texas City, TX
Zip Code	77590 email: [redacted]

Local Health Authority

Name:	Dr. Philip Keiser , Chief Exective Officer (409)938-7221
Address	9850 Emmett F Lowery Expressway
City, State:	Texas City, TX
Zip Code	77591 email: [redacted]

County Judge

Name:	Honorable Mark Henry (409) 762-8621
Address	722 Moody Avenue
City, State:	Galveston, TX
Zip Code	77550 email: [redacted]

County Health Authority

Name:	Dr. Philip Keiser , Chief Exective Officer (409)938-7221
Address	9850 Emmett F Lowery Expressway
City, State:	Texas City, TX
Zip Code	77591 email: [redacted]

Based on the questions in the Bilingual Notice Instructions for this form, are you required to make alternate (Bilingual) notice for this application?	Yes
Bilingual Language(s):	Spanish
TCEQ Core Data Form Submitted?(Required)	Yes
Has any information changed on the TCEQ Core Data Form since the last submittal?	Yes
Signature on Application Submitted? (see Section I Instructions, Item c)	Yes

1. Individual, Corporation, or Other Legal Entity Name on the Permit - must match the Secretary of State's database records for the Facility).
2. The legal name and address must match the Core Data Form.
3. If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.
4. The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on Part A of this application [Section 361.087, Texas Health and Safety Code].
5. If the application is submitted by a corporation or by a person residing out of state, the applicant register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.
6. For applications for new permits, renewals, major amendments and Class 3 modifications a copy of the administratively complete application must be made available at a public place in the county where the facility is, or will be, located for review and copying by the public. Identify the public place in the county (e.g., public library, county court house, city hall), including the address, where the application will be made available for review and copying by the public.
7. For confidential information cross-reference the confidential material throughout the application to Section XIII: Confidential Material, and submit as a separate Section XIII document or binder conspicuously marked "CONFIDENTIAL".
8. Use the segments line map created by TCEQ GIS Team to find the Segment Name and Basin Name.
9. Use only for a new commercial hazardous waste management facility or areal expansion of an existing hazardous waste management facility or unit of that facility as defined in 30 TAC 335.202.

Part B

Attachment C

Signature Page

Signature Page

I, _____, _____,
(Operator) *(Title)*

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

To be completed by the Operator if the application is signed by an Authorized Representative for the Operator

I, _____, hereby designate _____
[Print or Type Name] *[Print or Type Name]*

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

David Cummings
Printed or Typed Name of Operator or Principal Executive Officer

Signature

SUBSCRIBED AND SWORN to before me by the said David Cummings

On this 12th day of September, 2025

My commission expires on the 27th day of January, 2028

Notary Public in and for Harris County, Texas

*[**Note**: Application Must Bear Signature & Seal of Notary Public]*

Charles Daniel Tauriello
My Commission Expires
1/27/2028
Notary ID132331494

Interim Status Land Disposal Unit(s) Certification

For all land disposal units managing wastes which are newly listed or identified as hazardous wastes, the following certification must be executed by or on the date 12 months after the effective date of the rule identifying or listing the waste as hazardous. If the operator fails to certify compliance with these requirements, the operator shall lose authority to operate under interim status. [40 CFR 270.73(d)]

I, _____, _____
(operator) *(title)*

certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete.

I further certify that in accordance with Section 3005(e)(3) of the Resource Conservation and Recovery Act, as amended, the subject land disposal unit(s) are in compliance with all applicable groundwater monitoring and financial responsibility requirements of 30 TAC Sections 335.112, 335.116, and 335.117. I am aware there are significant penalties for submitting false information, including the possibility of civil penalty, criminal fines, and imprisonment.

Signature: _____ Date: 9-12-25 D.C.

Part B

Attachment D

List of Adjacent Landowners

And

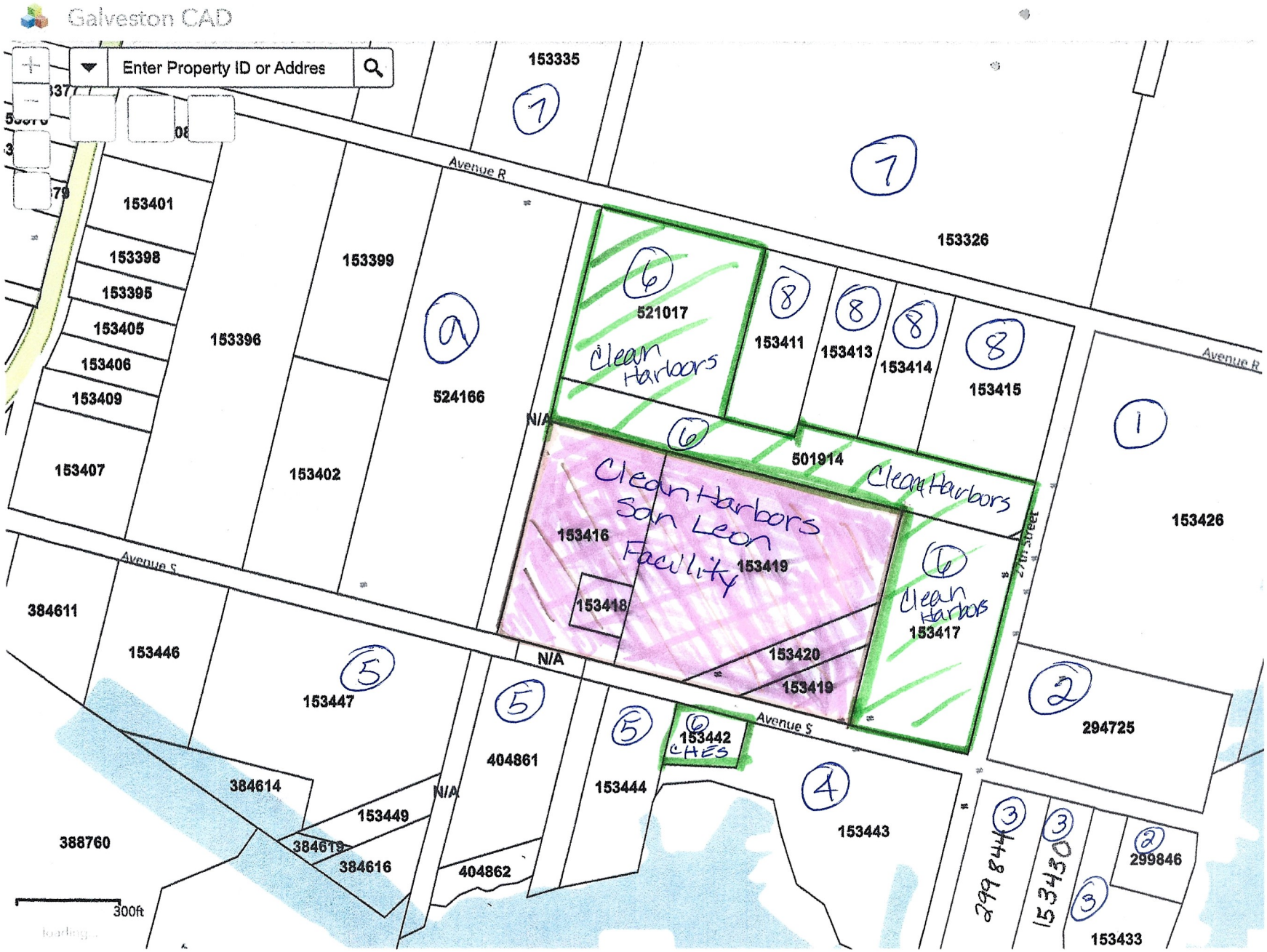
Map of Adjacent Landowners

Attachment D

List of Adjacent Landowners

Lot No.	# on drawing	Owner
153426	1	DORSETT BROTHERS CONCRETE SUPPLY PO BOX 5766 PASADENA TX 77508
294726, 299846	2	TEXAS MARINE SHIPYARD LLC PO BOX 489 DICKINSON TX 77539
299844, 153430	3	HOLLINGSHEAD MATERIALS LLC 1136 2ND AVE N NASHVILLE TN 37208-1702
153446	4	TAYLOR MARINE CONSTRUCTION OF TX 707 HARBORSIDE WAY KEMAH TX 775656
153447, 404861, 153444	5	LARRY AND PEGGY BURKS 804 3RD STREET LEAGUE CITY TX 77573
521017, 501914, 153417, 153442	6	CLEAN HARBORS ENVIRONMENTAL SERVICES 42 LONGWATER DR NORWELL MA 02061
1453335, 153326	7	DICKINSON BAYOU FLEETING SERVICES 225 FOXGLOVE ST FRIENDSWOOD TX 77573-2253
153411, 153413, 153414, 153415	8	MARTIN MARIETTA NATERIALS 4123 PARKLANE AVENUE RALEIGH NC 27612
524166	9	COMMERCIAL METALS CO 1010 AVENUE S TEXAS CITY TX 77539

Map of Adjacent Landowners



Part B

Attachment E

Plain Language Summary Forms

(English and Spanish)

Texas Commission on Environmental Quality

Plain Language Summary

Industrial and Hazardous Waste Permit Applications

Instructions: Complete this form and submit with any industrial hazardous waste, or industrial solid waste, permit application that is subject to 30 Texas Administrative Code §39.405(k) [applications for a Class 3 permit modification, permit amendment, permit renewals, and for a new permit]. Please be concise.

Application Information

Purpose of application: ☐New ☒Renewal ☐Modification/Amendment	
Date Submitted to TCEQ: SEPTEMBER 2025	
Customer Name: CLEAN HARBORS SAN LEON, INC	
Facility Name: CLEAN HARBORS SAN LEON	
CN: 603349820	**RN:** 100890235
Permit Number: 50355	**Solid Waste Registration Number:** 34814
Facility Street Address: 2700 Ave. S, San Leon, Texas 77539	
Weblink to Street Address: https://www.google.com/maps/place/Dura+Therm+Inc/@29.4687797,-94.9665847,17	

Facility Information *(check all that apply)*

What is the primary type of business?	☐Chemical manufacturing ☐ Oil refinery ☒ Treatment, storage or disposal facility plant ☐Other **If other, enter description:**
What does the facility produce?	☐Chemicals ☐Fuels / lubricants ☐No products ☒Other **If other, enter description:** TREATMENT OF SPENT CATALYST

Waste Management Information *(check all that apply)*

What types of wastes are managed?	☒Nonhazardous industrial ☒Hazardous ☐Other **If other, enter description:**
Where does the waste come from?	☒Off-site source ☒On-site source
How is the waste managed?	☒Storage ☒Process / Treatment ☒Disposal ☒Other **If other, enter description:** Thermal Treatment of catalyst
What type of units manage the waste?	☒Active ☐Post-Closure **Type and count:**
What happens to waste managed at the facility?	☒Transported off-site ☐Disposed on-site ☐Other **If other, enter description:**

Pollution Control Methods *(check all that apply)*	
How will the facility prevent spills, leaks, and releases?	☒Routine inspections ☐Engineered liner systems ☒Spill containment ☒Proper waste handling ☐Operations in enclosed buildings ☐Groundwater monitoring ☐Other **If other, enter description:**
How will the facility clean up spills, leaks, and releases?	☒Spill clean-up supplies ☒Decontamination equipment ☐Other **If other, enter description:**
How will the facility prevent / minimize air emissions?	☐Air monitoring / control systems ☒Filters / scrubbers ☒Routine inspections ☒Proper waste handling ☐Operations in enclosed buildings ☐Other **If other, enter description:**

Description of Update *(for Class 3 Modifications and Amendments only)*

List and explain any changes this modification or amendment would make to the two sections above—**Waste Management Information** and **Pollution Control Methods**.

Clear Form

Comisión de Calidad Ambiental de Texas

Resumen en Lenguaje Sencillo

Solicitudes de Permisos de Desechos Industriales y Peligrosos

Instrucciones

Complete este formulario y envíe con cualquier solicitud de permiso de desechos industriales peligrosos, o desechos sólidos industriales, que esté sujeta al Código Administrativo de Texas 30 §39.405 (k) [es decir, solicitudes para una modificación de permiso de Clase 3, enmienda de permiso, renovaciones de permisos y para un nuevo permiso].

Sea conciso: toda la información debe caber en dos páginas.

Información de la Solicitud

Propósito de la solicitud:	☐Nuevo	☒Renovación	☐Modificación/Enmienda

Sometido a TCEQ: Septiembre de 2025

Nombre del Cliente: Clean Harbors San Leon, Inc

Nombre de la Instalación: Clean Harbors San Leon

CN: 603349820	**RN:**100890235
Número de Permiso:50355	**Número de Registro de Desechos Sólidos:** 34814

Dirección de la Instalación: 2700 Ave S, San Leon, Texas 77539

Enlace Web a la Dirección Postal:
https://www.google.com/maps/place/Dura+Therm+Inc/@29.4687797,-94.9665847,17

Información de la Instalación *(marque todas lo que correspondan)*

¿Cuál es el tipo principal de negocio?	☐Planta de manufactura química ☐Refinería de aceite ☒ Instalación de tratamiento, almacenamiento o eliminación ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción
¿Qué produce la instalación?	☐Químicos ☐Combustibles / lubricantes ☐Sin productos ☒Otro **Si es otro, introduzca la descripción:** tratamiento de catalizadores agotados

Información sobre la Gestión de Desechos *(marque todas las que correspondan)*

¿Qué tipos de desechos se gestionan?	☒Industrial no peligroso ☒Peligroso ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción
¿De dónde provienen los desechos?	☒Fuente externa ☒Fuente interna
¿Cómo se gestionan los desechos?	☒Almacenar ☒Procesar / Tratar ☒Eliminación ☒Otro **Si es otro, introduzca la descripción:** tratamiento de catalizadores agotados

¿Qué tipo de unidades gestionan los desechos?	☒ Activo ☐ Postcierre **Teclee y cuente:** Introduzca el tipo de unidad y un conteo, como Tanques (8), Vertederos (3), Incineradores (1), Unidades posteriores al cierre (2) etc.
¿Qué sucede con los desechos gestionados en la instalación?	☒Transportados fuera del sitio ☐Eliminado en el sitio ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción

Métodos de Control de la Contaminación *(marque todos los que correspondan)*			
¿Cómo evitará la instalación derrames, fugas y liberaciones?	☒Inspecciones de Rutina	☐Sistemas de revestimiento de ingeniería	☒Contención de derrames
	☒Manejo adecuado de desechos	☐Operaciones en edificios cerrados	☐Monitoreo de aguas subterráneas
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		
¿Cómo limpiará la instalación los derrames, fugas y liberaciones?	☒Suministros de limpieza de derrames	☒Equipos de descontaminación	
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		
¿Cómo evitará / minimizará la instalación las emisiones atmosféricas?	☐Sistemas de monitoreo / control de aire	☐Filtros / depuradores	☒Inspecciones de rutina
	☒Manejo adecuado de desechos	☐Operaciones en edificios cerrados	
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		

Descripción de la Actualización (*solo para Modificaciones y Enmiendas de Clase 3)*

Liste y explique cualquier cambio que esta modificación o enmienda haría a las dos secciones anteriores: **Información de Gestión de Desechos** y **Métodos de Control de la Contaminación**.

Introduzca una descripción concisa

SECTION II- Facility Siting Criteria

PART B Application, Section II

APPENDIX II - Siting Information

- Site Selection Report

NA

Appendix II.A
Requirements for Hazardous Waste Facility Units

NA

See Table II in Attachment II Tables

Appendix II.B
Additional Requirements for Land Treatment Facilities

NA

See Table II in Attachment II Tables

Appendix II.C
Additional Requirements for Waste Piles

NA

See Table II in Attachment II Tables

Appendix II.D

Additional Requirements for Storage Surface Impoundments

NA

See Table II in Attachment II Tables

Appendix II.E
Additional Requirements for Landfills
NA

See Table II in Attachment II Tables

Appendix II.F
Flooding
NA

See Table II in Attachment II Tables

The facility is located within the 100-year floodplain as determined by the Flood Insurance Rate Map (FIRM) for the area (Galveston County, Panel No. 99), produced by the Federal Emergency Management Agency (FEMA). As shown in Figure II.F which is found in Appendix A- Drawings in this renewal application. The facility is located in Zone Al2, subject to flooding effects from Galveston Bay.

In the process of obtaining the original RCRA Part B permit for this facility, a flood control levee system was constructed. The levee system was designed and constructed to meet the requirements of the US Army Corps of Engineers (COE) and is comprised of a pouredin-place concrete flood control wall and earthen levee.

In 1996, DuraTherm contracted with Earth Tech, Inc. to conduct a Wave Height Analysis Study on the existing levee system and compare the results to revised Federal Emergency Management Agency (FEMA) standards. Based on the results of the study and after consultation with the Galveston County Engineer and Flood Plain Inspector, the eastern portion of the earthen levee was raised to provide a design freeboard of 1 foot above maximum wave height and armored to resist wave action. The upgraded levee system meets current COE & FEMA requirements. See Section V.A.2, Engineering Analysis-Flood Protection.

Appendix II.G
Additional Information Requirements
NA

See Table II in Attachment II Tables

ATTACHMENT II TABLES

TABLE II Facility Siting Criteria Information

Table II

Table II contains the following: Table II.A, Table II.B, Table II.C, Table II.D, Table II.E and Flooding from Section II. F of the Part B Application

Table II.A - Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills

Is the facility located or proposed to be located[1]:

In wetlands? [as applicable: 30 TAC 335.204(a)(2), (b)(2), (c)(2), (d)(2), and/or (e)(2)	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste management facility or areal expansion of an existing facility into wetlands, pursuant to 30 TAC 335.205(a)(1).	
In the critical habitat of an endangered species of plant or animal?[6] [as applicable: 30 TAC 335.204(a)(8), (b)(10), (c)(9), (d)(9), and/or (e)(11)]	No
If Yes: submit in Section V information demonstrating that design, construction, and operational features will prevent adverse effects on such critical habitat.	
On the recharge zone of a sole-source aquifer?2 [30 TAC 335.204(a)(3), (b)(3), (c)(3), (d)(3), and/or (e)(3)]	No
If Yes: then for storage and processing facilities (excluding storage surface impoundments), submit in Section V information demonstrating that secondary containment is provided to preclude migration to groundwater from spills, leaks, or discharges.	
In an area overlying a regional aquifer? [as applicable: 30 TAC 335.204(a)(4), (b)(4), (c)(4), (d)(4), and/or (e)(4)]	No
If Yes: submit site-specific information in Section V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1).	
In areas where soil unit(s) are within five feet of the containment structure, or treatment zone, as applicable, that have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10-5 cm/sec? [as applicable: 30 TAC 335.204(a)(5), (b)(5), (c)(5), (d)(5), and/or (e)(5)]	No
If Yes: provide additional information in Sections V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1)	
In areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system?[6] [as applicable: 30 TAC 335.204 (a)(6), (b)(7), (c)(6), and/or (e)(8)].	No
If Yes: provide information in Section V demonstrating compliance with 30 TAC 335.205(a)(1).	

In areas of active geologic processes, including but not limited to erosion, submergence, subsidence, faulting, karst formation, flooding in alluvial flood wash zones, meandering river bank cuttings, or earthquakes?[6] [as applicable: 30 TAC 335.204(a)(7), (b)(8) ,(c)(7), (d)(7), and/ or (e)(9)]	No
Within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures?[6] [as applicable: 30 TAC 335.204(a)(9), (b)(12) ,(c)(11), (d)(11), and/or (e)(13)]	No

If Yes: specify in Section V the design, construction, and operational features that will prevent adverse effects resulting from any fault movement.

If a fault is found to be present, the width and location of the actual or inferred surface expression of the fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, must be determined by a qualified geologist or geotechnical engineer and reported in Section VI.

Table II.B. - Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)]:

Is the land treatment facility located or proposed to be located:

Within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(6) and 335.205(a).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	No
If Yes: submit in Section V.F design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	No
If Yes: submit Section V.F design, construction and operational features, which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	Not Applicable
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(11) and 335.205(a)(1).	

Table II.C. - Additional Requirements for Waste Piles [30 TAC 335.204(c)]

Is the waste pile located or proposed to be located:

Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	No
If Yes: submit in Section V.E design, construction, and operational features on the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	No
If Yes: submit Section V.E design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?[6]	Not Applicable
If Yes: the TCEQ shall not issue a permit for a new hazardous waste pile or an areal expansion of an existing waste pile, pursuant to 30 TAC 335.204(c)(10) and 335.205(a)(1).	

Table II.D. - Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)]

Is the land treatment facility located or proposed to be located:

Within 1000 feet of an area of active coastal shoreline erosion even though the area is protected by a barrier island or peninsula	No
If Yes: submit in Section V.D design, construction, and operational features of the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	No
If Yes: then submit in Section V.D design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?[6]	Not Applicable
If Yes: the TCEQ shall not issue a permit for a new hazardous waste storage surface impoundment or an areal expansion of an existing storage surface impoundment, pursuant to 30 TAC 335.204(d)(10) and 335.205(a)(1).	

Table II.E. - Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with wastes in place)

Is the landfill located or proposed to be located:

Within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(6) and 335.205(a)(1).	
(For commercial hazardous waste landfills) in the 100-year flood plain of a perennial stream that is delineated on a flood map adopted by the Federal Emergency Management Agency after September 1, 1985, as zone A1-99, VO, or V1-30?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(7) and 335.205(a)(1).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	No
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barriers island or peninsula.	No
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	Not Applicable
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(12) and 335.205(a)(1).	

Flooding (see Section II Instructions, Item F)

Is the facility within a 100-year flood plain?	Yes
Has a flood plain map been provided?	Yes
Has information about flooding levels and events, and other special flooding factors, been provided?[3]	
Do any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.) designed to prevent washout from the 100-year flood?[3]	Yes

If Yes: provide in Section V an engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)][4]

If No: the applicant shall provide in Section V a plan for constructing flood protection devices and a schedule including specific time frames for completion. Provide engineering analyses to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)][5]

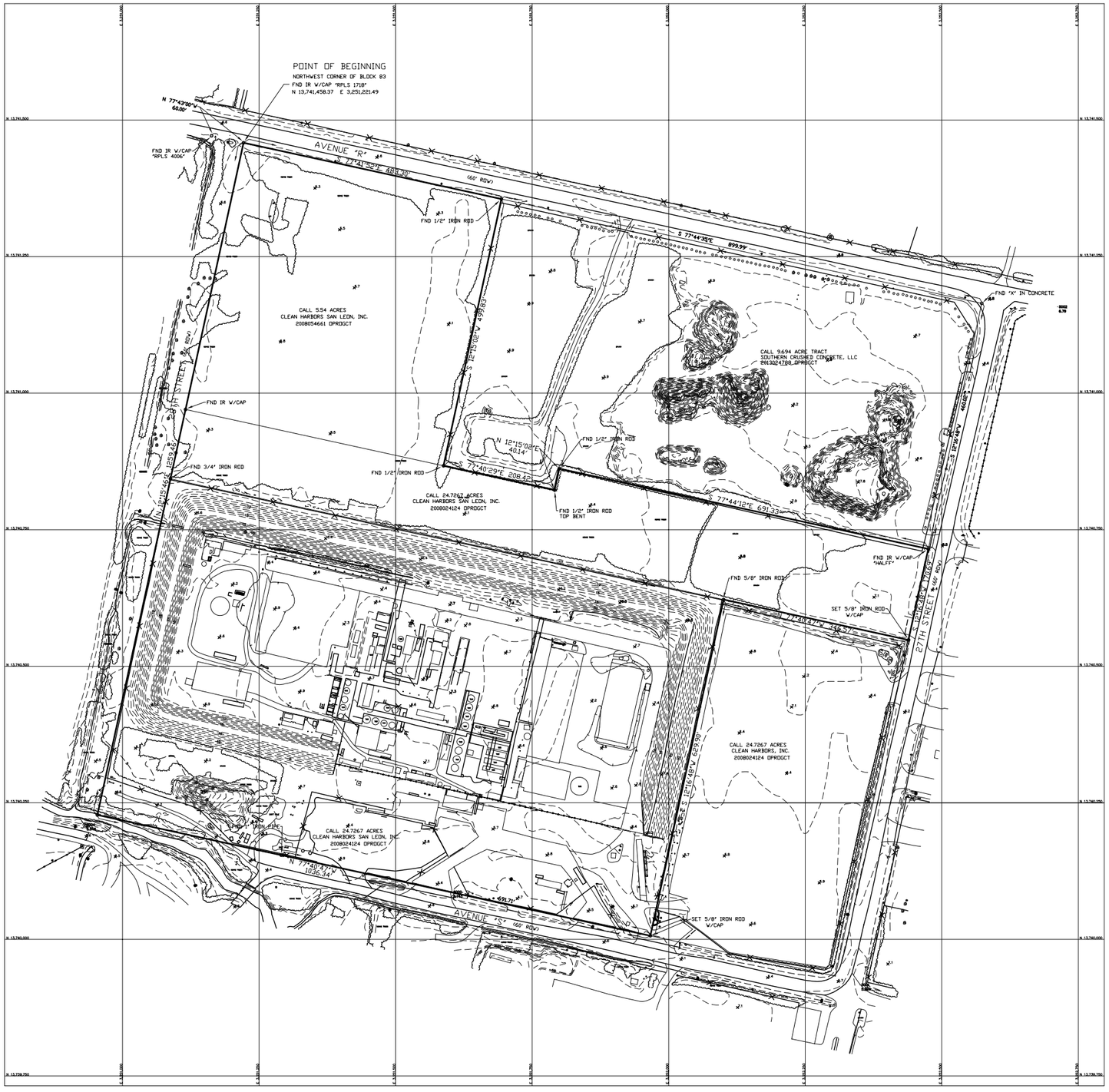
If applicable, and in lieu of the flood protection devices from above, was a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded provided?[3, 6]	Yes
Additional Information Requirements (see Section II instructions, Item G): Submitted?	No

1. Provide the source of information for all questions in the appendix.
2. Note: Land treatment facilities, waste piles, storage surface impoundments, and landfills may not be located on the recharge zone of a sole-source aquifer.
3. Only required to be submitted if the facility is subject to inundation as a result of a 100-year flood event.
4. Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]
5. Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]
6. The standards contained in §335.204(a)(6) - (9), (b)(7) - (12), (c)(6) - (11), (d)(6) - (11), and (e) (8) - (13) are not applicable to facilities that have submitted a notice of intent to file a permit application pursuant to §335.391 of this title (relating to Pre-Application Review) prior to May 3, 1988, or to facilities that have filed permit applications pursuant to §335.2(a) of this title which were submitted in accordance with Chapter 305 of this title and that were declared to be administratively complete pursuant to §281.3 of this title (relating to Initial Review) prior to May 3, 1988.[30 TAC 335.201(b)]

Attachment II.A

Miscellaneous Drawings

And Maps



100 0 100 200 300

GRAPHIC SCALE – FEET

N

BEARINGS AND COORDINATES BASED ON TEXAS COORDINATE SYSTEM
SOUTH CENTRAL ZONE NAD83 (2011)(EPOCH:2010.0000)
ELEVATIONS BASED ON NAVD88 (GEOID12A)

OPRDGCT DENOTES OFFICIAL PUBLIC RECORDS OF GALVESTON COUNTY, TEXAS

BOUNDARY OVERLAYED OVER DALLAS AERIAL SURVEYS, INC. MAP (JOB NO. 14104)
PHOTO DATE: 2-13-2014

AERIAL TARGETS SET BY MARTIN SURVEY ASSOCIATES, INC.

BOUNDARY SURVEYED ON THE GROUND: FEB. 07 THRU MARCH 20TH, 2014.

NAMES	DATE
DRAWN BY: KAD	03/2014
DESIGN:	
CHECKED:	
R. L. S.:	
APP'D:	
APP'D:	
APP'D:	

25.30 ACRE TRACT
BEING PART OF
BLOCK 83
SAN LEON FARM HOME TRACTS
VOL. 5, PG. 51, GALVESTON COUNTY MAP RECORDS
AMOS EDWARDS SURVEY, A-10
GALVESTON COUNTY, TEXAS

MARTIN SURVEY ASSOCIATES, INC.
PROFESSIONAL SURVEYORS, BOUNDARY CONSTRUCTION & TOPOGRAPHIC SURVEYS
8810 WILL CLAYTON PARKWAY SUITE "F"
HUMBLE, TEXAS 77338
(281) 446-8899

MARTIN FILE: DURATHERM FACILITY_TOPO_MSABDRY.DWG

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.
0	3/27/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

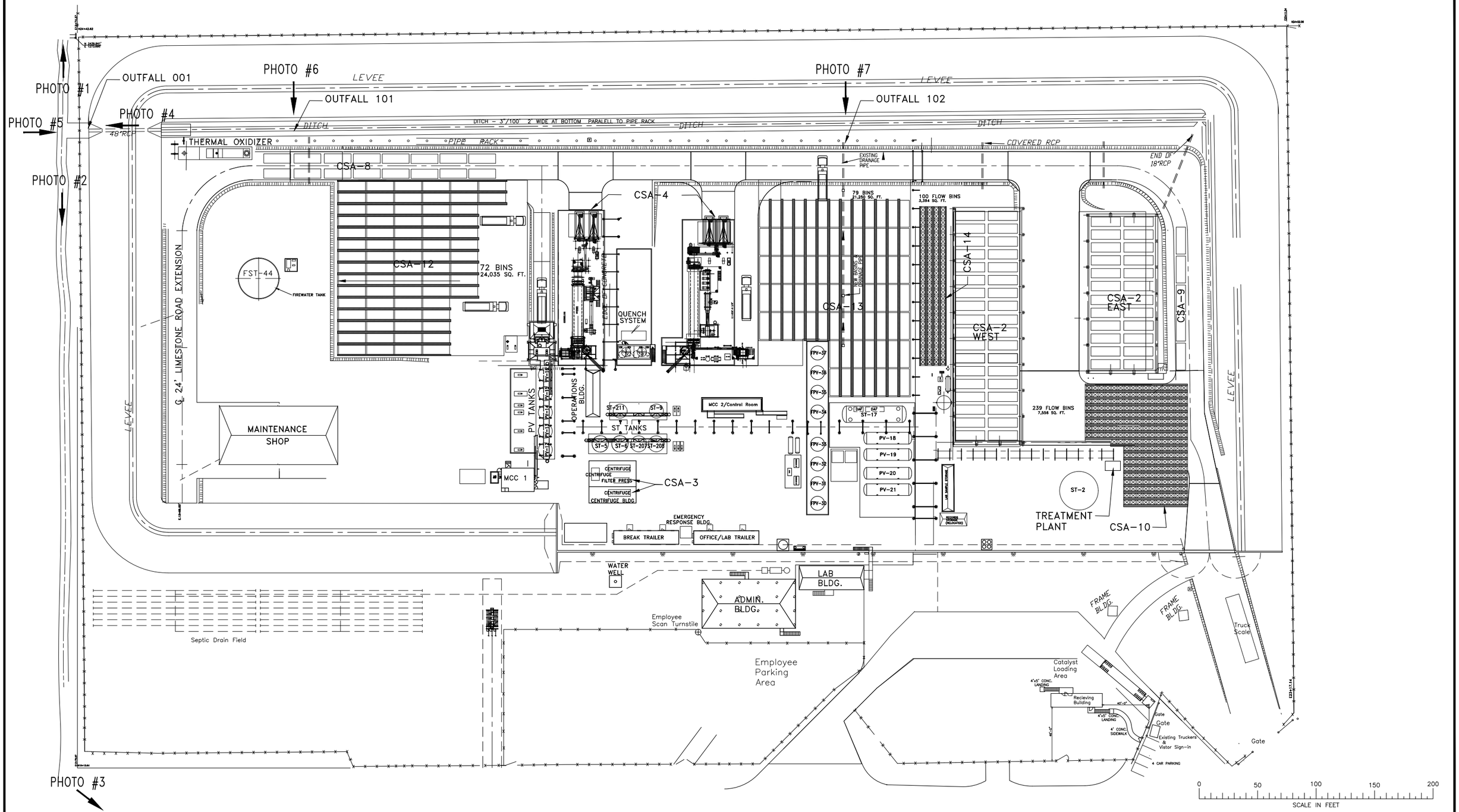
ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/27/14
CHECKED	REL	3/27/14
APPROVED	REL	3/27/14

CleanHarbors®
SAN LEON, INC.

SCALE: AS NOTED

TOPOGRAPHIC MAP
CLEAN HARBORS SAN LEON, INC.

DRAWING NUMBER 100-A REV. 0



REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	6	6/9/21	ISSUED FOR TPDES PERMIT	WDS	REL
	5	2/22/18	ISSUED FOR TPDES PERMIT	WDS	REL
	4	5/24/17	REVISED FOR ST TANK REPLACEMENT	WDS	REL
	3	2/17/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	SC
	0	9/8/93	1992 PERMIT APPLICATION	CR	SC

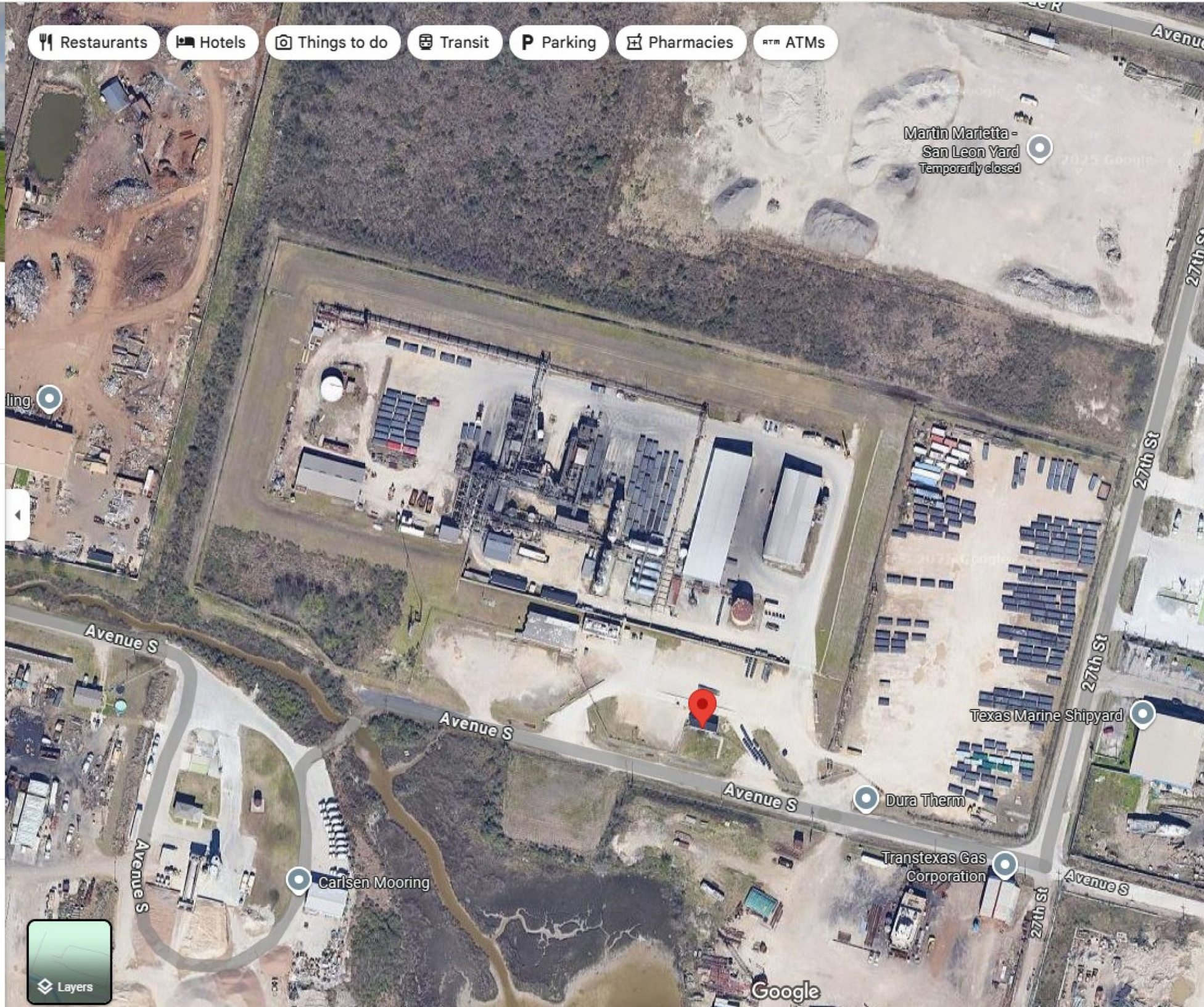
ENGINEERS RECORDS		DATE
DRAWN BY:	RT	9/8/93
CHECKED	SID	9/8/93
APPROVED	BH	9/8/93

CleanHarbors®
SAN LEON, INC.

SCALE: 1"=50'

FACILITY PLOT PLAN

DRAWING NUMBER 107 REV. 6



Share

Directions

NOTES TO USERS

...r use in administering the National Flood Insurance Program. It ...easily identify all areas subject to flooding, particularly from local ...ces of small size. The community map repository should be ...obsolete updated or additional flood hazard information.

...e detailed information in areas where Base Flood Elevations ... floodways have been determined, users are encouraged to ...ood Profiles and Floodway Data and/or Summary of Stillwater ...ies contained within the Flood Insurance Study (FIS) report that ...his FIRM. Users should be aware that BFEs shown on the FIRM ...ndad whole-foot elevations. These BFEs are intended for flood ...g purposes only and should not be used as the sole source of ...information. Accordingly, flood elevation data presented in the FIS ...be utilized in conjunction with the FIRM for purposes of ...odar floodplain management.

Flood Elevations shown on this map apply only landward of 0.0' ...n Vertical Datum of 1988. Users of this FIRM should be aware that ...elevations are also provided in the Summary of Stillwater ...ple in the Flood Insurance Study report for this jurisdiction. ...ent in the Summary of Stillwater Elevations table should be used ...n and/or floodplain management purposes when they are higher ...ions shown on this FIRM.

...the floodways were computed at cross sections and interpolated ...sections. The floodways were based on hydraulic considerations ...requirements of the National Flood Insurance Program. Floodway ...ter pertinent floodway data are provided in the Flood Insurance ...of this jurisdiction.

...not in Special Flood Hazard Areas may be protected by flood ...tures. Refer to Section 2.4 "Flood Protection Measures" of the ...se Study report for information on flood control structures for this ...

...s used in the preparation of this map was STATE PLANE TEXAS ...RAL FIPS 4204. The horizontal datum was the North American ...3 (NAD 83), GRS1980 Spheroid. Differences in datum, spheroid, ...State Plane zones used in the production of FIRMs for adjacent ...ay result in slight positional differences in map features across ...undaries. These differences do not affect the accuracy of this ...

...ns on this map are referenced to the North American Vertical ...8. These flood elevations must be compared to structure and ...ions referenced to the same vertical datum. For information ...version between the National Geodetic Vertical Datum of 1929 and ...rican Vertical Datum of 1988, visit the National Geodetic Survey ...s://www.ngs.noaa.gov/ or contact the National Geodetic Survey at ...ddress:

...on Services
...12
...ble Survey
...2
...st Highway
...Maryland, 20910-3282
...2

...ent elevation, description, and/or location information for benchmarks on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at www.ngs.noaa.gov.

...ormation shown on this FIRM was derived from Galveston Central ...ent, NOAA, National Geodetic Survey, Texas Natural Resources ...ystem, U.S. Fish and Wildlife Service and the U.S. Geological ...ey. It was provided in digital format using source material at a scale of ...1:24,000.

...ailed topographic information, this map reflects more detailed and ...ream channel configurations and floodplain delineations than ...on the previous FIRM for this jurisdiction. As a result, the Flood ...Roadway Data tables may reflect stream channel distances that ...ffer as shown on the map. Also, the road to floodplain relationships ...in streams may differ from what is shown on previous maps.

...ities shown on this map are based on the best data available at the ...e of publication. Because changes due to annexations or de-annexations may ...occur after this map was published, map users should contact ...appropriate community officials to verify current corporate limit locations.

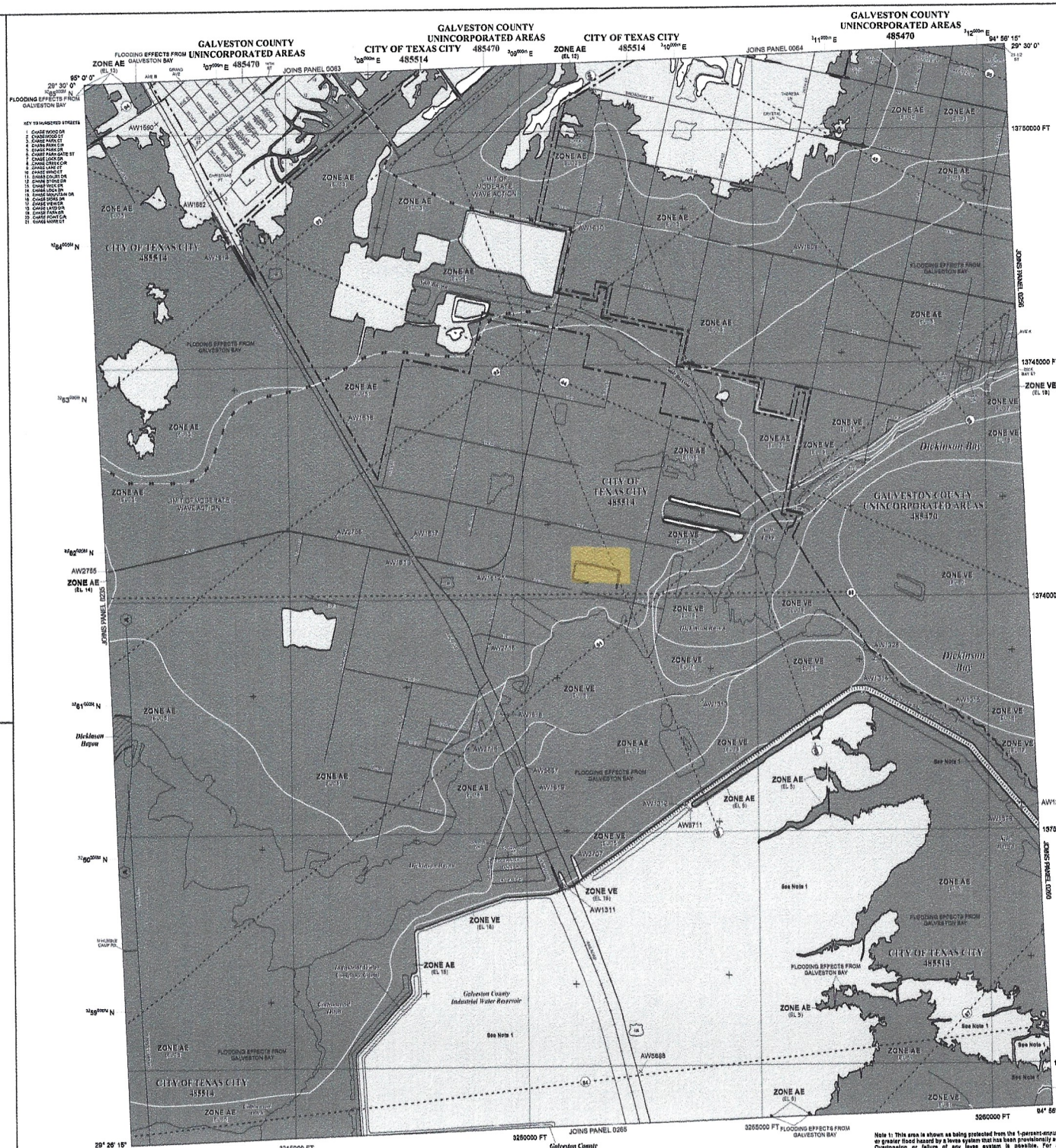
...to the separately printed **Map Index** for an overview map of the ...county showing the layout of map panels; community map repository addresses; ...and a Listing of Communities table containing National Flood Insurance Program ...dates for each community as well as a listing of the panels on which each ...community is located.

FEMA Map Information eXchange at 1-877-336-2627 for ...information on available products associated with this FIRM. Available products ...may include previously issued Letter of Map Change, a Flood Insurance Study ...Report, and/or digital versions of this map. The FEMA Map Information eXchange ...(FMIX) may be reached by Fax at 1-800-358-9620 and its website at ...www.msc.fema.gov.

Questions about this map or questions concerning the National ...Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-...2627) or visit the FEMA website at https://www.fema.gov/national-flood-...insurance-program.

...category has been divided by a Limit of Moderate Wave Action ...(LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot ...breaking wave. The effects of wave hazards between the VE Zone and the ...LiMWA between the shoreline and the LiMWA for areas where VE Zones are ...not identified will be similar to, but less severe than those in the VE Zone.

Key Accredited Levee Notes to Users: Check with your local ...community to obtain more information, such as the estimated level of protection ...which may exceed the 1-percent-annual-chance level) and Emergency ...Action Plan (on the levee system(s) shown as providing protection for areas on ...this map). To maintain accreditation, the levee owner or community is required ...to submit data and documentation necessary to comply with Section 65.10 of ...the NFIP regulations by October 11, 2013. If the community or owner does not ...submit necessary data and documentation or if the data and documentation ...indicate the levee system does not comply with Section 65.10 ...requirements, FEMA will revise the flood hazard and risk information for this area ...to reflect de-accreditation of the levee system. To mitigate flood risk in residual ...areas, property owners and residents are encouraged to consider flood ...proofing, elevation, or other protective measures. For more information ...on flood insurance, interested parties should visit the FEMA Website at ...www.fema.gov/businesses/nfip/index.shtm.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of SFHA include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- CBRS and OPA Boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- Culvert
- Bridge
- Footbridge
- 45° 02' 08", 93° 02' 12" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 5539000 N — 1000-meter Universal Transverse Mercator grid ticks
- 4999000FT — 5000-foot grid values: Texas State Plane Coordinate System, South Central Zone (4204), Lambert Conformal Conic
- DX5510 — Bench mark (see explanation in Notes to Users section of this panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
AUGUST 19, 2014

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0256C

FIRM
FLOOD INSURANCE RATE MAP

GALVESTON COUNTY, TEXAS AND INCORPORATED AREAS

PANEL 255 OF 600
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

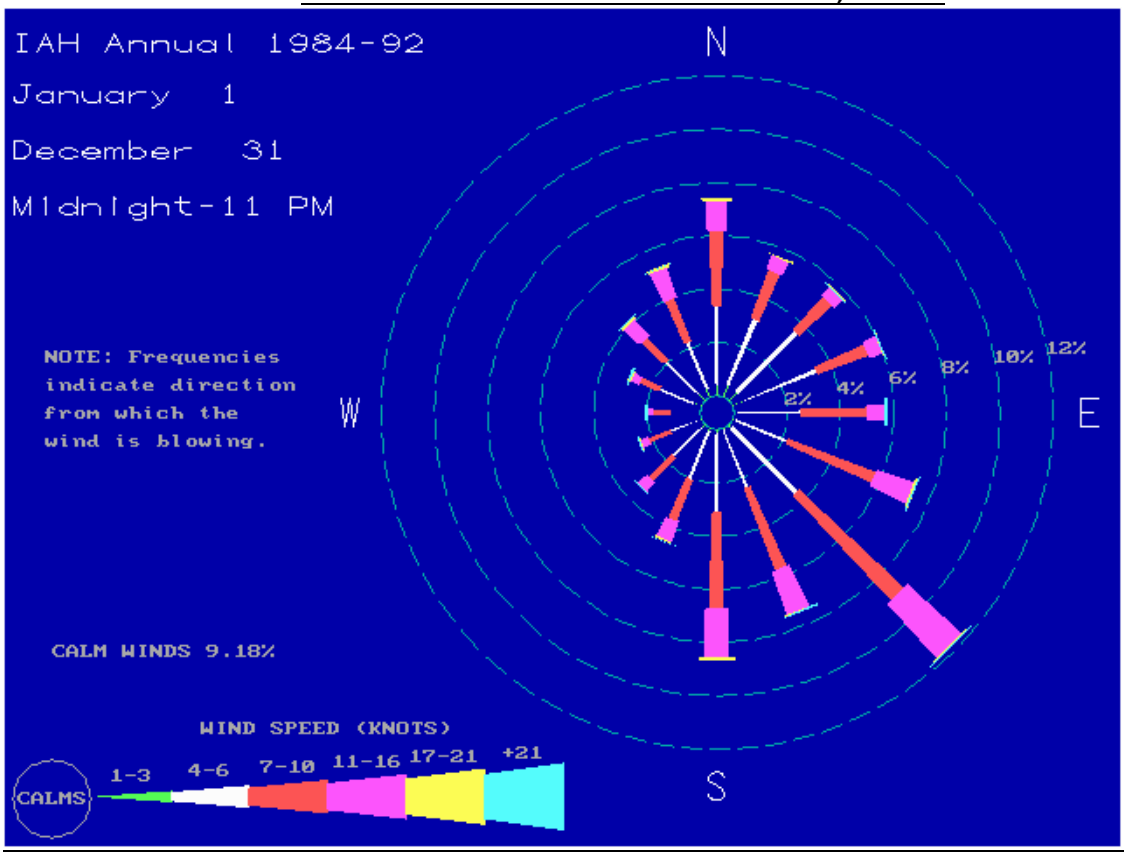
COMMUNITY	NUMBER
TEXAS CITY, CITY OF	485514
GALVESTON COUNTY	485470

MAP NUMBER 48...
EFFECTIVE DATE AUGUST...

Federal Emergency Management Agency

_

WIND ROSE DIAGRAM-Houston, Texas



http://www.tceq.state.tx.us/assets/public/compliance/monops/air/windroses/iahall.gi

SECTION III- Facility Management

Appendix III.A
Compliance History and Experience

Clean Harbors San Leon, Inc and its predecessor companies have operated the San Leon Recycling center under RCRA permit since April 1994. There have been no significant incidents resulting in the implementation of the facility contingency plan. A RCRA Facility Investigation (RFI) conducted in 2003 concluded that no releases had occurred in the tank farm area and that there are no underground storage tanks located at the facility.

Over the past 20 years agency inspections found only minor areas of concern. All problems were corrected promptly without escalating to adverse actions by the agency.

The facility safely processes more than 20,000 tons of waste annually. During the processing, a significant amount of hydrocarbons are recovered and re-utilized as BIF and kiln fuel or returned to the refining industry as feed for re-refining.

Appendix III.B
Personnel Training Plan

The purpose of this section is to outline the manner in which the Clean Harbors San Leon, Inc. employees will receive initial and continuing training. This training is based on Environmental Health and Safety and Compliance programs designed to identify, evaluate and control safety and health hazards and to provide for emergency response.

The training programs include detailed descriptions of safe work practices and standard operating procedures. Both classroom instruction and on-the-job training will be used to describe hazards which may be present, personnel responsibilities, engineering controls used to provide a safe workplace, the use of personal protective equipment, emergency response procedures, medical surveillance policy, and sources of medical assistance.

All facility employees will receive general orientation training describing the facility operations plus discussions of material safety data. General orientation training will include information on the characteristics of waste materials, handling of hazardous wastes, medical surveillance, and work practices. All employees will be familiar with the Contingency Plan and will be trained in emergency communications.

Training for employees is designed to ensure that facility personnel are able to respond effectively to emergencies. Operations personnel will have received training on how to respond to spills and fires or explosions, inspect and repair or replace facility emergency equipment, maintain and activate waste feed cut-off systems, facility shutdown operations and protect themselves from harmful exposure through the proper use of personal protective equipment and procedures. Administrative personnel will have received training in safe evacuation procedures.

Both classroom instruction and on-the-job training will be provided for all facility personnel. The initial training program will include approximately 40 hours of refresher training annually. On-the-job training will continue after the initial training and no employee will be allowed to work unsupervised until he has completed sufficient training to ensure that he can safely perform his duties in compliance with the applicable hazardous waste management requirements.

Job Description and Training Requirements

Personnel who work with hazardous waste at the Clean Harbors San Leon include the Facility General Manager, Operations Manager, Compliance Manager, Health and Safety Manager, Laboratory Manager, Shift Supervisor, Facility Foreman, Facility Tech, Board Operator, Shipping and Receiving Coordinator. The following pages describe the function of each position, and the training required of each person filling that position.

Facility General Manager

The Facility General Manager is responsible for the overall operation of the facility and laboratory. This person coordinates the shipment of raw material and finished product. This person must have a thorough knowledge of chemistry and various system operations required to blend fuels, reclaim solvents, oils, and other chemicals. The Facility General Manager may require the assistance of consulting engineers, chemists, or others in fulfilling his duties, but he has the basic responsibility for proper and efficient plant operation, quality control, safety and compliance, and maintenance. The Facility General Manager is responsible for ensuring the development of the facility training program and the annual training review. This person is also responsible for ensuring environmental inspections are carried out and that any remedial action required is performed. The Facility General Manager must have a knowledge of the environmental laws, rules, and regulations which relate to the operations of a recycling facility. This person must also be thoroughly familiar with the Clean Harbors San Leon Recycling Center Contingency Plan and the steps necessary to implement it.

Training: The Facility General Manager must be a person who is experienced in plant management or environmental operations. This person will receive and participate in providing the classroom training described in the training outline, which is provided later in this section.

Compliance Manager

The Compliance Manager will be responsible for overall compliance with environmental (TCEQ and EPA) compliance of the facility. This person will assist the Facility General Manager with the development, presentation, planning and coordinating of training programs, both in-house and off-site, if necessary. This person will be responsible for the

monitoring of records of personnel training required by TCEQ and EPA regulations. This person will also be responsible for maintaining all required environmental records and submitting required environmental reports to the agencies. This individual reports to the Regional Compliance Manager and requires a working knowledge of the relevant environmental and transportation regulations applicable to a RCRA permitted hazardous waste facility. In addition, he must be thoroughly familiar with the facility emergency plans including the Contingency Plan, Spill Prevention Control and Countermeasures Plan, Hurricane Plan and Storm water Management Plan.

Training: The Compliance Manager must be a person with detailed knowledge of environmental regulations. This person will receive on-the-job training from the Regional Senior Compliance Manger and classroom training, including environmental and safety regulatory seminars.

Health and Safety Manager

The Health and Safety Manger will be responsible for implementing the (OSHA) regulations and company safety policies and programs for the facility. This person will assist the Facility General Manager with the development, presentation, planning and coordinating of training programs, both in-house and off-site, if necessary. This person will be responsible for monitoring records of personnel training and medical surveillance required by OSHA hazardous waste regulations. This individual reports to the Regional Health and Safety Manager and requires a working knowledge of the relevant safety regulations applicable to a RCRA permitted hazardous waste facility. In addition, he must be thoroughly familiar with the facility emergency plans including the Contingency Plan, Spill Prevention Control and Countermeasures Plan, Hurricane Plan and Storm Water Management Plan.

Training: The Health and Safety Manger must be a person with demonstrated knowledge of safety regulations and emergency response operations. This person will receive on-the-job training from the Regional Health and Safety Manager and formal classroom training as appropriate.

Operations Manager

The Operations Manager supervises numerous operational groups and is responsible for the operating units to ensure the facility runs in a safe and efficient manner. This person inspects the daily operations and initiates any remedial actions required. Each day this person reviews the daily operational reports and enters proper comments into the log to explain actions taken. He issues orders to coordinate the work of the different shifts and coordinates maintenance requirements with the Shift Supervisor. The Operations Manager must have a thorough working knowledge of the Clean Harbors San Leon Contingency Plan and be prepared to implement the plan as necessary. The facility has more than one Operations Manager to efficiently manage different areas of the facility. Currently the facility utilizes two operations managers; however if deemed necessary the facility may utilize more than two operation managers in order to safely and efficiently manage the facility. The first Operations Manager is responsible for the operation of the units as listed above. The second Operations Manager is responsible for all shipping and receiving hazardous waste, raw materials and product.

Training: The Operations Manager will receive on-the-job training from the Facility General Manager or a designee and will also receive the classroom training outlined later in this section.

Laboratory Manager

The Lab Manager must have a thorough knowledge of the chemistry involved in the reclamation of solvents, oils, and other chemicals. He must also be knowledgeable of the analytical techniques required to properly analyze all incoming waste streams and plant products. The Lab Manager is responsible for the development and implementation of the facility's waste analysis plan. He is responsible for proper record keeping for all sample analysis results. The

Lab Manager must have knowledge of the environmental laws, rules, and regulations which relate to the operation of the facility. He must also have thorough knowledge of

the Clean Harbors San Leon Contingency Plan and be prepared to implement the plan as necessary.

Training: The Lab Manager will receive on-the-job training from the Facility General Manager or his/her designee and will also be required to know the Clean Harbors San Leon Waste Analysis Plan. This person will receive the classroom training outlined later in this section.

Maintenance Manager

The Maintenance Manager must be familiar with the inspection and operation of the various pieces of equipment and be able to diagnose the cause of malfunctions. They must be familiar with the daily inspection plan and must be able to conduct the required inspections and make remedial repairs. This person's responsibilities include understanding the mechanical, electrical, and process control systems. They must also have knowledge of the effects of temperature, pressure, corrosive chemicals, and processing techniques used at the plant. The Maintenance Manager must coordinate maintenance activities with the Operations Manager and Facility General Manager and assist in the general good housekeeping of the plant to ensure a safe and neat workplace. This individual is responsible for maintenance of the emergency equipment and for seeing that the equipment is stored in the proper place. This person plans schedules for personnel and equipment. This person monitors personnel training, safety, and health programs. This person is responsible for maintenance inspections concerning monitoring requirements for fugitive emissions control. The Maintenance Manager must have a thorough working knowledge of the Clean Harbors San Leon Contingency Plan and be prepared to implement all aspects of the plan as necessary.

Training: The Maintenance Manager will receive on-the-job training from the Facility General Manager and the Operations Manager. He/she will also receive the classroom training outlined later in this section.

Board Operators

Board Operators are charged with operating the thermal desorption units safely and efficiently. This person will monitor and correct the thermal desorber operating parameters to ensure safe and efficient operations. This person must also be familiar with various pieces of process equipment, pumps, filters, and valves. Operators must read meters and gauges, have a fundamental knowledge of the process flow. Operators are required to complete daily operational reports and to record events in the unit logbook. Operators must ensure general good housekeeping in the area to ensure a safe and neat work place. The Board Operator must have a thorough working knowledge of the Clean Harbors San Leon Contingency Plan and be prepared to implement all aspects of the plan as necessary.

Training: The Board Operator will receive on-the-job training from the Facility Foreman and the Operations Manager. He/she will also receive the classroom training outlined later in this section.

Facility Coordinator/Tech

Facility Coordinators/Techs have the following basic responsibilities relating to the management of hazardous waste:

- They must be able to make remedial repairs and assist with maintenance activities.
- They must be familiar with the use and location of plant emergency equipment.
- They must know the use and location of ESD Buttons which will shut down all plant equipment, pumps, and electric motors. They must also know the location of feed valves which shut off the flow of product to the various processing units.
- They must be familiar with the use of plant communication equipment and alarms, and the location of the telephone number of the plant emergency response coordinator.
    - They must be trained in the use of plant fire-fighting equipment.
- They shall be familiar with the in-plant system of dikes and valves to control the flow of product in the event of a spill.

- They shall be familiar with the loading and unloading of hazardous wastes and proper use of the necessary equipment to conduct loading and unloading.
- They shall be familiar with all plant operations and shall know the appropriate valve which will shut off the feed to the unit in their specific work area.

All facility Coordinators/Techs are also expected to perform routine maintenance.

Training: Facility Coordinator/Tech will receive on-the-job training from the Maintenance Manager and the Operations Manager. This training will include special sessions on fire fighting, process techniques, chemical handling and safety. Coordinators/Technicians will also receive the classroom training outlined later in this section. New coordinators/technicians are made familiar with plant procedures by the Maintenance Manager and Operations Manager.

Shipping and Receiving Coordinator

The Shipping and Receiving Coordinator shall understand the use of hazardous waste manifest, and be able to fill out this manifest, and record the unloading of manifested loads as well as Bill of Lading for product. This person shall be trained in DOT regulations and RCRA regulations for all incoming and outgoing hazardous materials, hazardous waste, raw materials and product. The Shipping and Receiving Coordinator must have a thorough working knowledge of the Clean Harbors San Leon Contingency Plan and be prepared to implement the plan as necessary.

Training: Shipping and Receiving Coordinators will receive on-the-job training from the Operations Manager and the Facility General Manager. This training will include classroom training outlined later in this section.

Personnel Training Outline

The following outlines the classroom introductory personnel training program that will be implemented at the Clean Harbors San Leon Facility.

1. Health and Safety Program

- Hazard Communication
- Medical Surveillance
- Decontamination
- Visitors and Security
- Material Handling
- Safety and Health hazards and employee protection
- Respiratory protection

2. Hazardous Waste Management (RCRA)

- Shipping and Receiving
- Loading/unloading and storage
- Container Management and satellite accumulation areas
- Waste segregation and possible incompatible waste reactions
- Recordkeeping requirements
- Waste Analysis Plan
- Daily inspections and corrective actions
- Thermal desorption systems
- Solids handling system
- Centrifuge systems and centrifuge mix and transfer systems
- Emissions control system
- Process heaters 1, 3 and 4
- Tank systems and ancillary equipment

3. Contingency Plan Implementation

- Emergency coordinator activities

- Spill response
- Emergency equipment
- Personal protective equipment
- Fire fighting
- Evacuation plan
- Hazard communication (SDS and SARA)
- Alarms, plant communications and signals
- Location of emergency showers and eyewashes
- Process shutdown
- Repairs
- Process resumption
- Emergency telephone number locations
- Decontamination procedures
- Confined space entry procedures
- Agreements with Local Authorities

Other possibilities:

- Company policies

Training Requirements

The training program is composed of classroom sessions and ongoing on-the-job training activities. These training components are combined to provide personnel with a level of training which is directly related to their level of responsibility in the waste management program and their specific job functions. At a minimum, the training will be consistent with OSHA 1910.120(p) and EPA 40 CFR 264.16.

Initial Training Period

All newly hired, transferred or cross-training personnel will complete classroom standard operating procedures and on-the-job training relating specifically to their assigned duties within six months of their assignment to the waste management positions. Classroom standard operating procedures relating specifically to assigned

duties will be reviewed every three years or if there is a change in the standard operating procedure.

Annual Review Training

At least once a year, facility personnel will attend a training review and update program. This program is an abbreviated review of the introductory training outline, coupled with a detailed review of existing emergency response procedures contained in the Contingency Plan. Emphasis is placed on discussions of how any changes in wastes, equipment, operations, procedure or regulations affect the Contingency Plan and emergency response activities. Additionally, questions and answer opportunities allow for discussion of any operational concerns, difficulties, malfunctions or incidents which have occurred in the past year.

Additional items included in this review are changes in the safety rules and environmental regulations affecting the operation of all plant systems. The safety aspect of each operation is discussed at length. Training is also conducted, teaching the proper use and maintenance of fire-fighting equipment available at the plant.

On-the-Job Training

The mastery of the specific skill or procedures will be accomplished through supervised on-the-job training activities. In general, all newly hired, transferred or cross-trained personnel will be assigned to assist fully trained and experienced personnel in the performance of their jobs. New employees will frequently be temporarily assigned to assist other personnel in the performance of activities which are peripheral to their primary job function so that they gain a more complete appreciation of the overall operation of the facility. Supervisory personnel will observe and evaluate the activities, performance and competence of the trainees over the course of their apprenticeship. During their initial training period, specific approval will be required before trainees are allowed to perform unsupervised activities which directly or indirectly involve hazardous wastes.

The entire training program prepares personnel to manage the wastes received safely and efficiently. In addition, on-the-job training provides intensive training and

experience in daily waste handling operations related to each employee's particular duties.

Record keeping

It is required that certain records relating to the training of hazardous waste facility personnel be maintained at the facility. The following items will be maintained at the facility as part of the Operating Record:

- Job title for each position at the facility relating to hazardous waste management, and the name of the employee(s) filling each position
- Written job descriptions for each position, including the requisite skill education, qualifications and duties of the employees assigned to each position
- Written description of the type and amount of both introductory and continuing training that will be given to each person filling a position
- Records that document that the appropriate training or job experience described above has been given to and completed by the facility personnel

Training records on current personnel will be kept until closure of the facility; training records on former employees will be kept for at least three years from the date the employee last worked at the facility.

Appendix III.C
Facility Security

Clean Harbors San Leon provides surveillance, access control, and security for the facility 24-hours per day, 365 days per year. A 6-foot high, cyclone and barbed-wire security fence encloses the entire perimeter of the facility. The perimeter fencing includes delivery and personnel gates as shown in Facility Plot Plan drawing number 100. Entryway gates through the perimeter barrier have been kept to the minimum number possible to comply with state, federal, and local safety and operational codes and to permit efficient ingress and egress to the facility.

Security at the facility during daytime operating hours is provided by personnel

working in the receiving building (see Drawing # 100). All deliveries to the facility will be directed to enter the facility through the southeastern entrance gates, after checking in with personnel at the receiving building. No visitors or deliveries will be allowed access to the facility without authorization from facility receiving or operations personnel. Visitors, contractors and truck drivers must sign-in and sign-out through the facility security system before entering and exiting the facility. This will entail either scanning through an electronic security system or making an entry in a security log book. Employees enter the facility through the main personnel gate. All vehicles entering and/or exiting the facility may be subject to search at the discretion of facility management. Deliveries will be scheduled during normal daytime working hours. If it is necessary to schedule deliveries during the night shift, special arrangements will be made with night shift personnel to assume security responsibilities at the entrance gates. Otherwise, security during the night shift will be provided by locking all access gates to the facility and assigning general security duties to night shift process personnel. The facility has security lighting activated by a photo-cell control to provide adequate levels of illumination during night time hours.

In addition to security surveillance, the facility is under constant 24-hour observation by operating personnel. Plant supervisors or their designees travel through the facility checking with the operators at each station to ensure that the systems are functioning properly.

The receiving building is equipped with a two-way radio and telephone to communicate with plant personnel and the administration office in the event of an emergency. A list of local police, fire and hospital phone numbers is maintained in the receiving building. This list includes appropriate after-hours phone numbers for company personnel which can be used in the event of a site emergency occurring after normal working hours.

Signs printed in English and Spanish with the legend "Warning - Unauthorized Personnel Keep Out" and "Danger - No Smoking" are posted at the entrances to the facility and along the fence perimeter at intervals not to exceed 175 ft. These signs are approximately 42-inches wide by 30-inches high with 4-inch lettering. The signs use a white background with red and black lettering to provide sufficient contrast to be legible from 25 feet away under normal conditions.

Supervisory employees and various operational personnel on-site are equipped with two-way/hand-held radios for communication within the facility. A description of the communication system is contained in the Contingency Plan. Radio communications are monitored at the operations building, the receiving building, the drum handling

building, and by appropriate management personnel in the administrative building. Plant personnel use the radios for both operational and security purposes and can easily alert management and security personnel to any emergencies or security breaches within the facility.

Appendix III.D

Inspection Schedule

An inspection schedule has been developed which will assist in providing the detection of malfunctions, deterioration, operator errors, and waste discharges from each type of hazardous waste management unit. The inspection schedule includes the following basic elements for inspection as detailed in Table III.D.

- Safety and emergency equipment
- Security and communication equipment
- Loading/unloading areas
- Process equipment, tanks and ancillary equipment
- Container storage areas

All inspection schedules will be kept on-site. Clean Harbors San Leon, Inc. will use the attached forms or a functionally equivalent form(s) in hard copy or electronic format. Each tank containment area has its own tank inspection sheet. Each thermal desorber has its own inspection sheet. The centrifuges are combined on one inspection sheet. The container storage areas are combined on one inspection sheet. The safety and emergency equipment forms have been suitably combined as four inspection forms: Annual Inspection Log, Monthly Fire Valve Inspection, Monthly Portable Fire Extinguisher Inspection, Weekly Emergency Equipment and Safety Equipment Inspection and Weekly Fire Pump Test. See Table III.D found in Attachment III Tables for elements of inspection. The lists of items on each log sheet are key indicators for preventing, detecting, or

responding to environmental or human health hazards. Observations and problems encountered during the inspections would be noted by each item and appropriate response actions would be initiated.

The frequency of inspections will vary for the items on the schedule. The frequency will be based on the rate of possible environmental or human health hazards. However, areas of high potential of spillage occurrence, such as loading and unloading areas, will be inspected on a daily basis when in use.

Response Actions

In the event of hazardous waste releases to the environment, actions will immediately be taken to contain the release, store it in the proper container, and remediate the affected area. Details concerning emergency response actions are included in Section III.E the Contingency Plan.

Inspection logs are used to identify and record discrepancies found on any equipment within the facility for which failure could lead to the endangerment of public health of the surrounding environment. These records include the date and time of the inspection, the name of the inspector, and a notation of the observations made. When a deficiency is detected, it is recorded on the Inspection Log, and the operations manager, or his designated representative, initiates a work ticket.

This work ticket, along with the date and nature of any repairs or other remedial actions taken to correct the cited deficiency are included in the facility operation files.

Appendix III.E
Contingency Plan

1.0 General Information

1.1 Purpose

The information contained in this Contingency Plan has been prepared in accordance with the requirements of 40 CFR 270.14(b)(7) and 264 Subpart D.

The purpose of the Contingency Plan is to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil or surface water. This plan is designed to provide guidance in the event of a site emergency. Specific actions are described for personnel of the San Leon Facility to follow in the event of an occurrence which could impact the health and safety of onsite personnel or people in the surrounding area. Based on specific knowledge of the emergency, any other actions deemed necessary to control the event may also be taken.

The provisions of this plan will be implemented upon the occurrence of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment. These procedures are not intended to be implemented for routine, contained clean-up operations which pose no threat to human health or the environment.

1.2 Facility Location

Clean Harbors San Leon, Inc. is located in a rural industrial section of Galveston County, with less than 200 people residing within a one-mile radius, approximately 3/4 mile east of State Highway 146 on the north side of Dickinson Bayou. See Figure 1-1 for the general facility location. The facility street address is: Clean Harbors San Leon, Inc., 2700 Avenue S, San Leon, Texas 77539.

From State Highway 146, the specific access route to the facility is as follows:

- From State Highway 146, go east on FM517 approximately 3/4 mile to Ave. R
- Go east on Avenue R approximately 1/2 mile to 27th Street
- Go south on 27th Street, approximately to Avenue S
- Go west on Avenue S to the Clean Harbors San Facility entrance.

The administrative and receiving offices are located just outside of the southern portion of the facility flood control dike. The operations building is centrally located within the facility. Both the administration and the operations buildings are in Attachment III B.

1.3 FACILITY DESCRIPTION

The Clean Harbors San Leon Facility recovers petroleum products from oil bearing wastes and recovers chemical products and hazardous waste fuels from petrochemical and chemical plant wastes. Recovered products will be sold. Recovered hazardous waste fuels will be sent to off-site authorized hazardous waste fuels facilities. Residues from the processes consist of wastewater and solids. Wastewater will be stored for off-site treatment. Solids are disposed of in off-site treatment facilities or landfills in compliance with hazardous waste land disposal restriction requirements. First flush rainfall run-off will be collected and inspected (also periodically tested) prior to discharge in accordance with our TPDES permit. Run-off not suitable for discharge will be stored pending off-site treatment and disposal.

The hazardous waste management and recycling units at the facility consist of a container storage area (roll-off boxes), tanks, a thermal desorption system, a centrifuge system and truck loading facilities. All of the facility's tanks, recycling equipment, and truck loading facilities are operated under a nitrogen inerting system which controls air emissions. Excess vapors from the nitrogen inerting system are vented to a thermal oxidizer. Table 1-1 lists each of the facility waste management and recycling units. Attachment III B shows the general layout of these units. The facility includes units which are currently not in use or not installed and will remain inactive (empty). These units include Centrifuge 4, Heater 4, the Dissolved Air Flotation (DAF), the Filter Press, the Waste Pre-treatment

Container, the Waste Pre-treatment Building and the Wash/Decon Station, Tanks A, B, C and D located in Pre-treatment Building.

The recycling systems (thermal desorption system, Desorb-1 and Desorb-2) included at the facility are composed of:

- An externally heated rotating drum
- Vapor condensation and phase separation vessels
- Fin-fan cooling system

The facility is currently capable of receiving materials mainly via tank truck and roll-off box transport truck.

1.4 Waste Managed

Attachment III A lists all of the hazardous wastes, by EPA waste code, managed at the facility. The majority of materials processed will be oily sludges from the petroleum refining industry and used oil.

TABLE 1-1
HAZARDOUS WASTE MANAGEMENT UNITS

Active Container Storage Areas

CSA	Container Type	Number
CSA2	Metal Roll-off Boxes	60
CSA8	Metal Roll-off Boxes	16
CSA9	Metal Roll-off Boxes	5
CSA10	Metal Roll-off Boxes or other container types	239
CSA12	Metal Roll-off Boxes or other container types	72
CSA13	Metal Roll-off Boxes or other container types	79

CSA14	Metal Roll-off Boxes or other container types	100

Active Process Equipment

Vessel ID	Description
Desorber 1	Thermal Desorption System
Desorber 2	Thermal Desorption System
Centrifuge 1	Thermal Process Unit
Centrifuge 3	Thermal Process Unit

Active Tanks

Tank ID	Diameter (ft)	Height (ft)	Capacity (gal)
ST 2	33	40	255,948
ST5	14	20	23,100
ST6	14	16	18,900
ST9	12	15	12,600
ST211	12	15	12,600
PV12	12	8′ 6′′ s/s[1]	9,786
PV13	12	8′ 6′′ s/s[1]	9,786
PV14	12	8′ 6′′ s/s[1]	9,786
PV15	12	8′ 6′′ s/s[1]	9,786
PV16	12	8′ 6′′ s/s[1]	9,786

ST17	14	47'9'' s/s[1]	63,000
PV18	10	36' s/s[1]	25,200
PV19	10	36' s/s[1]	25,200
PV20	10	36' s/s[1]	25,200
PV21	10	36' s/s[1]	25,200
FPV30	12	32 s/s[1]	30,870
FPV31	12	32 s/s[1]	30,870
FPV32	12	32 s/s[1]	30,870
FPV33	12	32 s/s[1]	30,870
FPV34	12	32 s/s[1]	30,870
FPV35	12	32 s/s[1]	30,870
FPV36	12	32 s/s[1]	30,870
FPV37	12	32 s/s[1]	30,870
T-0256	5'5''	6'4''	4,166
T-200	14'8''	20'	40,908
ST 209	12'	15'	12,600
ST 207	13'8"	20	21,940
ST 208	13'8"	16	17,550

[1] "s/s" is seam to seam

2.0 Emergency Coordinators

Table III.E.2 found in Attachment III Tables lists the San Leon Facility emergency coordinator and alternate. The emergency coordinator and alternate have been chosen based on their knowledge of the facility operations, experience and educational background. These individuals are thoroughly familiar with all aspects of the Contingency Plan, the general facility layout, various operations conducted at the facility, the locations and types of waste handled, the location of emergency equipment and locations of all records.

This Contingency Plan is designed to provide guidance to the emergency coordinator once a site emergency has occurred. Each potential emergency coordinator has been given full authority to commit the necessary resources for implementing this plan.

Should an emergency occur, the emergency coordinator will be notified immediately. Should such an emergency result after normal working hours, an after-hours phone list is maintained by all personnel and at the operations, administration and security building. This list includes all home telephone numbers, mobile telephone numbers, and/or personal pager phone numbers, where appropriate.

2.1 Emergency Coordinators

In general, the emergency coordinator is responsible for:

- Determining the nature of the emergency,
- Implementing the Contingency Plan when appropriate,
- Coordinating all on-site activities with local, state, and federal emergency management personnel,
- Making all required notifications and
- Determining when the emergency has passed.

TABLE 2
EMERGENCY CONTACT LIST Primary/Alternate

EMERGENCY COORDINATORS:

Position/Name	TELEPHONE	Home Address
Primary General Manager: David Cummings	936-332-2944 Home 936-332-2944 Mobile	4901 Hayes Alvin, TX 77511
Alternate Plant Manager: Darius Stewart	346-425-1000 Home 346-425-1000 Mobile	15502 Maple St Santa Fe, TX 77517

NOTE: Contact in order listed.

The following subsections detail specific procedures to be implemented by the facility emergency coordinator, or designee, once the contingency plan is implemented. Based on specific knowledge of the emergency, any other actions deemed necessary to control the event may also be taken.

2.1.1 Activate Alarms

The facility is situated on approximately 14 acres of land and is projected to employ a maximum of 75 employees, with about 40% being in administrative and laboratory positions. For these reasons, a simple emergency notification system is adequate. An air horn is centrally located in the heart of the operations area. Push button alarm stations are located throughout the facility and are used to sound the alarm. The emergency coordinators, operations manager, and facility foreman are the only personnel authorized to sound the emergency alarm. The horn system signals for various emergency events are as follows:

Intermittent Tone	**Fire or explosions**
Horn	**Hazardous waste spill**
Siren	**Facility wide evacuation**

At the onset of an emergency situation, the emergency coordinator will also establish two-way radio communications with plant management, security and operations personnel.

2.1.2 Identification of Hazardous Materials

In the event of an emergency, the emergency coordinator will immediately identify the character, exact source, amount and a real extent of any released materials. This may be done by observation, discussion with operations personnel, review of manifests, facility records, or Material Safety Data Sheets (MSDSs). If necessary, chemical analysis may be performed. The SDSs are located in the control room, the Laboratory and the Health & Safety office.

2.1.3 Hazard Assessment

Concurrently with the identification of the hazardous materials, the emergency coordinator will assess possible direct and indirect hazards to human health or the environment. Assessment of the potential hazards of an emergency situation, as a minimum, will include determination of the following:

1. Hazardous properties of the material involved by review of SDSs or available analytical data, as appropriate.
2. The population at risk (both on-site and off-site).
3. Environmental conditions contributing to the seriousness of the situation, such as wind speed, ground moisture, relative humidity, temperature, etc.
4. Readiness and suitability of emergency response equipment.

TABLE 3-1
OFFSITE LOCAL AUTHORITIES

Ambulance	Rural Metro	911
Air Ambulance	Life Flight	713-797-4357
Chemtrec		800-424-9300
Clinic	Bayport Occup. Med Ct	281-470-0543
Emergency Mgmt Off.	Galveston County	281-337-3100
Fire Department	Texas City Fire Dept	911
Fire Department	San Leon VFD	911
GLO Emergency Response		800-832-8224
Health District	Galveston County	409-938-2251
Hospital (closest)	Mainland Hospital Texas City	(409) 938-5000 or 281-996-5000
National Response Ctr		800-424-8802
Sheriff	Galveston county	911
TCEQ		713-767-3563
TX New Mexico Power	24 Hours	281-534-3571
TX Response Center		512-483-7727

TX Parks & Wildlife	Wildlife Rescue	512-389-4848
Vacuum Truck Services	CHES	1-800-645-8265
Marine Spills	CHES	1-800-645-8265
Vendor Safety Supply	Clean Coast	1-409-877-3676

Letter for agencies agreement on Page 45

2.2 Criteria for Implementation of the Contingency Plan

The decision to implement the Contingency Plan will depend on whether the incident presents a potential hazard to human health, could result in the release of hazardous waste to the environment, or could affect people in the areas surrounding the facility. Section 3.0 of this plan describes some of the potential causes of a site emergency and preventative measures that will be taken to prevent an emergency from occurring.

2.3 Training and Drills

Facility personnel and Emergency Coordinators will receive annual refresher training on all aspects of the contingency plan. Other emergency response personnel will receive job specific training on this plan as part of the annual HAZWOPER Refresher course. In addition, at least one contingency response or facility evacuation drill will be conducted each year.

3.0 Preventative Measures for Possible Emergencies

Site emergencies could occur at any time as a result of a process malfunction, fire or explosion, accident, hazardous waste spill, security breach, or catastrophic natural disaster, which may be caused or result from any number of reasons. Table 3-2 summarizes the various types of emergency situations that may require the implementation of the Contingency Plan. This list is not all inclusive and certainly, unforeseen events could occur that may require implementation of the plan. The following subsections describe each type of possible emergency situation and the preventative measures taken to reduce the likelihood that these situation arise.

3.1 Process Malfunction

A facility emergency situation could occur as the result of a process malfunction. To prevent this, critical process equipment at the facility is equipped with an alarm system to alert personnel of abnormal conditions and allow for appropriate operator action. An automatic shutdown system will be utilized in the event of a process malfunction on certain critical process equipment such as heaters, emission control system, and the thermal desorption system. The philosophy of the automatic shutdown system is to maintain the facility in the operating mode unless a potentially hazardous abnormal situation develops. Details on the operation of automatic shutdown systems at the facility are included in the facility's Part 8 permit application. Operators will be trained to respond to emergency shutdown conditions.

TABLE 3-2
TYPICAL EMERGENCY SITUATIONS FOR IMPLEMENTING THE CONTINGENCY PLAN

Emergency	Possible Effects
Fire and/or explosion	1. Fire cannot be contained with on-site firefighting equipment.
	2. Flammable vapors are released outside the vapor control system.
	3. Imminent danger of a fire and/or explosion.
Spillage	1. Spill exceeds the secondary containment capabilities.
	2. Spill could release toxic fumes or liquids which could harm human health
	3. Spill cannot be contained and may cause contamination off-site.
Natural Disaster	1. A hurricane or tornado has damaged the facility.
Security	1. The facility's security has been breached and sabotage may result.

3.2 Vapor Release

The vapor recovery and emission control systems at the facility incorporate state-of-the-art equipment and a "contingent systems" design philosophy for safe and effective emissions control.

All emission control systems at the facility are designed with automatic safety devices. In the event of an unsafe condition or violation of system integrity, the safety devices will activate an alarm such that plant personnel will be alerted to stop waste feed to the system or take other appropriate actions to correct the situation.

Vapor recovery systems area used on storage and process tanks, loading/unloading facilities, the solids handling facility and associated recycling equipment (thermal desorber). Vapors emitted are contained in a vapor header system, which acts to balance vapors during tank loading and unloading operations. Any excess emissions which are not balanced within the vapor header system are controlled by the thermal oxidizer OX-1.

3.3 Fire or Explosion

All site personnel are instructed concerning fire safety as part of their initial hire and annual RCRA/OSHA training. Numerous fire and explosion prevention devices have been designed as an integral part of the facility. These include:

- Grounding of all tanks, vessels, and truck loading equipment
- Nitrogen blanketing of liquids in all tanks and recycling equipment
- Tanks and process equipment are segregated by secondary containment systems, which could prevent the spread of fire.
- Combustible gas/vapor indicators (CGI) and oxygen meters are used by personnel performing maintenance procedures requiring hot work or confined space entry.
- Grounding and bonding clamps will always be used during any truck loading/unloading operation to prevent accidental sparking.

Additional safety devices, which are an integral part of the facility's process equipment, are described in the Engineering Report in the facility's Part B permit application.

In addition, smoking is restricted to the administration area located outside of the operating area. Smoking in operational areas is strictly prohibited.

The facility-wide fire protection system has been designed in accordance with NFPA 22. It provides a firewater supply system and fire pump, monitors, fixed spray deluge system, two wheeled dry chemical units, and multiple dry chemical extinguishers. Detailed information on the facility fire protection system is provided in Section 5.0 of this plan. Attachment III C shows the layout of the facility's firewater and foam systems.

3.4 Spills

The facility's HWMUs are described in Section 1.3 of this plan and Section 1.4 provides information on the wastes managed which could be spilled.

The environmental consequences of an accidental spill of any of these hazardous wastes have been substantially reduced by providing secondary containment for the entire facility, in accordance with applicable federal and state regulations. Thus, only a spill which was in excess of the secondary containment systems would pose any threat to the surrounding environment, except possibly via vapors that may be generated from the spilled material.

The spill containment system for the facility's hazardous waste container storage area (CSA-2) consists of a concrete base and curb to prevent migration of wastes to underlying soil. CSA-2 is covered to minimize rainfall onto the containment. The spill containment system for CSA-2 is designed to hold the volume of 10% of the total container volume. CSA-2 drains to a sump from which rainwater is pumped. In the event of a release, an emergency pump or vacuum truck would be used to remove the spilled materialand pump it to the facility's wastewater or waste storage tanks.

The container storage areas (CSAs) 8, 9, 10, 12, 13 and 14 are used to store waste without free liquids that pass the paint filter test. These areas are inspected daily, and spill kits are located in each area. In the event of a spill in these CSAs, the material would be picked up immediately. If the container holding the solid hazardous waste is damaged, it will be moved to CSA-2 containment storage area until the solid hazardous waste can be placed in another container or processed.

The facility's storage tanks are located inside of four separate secondary containment systems:

AREA A	AREA D	AREA B	AREA C
ST-17 and PV18 through PV21	FPV30 through FPV37	ST5 through ST10 and ST211	PV12 through PV16

For each area, the secondary containment system is designed to hold the volume of the largest tank plus rainfall from the 25-year, 24- hour rainfall event.

In addition to these secondary containment systems, the facility tanks are equipped with high level alarms.

The desorber and process vessels listed in Section 1.3 of this plan are skid mounted and are placed on concrete spill containment pads. The concrete pads are curbed to prevent rainfall run-on and contain spills. Each concrete pad drains to a sump for management of rainfall.

The area outside of the tank and process vessel spill containment pads is earthen with a gravel cover. This allows for easy clean-up (removal and replacement of visually stained gravel and soil) of any spills which may occur.

In addition, the two-foot-high facility roadway blocks the natural drainage pathway from the facility process area and acts as a spill containment barrier. The drainage culverts beneath the roadway can be blocked to prevent spilled material from reaching the facility drainage ditch. The roadway is also shown in Attachment III B.

Finally, the entire facility is surrounded by a flood control dike. This should serve to prevent the release of waste from the facility boundary in the unlikely event that the release escapes the secondary containment and spill control systems.

The facility stormwater discharge conveyance system consists of a ditch/culvert system equipped with a discharge gate, which can be closed in emergencies. In a spill emergency situation, water would only be discharged via the stormwater outfall if it met the TPDES permit discharge criteria.

3.5 Accidents

Actions taken to prevent accidents from occurring as a result of routine operations or during an emergency situation include:

- Being continually on the lookout for and being aware of potential accident situations
- Maintaining good housekeeping (spills, leaks, etc.)
- Implementation of an effective work permit protocol
- Cleaning up debris which may be generated from routine operations and maintenance activities
- Restoring all equipment (emergency and otherwise) to its original operating condition
- Recovering and isolating affected containers
- Containing and collecting all released material
- Recovering and isolating defective containers
- Prohibiting smoking in operational areas
- Using spark-proof tools when necessary
- Protecting areas affected by spills from open flames, cutting and welding activities, hot surfaces, friction heat, etc.
- Having standby fire-fighting equipment maintained in a ready state until the emergency is over
- Determining the source or cause of all incidents and remediating the situation to prevent reoccurrence
- Ceasing operations and turning off all auxiliary fuel lines and power supply to the affected area
- Ensuring fires are completely extinguished

Also, to ensure safe and efficient facility operations, all equipment and facility components are maintained on a stringent maintenance program in accordance with component manufacturers' recommendations.

In the event that an accident does occur, Clean Harbors San Leon has numerous systems in place to provide for adequate response. These systems include:

- Alarms and emergency communications equipment
- Telephones for summoning emergency assistance

- Personal protective equipment
- Emergency showers and eye wash facilities
- First-aid equipment

These systems and equipment are described in more detail in Section 5.0 of this plan.

3.6 Natural Disaster

The San Leon Facility is completely surrounded by a flood control dike that has been designed to protect the facility from a 100-year flood event. During such an event, all systems would be secured prior to evacuation of the facility, if needed. The gate valve at the storm water outfall and the storm surge wall gates would be closed to prevent any release from leaving the facility's boundary and to prevent storm water from outside the facility from entering.

3.7 Security Breach

A 6-foot high cyclone and barbed-wire security fence encloses the entire perimeter of the Clean Harbors San Leon Facility. The perimeter fencing includes delivery and personnel gates as shown in Attachment III B.

Security at the facility is provided by an enclosed gated entrance. All deliveries to the facility will be directed to enter the facility through the southeastern entrance gate, after checking in with personnel at the security office. No visitors or deliveries will be allowed access to the facility without authorization from Clean Harbors personnel at the Receiving Building.

Additional security during the night shift will be provided by locking all access gates to the facility. The facility has security lighting activated by a photo-cell control to provide adequate levels of illumination during hours of darkness.

The security office is equipped with a two-way radio and telephone to communicate with plant personnel and the administration office in the event of an emergency. A list of local police, fire and hospital phone numbers is maintained at the security office. This list includes appropriate after-hours phone numbers for company personnel which can be used in the event of a site emergency occurring after normal working hours.

Signs printed in English and Spanish with the legend "Warning-Unauthorized Personnel Keep Out" and "Danger-No Smoking" are posted at the entrances to the facility and along the fence perimeter at intervals not to exceed 175ft. The signs use lettering to provide sufficient contrast to be legible from 25 feet away under normal conditions.

Supervisory employees, safety and various operations personnel on-site are equipped with two-way/hand-held radios for communication within the facility. Radio communications are monitored at the operations building, the security office, and by appropriate management personnel in the administrative building. Plant personnel use the radios for both operational and security purposes and can easily alert management and security personnel of any emergencies or security breaches within the facility.

4.0 Emergency Response Procedures

In the event of an emergency, if it is determined to be within Clean Harbors San Leon's emergency response capabilities, the emergency coordinator will contact and deploy the necessary in-plant personnel. If the incident is beyond plant capabilities, the emergency coordinator will contact the appropriate agencies for assistance. A list of the agencies and phone numbers is provided in Table III.E.2 found in Attachment III Tables.

The initial priority of all emergency response activities is to protect human health and safety, and then the environment. Identification, containment, treatment and disposal assessment will be the secondary priority. Firefighting and spill containment will not be done at the risk of injury to the persons involved. However, early containment of releases and incipient stage fires can significantly decrease potential risk to personnel and equipment or harm to the environment.

4.1 Remedial Action for Released Materials

In the event of a release of hazardous waste, as much of the contaminated material as possible will be recycled/treated on-site. Accumulated materials will be containerized to the extent practicable for on-site treatment or off-site shipment. Should the nature of

the recycling/treatment be outside the scope of the facility's activities, arrangements for any necessary off-site treatment or disposal will be completed as soon as possible after the conclusion of the emergency. If large quantities of a hazardous waste which require off- site recycling/treatment are generated during the emergency clean-up operations, bulk trucks will be used to transport this waste off-site as it is excavated, pumped, or made ready for off-site storage, treatment, or disposal. Immediately after an emergency, the emergency coordinator will have representative samples of all recovered wastes, contaminated soils, and waters characterized, if needed for off-site disposal purposes.

In the event of an emergency, persons involved in the response activities will perform the following tasks:

- Make certain all untrained and unnecessary persons are removed from the affected area.
- Put on protective clothing and equipment.
- Place all containment and clean-up materials in containers for proper disposal.
- Clean or dispose of contaminated equipment and clothing as necessary.
- Decontamination of affected areas would be undertaken, as required, to maintain a safe work environment and to minimize any potential environmental impact.

4.2 Fire and/or Explosion

In the event of a fire or explosion, personnel have been instructed to do the following:

- Activate the emergency alarm system.
- Notify the primary emergency coordinator immediately.
- Notify fire and police department, if appropriate (emergency coordinator's responsibility).
- Close all feed lines to affected tanks or processing units.
- If deemed appropriate by the emergency coordinator:
- Operate on-site firefighting equipment such as water and foam system.
- Procure fire extinguishers and attempt to control or extinguish the fire.
- Remove or segregate, depending on the location of the fire, all burning waste (e.g., drums, vehicles) from the vicinity of the accident.
- Notify all appropriate state, federal and local emergency response agencies.

- Evacuate all site personnel in the vicinity of the accident not actively involved in fighting the fire. These persons are to report to the designated assembly location for accountability, as indicated in Section 6.0 of this plan.
- Minimize use of telephone lines to keep lines open to handle emergency calls only.

4.3 Spills

In the event of a spill or release, all material will be contained on-site if at all possible. This will be accomplished by the use of one or more of the following emergency spill containment and clean-up equipment:

- Earthen dikes
- Absorbent spill pads, boom or loose absorbent material
- Drums
- Valves or plugs in drainage culverts

If an employee discovers a spill of hazardous waste or a process problem resulting in a vapor release, he or she will immediately report it to the emergency coordinator. When contacted, the following information, as a minimum, will be given to the emergency coordinator.

- Material spilled or released.
- Location of the release or spill.
- An estimate of the quantity of material released and the rate at which it is being released, if continuing.
- The direction in which the material is heading.
- Any injuries involved.
- Fire and/or explosion or possibility of these events.
- The area and materials involved and the intensity of any fire or explosion.

This information will help the emergency coordinator to assess the magnitude and the potential seriousness of the spill or release. Then, under the direction of the emergency coordinator, the following actions will be taken:

- If released materials have not been effectively contained by existing

systems, prevention of further migration of the waste to solids or surface waters will be accomplished by using readily available absorbent or other materials to divert, contain or absorb the release.

- Isolate the source of the spill or release and make any appropriate temporary repairs.
- Remove any equipment or materials near that could interfere with clean-up actions.
- Within 24 hours of the release, if possible, all waste materials will be removed and transferred to appropriate storage. All wastes released to secondary containment systems will also be removed within 24 hours, if possible.

4.4 Natural Disaster

In the event of any emergency caused by severe weather (i.e., tornado, hurricane, wind gusts, high-intensity rainfall, hard freeze, etc.), the following types of actions may be taken, under the direction of the emergency coordinator:

- Visually inspect tanks to ascertain structural integrity
- Close windows and doors
- Secure small containers or move them to secure location
- Close gate valve in stormwater culvert
- Emergency shutdown
- Facility evacuation, if necessary
- Close storm gate in concrete storm surge wall

4.5 Security Breach

In the event of an emergency caused by a breach of security, the following actions will be taken under the direction of the emergency coordinator:

- Alert the H & S Manager or Operations Shift Supervisor
- Notify the Galveston County Sheriff's Department as to the nature of the breach and request support
- Evacuate the site (including transporters and visitors) if the risk of sabotage exists
- Advise inbound transporters of the situation and limit access to the site until any threat of sabotage has been eliminated

4.6 Emergency Shutdown

In the event of certain upset conditions, some of the facility process units will automatically shut down. If an emergency situation arises and the emergency coordinator decides that all facility operations should be shut down to prevent additional problems, the automatic shutdown system will be manually activated. Details of the automatic shutdown system are included in the facility's operations manual.

5.0 Emergency Equipment

The emergency equipment available at the San Leon facility is listed in Table III.E.3 found in Attachment III Tables. This table also indicates the location of each piece of equipment and provides a brief description of its capabilities. Attachment III D found in Attachment III Tables shows the location of safety equipment throughout the facility. All emergency equipment used in response to an emergency will be cleaned and fit for use prior to resuming facility operation in affected areas.

The fire protection system for the San Leon facility consists of a 126,000 gallon steel firewater storage tank, designed and constructed in accordance with NFPA 22 and with our insurer's guidelines. The tank capacity provides a one and one-half hour water supply, based on 150% of the rated pump discharge, as recommended by our Insurer. The tank elevation relative to the pump suction provides a positive NPSH at the pump impeller under maximum flow conditions as required by code.

A diesel firewater pump takes suction from the firewater tank. The system at standby is maintained pressurized by a small electric jockey pump supplying water to the line and taking suction form the firewater tank. The diesel pump feeds a firewater main serving the equipment and process areas of the facility. The diesel pump is automatically started if the electric jockey pump is unable to maintain 155 psi of pressure on the firewater main. The diesel firewater pump can also be started by activating the manual start contactor.

The firewater laterals and stubs supply water to foam capable monitors, reel hoses and the fixed spray deluge systems. With the exception of equipment and areas protected by deluge, the initial fire mitigation will be from fixed monitors. Monitors can be quickly brought to bear on burning substances or on surfaces for

the removal of radiant heat. One person can quickly activate a monitor and properly direct it in accordance with their training. All monitors will be equipped with fully adjustable fog to straight stream nozzles and with locking devices for both horizontal and vertical motion. Hose reels and monitors are available for fire protection around the firewater pump, thermal oxidizer, truck loading rack, pump skids, the desorbers, the accumulator skid, the roll-off box storage area, and the laboratory.

A fixed spray deluge system with pneumatic actuation is located near the truck loading area and thermal desorber systems. Two 150-pound rubber wheeled, Purple K charged dry chemical units are located such that one is at the west side of the roll-off box storage area and the others are at the PV tank farm. The Purple K is available to extinguish small fires not requiring foam and/or water.

Multiple 5-20-pound ABC rated portable dry chemical extinguishers are located at the exits to work areas, storage areas and buildings for incipient stage firefighting. In addition, 5-pound fire extinguishers are available in the sensitive equipment areas such as the laboratory and the motor control center buildings. Refer to Attachment III C & III D for the location of some of the facility's firefighting equipment and safety equipment.

6.0 EVACUATION PLAN

Evacuation of facility personnel will be necessary in the event of a major fire or explosion. All personnel have been trained in evacuation procedures and means of exit from their respective work areas. Three blasts of the facility's air horn signals a facility wide evacuation.

The area surrounding the facility is fairly remote. However, several scattered residences and businesses are within 1000 ft of the facility and depending on wind direction could be impacted by a release at the facility. Clean Harbors San Leon will coordinate with Galveston County Sheriff's Department officials to restrict use of local access corridors and public roads until the emergency is over.

The following procedures are designed to provide for the safe and orderly evacuation of onsite personnel and visitors during a site emergency.

The emergency coordinator is responsible for determining when facility evacuation is required. If deemed necessary, all employees are responsible for following these procedures and reporting to designated assembly locations as directed in Section 6.1 of this plan. The emergency coordinator and supervisory personnel will account for all persons prior to any individual leaving the designated assembly location.

6.1 Evacuation Routes and Safety Locations

A primary and secondary assembly locations have been designated in the event of an emergency. The parking lot of the administration building is the primary assembly location. In the event prevailing winds and toxic fumes would affect this location, all personnel will be directed to the secondary assembly location east of the facility at the ten day transfer facility. Evacuation routes and assembly locations are identified in Attachment III B. The evacuation routes for the San Leon facility are posted in the operations building, the administration building, and the receiving building. All gates along the southern portion of the facility will be accessible for emergency evacuation. In the event that all six of these gates are inaccessible, three other personnel gates are located along the north and west facility fence line. Keys to the personnel gates, which are normally locked, are located in the operations and administration buildings.

6.2 Evacuation Procedures

1. Until evacuation is signaled, personnel who are not in an affected area will stay in their respective work areas.
2. The emergency coordinator will assess the conditions and identify that appropriate safe location.
3. The emergency coordinator will sound the facility air horn three times to signal a facility wide evacuation.
4. When an evacuation is signaled, all on-site personnel will cease operations and proceed (on foot) immediately to the assembly location specified via the closest available exit route. No vehicles may be driven during an evacuation.

5. Visitors will be cleared from the area and instructed to report to the security gate, where they will be released from the facility.
6. All on-site personnel will be accounted for at the assembly location to ensure that the facility has been completely evacuated.
7. The emergency coordinator may request individuals to return to the site to support emergency activities if such activities do not pose a risk of harm to the individual.
8. An "all clear" signal will be given when the eminent danger from the emergency is over and the safety of personnel is assured. The emergency coordinator will determine when the emergency has passed and will consult with other involved emergency response persons (e.g., fire chief) if necessary before the "all clear" signal is given.

6.3 Emergency Precautions

1. Keep calm, think, and avoid panic and confusion.
2. Know all exit locations and be sure you know the safest and quickest way out of all buildings.
3. Do not lock office doors when vacating the facility. The emergency coordinator and the emergency support personnel must have visual access to all areas to ensure that the facility is clear of personnel.
4. Do not delay evacuation from the facility for any reason.
5. Do not assist in fire control unless properly trained and qualified.
6. When evacuating the facility, WALK to the nearest safe exit. Do not drive vehicles. Report to the specified assembly area and wait for instructions.
7. Keep out of the way, stay clear of the facility, and DO NOT interfere with emergency operations.
8. Do not re-enter the facility until the all clear" signal is given.

7.0 Coordination Agreements

A copy of this Contingency Plan and all revisions to it will be sent to each of the following agencies/organizations:

Texas City Volunteer Fire Department
Galveston County Sheriff's Department
Mainland Center Hospital
Galveston County Local Emergency Planning Committee (LEPC)

The agencies will be asked to review the plan and respond with regard to their willingness to provide the requested emergency services. An example of the Emergency Response Agreement, which the agencies and organization listed above will be asked to execute, and a cover letter requesting such an agreement are provided on the pages following. Arrangements will be made with the appropriate persons of the above organizations in order to:

1. Familiarize police, fire departments and emergency response teams with the facility layout, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility and possible evacuation routes.
2. Familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions or releases at the facility.
3. Obtain agreements for service from state emergency response teams, emergency response contractors and equipment suppliers.

Clean Harbors San Leon will formalize and document these arrangements to the extent this is possible.

CLEAN HARBORS SAN LEON, INC.

(Agency Contact)
(Agency Address)

Re: EMERGENCY RESPONSE AGREEMENT

Dear Sir or Madam:

The Clean Harbors San Leon, Inc. San Leon Facility recovers petroleum products from oil bearing wastes. Since TCEQ approval of our permit renewal application, Clean Harbors San Leon has continued recovering chemical products and hazardous waste fuels from petrochemical and chemical plant wastes. Wastes managed on-site are classified as hazardous under current State and Federal regulations. These regulations require that operators of hazardous waste facilities be prepared to respond effectively to emergency conditions. This includes a requirement that a Contingency Plan be developed and made available to agencies who provide emergency services. We are requesting that you enter into an Agreement for Emergency Assistance at our San Leon Facility. This agreement is to ensure the commitment of (Agency) in response to official requests for assistance in the event of an emergency at our facility.

Our employees have been trained in the proper handling of these materials and on how to respond to emergencies. They have also been provided with special equipment designed for working with these wastes. However, we recognize that an emergency could develop which would require assistance from outside professionals.

We have prepared an Agreement for Emergency Assistance and two copies are enclosed. The Agreement identifies the general properties of materials that will be handled at our facility. Please keep one copy of this Agreement for your files and return the other in the enclosed, self-addressed stamped envelope.

If you have any questions or would like to schedule a visit to our recycling facility, please contact Nicole Rudolph, Sr Environmental Compliance Manager, at (281)-930-2412.

Sincerely,

AGREEMENT FOR ASSISTANCE
BY AND BETWEEN
CLEAN HARBORS SAN LEON AND (Agency Name)

This agreement has been prepared to establish the scope of services agreed upon by the (Agency Name) in the event of an emergency at the Clean Harbors San Leon Facility (located at 2700 Avenue S in San Leon, Texas).

The Clean Harbors San Leon facility handles oily wastes from the refining and petrochemical industries under a permit issued by the Texas Commission on Environmental Quality.

In reviewing the potential hazards involving these materials
it became apparent that in the event of an emergency your assistance may be needed.

At this time we wish to establish this agreement for Clean Harbors San Leon, Inc and (Agency Name) in the event of an emergency requiring outside assistance or affecting offsite location. (Agency Name) assistance would be limited to emergency care.

Any request for assistance would be issued via telephone from Tia Gottas-Hamman, Facility Emergency Coordinator or his designated representative.

A copy of the facility contingency plan is attached for your review. It contains the phone numbers for emergency coordinators and outlines the methods of responding to typical emergencies.

Clean Harbors San Leon, Inc. and the (Agency Name) acknowledge acceptance of the agreement to work together in the efforts of public safety as outlined herein.

By: _____ Date : _____
Clean Harbors San Leon, Inc.

By: _____ Date: _____
(Agency and Name)

8.0 Post- Emergency Response Procedures

Space will be provided in one of the spill containment areas at the facility to allow for removal of contaminated protective clothing and for cleaning contaminated equipment. Equipment and clothing which must be discarded will be sealed in containers and subsequently disposed at an appropriate facility. Equipment and clothing, which can be cleaned, will also be placed in containers until cleaning and decontamination can be accomplished.

After an emergency event, all emergency equipment will be cleaned so that it is fit for use, or it will be replaced. Contaminated equipment will be cleaned with an appropriate cleaning agent for the contaminants. Any resulting contaminated cleaning wastes will be retained in a catch bucket or container for storage prior to processing on-site or shipment to an off-site facility. Small quantities of water used to clean contaminated equipment will be managed similarly.

Any equipment which is damaged beyond repair or that cannot be decontaminated will be replaced in a timely manner before normal operation resumes. All items used in spill clean-up that cannot be reused (such as absorbent material, sandbags, dirt, rags, etc.) will be restocked to ensure a proper supply in case of future emergencies. All on-site fire extinguishers used in a fire emergency will be recharged for future use following a fire- related emergency.

In a timely manner before operations are resumed, an inspection of all safety equipment will be conducted. The TCEQ and other appropriate authorities will be notified that post- emergency equipment maintenance has been performed and operations will be resumed.

If the facility has repaired a tank system and the repair has been extensive (e.g., installation of an internal liner or the repair of a ruptured primary containment or secondary containment vessel), the tank system will not be returned to service unless certification has been obtained by an independent, qualified, registered professional engineer that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. This certification will be submitted to the TCEQ.

9.0 Recordkeeping and Reporting

The Facility Contingency Plan will be reviewed and immediately amended, if necessary, whenever:

- The facility permit is revised,
- The plan fails in an emergency,
- Changes occur in the facility's design, construction, operation, maintenance or other circumstances which materially increase the potential for fires, explosions or releases of hazardous waste or hazardous waste constituents or changes occur in the response necessary in any emergency,
- The list of emergency coordinators changes, or
- The list of emergency equipment changes.

In the event of an emergency requiring implementation of the Contingency Plan, the emergency coordinator will note in the operating record the time, date and details of any such incident.

In order to resume operations, the emergency coordinator will ensure that no waste, which was incompatible with the released material was treated, stored or disposed of until the clean-up procedures were completed. Also, it will be confirmed that all emergency equipment was cleaned and fit for its intended use before operations are resumed. Prior to resuming operations in affected areas of the facility, the emergency coordinator will notify TCEQ that the facility is in compliance with the applicable hazardous waste operating regulations.

- Within 15 days after the incident, the emergency coordinator will submit a written report to the TCEQ providing the following: Name, address and telephone number of the facility owner/operator,
- Name, address and telephone number of the facility,
- Date, time and type of incident (e.g., fire),
- Type and quantity of materials involved,
- The extent of injuries, if any,
- An assessment of actual or potential hazards to human health or the environment, where this is applicable, and
- Estimated quantity and disposition of recovered material that resulted from the incident.

ATTACHMENT III FOR CONTINGENCY PLAN

Attachment III A EPA Waste Received at Facility

Attachment III B Drawing 105 Evacuation Routes & Assembly Areas

Attachment III C Drawing 102 Firewater & Foam System Location

Attachment III D Drawing 102A Safety Equipment Location

Attachment III.A

Acceptable RCRA Waste Codes

D001	F008	K031	K104	P007		P127	U034	U087	U140	U191	U328
D002	F009	K032	K105	P008	P066	P128	U035	U088	U141	U192	U353
	F010	K033	K106		P067	P185	U036	U089	U142	U193	U359
D004	F011	K034	K107	P010	P068	P188	U037	U090	U143	U194	U364
D005	F012	K035	K108	P011	P069	P189	U038	U091	U144	U196	U367
D006	F019	K036	K109	P012	P070	P190	U039	U092	U145	U197	U372
D007		K037	K110	P013	P071	P191	U041	U093	U146	U200	U373
D008		K038	K111	P014	P072	P192	U042	U094	U147	U201	U387
D009		K039	K112	P015	P073	P194	U043	U095	U148	U202	U389
D010		K040	K113	P016	P074	P196	U044	U096	U149	U203	U394
D011	F024	K041	K114	P017	P075	P197	U045	U097	U150	U204	U395
D012	F025	K042	K115	P018	P076	P198	U046	U098	U151	U205	U404
D013		K043	K116	P020	P077	P199	U047	U099	U152	U206	U409
D014			K117	P021	P078	P201	U048	U101	U153	U207	U410
D015			K118	P022	P081	P202	U049	U102	U154	U208	U411
D016	F032		K123	P023	P082	P203	U050	U103	U155	U209	
D017	F034		K124	P024	P084	P204	U051	U105	U156	U210	
D018	F035	K048	K125	P026	P085	P205	U052	U106	U157	U211	
D019	F037	K049	K126	P027	P087	U001	U053	U107	U158	U213	
D020	F038	K050	K131	P028	P088	U002	U055	U108	U159	U214	
D021	F039	K051	K132	P029	P089	U003	U056	U109	U160	U215	
D022	K001	K052	K136	P030	P092	U004	U057	U110	U161	U216	
D023	K002	K060	K141	P031	P093	U005	U058	U111	U162	U217	
D024	K003	K061	K142	P033	P094	U006	U059	U112	U163	U218	
D025	K004	K062	K143	P034	P095	U007	U060	U113	U164	U219	
D026	K005	K064	K144	P036	P096	U008	U061	U114	U165	U220	

D027	K006	K065	K145	P037	P097	U009	U062	U115	U166	U221
D028	K007	K066	K147	P038	P098	U010	U063	U116	U167	U222
D029	K008	K069	K148	P039	P099	U011	U064	U117	U168	U223
D030	K009	K071	K149	P040	P101	U012	U066	U118	U169	U225
D031	K010	K073	K150	P041	P102	U014	U067	U119	U170	U226
D032	K011	K083	K151	P042	P103	U015	U068	U120	U171	U227
D033	K013	K084	K156	P043	P104	U016	U069	U121	U172	U228
D034	K014	K085	K157	P044	P105	U017	U070	U122	U173	U234
D035	K015	K086	K158	P045	P106	U018	U071	U123	U174	U235
D036	K016	K087	K159	P046	P108	U019	U072	U124	U176	U236
D037	K017	K088	K161	P047	P109	U020	U073	U125	U177	U237
D038	K018	K090	K169	P048	P110	U021	U074	U126	U178	U238
D039	K019	K091	K170	P049	P111	U022	U075	U127	U179	U239
D040	K020	K093	K171	P050	P112	U023	U076	U128	U180	U240
D041	K021	K094	K172	P051	P113	U024	U077	U129	U181	U243
D042	K022	K095		P054	P114	U025	U078	U130	U182	U244
D043	K023	K096	K175	P056	P115	U026	U079	U131	U183	U246
F001	K024	K097	K181	P057	P116	U027	U080	U132	U184	U247
F002	K025	K098	P001	P058	P118	U028	U081	U133	U185	U248
F003	K026	K099	P002	P059	P119	U029	U082	U134	U186	U249
F004	K027	K100	P003	P060	P120	U030	U083	U135	U187	U271
F005	K028	K101	P004	P062	P121	U031	U084	U136	U188	U278
F006	K029	K102	P005	P063	P122	U032	U085	U137	U189	U279
F007	K030	K103	P006	P064	P123	U033	U086	U138	U190	U280

SEE DWG. 103

PROPERTY LINE

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

N

LEVEE

LEVEE

DITCH – 3"/100' 2' WIDE AT BOTTOM PARALELL TO PIPE RACK

DITCH

DITCH

DITCH

48"RCP

THERMAL OXIDIZER

PIPE RACK

COVERED RCP

EXISTING DRAINAGE PIPE

END OF 18"RCP

CSA-8

CSA-4

STORM WATER PUMP

CSA-12

CSA-13

CSA-14

CSA-2 WEST

CSA-2 EAST

CSA-9

FST-44

FIREWATER TANK

EDGE OF CONCRETE

QUENCH SYSTEM

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

Gate

CLEAN HARBORS
ENVIRONMENTAL SERVICES
10-Day Yard
4.919 ACRES

LEVEE

C 24' LIMESTONE ROAD EXTENSION

MAINTENANCE SHOP

PV TANKS

OPERATIONS BLDG.

MCC 2/Control Room

ST TANKS

ST-211 ST-10 ST-9 ST-5 ST-6 ST-7 ST-8

ST-17

PV-18 PV-19 PV-20 PV-21

PV-30 PV-31 PV-32 PV-33 PV-34 PV-35 PV-36

MCC 1

CENTRIFUGE
CENTRIFUGE FILTER PRESS
CENTRIFUGE
CENTRIFUGE BLDG.

CSA-3

ST-2

CSA-10

EMERGENCY RESPONSE BLDG.

BREAK TRAILER

OFFICE/LAB TRAILER

EXIST. SEWER CONN.

EXISTING CONN. AT WALL

LAB BLDG.

ADMIN. BLDG.

Employee Scan Turnstile

Septic Drain Field

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

PRIMARY ASSEMBLY AREA

Employee Parking Area

FRAME BLDG.

FRAME BLDG.

Truck Scale

Catalyst Loading Area

8" WATER LINE

6" WATER LINE

Wastewater Building

Gate

Gate

Gate

SECONDARY ASSEMBLY AREA

0 50 100 150 200

SCALE IN FEET

PROPERTY LINE

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	0	3/12/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/11/14
CHECKED	REL	3/12/14
APPROVED	REL	3/12/14

CleanHarbors®
SAN LEON, INC.

SCALE: AS NOTED

EVACUATION ROUTES AND ASSEMBLY AREAS

DRAWING NUMBER 105 REV. 0

SEE DWG. 103

PROPERTY LINE

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

N

LEVEE

LEVEE

DITCH

DITCH - 3'/100' 2' WIDE AT BOTTOM PARALELL TO PIPE RACK

DITCH

DITCH

48"RC

THERMAL OXIDIZER

PIPE RACK

COVERED RCP

END OF 18"RCP

EXISTING DRAINAGE PIPE

CSA-8

CSA-4

CSA-12

CSA-13

CSA-14

CSA-2 EAST

CSA-2 WEST

CSA-9

STORM WATER PUMP

FST-44

FIREWATER TANK

QUENCH SYSTEM

ZONE OF CONTROL

OPERATIONS BLDG.

MCC 2/Control Room

ST TANKS

PV TANKS

MAINTENANCE SHOP

MCC 1

FILTER PRESS

CENTRIFUGE BLDG

CSA-3

EMERGENCY RESPONSE BLDG.

BREAK TRAILER

OFFICE/LAB TRAILER

ST-2

CSA-10

EXIST. SEWER CONN.

EXISTING CONN. AT WALL

LAB BLDG.

ADMIN. BLDG.

Employee Scan Turnstile

Septic Drain Field

Employee Parking Area

FRAME BLDG.

FRAME BLDG.

Truck Scale

Catalyst Loading Area

Receiving Building

40'-0"

46'-0"

Existing Truckers & Visitor Sign-in

4 CAR PARKING

Gate

Gate

Gate

Gate

Gate

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

LEVEE

24' LIMESTONE ROAD EXTENSION

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

PROPERTY LINE

CLEAN HARBORS
ENVIRONMENTAL SERVICES
10-Day Yard
4.919 ACRES

LEGEND

- MONITOR ON HYDRANT W/FOAM ATTACHMENT
- HOSE REEL
- 12" FIREWATER LOOP
- DELUGE SYSTEM

0 50 100 150 200
SCALE IN FEET

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	3	1/4/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	WC
	0	9/8/93	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	RT	9/8/93
CHECKED	SID	9/8/93
APPROVED	BH	9/8/93

CleanHarbors
SAN LEON, INC.

SCALE: AS NOTED

SITE PLAN
FIREWATER AND FOAM SYSTEM

DRAWING NUMBER 102 REV. 3

SEE DWG. 103

PROPERTY LINE

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

N

LEVEE

LEVEE

DITCH

DITCH = 3"/100' 2' WIDE AT BOTTOM PARALELL TO PIPE RACK

DITCH

48"RCP

THERMAL OXIDIZER

PIPE RACK

COVERED RCP

EXISTING DRAINAGE PIPE

END OF 18"RCP

STORM WATER PUMP

CSA-8

CSA-4

CSA-12

CSA-13

CSA-14

CSA-2 WEST

CSA-2 EAST

CSA-9

FST-44

QUENCH SYSTEM

PV-13

PV-14

PV-15

PV-16

PV-17

PV-18

PV-19

PV-20

PV-21

OPERATIONS BLDG.

MCC 2/Control Room

DAF ST-17

ST-5 ST-6 ST-7 ST-8

ST-2

CSA-10

MAINTENANCE SHOP

MCC 1

CENTRIFUGE

FILTER PRESS

CENTRIFUGE

CENTRIFUGE BLDG.

CSA-3

EMERGENCY RESPONSE BLDG.

BREAK TRAILER

BREAK TRAILER

EXIST. SEWER CONN.

EXISTING CONN. AT WALL

LAB BLDG.

ADMIN. BLDG.

Employee Scan Turnstile

Employee Parking Area

Septic Drain Field

FRAME BLDG.

SCALE HOUSE

Truck Scale

Catalyst Loading Area

4"x5' CONC. LANDING

SEP. TK. W/GRINDER PUMP

Warehouse Building

4"x5' CONC. LANDING

4" CONC. SIDEWALK

4 CAR PARKING

Gate

Gate

Gate

Gate

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

PROPERTY LINE

CLEAN HARBORS
ENVIRONMENTAL SERVICES
10-Day Yard
4.919 ACRES

LEGEND

- FIRST AID
- PHONE
- EYEWASH & SAFETY SHOWER
- FIRE EXTINGUISHER
- B – BREATHING AIR
- S – SPILL RESPONSE CABINET
- FIRE EXTINGUISHER CART

0 50 100 150 200
SCALE IN FEET

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	3	1/4/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	WC
	0	9/8/93	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	RT	9/8/93
CHECKED	SID	9/8/93
APPROVED	BH	9/8/93

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SCALE: AS NOTED

SITE PLAN
SAFETY EQUIPMENT

DRAWING NUMBER 102-A REV. 3

ATTACHMENT III TABLES

Attachment III.D Inspection Schedule

Attachment III.E.1 Arrangements with Local Authorities

Attachment III.E.2 Emergency Coordinators

Attachment III.E.3 Emergency Equipment

Table III.D- Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Portable Fire extinguishers	Not properly located and not charged	Monthly
Eye Wash Stations/Safety Showers	Leaking, low pressure, not clean or accessible	Weekly
PPE	Supply low- damaged	Weekly or as needed
Respirators	Not Clean, low supply, damaged	Weekly, daily or as needed
Spill equipment- booms, absorbents, shovels	Not accessible, low supply	Weekly
SCBA/Escape units	Not charged, not functioning, low supply	Monthly
Alarm Systems- Fire, Spill, Evacuation	Not functioning	Monthly
Fire Protections Systems- deluges, pumps, wheeled extinguishers	Not accessible, not functioning, poor conditions, low pressure	Monthly, Weekly
Security - Fences, gates, locks, warning signs,	Missing signs, broken/missing locks, broken gates, breaches in fences	Daily
Outdoor lighting	Not operational	Weekly
Communication devises- radios, internal telephones	Not functioning, batteries not charged	Daily
Loading and Unloading Areas	Cracks, poor housekeeping, water in sumps, pumps not functioning, leaking piping/hoses, spent filters	Daily

Table III.D- Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
All Container Storage Areas- Drums and roll offs	Corroded, leaking, not closed properly, no aisle space, erosions	Daily
Container Storage Area Secondary Containment	Water in sumps/standing water, cracked, deteriorated	Weekly
All Tanks and processing equipment: piping, grounding, containment, exterior, PVRV, Electrical circuits, oxygen analyzers	Not functioning, leaking, corroded, poor housekeeping, cracked, standing water	Daily
Ancillary Equipment- valves, pumps, flanges	Leaking, corroded, not functioning	Daily

Table III.E.1- Arrangements with Local Authorities

Police/Sheriff

Address	Galveston County Sheriff Office 601 54th Street Galveston, TX 77551
Person Contacted	Captain Clay Pope
Phone Number	409-766-2300
Agreed Arrangements	Letter sent with Contingency Plan

Fire

Address	Texas City Fire Department 1725 25th Street N Texas City, TX 77592
Person Contacted	Chief Dennis Harris
Phone Number	409-643-5700
Agreed Arrangements	Letter sent with Contingency Plan

Hospital

Address	NCA Houston Healthcare Mainland 6801 Emmett F Lowry Expy Texas City TX 777591
Person Contacted	Hospital Adminstrator
Phone Number	409-938-5000 or 281-996-5000
Agreed Arrangements	Letter sent with Contingency Plan

Other

Organization Name	Galveston County LEPC
Address	PO Box 338 Santa Fe TX 77510
Person Contacted	Brian Mansfield
Phone Number	281-309-5002
Agreed Arrangements	Letter sent with Contingency Plan

Table III.E.2 - Emergency Coordinators (Primary)

Name	Home Address	Office Phone(s) and/or Pager	Home/Cell Phone(s)
David Cummings	4901 Hayes Rd Alvin, TX 77511	NA	936-332-2944 home 936-332-2944 cell

Alternate Emergency Coordinators

Name	Home Address	Office Phone(s) and/or Pager	Home/Cell Phone(s)
Darius Stewart	15502 Maple St Santa Fe, TX 77517	NA	346-425-1000 Home/cell

Table III.E.3- Emergency Equipment

Equipment	Location	Physical Description	Capability
Communications Equipment	Operations Building, administrative building, laboratory building, Emission control system, thermal desorption system	Air horns, Alarm actuators, Manual Shut Down switch, telephones, two-way radios	Used in emergencies to communicate audibly throughout the facility, call outside agencies for assistance, initiates auto shutdown system.
Spill Response Equipment	Emergency Response Building, Receiving Building, Utility water area, maintenance building, secondary containment systems	Absorbent materials (booms & pads), overpack drums, emergency pumps, dikes	Contain, absorb, clean up spills, contain leaking containers and drums, collect spilled material within various storage areas
Personal Protection Equipment	Operations, administration, laboratory, maintenance buildings; Emergency Response Building, Various unloading areas, tank areas, pumping areas, laboratory, storage areas	First aid supplies, emergency stretchers, fire blankets, eye wash and safety showers, SCBA and 5 minute air packs, organic vapor sensors, Personal safety equipment (glasses, goggles, rain slickers, aprons, Tyveks, respirators)	Immediate first aid for minor injuries, removal of injured personnel, wash off material that may have exposed employees, exposure monitoring, control and extinguish fire on personnel, supply air for confined space entry in emergency situations, protect employees from possible hazards
Misc Emergency Equipment	Maintenance Building, along security fence outside storm surge dike	Low risk spark tools, cleaning fluids, emergency gates	Spark resistant equipment; rinse contaminated equipment and for emergency evacuations
Fire/Explosion Response Equipment	Various locations along the firewater loop, at storm surge walls near lab and at roll off area, along the 12" firewater loop throughout the process area, disrober area, accumulation skid, conveyor area,	Firewater monitors, firewater hose reels, hydrant mounted foam capable monitors, fixed spray deluge system	To supply water and foam in order to control fires
Firewater Tank	NW Coner of facility	Firewater tank FST 44	1 1/2 hr water supply to control fires
Firewater Pump House	East of firewater tank	Diesel Pumps	To control fires
Spill Response Cabinet	Emergency Response Building	Absorbent materials and spill containment booms	To control, contain and clean up spills
Fire extinguishers	One at roll-off Storage area and desorber 1; various locations throughout the facility	Fire extinguisher cart with 2 150 lb. portable K charged dry chemical units, 5-20 lbs multiple purpose ABC charged portable hand held fire extinguishers	Fire various smaller fires and extinguish gas fires not controlled by foam or water

Appendix III.F

Emergency Response Plan

The Emergency Response Plan is a stand along document and follows.

Clean Harbors San Leon, Inc.

Combined Contingency Plan

Emergency Action Plan

Revised: February 2025

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8.0 Site Specific Program Information ***9***

APPENDIX I: PROGRAM REVIEW TABLE **10**

ATTACHMENT A: INCIDENT LEVELS 1 THROUGH 4 DEFINITIONS

ATTACHMENT B: EVACUTATION ROUTES

ATTACHMENT C: EMERGENCY CONTACT LIST

1.0 Purpose

The purpose of this plan is to provide procedures and guidelines for responding to fires and various other emergency situations. This plan is designed for the safety and well being of the employees, contractors and visitors of Clean Harbors San Leon, Inc.

2.0 Scope/Applicability

This program applies to all Clean Harbors San Leon to include administrative buildings. It identifies necessary management and employee actions that must be taken during emergency situations such as fire, explosion, chemical release, severe weather and other emergencies. Education and training are provided to every employee in order to assure complete understanding of this Emergency Action Plan.

4.0 References

This plan is contingent with other required documents including the following:

- RCRA Contingency Plan
- Spill Prevention, Control and Countermeasures (SPCC) Plan
- Hurricane Preparedness Plan
- Storm Water Pollution Prevention Plan (SWPPP)

Location of this plan is on the I drive/All Users/Clean Harbors San Leon/Contingency Plan

5.0 Responsibility

5.1 Emergency Coordinator

The Emergency Coordinator ensures that this procedure is implemented and followed and monitors facility's contingency plan to ensure that the program is in place and that it complies with this procedure. The Emergency Coordinator is also responsible for maintaining a current, site-specific copy of this plan such that it is readily available to all employees for review.

5.2 Compliance and Health & Safety Managers

The Compliance and Health & Safety Managers monitor and audits compliance with this program.

5.3 Facility Foreman & Supervisors

Facility Foremen, subcontractor supervisors, and project supervisors ensure compliance with every facet of this procedure relative to employees adhering to and understanding the fire prevention and emergency action program as it relates to their individual task assignment.

Managers

Operation Managers ascertain compliance with every facet of this procedure relative to the facility foreman, subcontractor supervisors, and project supervisors, and employees adhering to and understanding the fire prevention and emergency action program as it relates to their individual area.

5.4 Employees

Employees will follow all rules and programs as it relates to the fire prevention and emergency action program.

6.0 Requirements

6.1 Training

All employees are to receive fire prevention and emergency action plan training upon being hired, and at least annually thereafter. The training must include the following:

- Review of the combined Contingency Plan listed in Section 4.0 References.
- Emergency escape procedures and emergency route assignments
- Procedures for any employees who remain to operate critical project/facility operations prior to evacuation
- Procedures to account for all employees (including visitors) after an evacuation has been completed
- The means of communicating fires and other emergencies
- Additionally, under the plan and for projects/facilities that may use fire extinguishers for incipient type small, contained fires or have fire extinguishers available on site, employees must be trained on the Clean Harbors San Leon Fire Extinguisher Training Topic. Training will familiarize employees with the general principles of fire extinguisher use and the hazards involved in incipient stage fire fighting.

6.2 Drills

Emergency drills are conducted annually for all employees.

6.3 Plan Updates

The combined Contingency Plan must be reviewed and if necessary updated annually or as changes occur.

6.4 Emergency Operations Center/Emergency Coordinator

Each facility/project is required to establish an Emergency Operations Center (EOC). The EOC is located in the conference room of the Administration building. The EOC will serve as the communications hub in the event a fire or emergency incident occurs at the project/facility. Additionally, the EOC must be staffed by the facility/project appointed Emergency Coordinator and members of the emergency response teams, who are responsible for coordinating the emergency incident.

6.5 Communication Systems

In the event of an emergency, the facility must have an established communication system to alert employees. Additionally, the facility must establish an emergency communication system in the event normal communication channels are knocked out or unavailable.

6.6 Emergency Escape Procedures and Routes

Escape procedures and routes must be posted conspicuously around the facility. Personnel exiting in an emergency will proceed to the designated primary evacuation assembly area located in the south parking lot outside of the administration office. The secondary assembly area is located on the far east side in the ten-day transfer storage area. A plot plan showing the evacuation routes and assembly areas is shown as attachment B to this document.

6.7 Assembly areas and accounting for employees

In the event of an emergency, employees must be told where to assemble after evacuating the facility. It is the responsibility of the facility manager to establish a means of accounting for all employees, visitors, and contractors at the established assembly area.

6.8 Procedure to shut down processes, equipment, etc.

Clean Harbors San Leon employees will shut down processes, equipment and utilities if this can be done without jeopardizing their safety.

Facility specific procedures for both shutdown and startup must be developed as a component of this plan. The personnel responsible for the shutdown and startup processes must also be trained in these procedures.

In the event of an emergency that would require partial or complete evacuation of the facility, certain critical operations would be required to bring about a controlled shutdown. **The personnel and critical operations included for a controlled shutdown are below. The Facility Foreman will designate which operators perform the following tasks:**

Desorber & Thermal Oxidizer shutdown	**Facility Foreman & designated operator**
Fire Pump Operation	**Facility Foreman & designated operator**
Lab Equipment Shutdown	**Lab personnel or Facility foreman & designated operator**
Emergency Notification	**Primary Emergency Coordinator**
Direct Emergency Response Units	**Facility foreman & designated operator**
Centrifuge Shutdown	**Facility foreman & designated operator**
Tank Systems	**Facility foremen & designated operator**
Bagging Systems	**Facility foreman & designated operator**

EMERGENCY DUTY LIST

INCIDENT: FIRE/EXPLOSION, SPILL/RELEASE, PLANT EVACUATION		
DUTY	**LEVEL 1 or 2**	**LEVEL 3 OR GREATER**
Incident Command*	**Facility Foreman**	**Facility Foreman and Operations Manager**
Fire Pump Operator*	**Facility Foreman & designated operator**	**Facility foremen & designated operator**
Sprinkler Control*	**Facility Foreman & designated operator**	**Facility Foreman & designated operator**
Fire Control*	**Facility Foreman & designated operator**	**Facility Foreman & designated operator**
Containment *	**Facility Foreman &**	**Facility Foreman &**

	designated operator	**designated operator**
Notifier*	**Primary/Secondary Emergency Coordinator**	**Primary/Secondary Emergency Coordinator**
Fire Warden*	**All Operators**	**All Operators**

***Definitions are listed below.**

Emergency Duty List Definitions

Incident Commander – is responsible for managing the incident response and safely containing the extent of injury and/or damage. Additional on-site training will be provided and documented for the incident commander.

Notifier-upon direction from the incident commander, the notifier becomes responsible for contacting the local authorities as specified in the RCRA contingency Plan Table 2-2 Emergency Contact List and other pertinent employees or management.

Fire pump operator- responsible for responding to the fire pump to verify that the pump is running and operating properly. Also responsible for shutdown of pump after the emergency is over.

Sprinkler Control – Responds to deluge manifold and verifies that deluge valves are open.

Fire Control – responds to fire and begins initial fire attack using portable extinguishers, hose reel or fire monitor as appropriate

Containment- responsible for containing spread of solids, liquids, and vapors utilizing spill response materials, diking, and diversion.

Fire Warden –responsible for ensuring all personnel within their area have evacuated to the staging area upon notification of a fire or evacuation

6.9 Emergency Procedures

Activate Alarms

The emergency coordinators, operations manager, and facility foreman are the only personnel authorized to sound the emergency alarm. The horn system signals for various emergency events are as follows:

1 blast	Fire or Explosion
2 blasts	Hazardous Waste Spill
3 blasts	Facility Wide Evacuation

At the onset of an emergency situation, the emergency coordinator will also establish two-way radio communications with plant management, security and operations personnel.

6.9.1 Fire

IF YOU DISCOVER A FIRE OR SMELL SMOKE:

- Stay calm!
- Notify your supervisor.
- Alert all others in the immediately vicinity. Activate alarm. See activate alarms section above.
- **DO NOT PLACE YOURSELF IN JEOPARDY!**
- Quickly make sure no one is left in the immediate area of the fire and close all doors.
- If you have received fire extinguisher training, use a fire extinguisher to extinguish or control the fire only in its incipient stage until the Fire Department arrives. **DO NOT FIGHT A FIRE THAT APPEARS TO BE OUT OF CONTROL**!
- Never enter a smoke-filled room.
- Touch doors before opening them. If the door is warm, DO NOT open the door as there may be fire behind the door which will spread if the door is opened. If the door is cool, open the door carefully, a little at a time, to prevent injury and the spread of smoke.
- Evacuate the building and report to your assembly area for head count.
- Report to your supervisor the names and locations of any people you know still remain in the building or are missing.
- Remain outside until directed to return by management.

6.9.2 Medical

Do not attempt to move the injured person unless the person's life is threatened by remaining in the area.

Call 9-1-1 immediately for medical attention:

- State the facility's name and address.
- State the type of medical emergency.
- State the exact location inside the building where the emergency has occurred.
- Answer any questions asked.
- Stay on the telephone until the responding agency states that it is okay to hang up.
- Contact your supervisor. (The supervisor will have someone meet the responding agency and direct them to the incident site.)
- Remain with the person until help arrives.
- Be prepared to answer questions and describe the circumstances of the medical incident.

NOTE: Follow your Post Injury Management Plan for reporting and injury management.

6.9.3 First Aid/CPR

First aid/CPR response is limited to the following:

- control external bleeding
- aid pain
- splint fractures
- provide comfort
- perform CPR

Only the Health & Safety Manager shall administer first aid, until all designated first aid responders have been trained in first aid/CPR

training, Bloodborne (BB) Pathogen training and receive HEP B shot. BB Pathogen control training is annually.

- Remain in shelter area until directed to return by management.

6.9.4 Hazardous Materials

Accidental spills or releases of hazardous materials require special response. Each facility that has hazardous materials that may spill is required to have an Emergency Response and Contingency Plan. The plan musts address how the project will handle hazardous material spills. Specialized training is required for any project/facility that requires its employees to actively handle spills. Additionally, other projects/facilities may be required to have a Spill Prevention Control and Countermeasures Plan (SPCC). In the event of a spill, consult and initiate the plan. Report all spills immediately to your supervisor. If a spill occurs that may harm facility personnel, initiate your emergency alarm system. See activate alarm system under Section 6.9.

6.9.5 Power Failure

- Stay calm!
- Stay where you are. The more persons move about in the dark greatly increases the number of potential injuries and interferes with repair crews.
- If you have a flashlight at your work area, use it.
- Without risking injury, turn off electrical power to non-critical office machines and appliances. Computer equipment should be powered down in accordance with established procedures.
- Refrain from using the telephone unless absolutely necessary.
- Follow your supervisor's instructions.
- During a power failure, emergency operating procedures applicable to the units and equipment follow.

6.9.6 Other Emergencies

Other emergencies may occur such as hurricanes, tornados, earthquakes.

Clean Harbors San Leon will initiate its Hurricane Preparedness Plan at such time as any hurricane or tropical storm or tornado is identified that could have a direct effect on any of its operations.

All other emergencies will be handled in a safe and organized manner. All emergencies should be reported to Operations Manager for your respective work area. This Emergency Action Plan should be followed for all emergencies/incidents. Activate Evacuation alarm if incident requires.

7.0 Media Relations/Crisis Management

No one ever anticipates a crisis, but crises inevitably occur. When they do, media are generally the first to call attention to them. Accidents, leaks, and fires can receive instantaneous, widespread coverage, especially from television. The Facility Manager is the key contact in these crises.

The Clean Harbors San Leon H&S Manager and appropriate Business Unit Manager should be notified immediately in these situations.

8.0 Records Retention

This program must be current at all times. Training and annual drills must be documented.

9.0 Combined Contingency plan

This Emergency Action Plan is combined with the existing Contingency Plan. Any procedures in this plan will follow the procedures set in the contingency plan.

APPENDIX I

PROGRAM REVIEW TABLE		
Review Date	**Printed Name and Title**	**Signature**
04/22/2010	**Clifton Ferrell, Director of EHS**	
03/22/2011	**Clifton Ferrell, Director of EHS**	
4/2013	**Ana Woods Compliance Manager**	
1/2025		

ATTACHMENT A

ATTACHMENT B

ATTACHMENT C

Section IV- WASTES AND WASTE ANALYSIS

Appendix IV.A -IV.C

The waste and waste analysis information required under this section can be found in the following tables and Appendix IV.D Waste Analysis Plan.

TABLE IV.A

ACCEPTABLE WASTE CODES

NA

TABLE IV.B
WASTE MANAGED IN PERMITTED UNITS

Table IV.B – Wastes Managed in Permitted Units can be found in Attachment IV Tables.

TABLE IV.C
SAMPLING AND ANALYTICAL METHODS

Table IV.C which identifies the sampling and analytical methods for the Clean Harbors San Leon facility can be found in the Attachment IV Tables.

APPENDIX IV.D
WASTE ANALYSIS PLAN

This Waste Analysis Plan (WAP) for the Clean Harbors San Leon LLC facility is designed to meet the requirements of 40 CFR Part 264.13 and 30 TAC 335.152. The content of the plan encompasses all of the information required for Section IV of the permit. The intent of the plan is to outline procedures to be utilized in order to accomplish the following four major objectives:

1. Provide the information needed to properly treat, store and dispose of hazardous and non-hazardous waste.
2. Provide a pre-acceptance review of representative samples and generator-supplied information to ensure that a waste material is acceptable for treatment, storage, and recycling or disposal in accordance with existing permits, current regulatory requirements and company policy.
3. Confirm identity of received materials by comparison to manifest description and pre-acceptance information. Compatibility of the received waste with facility waste management units and other wastes is also determined.
4. Document and determine compliance with regulations relating to final disposition of received materials, in particular, recycled materials no longer subject to regulation such as hazardous wastes and applicability of land disposal restrictions.

Clean Harbors will operate an on-site laboratory designed and staffed with the intent to meet on-site analytical needs. The laboratory shall have the following major equipment:

- Gas chromatograph/mass spectrometer configured for volatile organic analysis
- Gas chromatograph/mass spectrometer configured for semi volatile organic analysis
- Inductively coupled plasma atomic emission spectrophotometer for metals analysis
- Energy dispersive x-ray fluorescence spectrometer for elemental analysis
- Total organic halide analyzer
- Bomb calorimeter
- Microwave digestion

IV.1 Material Description

Materials to be tested as part of the WAP include samples designated as representative of waste streams, manifested received materials, solid wastes consisting of residues and debris resulting from treatment and housekeeping operations, wastewater, recycled products, and hazardous waste fuels.

Prior to acceptance of any of the materials described below, a waste generator shall submit a sample of the waste stream, which has been certified to be representative of that waste stream. A chain of custody and waste profile sheet should accompany each sample. There are two basic types of materials to be received by the facility:

- Hazardous and non-hazardous waste materials from the petroleum industry including used oil regulated as off-specification used oil fuel at 40 CFR § 266.101; and
- Hazardous and non-hazardous waste organic materials from petrochemical, chemical (plastics), pharmaceutical and paints industry suitable for hazardous waste fuels and recovery of chemical products.

The facility will not manage wastes containing PCBs > 50 ppm, dioxins, etiological agents, or radioactive materials. In addition, the facility will not manage materials which may be incompatible with the materials of construction of its storage and treatment units. The waste codes for materials that may be received are listed in Table 4-1. Waste not listed in the table will not be received until an evaluation of compatibility, notification, and appropriate authorization is obtained in accordance with 30 TAC § 335.6 and permit modification procedures in 30 TAC 305.69.

The majority of materials to be received by the facility consist of petroleum oils and organic compounds exhibiting a characteristic of hazardous wastes and "F" and "K" listed wastes. Toxicity characteristic metal wastes (D004 through D011) are also added to primarily account for the miscellaneous TCLP metals potentially exhibited by paint pigments in paint wastes and those potentially associated with "K" listed wastes such as lead and chromium in oil refining wastes. "U" code wastes (discarded commercial chemical products) are primarily listed due to their inclusion as solvents or constituents in conjunction with other waste codes or association with a particular industrial category. These codes are included because the potential exists for receipt of an off-specification batch or spill cleanup from these materials. Treatment residuals and products produced and managed at the facility can or may include:

- Solid Wastes - Solid waste consists of contaminated residues, dirt, metal, and other debris resulting from treatment operations and housekeeping activities. Solid wastes are assigned waste codes commensurate with the materials generating the solids (hazardous waste "derived from" rules).
- Wastewater - Wastewater is generated from the processing of received materials and is assigned waste codes commensurate with the materials generating the wastewater.
- Recovered Products - Recovered products consists of recovered petroleum products and reclaimed commercial chemical products are no longer subject to regulation.

- Hazardous Waste Fuels - Hazardous waste fuels resulting from treatment operations will largely consist of low water content organic liquids; its composition regarding chemical and physical properties will be in compliance with waste receipt specifications of hazardous waste fuel users.

- Hazardous Waste – Hazardous waste to be managed in an existing container storage unit, mix tub or T enclosure building.

IV.2 Waste Approval Procedure

The facility has developed a process and procedure to regulate the acceptance and management of potentially acceptable materials. The purpose of the waste approval procedure is:

- to determine if a waste material can be safely and effectively managed using facility processes and equipment in accordance with current permits, regulations and plant policy;
- to ensure that all wastes ultimately approved for treatment, storage, and disposal or recycling are handled in such a way as to protect human health and the environment;
- to confirm the accuracy of the information provided by the generator on the waste description and the chemical and physical properties of the waste;
- to provide an accurate set of fingerprint criteria that is used to verify the identity of an incoming waste shipment.

Sample Receipt and Documentation Review

The sample package submitted by the generator should contain a representative sample, a Clean Harbors Waste Profile Sheet with information supplied by the generator, and a signed chain of custody. The Waste Profile Sheet must be signed by the generator to certify that the information is true and that prohibited compounds are not present in the waste. Any missing information will be requested from the generator. Final approval will not be granted until all information is received. Profiles may also be submitted electronically.

TABLE 4-2

ACCEPTABLE WASTE CODES

D001	F008	K031	K104	P007	P127	U034	U087	U140	U191	U328	
D002	F009	K032	K105	P008	P066	P128	U035	U088	U141	U192	U353
F010	K033	K106	P067	P185	U036	U089	U142	U193	U359		
D004	F011	K034	K107	P010	P068	P188	U037	U090	U143	U194	U364
D005	F012	K035	K108	P011	P069	P189	U038	U091	U144	U196	U367
D006	F019	K036	K109	P012	P070	P190	U039	U092	U145	U197	U372
D007	K037	K110	P013	P071	P191	U041	U093	U146	U200	U373	
D008	K038	K111	P014	P072	P192	U042	U094	U147	U201	U387	
D009	K039	K112	P015	P073	P194	U043	U095	U148	U202	U389	
D010	K040	K113	P016	P074	P196	U044	U096	U149	U203	U394	
D011	F024	K041	K114	P017	P075	P197	U045	U097	U150	U204	U395
D012	F025	K042	K115	P018	P076	P198	U046	U098	U151	U205	U404
D013	K043	K116	P020	P077	P199	U047	U099	U152	U206	U409	
D014	K117	P021	P078	P201	U048	U101	U153	U207	U410		
D015	K118	P022	P081	P202	U049	U102	U154	U208	U411		
D016	F032	K123	P023	P082	P203	U050	U103	U155	U209		
D017	F034	K124	P024	P084	P204	U051	U105	U156	U210		
D018	F035	K048	K125	P026	P085	P205	U052	U106	U157	U211	
D019	F037	K049	K126	P027	P087	U001	U053	U107	U158	U213	
D020	F038	K050	K131	P028	P088	U002	U055	U108	U159	U214	
D021	F039	K051	K132	P029	P089	U003	U056	U109	U160	U215	
D022	K001	K052	K136	P030	P092	U004	U057	U110	U161	U216	
D023	K002	K060	K141	P031	P093	U005	U058	U111	U162	U217	
D024	K003	K061	K142	P033	P094	U006	U059	U112	U163	U218	
D025	K004	K062	K143	P034	P095	U007	U060	U113	U164	U219	
D026	K005	K064	K144	P036	P096	U008	U061	U114	U165	U220	

D027	K006	K065	K145	P037	P097	U009	U062	U115	U166	U221
D028	K007	K066	K147	P038	P098	U010	U063	U116	U167	U222
D029	K008	K069	K148	P039	P099	U011	U064	U117	U168	U223
D030	K009	K071	K149	P040	P101	U012	U066	U118	U169	U225
D031	K010	K073	K150	P041	P102	U014	U067	U119	U170	U226
D032	K011	K083	K151	P042	P103	U015	U068	U120	U171	U227
D033	K013	K084	K156	P043	P104	U016	U069	U121	U172	U228
D034	K014	K085	K157	P044	P105	U017	U070	U122	U173	U234
D035	K015	K086	K158	P045	P106	U018	U071	U123	U174	U235
D036	K016	K087	K159	P046	P108	U019	U072	U124	U176	U236
D037	K017	K088	K161	P047	P109	U020	U073	U125	U177	U237
D038	K018	K090	K169	P048	P110	U021	U074	U126	U178	U238
D039	K019	K091	K170	P049	P111	U022	U075	U127	U179	U239
D040	K020	K093	K171	P050	P112	U023	U076	U128	U180	U240
D041	K021	K094	K172	P051	P113	U024	U077	U129	U181	U243
D042	K022	K095	P054	P114	U025	U078	U130	U182	U244	
D043	K023	K096	K175	P056	P115	U026	U079	U131	U183	U246
F001	K024	K097	K181	P057	P116	U027	U080	U132	U184	U247
F002	K025	K098	P001	P058	P118	U028	U081	U133	U185	U248
F003	K026	K099	P002	P059	P119	U029	U082	U134	U186	U249
F004	K027	K100	P003	P060	P120	U030	U083	U135	U187	U271
F005	K028	K101	P004	P062	P121	U031	U084	U136	U188	U278
F006	K029	K102	P005	P063	P122	U032	U085	U137	U189	U279
F007	K030	K103	P006	P064	P123	U033	U086	U138	U190	U280

Profile Review

Prior to acceptance of the waste, a profile will be reviewed in detail. The purpose of this review is to verify potential waste code and air emission compliance, Btu content,

viability of the material for treatment, compatibility with on-site materials, processes and equipment, and economic considerations. Samples can be rejected or submitted for preliminary pre-acceptance testing based on the generator information available in the profile data where applicable.

Preliminary Pre-acceptance Testing/Data Review and Verification

This step of the review process is designed to determine suitability of the stream for the facility's processes and permit compliance, and to establish a physical and chemical fingerprint which can be used to quickly verify the identity of received manifested materials. Preliminary pre-acceptance testing and/or verification testing will consist of two tiers of testing. Tier One will consist at a minimum of the following parameters for all samples:

- Btu
- Total Organic Halide
- pH
- Percent ash
- Compatibility screen (for commingled streams only) Reactivity screen
- Paint Filter Testing (PFT)

Additionally, the facility may conduct X-ray fluorescence for some, or all of the elements listed below during Tier Two preliminary testing. Alternatively, the facility may choose to perform this analysis as part of secondary pre-acceptance testing.

vanadium	titanium	magnesium	thallium	sodium
manganese	silicon	chromium	aluminum	
nickel	sulfur	copper	phosphorous	
zinc	potassium	iron	chlorine	
selenium	barium	arsenic	calcium	
zirconium	tin	bromine	cadmium	
mercury	iodine	strontium	antimony	
molybdenum	silver	lead	cesium	

Generators are encouraged to supply analytical data that characterizes their waste and supports statements made on the waste profile sheet. If data is provided by the generator that meets the facility's minimum standards for preliminary and secondary pre-acceptance testing, verification testing of the generator's data will be conducted at the discretion of the lab manager, based on the level of QA/QC provided by the generator and the level of agreement between the generator's data and the lab data for the Tier One preliminary test parameters. Verification testing will consist of one or both of the Tier Two parameters and

other parameters deemed necessary by the lab manager. Clean Harbors may accept analysis performed at another Clean Harbors facility.

Data collected under the above preliminary testing will be evaluated as generated. Because of the wide range of matrices within even one specific listed waste (i.e. F037 can vary from 10% to 80% water, depending on whether or not it has been de-watered), the analytical scheme must remain dynamic. If, during preliminary testing, information becomes known that makes the waste stream unacceptable to Clean Harbors, analysis will be suspended at that point.

An example of this situation would be a waste with an initial pH of 10.0 that evolves copious amounts of hydrogen cyanide upon acidification to 5.0. This waste would be rejected for reactivity, compatibility and safety reasons, and the sample returned to the generator with notification of results. In addition, results of preliminary testing may illustrate the need for additional testing, such as if a waste is found to contain high levels of total organic halide, facility personnel may decide that a PCB analysis is necessary. Preliminary analyses will also be used to determine the level of secondary testing required before final approval.

Secondary Prequalification Testing

Secondary pre-acceptance testing will consist of one of the following two schemes to obtain concentrations of specific metals and organic constituents if acceptable data has not been supplied by the generator.

Scheme 1

- digestion of the sample and metals analysis via ICP
- volatile organics analysis by purge and trap GC/MS
- semi volatile analysis by organic extraction and analysis by GC/MS.
- reactivity (if reactivity screen from preliminary testing indicates level of concern, reactivity will be performed under pH conditions dictated by equipment compatibility and operating conditions)

Scheme 2

- metals by x-ray fluorescence
- reactivity (if reactivity screen from preliminary testing indicates level of concern, reactivity will be performed under pH conditions dictated by equipment compatibility and operating conditions)

Scheme 1 will primarily be used when the generator has not provided detailed analytical data; Scheme 2 will primarily be used for verification purposes when the generator has provided data. Additionally, substitution of either of the scheme's methods may be appropriate if the instruments used in one scheme are down and the alternate scheme can provide comparable data. Depending upon the quantity and quality of generator supplied information, generator supplied data may be accepted in lieu of the facilities analysis for these parameters. This shall be at the discretion of Senior Management.

A generic list of analytes of interest has been developed for each of these procedures based on regulatory concerns, economic considerations, historically found constituents, and compatibility requirements. During secondary pre-acceptance testing, samples may be analyzed for the following metals:

antimony	arsenic
barium	beryllium
cadmium	chromium
lead	mercury
nickel	selenium
silver	thallium

If generator supplied information, waste codes or facility process knowledge of the waste stream indicates the possible presence of other metal analytes of concern or interest to the facility, those parameters shall be added to the above list for analysis by ICP. If preliminary semi-quantitative X-ray analysis has been performed and indicates the presence of additional metals of which more accurate information is desired (for fingerprint, regulatory, compatibility, or economic reasons), those analytes will be added to the above list for that particular sample.

An example list of volatile organics for which oily waste samples may be analyzed by purge and trap GC/MS are:

vinyl chloride	Ethylbenzene	tetrachloroethene
1,1 -dichloroethene	o-xylene	chlorobenzene
1,2-dichloroethane	carbon disulfide	(m+p)-xylenes
carbon tetrachloride	chloroform	1,4-dichlorobenzene
benzene	2-butanone	
toluene	trichlorothene	

If generator supplied information or waste code indicates the possible presence of other volatile organic constituents which may be of interest for regulatory, compatibility, or economic reasons, those analytes will be added to the above scan list for that sample. In addition, library searches will be conducted on any unidentified peaks which constitute a significant portion of the volatile fraction.

An example list of semi volatile organics which will be routinely analyzed for oily waste samples by sonication extraction and GC/MS are:

phenol	Fluorene	chrysene
2-methyl phenol	Phenanthrene	bis-(2-ethylhexyl)-phthalate
(3+4)-methyl phenol	anthracene	Benzo (a) pyrene
2,4-dimethyl phenol	di-n-butyl phthalate	2,4-dinitrotoluene
naphthalene	pyrene	Hexachlorobenzene
Acenapthene	Benzo (a) anthracene	Hexachlorobutadiene
Hexachloroethane	pyridine	fluoranthene
nitrobenzene	2,4,5-Trichlorophenol	Benzo (b) fluoranthene
pentachlorophenol	2,4,6-Trichlorophenol	Dibenz (a,h) anthracene
Benzo (g,h,i) perylene	1,4-Dichlorobenzene	

If TOX analysis indicates a large presence of chlorinated organics unaccounted for by generator supplied information or by GC/MS data, the semi volatile GC/MS shall be used to screen for PCBs. If matrix interferences require unusual sensitivity for-PCB analysis, selected ion monitoring techniques adopted from SW-846 dioxin analytical methods will be utilized for PCB detection. If TOX information indicates the presence of organic halide which cannot be reconciled by comparison with x-ray fluorescence, total halide, and volatile and semi volatile information, the sample will be re-extracted , derivatized for herbicides, and reanalyzed by GC/MS to detect the presence of chlorinated herbicides.

If generator supplied information, waste code or facility process knowledge indicates the possible presence of other semi volatile organic constituents which may be of interest for regulatory, compatibility, or economic reasons, those analytes will be added to the above scan list for that sample. In addition, library searches will be conducted on any unidentified peaks which constitute a significant portion of the semi volatile fraction.

IV.3 Data Review

After analytical testing is complete, the Laboratory Manager or his designee shall review all data collected and prepare a final detailed analytical report. The data shall be reviewed for waste code and air emission compliance, viability of the material for treatment and recycling, compatibility with anticipated on-site waste and equipment, safety, and economic considerations. Senior Management shall make final decisions on whether waste streams are accepted or rejected.

Waste streams will always be rejected for the following reasons:

- PCBs at 50 ppm or greater are detected
- radioactivity significantly above natural background is detected
- visual inspections reveals etiological material present in the waste
- pH is outside of the range of compatibility with equipment and the generator indicates that the stream cannot be adjusted to fall within this range
- unacceptable waste codes

Waste streams will be rejected based on additional parameters on a case-by-case basis:

- failure to reconcile generator supplied information with analytical data
- potential for exceedance of air emissions standards
- potential incompatibility with materials, processes or equipment
- potential for the creation of unsafe conditions
- economic considerations
- any other considerations which management feels is appropriate

IV.4 Establishing Fingerprint Parameters

For waste streams which are recommended for approval, the Management shall assign fingerprint parameters which incoming bulk materials must be compared to prior to acceptance. Because of the nature of the materials to be received and the unique characteristics of analysis, these parameters must be assigned on a sample-by-sample basis and must be left to the discretion of facility management. General guidelines for acceptable variability in fingerprint data for received waste are discussed later under Testing of Received Manifested Materials.

The sample fingerprint is an extremely important set of data that serves to protect the facility and its personnel from receipt of inappropriate or incompatible bulk materials. Parameters must be definitive enough to provide a viable comparison between a previous sample and a bulk load yet be of the type that allows data to be collected fairly

rapidly to provide for smooth operation of the plant. Fingerprint parameters must be chosen on a sample-by-sample basis, as the following examples illustrate:

Example A: sample fingerprint - Btu/lb. = 8300; TOX = 100 ppm; sulfur = 1.0% sample from truck - Btu/lb. = 8000; TOX = 110 ppm; sulfur = 1.1%

Example B: sample fingerprint - Btu/lb. = 8300; TOX < l0 ppm; sulfur = not detected sample from truck - Btu/lb. = 8000; TOX < l0 ppm; sulfur = not detected

In both of the above examples, analytical data shows good precision between the sample and the bulk material. However, while example A is a good fingerprint match, example B does not provide enough information to make a positive match, or to say that there is no match. Additional parameters should have been chosen. Of the analyses listed above under preliminary testing, there are enough individual tests that can be performed in an hour or less so that the situation found in the second example does not develop.

Fingerprint testing will also be conducted in a two-tiered approach. The frequency with which the facility will conduct each tier of fingerprint analyses is discussed under Sample Frequency and Recertification. The Tier One fingerprint will include:

- Btu/lb.
- Percent water, solid and oil
- pH
- compatibility testing
- visual inspection
- radioactivity screening
- PFT

Each of the above parameters provides an important yet different type of vital information. Btu/lb. provides important recycling/economic information and serves as an indication of organic versus inorganic ratio. TOX provides critical information concerning potential air emission compliance and the possibility of prohibited compounds. The pH data is essential for decisions regarding compatibility. The PFT data is used to determine storage requirements.

Tier Two Fingerprint Analysis will include one or both of the following two analyses may be included in the Tier Two fingerprint. The choice of which of these two analyses to include will be at the discretion of the Management, based on the results of the pre-acceptance testing and the expected variability in the waste.

- x-ray fluorescence
- gas chromatography/mass spectroscopy

X-ray fluorescence provides the single most powerful technique for fingerprint analysis. The instrument is typically equipped with a special custom environmental software package that allows the user to either set up a multipoint calibration from user selected and prepared standards with detection levels In the low ppm range, or to utilize a semi-quantitative mode which accounts for 34 individual analytes. The software attempts to account for 100% composition of the sample. If the analyst can provide accurate percent totals of organic carbon and water present in the sample, the XR 400 data is comparable to data obtained from ICP and other instrumental analyses. Of additional value for fingerprint screening purposes, is the fact that ratios between the 34 analytes are very reproducible from analysis to analysis of samples taken from the same sample container. Ratios of a large number of analytes present in a waste sample, compared to ratios present in a bulk shipment, provide a very powerful tool for fingerprint verification. In addition. X-ray fluorescence will provide valuable data for screening shipments for undesirable metals concentration that could impact operations from both economic and regulatory perspectives. Routine screening of bulk shipments for chlorine, bromine and sulfur content is valuable for both economic and process compatibility reasons.

Waste streams in which generator supplied information or process knowledge indicate that organic constituents will be of greater concern than metal constituents, shall be subjected to a GC/MS screen rather than testing by x-ray fluorescence. Clean Harbors may be required to substitute equivalent analytical methods that provide comparable data in the event of equipment failure. Acceptable substitutions include but may not be limited to:

- metals analysis by ICP to substitute for x-ray fluorescence
- organics analysis by semi volatile GC/MS to substitute for volatile GC/MS
- TPH by GC to substitute for bomb calorimetry
- Chlorides and sulfides by titration of bomb washings to substitute for x-ray fluorescence
- The facility may add additional fingerprint parameters to the list discussed above based on process knowledge, waste code, or the results of pre-acceptance testing. Discussion of the frequency with which the facility will conduct fingerprint analysis is provided under the following section.

IV.5 Sampling Frequency and Recertification

Fingerprint testing will be conducted at the following frequency:

Bulk Shipments

Each bulk shipment of each waste profile shipped by tanker truck, railcar, barge and roll-off box will be sampled. Tier One fingerprint analyses will be performed unless more than one bulk shipment per week is received. Multiple weekly shipments will each be sampled and compared using visual inspection and pH verification. If visual inspection and pH verification indicate homogeneity within the multiple shipments, several shipments may be composited into one weekly sample. Tier Two fingerprint analyses will be performed for each waste profile according to the frequency of shipment as follows:

- One-time shipment or one bulk shipment per week - each bulk shipment for each waste profile will be sampled for Tier Two fingerprint analyses
- Greater than one bulk shipment per week - a minimum of 10% or at least one per week, whichever is greater, of each bulk shipment for each waste profile will be sampled for Tier Two fingerprint analyses.

In the case of multiple loads of a familiar waste profile, when analytical equipment is down, and analytical substitution methods require excessive time, Clean Harbors may forego analysis of some fingerprint parameters which are used to provide less critical information with respect to compatibility. Clean Harbors would resume these analyses when the equipment was repaired. This provision prevents unnecessary prolonged delays in delivery of familiar waste streams and allows the laboratory to concentrate on repairing the equipment and performing more critical analyses on less familiar waste streams. Even if several key instruments are down. The facility will still be able to perform pH, compatibility testing and visual inspection. These analyses can provide assurance of compatibility for familiar waste streams.

Each container to be transshipped through the Facility for off-site management will remain in their original containers.

Since the transshipped loads are subject to the off-site destination facility's waste analysis and acceptance requirements, they are exempt from the Facility's waste acceptance procedures. Transshipments will be subject to pre-acceptance requirements and will be visually inspected prior to acceptance by the Facility.

Drums

Drums will be sampled at 10 % of the total number of drums or at least one sample from a shipment of the same profiled waste. Equal volumes of the samples collected from the 10% will be composited into one sample for analysis if visual inspection of each sample indicates homogeneity between drums. Each composited sample will be analyzed for both Tier One and Tier Two fingerprint parameters.

Recertification

Recertification of each profiled waste stream will be conducted on a biannual basis. Clean Harbors will require the generator to submit a new representative sample with a new signed profile sheet for profiling. A new waste profile and fingerprint parameters may be established if significant changes have occurred. Also, recertification will be required if the generator or facility lab data indicates a significant change in the waste or generating process.

Analytical Methods

Unless otherwise specified, abbreviations used in referencing analytical methods refer to:

SM	"Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 20th Edition.
EPA	"Methods for Chemical Analyses of Water and Wastes," EPA, 1979, Revised March 1983.
SW	"Test Methods for Evaluating Solid Waste- Physical/Chemical Methods, EPA, SW846.
ASTM	American Society for Testing and Materials Standard

Preliminary pre-acceptance testing may include, as discussed above, some or all of the following parameters for which the following methods or equivalent modifications thereof will be used:

Btu - ASTM D240 or D3286

Total Organic Halide - SW 9020

% water - ASTM D86; D95; D96; D4007; D1744; or D1796

% hydrocarbon - ASTM D86; EPA 413.1; 413.2; SM 5520D; SW 9070; 9071

% solid -ASTM D96; D4007; D473; D482; D524; D1796; D1951; EPA 160.1; 160.2; 160.3; 160.4; 160.5; SM 2540C; 2540D; 2540E; 2540F; 2540G

% ash - ASTM D482; D1951; SM 2540F; 2540G; EPA 160.4; microwave ashing procedure

Chlorine/Chloride (halide) - ASTM D808; D1317; SW 9252; 9020; X-ray fluorescence procedure

Sulfur - ASTM D129; D1266; D1552; D2622

Viscosity - ASTM D445; D97; D2162; D2270;

D3245 pH - ASTM D4980; SW 9040; 9045

Gross metals - X-ray fluorescence procedure

Spec. gravity, bulk density – SM 2710 F

Ignitability - ASTM D93; SW 1010

Reactivity - SW 7.3.3.2; 7.3.4.1 (under pH conditions dictated by equipment compatibility and operating parameters for received materials); handheld detector tube (preliminary screen);

Corrosivity - ASTM D130; SW 1110

Visual inspection - as discussed in this plan

PFT – SW-846 (Method 9095)

Secondary pre-acceptance testing may include some or all of the following parameters using the following methods or equivalent modifications thereof:

metals - SW 3005; 3010; 3040; 3050; 6010; 7470; 7471 ;EPA 200.7; SM 3120B; microwave digestion procedure

PCBs - GC/MS confirmation procedure - SW 3500; 3550; 8270C

volatile organics - SW 3580; 5030; 8000; 8015; 8260B

semi volatile organics - SW 3500; 3510; 3520; 3540; 3580; 3611; 8270

cyanides - SW846 9020

ATTACHMENT IV TABLES

Attachment IV.B Wastes Managed in Permitted Units

Attachment IV.C Sampling & Analytical Methods

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
001	Inorganic Solids, Thermal Desorption	D004, D005, D006, D007, D008, D009, D010, D011, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U259	304H
003	Waste Oil for HWDF	D001, D018, D023, D024, D025, D026, D035, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K086, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239	206H
005	Oily Sludge for HWDF	D001, D018, D023, D024, D025, D026, D035, D039, F001, F002, F003, F004, F005, F037, F038, K035, K048, K049, K050, K051, K052, K086, K087, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239	603H
006	Hazardous Debris	D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359	489H

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
007	Lab Chemicals, Waste	D001, D002, D004, D005, D006, D007, D018, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172	001H
008	Lab Waste Debris	D001, D018, D035, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172	002H
009	Lab Waste Mixed	D001, D002, D018, D035, D039, D040, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172	003H
010	Lab Spent Solvent	D001, F002, F003, F004, F005	204H
012	Lab Spent Acid	D002, D005, D006, D007, D008, D009, D010, D011	105H
014	Oil Emulsions	D001, D005, D018, D021, D028, D039, D040, D043, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U220	205H
022	Spent Catalyst	D001, D004, D007, D008, D018, K171, K172	393H, 493H, 597H, 697H
023	Oil/Water Emulsions	D001, D018, D023, D024, D025, D026, D035, D039, F003, F037, F038, K048, K049, K050, K051, K052, K169, K170, U019, U222, U239	205H
024	Inorganic liquid	D001, F003, F037, F038, K048, K049, K050, K051, K052, K169, K170, U019, U222, U239	119H
025	Inorganic sludge	D001, F003, F037, F038, K048, K049, K050, K051, K052, K169, K170, U019, U222, U239	519H
026	Non-halogenated solvent	D018, F003, F004, F005	203H

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
027	Concentrated aqueous solution of other organics	D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F003, F037, F038, K048, K049, K050, K051, K052, K169, K170, U019, U222, U239	207H
028	Organic paint, ink, lacquer or vanish	D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F003, F037, F038, K048, K049, K050, K051, K052, K169, K170, U019, U222, U239	209H
029	Dry lime or metal hydroxide solids "fixed"	F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044,U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359	305H
030	Metal scale, filings, scrap, or salts/chemicals	F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044,U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359	307H, 316H

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
031	Inorganic solid	D001, F003, F037, F038, K048, K049, K050, K051, K052, K169, K170, U019, U222, U239	319H
032	Nonhazardous sandblasting waste	Non-hazardous	3891
033	Solids resins/polymerized organics	D001, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172	403H
034	Spent carbon	D001, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172	404H
035	Non-halogenated organic solids	D001, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172	409H
036	Dewatered biological treatment sludge	D001, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170,	491H
037	Wastewater treatment sludge	D001, F001, F002, F003, F004, F005, F037, F038, K035, K052,	503H, 504H

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
038	Organic sediment/lagoon dragouts	D001, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170,	512H
039	Inorganic sediment/lagoon dragouts	D001, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170,	513H
040	Still bottoms or other Organic sludges	D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044,U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359	602H, 609H
041	Petroleum contaminated sludges	D001, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170,	695H
042	Resins, tars, or tarry sludge	D001, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170,	606H
043	Wastewater	D001, D018, D021, D028, D039, D040, D043, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U0220	114H

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
044	Centrifuge cake	none	4891
045	Desorber solids	none	3041
046	Catalyst supports	none	3191
047	Centrifuge water	none	1141
048	Empty containers	none	4061
049	Delisted desorber solids	none	3041 & 3042
050	Electronic waste	none	3191
051	Non-hazardous debris	none	3902
052	Plant trash	none	9992

Table IV.C – Sampling and Analytical Methods

Waste No.[1]	Sampling Location[2]	Sampling Method[3]	Frequency	Parameter[4]	Test Method[3]	Desired Accuracy Level
001, 016, 022, 025, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 045, 046, 049	Sampling rack CSA-2, CSA-12	ASTM D346-75 or D420-69 ASTM D2234-76 SW-846 Chapter 9	Daily when generated or received	Metals digestion	SW-846 3005A 3010A 3015A	Accuracy level is based on the standard
				Metals analysis	SW-846 6010B	
				Total solid SV extraction	SW-846 3550B	
				Paint Filter Test	9095	
				Semivolatile analysis	SW-846 8270C	
				Volatile Analysis	SW846- 8260	
				Reactive Cyanide	SW-846 7.3/9010A	
				Reactive Sulfide	SW-846 7.3/9030A	

[1] from Table IV.B, first column

[2] Sampling and Test/Analysis methods should be specified in enough detail to allow determination of whether they are suitable and correct for the purpose indicated while allowing flexibility in selection and future updates to the specified method. Standard methods, such as those from SW-846, will generally require no further submittal. Non-standard and proprietary methods may require additional information to determine suitability. ASTM methods may require submittal of a copy of the specified method.

[3] Desired Accuracy Level should provide a specified numeric minimum performance level (maximum acceptable reporting limit) for method detection and quantitation limits that will be accepted from the laboratory performing the analysis and must ensure that reported data will allow determinations of compliance with regulatory limits for the parameter tested.

Waste No.[1]	Sampling Location[2]	Sampling Method[3]	Frequency	Parameter[4]	Test Method[3]	Desired Accuracy Level
003, 005, 014, 018, 019, 020, 023, 027, 028, 041, 042, 044	Tank Farms CSA-2 ,CSA-3 Truck loading racks	SW-846 Chapter 9 Coliwassa ASTM D140-70	Per generated or received load or 10% of multiple same profile shipments	Ignitability	SW-846 1010	Accuracy level is based on the standard
				Corrosivity (ph)	SW-846 9040B, 1110	
				Metals digestion	SW-846 3005A 3010A 3015A	
				Metals analysis	SW-846 6010B	
				Liquid SV extraction Paint Filter Test	SW-846 3510C 9095	
				Semivolatile analysis Volatile Analysis	SW-846 8270C SW846-8260	

[1] from Table IV.B, first column

[2] Sampling and Test/Analysis methods should be specified in enough detail to allow determination of whether they are suitable and correct for the purpose indicated while allowing flexibility in selection and future updates to the specified method. Standard methods, such as those from SW-846, will generally require no further submittal. Non-standard and proprietary methods may require additional information to determine suitability. ASTM methods may require submittal of a copy of the specified method.

[3] Desired Accuracy Level should provide a specified numeric minimum performance level (maximum acceptable reporting limit) for method detection and quantitation limits that will be accepted from the laboratory performing the analysis and must ensure that reported data will allow determinations of compliance with regulatory limits for the parameter tested.

Waste No.[1]	Sampling Location[2]	Sampling Method[3]	Frequency	Parameter[4]	Test Method[3]	Desired Accuracy Level
				Percent water, oil & sediment	ASTM D96, D95, D473, D4007	
				Total organic halide	SW-846 9020B	
				Percent Ash	ASTM D482	
				Heat of Combustion	ASTM D240, D3286	
				Density	SM 2710	
				Inorganics by X-ray fluorescence	D2622	
007, 008, 009, 010, 012, 015,	NA[5]	NA[5]	NA[5]	NA[5]	NA[5]	NA
006	NA[6]	NA[6]	Per generated load	NA[6]	NA[6]	NA
048, 050, 051, 052	NA[7]	NA[7]	NA[7]	NA[7]	NA[7]	NA

[1] from Table IV.B, first column

[2] Sampling and Test/Analysis methods should be specified in enough detail to allow determination of whether they are suitable and correct for the purpose indicated while allowing flexibility in selection and future updates to the specified method. Standard methods, such as those from SW-846, will generally require no further submittal. Non-standard and proprietary methods may require additional information to determine suitability. ASTM methods may require submittal of a copy of the specified method.

[3] Desired Accuracy Level should provide a specified numeric minimum performance level (maximum acceptable reporting limit) for method detection and quantitation limits that will be accepted from the laboratory performing the analysis and must ensure that reported data will allow determinations of compliance with regulatory limits for the parameter tested.

Waste No.1	Sampling Location[2]	Sampling Method[3]	Frequency	Parameter[4]	Test Method[5]	Desired Accuracy Level
024,026, 043, 047	Tank Farms, Truck loading racks	SW-846 Chapter 9 Coliwassa or sample port ASTM D140-70	Daily when load generated	Percent water, oil & sediment	ASTM D96, D95, D473, D4007	Accuracy level is based on the standard
				Corrosivity (ph)	SW-846 9040B, 1110	
				Semivolatile analysis Volatile Analysis	SW-846 8270C SW846- 8260	
				Percent Ash & Liquid SV Extraction Heat of Combustion	ASTM D482 & SW846 3510C ASTM D240, D3286	

1 from Table IV.B, first column

2 Sampling and Test/Analysis methods should be specified in enough detail to allow determination of whether they are suitable and correct for the purpose indicated while allowing flexibility in selection and future updates to the specified method. Standard methods, such as those from SW-846, will generally require no further submittal. Non-standard and proprietary methods may require additional information to determine suitability. ASTM methods may require submittal of a copy of the specified method.

3 Desired Accuracy Level should provide a specified numeric minimum performance level (maximum acceptable reporting limit) for method detection and quantitation limits that will be accepted from the laboratory performing the analysis and must ensure that reported data will allow determinations of compliance with regulatory limits for the parameter tested.

Clean Harbors San Leon notes:

[1] From Table IV.B, first column
[2] These are the primary sampling locations only
[3] See WAP for additional methods
[4] Not all parameters apply to each sample. See WAP for more details.

[5] Lab waste is characterized by disposal facility.
[6] Each load is sent for Macroencapsulation per 40 CFR 268.45(d) Table 1.
[7] This waste is exempt from solid waste definition 40 CFR 261.4

[1] from Table IV.B, first column

[2] Sampling and Test/Analysis methods should be specified in enough detail to allow determination of whether they are suitable and correct for the purpose indicated while allowing flexibility in selection and future updates to the specified method. Standard methods, such as those from SW-846, will generally require no further submittal. Non-standard and proprietary methods may require additional information to determine suitability. ASTM methods may require submittal of a copy of the specified method.

[3] Desired Accuracy Level should provide a specified numeric minimum performance level (maximum acceptable reporting limit) for method detection and quantitation limits that will be accepted from the laboratory performing the analysis and must ensure that reported data will allow determinations of compliance with regulatory limits for the parameter tested.

SECTION V- Engineering Reports

Appendix V.A
General Engineering Report

The Clean Harbors San Leon facility is a state-of-the-art commercial recycling facility for petroleum and chemical by-products and wastes. Many of these materials are, or have in the past, been amenable to commercial disposal methods such as landfilling or incineration. Traditional disposal methods that were once considered environmentally sound are under federal study to determine their reliability and impact on our future generations. Consequently, environmentally concerned companies and the general public demand other environmentally acceptable techniques which recycle, reclaim, treat or convert these wastes into usable products. Clean Harbor's goal is to fill the present void in existing waste management practices by providing waste processing services that minimize the material ultimately disposed and maximize the recovery of materials for reuse. The Clean Harbors San Leon facility is designed to respond to the community's needs, and regulatory goals by recycling and converting wastes into a variety of products for beneficial reuse or energy recovery.

Environmental regulations have expanded the definition of wastes making many previously unregulated materials subject to regulation. Environmentally safe, secure and licensed facilities like the Clean Harbors San Leon facility, in close proximity to Gulf Coast industrial sectors, are needed to provide a more environmentally sound alternative to conventional disposal methods. Sound, technical alternatives to hazardous waste disposal will remain important to the growth of petroleum refining, petrochemical and manufacturing industries within Texas for years to come. Clean Harbors recycling processes will maximize the recovery of valuable products and minimize volumes requiring disposal. By converting many hazardous wastes destined for disposal into useable products, the facility provides a responsible alternative for the industrial and environmental community and is responsive to the regulatory intent of the Resource Conservation and Recovery Act and our nation's long-range goals for waste minimization and recycling.

V.A.1 General Information

Site History

The Clean Harbors facility has been associated with resource recovery for over 20 years. The facility was initially operated by Petro Processors, Inc. as a waste oil recovery business beginning in 1982, initially as a non-regulated facility. In May of 1986, Petro Processors filed a Part A with the TWC (a.k.a. TCEQ) to receive interim status, due to newly promulgated EPA regulations relating to hazardous waste fuels.

However, shortly after receiving interim status, the facility ceased operations, due to the declining petroleum market. In 1988, Avvcorp, LTD. submitted a notice of change of ownership for the facility; however, Avvcorp, LTD. never engaged in any industrial operations at the facility. In January of 1991, Bird Environmental Systems and Services Inc., interested in purchasing the facility from Avvcorp, LTD., met with the TWC to express their interest in reactivating the facility and to determine the facility status and upgrades required. In May of 1991, Avvcorp, LTD. submitted a revised Part A for the facility to include wastes that were anticipated to be processed upon reactivation of the facility by Bird. Bird then purchased the facility and provided funding to reactivate the facility in compliance with all environmental regulations. In August of 1991, Bird submitted a change of ownership notification and another revised Part A to be in compliance with anticipated interim status operations. In December of 1991, the TWC requested Bird submit a Part B permit application for the facility by June 30, 1992. The TNRCC (a.k.a. TCEQ) issued permit number HW-50355 on April 1, 1994, to Bird Environmental Gulf Coast, Inc.

Bird Environmental Gulf Coast, Inc. changed its name to DuraTherm, Inc. in 1995. Permit HW-50355 was renewed on October 20, 2004.

In August 2011, Duratherm, Inc. was sold to Clean Harbors Environmental Services. Duratherm, Inc. subsequently changed its name to Clean Harbors San Leon, Inc. in 2014.

This application for permit renewal provides information for continued operation under the existing permit. These operations include the following:

1. Processing and treatment of non-hazardous and listed and characteristic hazardous wastes
2. Operation of storage and treatment tanks and container storage areas
3. Operation of process equipment for the recovery and blending of hazardous waste fuels
4. Operation of two thermal desorption units

Table V.A outlines all of the permitted units and can be found in Attachment V Tables. The Clean Harbors San Leon facility recovers petroleum products from oil-bearing wastes, recovers chemical products and hazardous waste fuels from petrochemical and chemical plant wastes, and recovers metal from spent catalyst for further metal enrichment and recovery. Recovered products are sold. Recovered hazardous waste fuels are sold or disposed of at authorized off-site BIF facilities.

Overall Plan View Map

The overall plan view of the proposed facility and the location of all waste management units can be found in Appendix A- drawing numbers 100 and 104.

Topographic Map

In Appendix A, drawing number 100-A shows the required topographic and additional data required by Section V.A of the permit application. As shown drawing number 100-A, the land surrounding the facility is relatively flat, with an approximate elevation of 5 feet MSL. The area of the facility within the flood control structure is graded from 6 feet MSL to 5 feet MSL from south to north, so that rainfall outside of the two-foot plant roadway drains to the drainage ditch at the northern boundary.

All rainfall that contacts the area within the plant roadway will be controlled and managed as discussed in the Storm water Management discussion. Run-on from outside the facility is prohibited from entering the facility by the flood control structure which completely surrounds all waste management units.

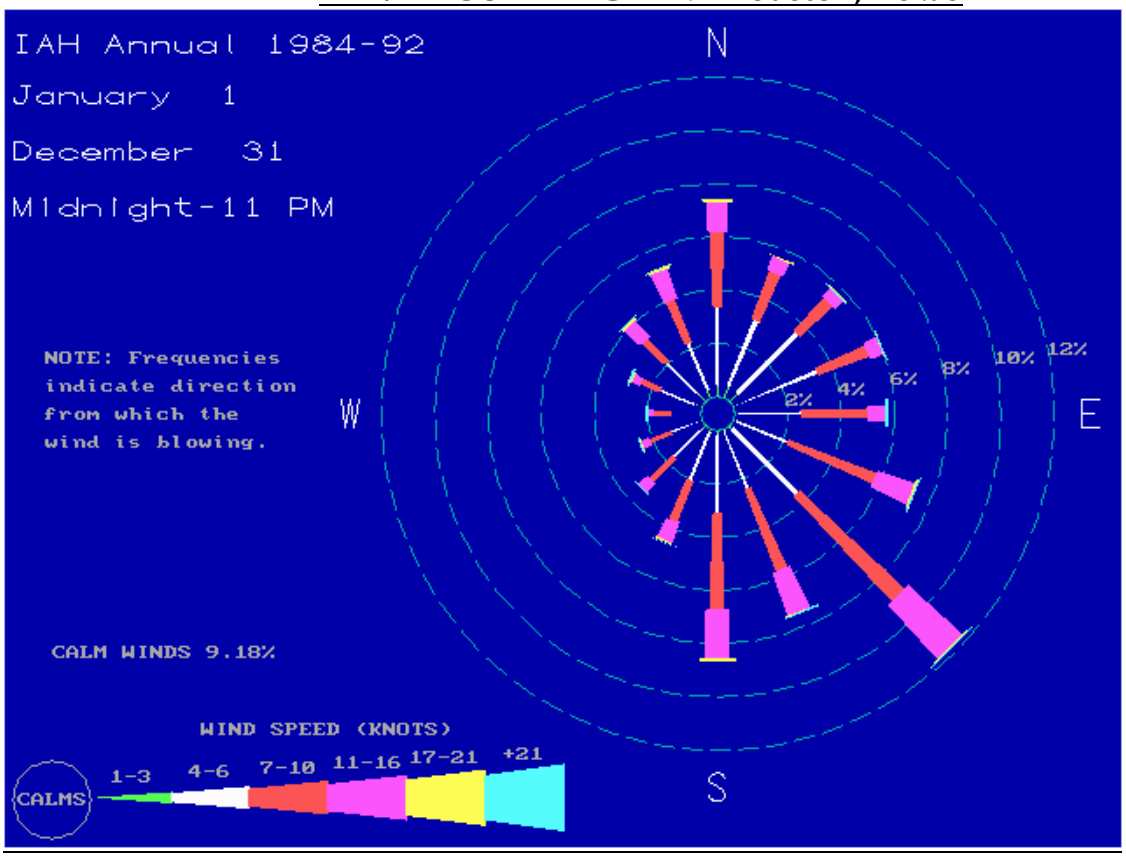
Waste shipments may be delivered by land to the site by truck. Vehicular traffic can approach the facility from Interstate 45 or State Highway 146. Directions to the facility are as follows:

> Approaching from Interstate 45, take FM 646 exit east toward State Highway 146 at Bacliff. Turn south on State Highway 146 for approximately 4 miles to FM 517. From State Highway 146, trucks will drive east on FM 517 approximately 1/2 mile to Ave. R, then turn right on Avenue R for approximately 1/2 mile to 27th St., then south on 27th St. for about 1/4 mile to Ave. S. The facility truck entrance is to the right on Avenue S.

Entrance and delivery roads are shown on Appendix A drawing number 100. All facility roadways are constructed of concrete or are surfaced with crushed concrete or limestone on a compacted road base and are designed with a load-bearing capacity adequate to support loaded trucks. Based on the total facility throughput being transported in trucks, the maximum daily truck traffic at peak facility throughput could be 39 tank trucks and 19 container trucks. Because of the limited length of roadway and low traffic volume, traffic signs and electronic signals are not necessary.

All sanitary wastewater will be treated in the on-site package wastewater treatment system. The storm water drainage ditch is indicated on Appendix A drawing number 100. The ditch drains from east to west over the northern property boundary.

Table 5-1
WIND ROSE DIAGRAM-Houston, Texas



http://www.tceq.state.tx.us/assets/public/compliance/monops/air/windroses/iahall.gif

V.A.2 Features to Mitigate Unsuitable Site Characteristics

Flooding

The facility is located within the 100-year floodplain as determined by the Flood Insurance Rate Map (FIRM) for the area (Galveston County, Panel No. 99), produced by the Federal Emergency Management Agency. As shown in Attachment V.A, the facility is located in Zone A12, subject to flooding effects from Galveston Bay. Therefore, a new flood control structure was built in 1992, consisting of an expanded earthen dike and a new concrete flood wall.

According to the FIRM, the Base Flood Elevation (BFE) for the facility is 12 feet MSL. The BFE consists of two components, a still water elevation and additional elevation to account for storm surge effects. The still water elevation for Zone A12, as shown in Table 5-3, is 10.6 ft MSL. Table 5-2 was copied from the Flood Insurance Study background document used to develop the Flood Insurance Rate Maps for Galveston County. The BFE range for Zone Al2, shown on Table 5-2, is 12-13 ft MSL, which includes the wave height component of the BFE.

Protection of the facility from the 100- year flood event is provided by an earthen and concrete flood control structure as shown in a plan view in Appendix A drawing number 100.The design of the flood control structure includes evaluation of wave runup and wind setup effects, and the effects of hydrodynamic and hydrostatic forces exerted on the structure. Evaluation of the wave runup and wind setup effects followed methods established in the U.S. Army Corps of Engineers Shore Protection Manual and a Corps of Engineers embankment design document entitled Wave Runup and Wind Setup on Reservoir Embankments, November 1976.

The original design elevation for the structure was 16.5 feet MSL. This elevation consists of the following components:

Still Water Level - 10.6 feet MSL Wave Runup - 4.6 feet Wind Setup - 1.2 feet

Wave runup was based on a significant wave height of 3.43 feet. Wave runup and wind setup effects are based on a design wind speed of 79 mph over water (duration 52 minutes). The design wind is based on data collected from the Corps of Engineers embankment design document and a U.S. Climatic Atlas. The design calculations for wave runup and wind setup are included in Appendix B - Design Calculations.

In 2000, the eastern section of the earthen levee was armored to increase the crest elevation to 18.5 ft MSL. This action was taken as a result of recommendations contained in a Wave Height Analysis conducted by Earth Tech, Inc. See Appendix B - Design Calculations. The slope stability of the earthen portion of the flood control dike was analyzed using a two-dimensional, limit equilibrium slope stability program called PCSTABL5M (December 15, 1988). The program was developed by Purdue University for the Joint Highway Research Project to handle general slope stability problems by the simplified Jambu, simplified Bishop, and Spencer method of slices.

The slope stability analyses were performed using drained (total stress) and undrained (effective stress) analyses. An undrained analysis is a "short term" analysis that ignores the effect of porewater pressure. A drained analysis is a "long term" analysis that considers the effect of porewater pressure.

Three types of conditions were analyzed for the interior slope and exterior slope.

- End of Construction (EOC) - using total stress parameters.
- Post Construction (PC) - using effective stress parameters.
- Rapid Drawdown (RD) - using total stress parameters.

To determine soil parameters for the slope stability analyses, 10 borings were drilled along the proposed dike perimeter to depths ranging from 20 to 25 feet below ground surface in January 1992. Soil samples were collected, and field pocket penetrometer readings were taken on clay soil samples. Selected soil samples were tested by a geotechnical laboratory for soil engineering characteristics. The testing program included the following:

- Atterberg Limits (ASTM D4318)
- Grain size analysis: -#200 sieve (ASTM 1140)
- Moisture and wet density
- Unconfined compression test (ASTM D 2166)
- Triaxial compression test unconsolidated undrained (ASTM D 2850)
- Triaxial compression test consolidated undrained with back pressure saturation and pore pressure measurements (ASTM D 4767)

Based on the boring logs and the proposed dike cross-section, a generalized soil profile was developed. The profile consisted of the following layers:

- Dike Layer - from Elevation (EL) 16.5' to EL. 5.0'
- Top Clay Layer - from EL. 5.0' to EL. -4.0'
- Sandy Layer - from EL. -4.0' to EL. -9.0'
- Bottom Clay Layer - from EL. -9.0' to total depth

Each soil layer was assigned conservative soil parameters based on the summary of the field and laboratory analyses.

The generalized dike cross section has a crown width of approximately 8 feet and base width of approximately 63.2 feet. The dike has an exterior slope of approximately 2.8 (horizontal) to 1 (vertical) and an interior slope of 2 (horizontal) to 1 (vertical). These cross-section dimensions approximate the as-built dimensions of the dike. For the rapid drawdown condition, a flood water elevation of 16.5 ft MSL was assumed (worst case condition).

The following is the summary of the factor of safety (F.S.) for the slope stability analyses regarding the long term and short term conditions:

	EOC	PC	RD
Interior Slope	2.76	1.61	2.55
Exterior Slope	2.84	1.87	2.66
Minimum F.S.	1.3	1.5	1.3

The required minimum factors of safety, based on Department of the Navy, Naval Facilities Engineering Command Design manual NAVFAC DM-7, are 1.5 and 1.3 for long term and short-term conditions, respectively.

The slope analyses indicate that the Factor of Safety for the slope stability under various conditions meet the minimum F.S. requirements. The detailed slope stability analysis is included in Appendix B - Design Calculations.

The stability of the concrete flood control structure and the steel entrance gates were evaluated for still water and wave force effects. Calculations for this evaluation are included in Appendix B - Design Calculations. The calculations show that the concrete structure and steel entrance gates are capable of withstanding the design conditions.

The earthen and concrete flood control structure was constructed in 1992. Construction of the earthen portion of the flood control structure was completed in May of 1992. Quality assurance data was collected by an independent qualified construction inspector during construction of the earthen portion to assure that the dike was constructed according to design and construction specifications. Similar construction inspection data was collected during construction of the concrete portion of the structure. An independent registered professional engineer provided certification that the flood control structure was built in accordance with the design and construction specifications. All construction inspection data and the final certification have been kept on file at the facility.

In 1996, DuraTherm contracted with Earth Tech, Inc. to conduct a Wave Height Analysis Study on the existing levee system and compare the results to revised Federal Emergency Management Agency (FEMA) standards. Based on the results of the study and after consultation with the Galveston County Engineer and Flood Plain Inspector, the eastern portion of the earthen levee was raised to provide a design freeboard of 1 foot above maximum wave height and armored to resist wave action. The upgraded levee system meets current Corps of Engineers (COE) & FEMA requirements and has been certified by an independent registered professional engineer. Additional information is provided in Appendix B -Design Calculations.

Table 5-2
BASE FLOOD ELEVATION
CLEAN HARBORS SAN LEON, INC
SAN LEON, TEXAS
4/28/03

Flooding Source	Transects	Panels	Stillwater Elevations				Flood Hazard Factor[1]	Zone	Base Flood Elevation[3] (ft NGVD)
			10-yr	50-yr	100-yr	500-yr			
Galveston Bay	25	26,27	5.2	9.8	11.6	14.9	100	V20	18-14
			(4)	(4)	11.6	(4)	075	A15[2]	13-12
			(4)	(4)	11.0	(4)	065	A13[2]	11
	26-30	27, 29, 35, 40, 100, 105	5.0	9.5	11.2	14.7	095	V19	17-16
			(4)	(4)	11.2	(4)	065	A13[2]	11
			4.7	9.0	10.6	13.9	090	18	16-13
			(4)	(4)	10.6	(4)	060	A12[2]	13-11
	31-35	99, 100, 105, 165	4.9	9.0	10.6	13.6	090	V18	16-13
			(4)	(4)	10.6	(4)	060	A12[2]	13-11
	36	150, 155, 165, 200, 210, 242	5.3	9.9	11.5	14.6	095	V19	16-14
			(4)	(4)	11.5	(4)	095	A13[2]	13-12

1) Includes the effects of Wave Action, where applicable
2) Weighted Average Value
3) Due to map scale limitations, Base Flood Elevation (BFEs) shown on the Flood Insurance Rate Map may represent average elevation for the zone depicted
4) These elevations were not computed.

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V.A.3 Construction Schedules

In Appendix A drawing number 100 shows the layout of equipment and tanks that are currently operated by the facility. The design of the existing tanks and equipment associated with the operation of the facility, as portrayed in this Part B permit renewal application, are in compliance with all environmental regulations. These units are constructed and installed in compliance with environmental regulations. Retrofitting the existing units is not required and there is no need to close these units rather than comply with RCRA standards. Therefore, no schedule for compliance is required for the existing units associated with the facility.

The facility intends on installing a Dissolved Air Flotation (DAF) system and Filter Press to provide additional treatment of waste streams containing oily water and oily/watery sludges. In addition, the facility intends to construct a Pre-treatment Building which will enable it to pretreat catalyst and other petroleum derived hazardous waste having a VOC content greater than 500 ppm prior to feeding it to the Thermal Desorbers. The Pre-treatment Building will be equipped with an emission control system that meets the requirements of 40 CFR Subpart CC. The anticipated construction schedule for installation of the Pre-treatment Building, Filter Press and Dissolved Air Flotation system are provided in Table 5.3 below.

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TABLE 5-3
CONSTRUCTION SCHEDULE FOR PERMITTED FACILITY

Item	Construction Start Date	Comment
Addition of Pre-Treatment Building	1-2 years after permit renewal depending on business conditions	For mixing and treatment of waste with VOC>500 ppm in tank and containers
Addition of Filter Press	3-6 months after permit renewal depending on business requirements and need	For management of oily, sludge waste
Addition of DAF	3-6 months after permit renewal depending on business requirements and need	For removal of small quantities of oil from process and site generated water
Addition of Container Wash/Decon Station	3-6 months after permit renewal depending on business requirements and need	For cleaning and decontamination of rolloff containers, flobins, drums and tote tanks
Addition of Pre-Treatment Container	1-4 months after permit renewal	For mixing and treatment of waste with VOC<500 ppm in containers

V.A.4 Construction and Operating Plans and Specifications

General Overview

The Clean Harbors San Leon facility recovers petroleum products from oil-bearing wastes, recovers chemical products and hazardous waste fuels from petrochemical and chemical plant wastes, and recovers metal from spent catalyst generated by petroleum refineries. Recovered products are sold. Recovered hazardous waste fuels are sold to or disposed of at off-site authorized hazardous waste fuel facilities. Residues from the processes consist of wastewater and solids. Wastewater will be stored for shipment to off-site treatment. Solids are disposed of in off-site treatment facilities or landfills in compliance with hazardous waste land disposal restriction

requirements. Rainfall run-off from process areas will be collected and tested prior to discharge. Run-off not suitable for discharge is stored for shipment to off-site treatment.

Materials will be received and shipped by truck and in bulk, drums, large containers (roll-off boxes), and flobins. Storage at the facility consists of tank, drum, flobin and large container storage facilities. The facility is designed as two essentially identical parallel processing and treatment trains for processing of petroleum derived materials and hazardous waste fuel derived materials. Processes at the recycling facility and a general description of each are:

1. Oily Waste Physical/Chemical Separation and Blending - Processes consist of mix tanks, settling tanks, chemical addition, filtration, heater, and centrifuge for the purpose of removing gross quantities of water and/or solids from materials to be treated. Operations are generally conducted in batches proceeding in the sequence of homogenous mixing with chemical addition, heating, settling, and centrifugation. Chemicals can optionally be added to the storage tanks prior to transferring them to the mixing tanks. The operation is designed to be highly flexible in order to recover materials anywhere in the process and bypass any unnecessary batch sequences. Heat is provided by a convection air heater. Recovered oils are stored for additional processing, blending, sales, or sent for disposal. Water and solids removed are treated or disposed off-site.

2. Hazardous Waste Fuel Physical/Chemical Separation and Blending - Processes and operation are essentially identical to oily waste physical and chemical separation except the unit will treat hazardous waste fuel type materials from the petrochemical and chemical industries (non-petroleum associated).

3. Waste Pre-Treatment (proposed) – Two separate processes are being proposed. The first pre-treatment process will consist of mixing, treating and blending of catalyst or petroleum derived hazardous waste containing VOC's < 500 ppm in a mixing container prior to feeding the waste to the thermal desorber units. The purpose of the process is to provide a consistent feed to the thermal desorber units to enhance recovery of oil and removal of organic material from catalyst substrate. The second proposed pre-treatment process is similar, consisting of mixing, treating and blending of catalyst or petroleum derived hazardous waste containing VOC's > 500 ppm in containers or tanks prior to feeding the waste to the thermal desorber units. The purpose of the process is to provide a consistent feed to the thermal desorber units to enhance recovery of oil and removal of organic material from catalyst substrate. The pretreatment of waste containing

VOC's > 500 ppm will be conducted within a Procedure T-Enclosure equipped with emission controls.

4. Thermal Desorption (two units) - The thermal desorption process separates organics and water from high solids content materials, including catalysts by thermal desorption. Heat is provided by convection air heating of a rotating steel cylinder. Heavy vaporized organics are condensed for recovery. Light organics and water can be condensed or routed with non-condensable gases to the air emission control system. Dry solids are stored in containers for appropriate off-site disposal. Recovered catalysts are shipped off-site for further metal recovery.

Support units at the facility include an air emissions control system, filtration, oil/water separation, waste feed systems including hoppers, conveyors and containers, container cleaning and decontamination, and container storage areas for storage of recycled product and waste residues. The air emissions control system controls emissions from process, storage, loading and unloading operations.

Construction Plans and Specifications

A construction schedule for the proposed units is provided in Table 5-3. The date that final administrative disposition of the permit is made establishes the base milestone for commencement of construction of items which require construction. The dates provided are considered late start as construction could begin for some of the items earlier. . For example, an already constructed process being permitted as a hazardous waste treatment unit would be "constructed" on the date that final administrative disposition of the permit is made or on completion of any necessary modifications required for permitting.

Planned facility units will be constructed in updated versions of design specifications used for constructing existing portions of the facility.

In general, design codes and specifications considered in the design of the units are:

- API
- ANSI
- ASME
- ASTM
- NFPA
- Other specifications as appropriate

Design codes and construction specifications pertinent to a particular process unit are included along with the detailed description of each unit in Section V.K, Miscellaneous Unit Report.

Operating Plans

The anticipated material balance for the Clean Harbors facility once it achieves full operation is shown in Attachment V.B. An accompanying process flow diagram is shown in Attachment V.C.

Procedures and equipment for prevention of hazards in unloading, adverse effects of equipment failure, spread of spills, and contamination of water supplies are discussed in the Contingency Plan in Section III.E of this application.

Stormwater Management

Stormwater that falls on the facility will be managed according to TPDES Permit No. 04086 and the facility Stormwater Pollution Prevention Plan. Rainwater that falls outside of secondary containment or spill containment slabs flows directly to the North stormwater ditch where it is retained until it is tested for compliance with discharge standards and released.

Rain that falls within the facility secondary containment or spill containment slabs will be inspected to determine if it has a visible sheen or solids and will be tested to determine if it is contaminated. If the contained rainwater is found to be clean, it will be directed to the North stormwater ditch. If the contained rainwater is found to be contaminated it may be treated and retested and if found to be clean it will be directed to the North stormwater ditch, otherwise it will be pumped to storage for shipment to offsite treatment or disposal. Attachment V.D is a diagram of the storm water flow at the facility.

Wastewater Management

Wastewater from the treatment processes and contaminated stormwater from will be pumped to one of the wastewater equalization tanks (ST-209, ST211, ST-17, ST-2). Collected wastewater will be disposed of off-site.

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Process Description

The following paragraphs discuss the general flow of received materials into the facility, and subsequent storage, processing and final disposition. In addition to processed streams generated facility operations are expected to generate miscellaneous debris and housekeeping wastes at maximum capacity. Capacities and throughput rates are expressed in pounds per year or an applicable unit of measure. Capacities and specified throughputs represent annualized projections of quantities processed at maximum capacity and do not necessarily reflect maximum processing rates of individual processes.

Oil Recovery Systems

The Oil Recovery Systems store and recycle petroleum derived wastes, including emulsions and tank bottoms for gross recovery or disposal of petroleum oils. There are two distinct processes that comprise the Oil Recovery System. The first processes of oil recovered by the thermal desorber from petroleum derived wastes and spent catalyst. The second processes petroleum waste and oil generated by Clean Harbors customers, including, but not limited to tank bottoms, slop oil, and oil emulsion.

Desorber Oil Recovery Process.

The Desorber Oil Recovery Process includes tanks, a centrifuge and associated process, surge and accumulator vessels.

Receiving and Transfer Tanks

The desorber oil receiving and storage tanks consist of Storage Tanks ST-5, ST-6, ST-207, and ST-208. These tanks receive oily material from the scrubbers and condensers of the thermal desorption units. The tanks may be equipped with mixers to homogenize the materials and/or mix chemicals. Recovered oils are recirculated back to the desorber oil scrubbers or are sent to the fuel oil storage tank for sale or disposal offsite. Oil requiring additional gross separations are sent to the Centrifuge Mix and Transfer Vessels.

Desorber Oil Centrifuge System

The Desorber Oil Centrifuge System consists of one horizontal scroll centrifuge for gross separation of solids from recovered oil generated by the thermal desorber

system, a high-speed centrifuge for greater separation, and associated process and surge accumulator vessels. Centrifuge feed is received from the desorber oil loop transfer tanks and cleaned oil is sent either to the used oil storage tank (ST-208) or to the clean oil tank (ST-207) where it is recirculated back to the desorber oil scrubbers. Oil in ST-208 that meets specification is sold as on-spec used oil.

Solids from the centrifuge are collected in a roll-off container and shipped off site for disposal. Oily sludges flow to the Centrifuge Receiving Tank T-0256 and subsequently are transferred to the HWDF tanks.

Desorber Oil Wastewater Receiving and Storage

The wastewater storage system receives wastewater from the Desorber Oil System and appropriate wastewater streams from the Solids Handling and the Thermal Desorption Systems when these processes are handling petroleum derived materials. The wastewater is stored in Tanks ST-209, ST-2and ST-211 for equalization. Oils and water sufficiently separated in the receiving and transfer tanks are distributed for appropriate processing without being sent to the Centrifuge Mix and Transfer Vessels. Stored wastewater is sent to the proposed filter press for solids removal or transferred directly to Tank ST-17 for off-site disposal. Shipment for off-site treatment will be primarily by truck.

Customer Oil Recovery Process

The Customer Oil Recovery Process includes tanks, centrifuges and associated process, surge and accumulator vessels.

Receiving and Transfer Tanks

The customer oil recovery receiving and transfer tanks include Storage Tanks FPV-30, FPV-31, FPV-32, and FPV33, FPV-34, FPV-35, and when receiving oily waste in vac trucks or boxes, Tank Receiving Hopper T-200. The tanks may be equipped with mixers to homogenize the materials and/or mix chemicals. The storage tanks may be used to provide initial treatment by chemical injection, and/or heating to improve setting and separation. Oil and water sufficiently separated in the receiving and transfer tanks are distributed to appropriate process transfer vessels. Recovered oil is sent either to Oil Tanks PV-34 or PV-35 where it is tested to determine if it meets the used oil specifications or is fed to the Customer Oil Recovery Centrifuge if additional separation is required.

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Customer Oil Centrifuge System

The Customer Oil Recovery Centrifuge System consists of one horizontal scroll centrifuge for separation of water and solids from oily waste received from off-site customers, and associated process and surge accumulator vessels. The centrifuges are operated on a batch basis determined by customer demand. The centrifuge feed tanks (FPV30-33) receive customer oily waste directly from tank trucks or from the Solids Handling System (T-200). The oil in the feed tanks may be heated, or chemicals may be added to improve processing by the centrifuges. From the feed tanks, oily waste is pumped to the centrifuges where additional chemicals may be added and heat applied to enhance separation.

Centrate oil is sent to the Oil Tanks (FPV-34/35) where it may undergo further gravity separation. Emulsified oil is transferred to the Oil Emulsion Tank (ST-207) where it is used as make up for the oil scrubbers on the desorbers. Recovered Oil from the Oil Tanks is transferred to the Oil Sales Tanks (PV18-21) and sold as on-spec used oil or sent offsite for disposal.

Water separated by the centrifuge is sent to Wastewater Storage, treated by the Dissolved Air Flotation Unit to remove remaining quantities of oil and transferred to the final Wastewater Storage Tank (ST-17) for shipment off-site.

Solids from the centrifuge are collected in a roll-off container for shipment off-site for disposal.

Customer Oil Recovery Wastewater Storage

The wastewater storage system receives wastewater from the Customer Oil Process wastewater streams and utilizes the same wastewater system used by the Desorber Oil Process. The wastewater is stored in Tanks FPV-36 and FPV-37 for equalization. Stored wastewater maybe treated by the Dissolved Air Flotation system then transferred to Tank ST-17 for off-site disposal. Shipment for off-site treatment will be primarily by truck.

Solids Handling System

The Solids Handling System will receive sludgy and semi-solid material from off-site sources, centrifuge sludges, tank cleanouts and gross recovered oil from refinery and plant processes. The materials managed through the system are typically medium-to-

heavy, oil bearing solids, semi-solids, or slurries that may contain significant amounts of liquids received from off-site sources in roll-off containers, flo-bins, tote tanks, vacuum boxes/trucks and in-plant solids bins. The materials primarily consist of petroleum bearing wastes but may also contain BTEX components, water, dirt, trash and trace metals.. Materials are received in the Primary Feed Hopper, T-200, and are transferred to Tanks PV-15 and PV-16 where they are mixed, blended and slurried. Blended recoverable oil may be filtered through the proposed Filter Press to remove undesired solid materials. Slurried materials can be transferred to Tanks PV-12, PV-13 or PV-14 or transferred to the Thermal Desorption Systems for treatment/recovery. The processed feedstock is sent to recovered product sales or shipped off-site as HWDFs. Additional details on the Solids Handling System are provided in Section XIII of this application.

Waste Pre-Treatment System (proposed)

Clean Harbor San Leon proposes to install two systems to pre-treat catalyst and petroleum-bearing waste prior to treatment in the Thermal Desorber units. Both systems will work identically the same, but one will manage only waste containing <500 ppm VOC's while the other will manage waste containing VOC's either less than or greater than 500 ppm. In the system managing waste containing VOC's<500 ppm, catalyst and petroleum-bearing waste received in rolloffs, flo-bins and other containers will be transferred to a waste pre-treatment container while in the system designed for waste containing VOC's >500 ppm the waste will be transferred to a tank or waste pre-treatment container. In both systems, the waste will be blended as necessary to provide a uniform consistency. Compatible wastes from different generators may also be mixed together. Mixing will be accomplished through a clamshell bucket or similar material handling device. Reagents such as lime, absorbents, dirt or other compatible material may be added to the catalyst or petroleum-bearing waste in order to absorb free liquids or as processing aids to enhance recovery of petroleum products or catalyst. Pre-treated material will be transferred to the feed conveyor system which will move the material directly to the thermal desorber feed hopper or to a roll-off container which will be moved to the proximity of the desorber feed hopper and fed to the hopper using a feed conveyor or front end loader.

Thermal Desorption Systems

The Thermal Desorption Systems will process spent catalyst and petroleum derived wastes from off-site sources in roll-off containers, trucks or other container types and in-plant solids bins for treatment. The thermal desorption systems will produce

varying amounts of recovered oil and metal substrate, light, heavy or full boiling range hydrocarbons, solids and water. Recovered products are sold or sent for further recovery and non-recoverable inert solids are sent off-site for disposal. Recovered hydrocarbons are used to produce hazardous waste derived fuel (HWDF) and wastewater is treated and shipped off-site for disposal. Additional details on the Thermal Desorption Systems are provided in Section XIII-Confidential Material of this application.

Container Wash/Decontamination Station

The proposed container wash/decontamination station is used to clean oily and other residues from rolloff containers, tote bins, flo-bins and other types of containers that are used to deliver recoverable material to the Clean Harbors San Leon facility. The station consists of a contained concrete pad measuring 35′ by 17′ designed with concrete walls on 3 sides (6′ at the rear, tapering to 4′ in the front. There will also be a berm at the front and a sump to collect cleaning solutions and residues removed from the container. Only containers considered RCRA-empty will be washed in the station. Typical cleaning solutions will include water and industrial grade detergents. High pressure water and steam may be used to help facilitate the cleaning. Cleaning solutions collected in the containment sumps will be pumped to storage tanks ST-209, ST-211, ST-17, and either processed through the Dissolved Air Flotation (DAF) system to remove residual oil or shipped directly offsite for disposal. Water treated through the DAF will be stored and subsequently shipped offsite for disposal.

Dissolved Air Flotation and Filter Press (Proposed)

The facility intends on installing a Dissolved Air Flotation (DAF) system and Filter Press to provide additional treatment of wastestreams containing oily water and oily/watery sludges.

Dissolved air flotation (DAF) is a water treatment process that clarifies wastewaters by the removal of suspended matter such as oil or solids. The removal is achieved by dissolving air in the water or wastewater under pressure and then releasing the air at

atmospheric pressure in a flotation tank or basin. The released air forms tiny bubbles which adhere to the suspended matter causing the suspended matter to float to the surface of the water where it may then be removed by a skimming device. The feed water to the DAF float tank may be dosed with a coagulant to flocculate the suspended matter.

A portion of the clarified effluent water leaving the DAF tank is pumped into a small pressure vessel (called the air drum) into which compressed air is also introduced. This results in saturating the pressurized effluent water with air. The air-saturated water stream is recycled to the front of the float tank and flows through a pressure reduction valve just as it enters the front of the float tank, which results in the air being released in the form of tiny bubbles. The bubbles adhere to the suspended matter, causing the suspended matter to float to the surface and form a froth layer which is then removed by a skimmer. The froth-free water exits the float tank as the clarified effluent from the DAF unit

Water from the centrifuges in the Oil Recovery System is collected in the Wastewaster Storage Tanks and is processed in the DAF. Clarified water from the DAF is sent to the final Wastewater Storage tank for shipment offsite for disposal. Oil and trace solids from the DAF is sent to the centrifuge feed tanks for reprocessing by the centrifuges.

The Filter Press will be used primarily to remove solids from water generated by the desorber scrubbing system as well as from various sumps and general plant water. The filter press uses the principle of pressure drive, provided by a slurry feed pump. The filter press is a fixed volume and batch operation, which simply means that the operation must be stopped to discharge the filter cake before the next batch can be started. The major components of filter press are skeleton and filter pack. The skeleton holds the filter pack together while pressure is being developed inside filter chamber. It can only hold a specific volume of solids.

The filter press utilized by Clean Harbors San Leon is a recessed plate filter press. The filter press is made up of polypropylene squares at about 4 feet across with concave depression and a hole in the center. Two plates join together to form a chamber to pressurize the slurry and squeeze the filtrate out through the filter cloth lining in the chamber. When the filter press is closed, a series of chambers is formed. The differences with the plate and frame filter are that the plates are joined together in such a way the cake recess on each plate, the cake thickness is restricted to 32mm unless extra frames are used which act as spacers. The filter press is equipped with a mechanical “plate shifter”. The function of the plate shifter is to move the plates and allow rapid discharge of the filter cakes accumulated between the plates.

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The filter press receives wastewater containing solids from tank PV-12. Solids generated by the filter press are collected in a roll-off container and are shipped off-site for disposal. Filtrate is sent first to St-209, ST-211, then to final Wastewater Storage (ST-17) for shipment off-site for disposal.

Appendix V.B
Container Storage Area Engineering Report

V.B. General Information

Clean Harbors San Leon, Inc recovers petroleum products from oil bearing wastes and recovers chemical products and hazardous waste fuels from petrochemical and chemical plant wastes. Recovered products will be sold. Recovered hazardous waste fuels will be sent to off-site authorized hazardous waste fuels facilities. Residues from the processes consist of wastewater and solids. Wastewater will be stored for off-site treatment. Solids are disposed of in off-site treatment facilities or landfills in compliance with hazardous waste land disposal restriction requirements.

Storm water from areas outside of containment will drain to the ditch/culvert system and be discharged through the TPDES Storm water Outfall after visual inspection and sampling of the storm water. Plant housekeeping practices will ensure that rainfall outside of secondary containment areas does not become contaminated with oil or hazardous substances. The facility has a Storm water Management Plan describing in detail all the preventive measures taken to ensure storm water does not become contaminated.

V.B.1 Quantity and Type of Containers

There will be a total of ten container storage areas (CSA) at the Clean Harbors San Leon facility. Two of the CSAs will be less than 90-day storage areas for treatment of processed residues (CSA-4 and CSA-3). Seven CSAs are permitted storage areas (CSA-2, CSA-8, CSA-9, CSA-10, CSA-12, CSA-13, and CSA-14). The last CSA is for storage of lab samples and lab waste. The lab samples analyzed for delisting or recycling purposes are held for retesting per 261.4(d)(vi). The lab waste or other lab samples (except delisting

and catalyst samples) are stored for less than 90 days prior to disposal. The waste managed and type of containers for each of the CSAs is shown in Table 5-4. The location of the CSAs is shown in drawing no. 107 "Facility Plot Plan" found in Appendix A.

TABLE V.B
WASTE MANAGED IN CONTAINER STORAGE AREAS

Table V.B can be found in Attachment V Tables

Containers storage areas (CSA-8, CSA-9, CSA-10, CSA-12, CSA-13, CSA-14) will only store wastes that do not contain free liquids as determined by the paint filter testing per EPA method. In accordance with 30 TAC § 335.152 (a)(7) and 40 CFR § 264.175 (c), the CSAs are concrete and sloped areas designed to drain and remove liquids resulting from precipitation.

Total storage capacity for each permitted container storage area listed below.

	Rated Capacity
CSA-2	36,720 cubic feet
CSA-8	10,800 cubic feet
CSA-9	3,375 cubic feet
CSA-10	20,793 cubic feet
CSA-12	48,600 cubic feet
CSA-13	53,325 cubic feet
CSA-14	8,700 cubic feet

CSA-3 and CSA-4 are less than 90-day storage areas used to contain processed material at the units. CSA-3 is two roll-off boxes with one roll-off box under each centrifuge unit. Waste processed through the centrifuges produces process residues which drop into the two roll-off boxes (CSA-3). CSA-4 are four roll-off boxes with two roll-off boxes under each thermal desorber unit. Waste processed through the thermal desorbers produces process residues which drop into these roll-off boxes (CSA-4). CSA-7 is used to store laboratory and other miscellaneous wastes prior to off-site disposal.

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V.B.2 Containment

CSA-2 is divided into two separate sections designated CSA-2 East (CSA-2E) and CSA-2 West (CSA-2W). Secondary containment for CSA-2W is provided by a concrete base and curbed area sufficiently impervious to contain leaks, spills and accumulated liquids until the collected material is detected and removed. Parts of the concrete pad in CSA-2E may be covered by welded galvanized steel plate to 1) protect the concrete from the movement of roll-off containers and heavy equipment within the area, and 2) to prevent migration of spilled waste into the concrete. Secondary containment for CSA-2E is provided by a curbed concrete base that is sufficiently impervious to contain leaks, spills and accumulated liquids until the collected material is detected and removed. The extension of the containment curb that was added in 2013 includes secondary containment system with a drain and sump connected to the existing secondary containment system for CSA-2 East. The containment structures of CSA-2E and CSA-2W sections are capable of containing the volume of 10% of the total volume of containers that are stored within them. The secondary containment systems will be operated and maintained so that they are free of cracks and gaps.

Grate-covered trenches run the complete length of both sections CSA-2. Each trench is connected to a sump which collects spilled material and washdown water. The base of each section of CSA-2 is sloped to direct water into the trench. This sloping prevents the accumulation of standing water in the containment areas. Any spilled material or washdown water that accumulates inside the collection sump will be pumped in a timely manner to the process water holding tank where it collected for shipment offsite for treatment and disposal. Design drawings for the secondary containment areas and the drainage structures are provided in Appendix A - Drawing 406.

Both sections of CSA-2 are roofed to prevent accumulation of rainfall, and run-on is prevented by concrete curbing on the front of each section. As a result, the containment volume for this unit does not include rainfall volume. Drawings for CSA-2 are included in Appendix A – Drawings T-001-CC-109-D. Table 5-5 shows the required and actual volumes of secondary containment for each CSA-2.

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Table 5-5

Container Storage Area
Containment Volume Calculations

CSA ID	Permitted Capacity (cu. yd.)	Permitted Capacity (cu. ft.)	10% Containment Volume Req'd (cu. ft.)	Containment Volume Available (cu. ft.)
CSA-2E	460	12,420	1,242	1,243.5
CSA-2 W	900	24,300	2,430	4234.5

V.B.3 Required Isle Space

All container storage areas are maintained with the required two feet aisle space to allow the movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency. Clean Harbors operation personnel are trained to properly operate the emergency equipment in the event of an emergency (fire, spill) in a container storage area. In addition, two feet aisle space allows room for daily visual inspection of the containers and the storage areas.

V.B.4 Condition of Containers

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the waste is transferred from the damaged or leaking container to a container that is in good condition. If a transfer is not immediately possible, the container will be temporarily moved to container storage area CSA-2 until the waste can be transferred to a container in good condition. Container storage area CSA-2 is a covered storage building with secondary containment and sump system to prevent the release of hazardous waste into the environment.

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V.B.5 Compatibility of waste with containers

A container used to store hazardous waste is made of a material (or lined) compatible with the hazardous wastes stored without causing a reaction.

V.B.6 Container Management Practice

A container holding hazardous waste is kept closed during storage, except when it is necessary to add or remove waste. Containers holding hazardous waste are not managed, stored, or opened in a manner which may rupture the container or cause it to leak. Containers are inspected daily to ensure good container management practice and condition of containers.

If a container of hazardous waste is found during an inspection to not be in good condition, (severe rusting, severe defects that affect structural integrity), or is leaking, the facility will transfer the contents of the container into a container that is in good condition in as timely a manner as possible. Until the transfer can be accomplished, the facility will attempt to mitigate the situation in order to minimize the leak or the potential for a leak. If a transfer is not immediately possible, the container will be temporarily moved to container storage area CSA-2 until the waste can be transferred to a container in good condition. Container storage area CSA-2 is a covered storage building with secondary containment and sump system to prevent the release of hazardous waste into the environment.

All container storage areas are maintained with the required two feet aisle space to allow the movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency. In addition, two feet aisle space allows room for daily visual inspection of the containers and the storage areas.

V.B.7 Special Requirements for Incompatible Wastes

Incompatible hazardous waste or incompatible wastes and materials are never placed in the same container. Any incompatible wastes received by the facility will be separated by a minimum of 2 rows to avoid potential mixing of the materials in the event of a spill.

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V.B.8 Special Requirements for Ignitable Waste

Ignitable wastes could potentially be managed in CSA-2. 40 CFR 264.176 requires container storage areas handling ignitable wastes to be located at least 50 ft from the facility's property line. As indicated in Appendix A Drawing # 100 Site Plot Plan, the location of CSA-2 from the property line and public rights-of-way meets the minimum distance requirements of 40 CFR 264.176.

VB.9 Test procedures

The test method used to ensure waste does not contain free liquids is the paint filter liquids test EPA SW846 Method 9095B.

Appendix V.C
Tanks and Tank Systems Engineering Reports

V.C.1 General Information

The facility manages petroleum derived wastes, including used oil in a number of tanks. Tanks are used to store and process waste before transferring to a processing or recycling unit. The tanks are divided into three areas by material type.

Table V.C in Attachment V Tables indicates the service of all tanks at the facility. As indicated, most of the tanks will be operated in either desorber oil, oil emulsion or hazardous waste derived fuel (HWDF) service. However, for the purposes of providing process flexibility, it is assumed that all tanks at the facility can manage any of the wastes included in the facility Part A, as long as the wastes are compatible with the tank and other wastes in the system. The wastes typically managed in tanks at the Clean Harbors, San Leon facility are compatible with each other and with the tank materials of construction.

V.C.2 Tank System Description

Most of the tanks will be fed through piping and pump system. The general process flow description for the facility is discussed in Section V.A. As discussed, the facility tank systems are for the thermal desorber oils and oil emulsions, each system with its

own receiving and transfer tanks. There is also a solid handling tank system and a desorber feed waste pre-treatment system.

Each tank system is provided with high level alarms and/or an overflow system to prevent overfilling. These systems are designed to comply with API RP 2350 Overfill Protection for Petroleum Storage Tanks.

Each tank is equipped with emergency pressure and vacuum relief valves set to vent the tanks if excessive pressure or vacuum develops in the tank, in accordance with API RP 520 Parts 1 and 2 Sizing, Selection and Installation of Pressure Relieving Devices in Refineries and API 2000 Venting Atmospheric and Low Pressure Storage Tanks. The pressure settings for the relief valves will be determined upon completion of the tank system assessment using API tank design criteria, tank testing data and process design data. Also shown in the P&IDs are the level alarm systems, piping and transfer systems associated with each tank system. All of the storage and process tanks at the facility are operated at atmospheric pressure with a low pressure gas blanket to suppress emissions. Vapors from the tanks at the facility will be collected by a vapor control system described later in this section. The pressure control and safety systems associated with the vapor control system are also discussed in this section.

Receiving Transfer and Storage Tanks

The desorber oil tank system (ST 207 & ST 208) are the receiving and transfer tanks. The oil emulsion tanks are the receiving tanks for the petroleum oil recovered from the thermal desorption system for transfer to storage tanks or process areas. The desorber oil can be transferred to HWDF tanks (PV-12, PV-13, PV-14, PV-15, PV-16) for off-site disposal or used oil tanks (PV-18, PV-19, PV-20, PV-21).

The centrifuge mix receiving and transfer tanks (FPV-30, FPV-31, FPV-32, FPV-33, FPV-34, FPV-35, FPV-36, FPV-37) receive oil emulsions for processing through the Centrifuge System. The oil emulsions are either received from tankers or Clean Harbors' in-house generated waste. Chemicals such as de-emulsifiers and caustic can be added to these tanks. Mixers may be added to these tanks for homogenization or chemical mixing. The piping network in the receiving and transfer tank areas will allow material to be pumped to the used oil storage tanks (PV-18, PV-19, PV-20, PV-21) or the HWDF tanks (PV-12, PV-13, PV-14, PV-15, PV-16) for off-site disposal.

Wastewater can be drawn from the bottoms of these tanks and pumped to the wastewater storage tanks (ST209, ST-211, ST-17, ST-2). Wastewater is sent off-site for

disposal. Contaminated rainwater from the secondary containment systems is also transferred to the wastewater tanks.

Solids Handling System – Primary Feed Hopper

The primary feed hopper (T-200) of the Solids Handling System is designed to receive heavy oil-bearing solids/semi-solids or slurries and homogenize, emulsify, and size reduce the materials as a preparatory step to processing them in the thermal desorbers or the centrifuges. The prepared materials can also be blended with other waste materials in the HWDF tank system to make a fuel suitable for sale to burners such as cement kilns and light-weight aggregate kilns.

Pre-Treatment System (Catalyst and Petroleum Waste Feed Preparation Tanks)

The four tanks in the Waste Pre-treatment Building are used to blend catalyst and petroleum waste feeds for the thermal desorbers. The four open tanks' capacity of and containment volumes are listed in Table V.C found in Attachment V Tables and are enclosed within the Pre-Treatment Building. The tanks are lined with welded steel panels that are raised from the floor and walls of the primary concrete structure. This "tank within a tank" construction provides sufficient secondary containment for any liquids that may be received with the feed material. Bulk solids will be mixed with a clamshell or using a backhoe. The clamshell or backhoe will be used to transfer mixed material from the blending tanks to the feed conveyors leading to the "Live Bottom" hoppers on the thermal desorber units. Alternatively, blended material may be transferred to a roll-off hopper which would be moved to the proximity of the "Live Bottom" hoppers and fed using mechanical shovels.

V.C.3 Tank System Integrity

Each hazardous waste tank in active service at the Clean Harbors San Leon facility has been inspected and certified that it is adequately designed and has sufficient structural strength and compatibility with the waste stored and processed to ensure that the tank will not collapse, rupture, or fail.

The tank inspection certificate is signed by a registered professional engineer. The certificate specifically states that the tank is suitable to continue in service as a hazardous waste tank. Each tank inspection certificate also includes the design standards for the tank as well as the specific results of the tank inspection testing (including metal thickness

data). Tank inspection certificates are included in Attachment V.E to this section of the engineering report.

The hazardous characteristics of the waste processed in each tank are summarized in Table V.C. which can be found in Attachment V Table and Table IV.B which can be found in Section IV, Attachment IV Tables. Included in the Part A application is Table III-2 with a summary table relating to the age of the tanks.

All hazardous waste tanks are protected from external corrosion by the site painting/maintenance program. All facility tanks are above-ground, and therefore not subject to additional corrosion protection, such as anodic or cathodic systems. The tanks are visually inspected daily for corrosion and receive an external inspection at a minimum of every five years as part of the tank certification program. Any specific problem areas are noted and corrected (including repainting) as needed. Any painting deficiencies noted during the daily inspections would be promptly identified in the work ticket system for repairs. In addition, all ancillary site equipment is inspected on a regular basis.

V.C.4 Secondary Containment and Release Detection

Secondary containment is provided for all hazardous waste tanks at the facility, Secondary containment systems for hazardous waste storage tanks are of two main types. All above-ground tanks have secondary containment systems constructed of above ground concrete walls and bases or steel construction. The secondary containment for below-grade hazardous waste processing tanks in the Pre-Treatment Building is a welded metal inner liner suspended above concrete walls and bases.

All above-ground secondary containment systems completely surround the waste tankage and cover all of the surrounding ground areas. The containment system's walls and floors are constructed of solid concrete or steel and have an impervious coating so that waste cannot leak from the containment areas. The concrete or steel structures have sufficient strength to support the normal area traffic and activities as well as the hydraulic gradients produced in the surrounding soil.

All open secondary containment areas are designed to hold the volume of the largest tank within the boundary plus a 25 year-24 hour rainfall (10.5 inches). The design of the concrete walls and floors also ensure that rainwater run on and infiltration cannot occur. The secondary containment areas are sloped such that waste or rainwater accumulates in sumps can be detected within 24 hours, and the sumps are designed so that waste can be pumped or vacuumed from them within 24 hours. Table 5-7 provides details of the capacity of the

secondary containment areas. Details of construction of the secondary containment areas are shown on attached drawings to demonstrate compliance with the permit requirements. See Appendix A- Drawings for specific tank drawings with secondary containment information.

V.C.5 General Operating Requirements

The facility tank farms are designed to be operated in a safe and environmentally responsible manner. A key part of the design concepts were the safety systems and cutoffs. The safety systems and cutoffs were intended as a backup to the written work procedures and extensive training and testing of the operating personnel. The tank farm vent systems and nitrogen blanketing or inerting system provide yet another safety layer. The liquid tanks are equipped with high level alarms to prevent overfilling the tanks. The system gives an audible alarm in the main control room that signals the board operator that transfer pumps are to be shut off. The board operator will radio the facility technicians monitoring the transfer to shut off the pump at the location.

All hazardous wastes profiled into the facility are reviewed by Lab Personnel to assure that the waste will not cause the tank to rupture, leak, corrode or otherwise fail. The site Waste Analysis Plan (Section IV) details quality control procedures to further protect the equipment from waste that is not as profiled.

Spill and overflow protection is accomplished by a combination of engineering and administrative procedures. Each liquid tank is equipped with at least one overflow (high level) alarm. The alarms sound in the facility's main control room, which is staffed 24 hours per day.

Tank filling procedures are designed as administrative controls to prevent the overfilling of tanks. The instrumentation alarms and shut offs are intended only as safety back-ups. The tank farm Standard Operating Procedures (SOPs) specify that the operator must check the available capacity of a tank and the volume of the truck before beginning the unloading procedure. The operator must be physically present while the truck is being unloaded. Waste trucks are only unloaded by facility personnel who have completed training and been tested on the SOPs.

There is no need to maintain tank freeboard for the closed top tanks to prevent wave action overflow. All tanks except those in the Pre-Treatment Building are closed top. The four tanks in the Pre-treatment Building have one foot of free board space. These

four tanks will be processing primarily solid and sludgy materials and are enclosed in a building which prevents rain infiltration and wave action overflow.

V.C.6 Response to Leak or Spills

All tank systems and secondary containment systems are visually inspected daily. In addition, annual tank integrity inspections are completed as required by regulations. All noted discrepancies will be corrected promptly. Any material spilled into the containment areas will be removed within 24 hours, and an investigation will be completed to determine the cause of the spill or release. If required, the tank will be emptied of waste and repaired in a timely manner.

V.C.7 Ignitable or Reactive Wastes

All ignitable or reactive wastes processed in the site facility are managed to avoid any conditions or materials that may cause the waste to react or ignite. The management system includes equipment/engineering controls as well as analytical, training, and administrative procedures and safeguards.

The tanks, associated piping, secondary containment, pressure relief safety systems, and vent systems and fire protections were designed and constructed in accordance with the appropriate regulations and codes.

All tanks handling ignitable liquids are equipped with nitrogen inerting systems to prevent accumulation of flammable vapors in the head spaces. All hazardous waste tanks are located at least 50 feet from property lines and have appropriate spacing between adjacent tanks. See Appendix A, drawing #103.

All waste profiles are screened by Lab Personnel to identify potentially hazardous wastes. Specific review of requirements of materials of construction of tanks and associated piping is part of the waste approval process. Lab Analysis Sheets are prepared for each waste identifying possibly reactive or ignitable materials.

Each waste designated to be unloaded to a liquid storage tank is carefully and completely analyzed before it is discharged to any tank. Specific compatibility testing is required with material previously in the tank prior to unloading.

The wastes are unloaded, transferred, and processed per specific detailed SOPs for each task. All operators have detailed and documented covering SOPs and access to information on the potential hazards of materials.

The site has detailed hot work/line breaking/vessel entry procedures to ensure that ignitable materials are separated from sources of ignition such as open flames, welding/cutting operations, hot surfaces, sparking devices, or chemical reactions. Smoking is allowed in only very controlled designated areas outside of the facility diked area. Conspicuously placed warning signs identify site areas where the above programs are in effect.

V.C. 8 Incompatible Wastes

Incompatible hazardous wastes are not stored, blended or processed in tanks. An effective combination of thorough technical reviews, accurate analytical testing, detailed work procedures and documented operator training is in place to prevent the mixing of incompatible materials.

All waste profiles are screened by Lab Personnel to identify potentially hazardous wastes. Lab Analysis Sheets are prepared for each waste identifying possibly incompatible materials.

Each waste designated to be unloaded to a liquid storage tank is carefully analyzed and specifically tested for compatibility with the wastes previously in that tank. Testing is done per the Clean Harbors Standard Operating Procedure for Compatibility Testing which is included in Section IV of this application. If a thermal rise or a visible reaction is noted by the laboratory technician, the waste is not discharged into that tank. The tank may be cleaned and the residual retested for compatibility, or another tank may be tested for compatibility.

Wastes to be transferred from one tank to another or blended with other wastes are tested and controlled per the same procedure. These procedures are covered by the site SOPs and are part of the operator training program and documentation.

V.C.9 Emission Control System

All of the tank farm tanks are served by the plant emission control system. The nitrogen blanketing or inerting system is a key part of the vent system.

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The atmospheric pressure tanks are equipped with nitrogen low pressure regulators and pressure/vacuum relief valves designed to maintain two inches of water column pressure in the tank. This key fire safety system excludes oxygen and prevents the formation of a vacuum in the tank. The vent system coming from the tanks feeds through a liquid knock out pot and then to the Thermal Oxidizer (OX-1). There is also a carbon bed absorption unit which acts as a back-up emission control device for the tank system.

The Waste Pre-treatment building surrounding the open top pre-treatment tanks (T64A, T64B, T64C, T64D) are designed as a permanent total enclosure as specified in "Procedure T-Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR Part 52.741, Appendix B. The building is vented through ductwork that feeds to a carbon bed absorption unit which acts as emission control device for the building. The main doors of the building are kept closed except for those times that it is necessary to add or remove waste from the tanks.

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TABLE 5-6

WASTES MANAGED IN TANKS
CLEAN HARBORS SAN LEON, INC.

Tank ID	Existing Tank	Diameter (ft)	Height (ft)	Capacity (bbl)	Capacity (gal)	Service	Physical Description[2]
ST207	Yes	13'8"	20	522	21,940	Desorber Oil Receiving/Transfer	Vert Fr/FB
ST208	Yes	13'8"	16	418	17,550	Desorber Oil Receiving/Transfer	Vert Fr/FB
ST17	Yes	14	47'9" s/s	1,500	63,000	Waste Water	Horizontal
PV18	Yes	10	36' s/s	600	25,200	Used oil	Horizontal
PV19	Yes	10	36' s/s	600	25,200	Used oil	Horizontal
PV20	Yes	10	36' s/s	600	25,200	Used oil	Horizontal
PV21	Yes	10	36' s/s	600	25,200	Used Oil	Horizontal
FPV30	Yes	12	32	735	30,870	Cent Mix/Transfer	Cone Btm
FPV31	Yes	12	32	735	30,870	Cent Mix/Transfer	Cone Btm
FPV32	Yes	12	32	735	30,870	Cent Mix/Transfer	Cone Btm
FPV33	Yes	12	32	735	30,870	Cent Mix/Transfer	Cone Btm
T-0256	Yes	5'	6.5'	19	800	Centrifuge Concentrate Storage/Transfer	Vert FR/FB
ST209	Yes	12'	15'	300	12,600	Desorber Oil Receiving/Transfer	Vert Fr/FB
ST211	Yes	12'	15'	300	12,600	Waste water Receiving/Transfer	Vert Fr/FB

PV12	Yes	12′	8'6" s/s	233	9,786	Solids HWDF	Cone Btm
PV13	Yes	12′	8'6" s/s	233	9,786	Solids HWDF	Cone Btm
PV14	Yes	12′	8'6" s/s	233	9,786	Solids HWDF	Cone Btm
PV15	Yes	12′	8'6" s/s	233	9,786	Solids HWDF	Cone Btm
PV16	Yes	1 2 ′	8'6" s/s	233	9,786	Solids HWDF	Cone Btm
FPV34	Yes	12′	32	735	30,870	Cent Mix/Transfer	Cone Btm
FPV35	Yes	12′	32	735	30,870	Cent Mix/Transfer	Cone Btm
FPV36	Yes	12′	32	735	30,870	Cent Mix/Transfer	Cone Btm
FPV37	Yes	12′	32	735	30,870	Cent Mix/Transfer	Cone Btm
ST-2	Yes	33′	40″	4653	255,948	Waste water Receiving/Transfer	Vertical/FB
Tanks in Dual or Solids Service							
T-200	Yes	29′	6′7″	175	5,499	Receiving/Transfer/ Processing	Cone Btm
Tank 64A	No	18′	7.5′	556	17,503	Processing	Rectangular Flat bottom double wall
Tank 64B	No	38′	7.5′	850	26,790	Processing	Rectangular Flat bottom double wall
Tank 64C	No	31′	7.5′	750	23,629	Processing	Rectangular Flat bottom double wall
Tank 64D	No	18′	5.2′	111	3,501	Processing	Triangular bottom

(1) Vert Fr - Vertical Fixed Roof
(2) FB – Flat Bottom

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TABLE 5-7

SECONDARY CONTAINMENT DATA

Containment Area	Designation	Tanks	Containment Volume[1] (gals)	Largest Tank (gals)
D	Centrifuge Mix/Transfer Tanks	FPV-30 to FPV-37	165,368	30,870
B	Desorber Oil Tanks/ Waste Water Tanks	ST207-ST208 ST-209, ST-211,	36,090	23,100
C	HWDF & Solids Handling Tanks	PV-12 to PV-16	36000	9,786
A	Used Oil Tanks Waste Water Tank	PV-18 to PV-21 ST-17	165,368	63,000
G	Solids Handling System	T-200	40,908	5,499
H	Centrifuge Receiving/Storage Tank	T-0256	4,166	1,147
NA	Pre-treatment of Catalyst and Solid Petroleum Waste	T-64A , T-64B, T-64C	NA[2]	NA[2]
NA	Pre-treatment of Catalyst and Solid Petroleum Waste	T- 64D	27,130[a]	3,501

[1]Includes rainfall for 25 year – 24-hour rainfall event (10.5 inches)

[2] Each tank is a double wall tank designed with outer shell capable of containing the tank's volume

[a] T-64C tank capacity has been reduced to provide volume for T64-D secondary containment

NOTE: Details and secondary containment certifications can be found on individual drawings in Appendix A.

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SECTION V.D
Surface Impoundments

NA

SECTION V.E
Waste Piles

NA

SECTION V.F
Land Treatment Units

NA

SECTION V.G
Landfills

NA

SECTION V.H
Incinerators

NA

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SECTION V.I
Boilers and Industrial Furnaces

NA

Appendix V.J
Drip Pads

NA

Appendix V.K
Miscellaneous Units

The oil recovery system operated by the Clean Harbors San Leon facility includes oily waste physical/chemical separation and blending processes consisting of mix tanks, settling tanks, chemical addition, filtration, heaters, and centrifuges.

The purpose of these processes is three-fold:

1) The removal of gross quantities of water and/or solids from customer generated oily wastes.
2) The removal of water and solids from oil recovered by the thermal desorbers.
3) The recovery of oil from oily-water streams produced by the other treatment systems.

Operations are generally conducted in batches proceeding in the sequence of homogenous mixing with chemical additive, heating, settling, and centrifugation. Chemicals can optionally be added to the storage tanks prior to transferring them to the mixing tanks. The operation is designed to be highly flexible in order to recover materials anywhere in the process and bypass any unnecessary batch sequences. Heat may be provided by a convection air heater. Recovered oils are stored for additional

processing, blending, sales or other use. Water and solids removed are treated or disposed off-site.

Additional miscellaneous units are used for the pre-treatment of catalyst and petroleum-derived waste prior to management in the thermal desorbers as well as the cleaning of containers which have previously held catalyst and petroleum-derived waste before they are reused for transporting these wastes. All Miscellaneous Units are listed in Table V.K found in Attachment V Tables. Tables V.K.3, V.K.4, V.K.5 and V.K.8 can be found in Attachment V Tables as well.

V.K.1 Centrifuges

Centrifugation is a process widely used in industry for separating liquids of different density, thickening slurries or for removing solids. Driven by an electric motor, a centrifuge puts an object in rotation around a fixed axis, applying a force perpendicular to the axis. The centrifuge works using the sedimentation principle, where the centripetal acceleration causes denser substances to separate out along the radial direction.

The Clean Harbors San Leon facility has two separate centrifuge systems; one for processing oil recovered from waste materials by the thermal desorbers, the second for recovering oil from oily wastes generated by facility customers.

Desorber Oil Centrifuge System

The Desorber Oil Centrifuge System consists of one horizontal scroll centrifuge for gross separation of solids from recovered oil generated by the thermal desorber system, a high-speed centrifuge for greater separation, and associated process and surge accumulator vessels. Centrifuge feed is received from the desorber oil loop transfer tanks and cleaned oil is sent either to the used oil storage tank (ST-8) or to the clean oil tank (ST-6) where it is recirculated back to the desorber oil scrubbers. Oil in ST-8 that meets specification is sold as on-spec used oil.

Solids from the centrifuge are collected in a roll-off container and shipped off site for disposal. Oily sludges flow to the Centrifuge Receiving Tank and subsequently are transferred to the HWDF tanks.

Customer Oil Recovery Centrifuge System

The Customer Oil Recovery Centrifuge System consists of one horizontal scroll centrifuge for separation of water and solids from oily waste received from off-site customers, and associated process and surge accumulator vessels. The centrifuges are operated on a batch basis determined by customer demand. The centrifuge feed tanks (PV30-33) receive customer oily waste directly from tank trucks or from the Solids Handling System (T-200). The oil in the feed tanks may be heated, or chemicals may be added to improve processing by the centrifuges. From the feed tanks, oily waste is pumped to the centrifuges where additional chemicals may be added and heat applied to enhance separation.

Centrate oil is sent to the Oil Tanks (PV-34/35) where it may undergo further gravity separation. Emulsified oil is transferred to the Oil Emulsion Tank (ST-7) where it is used as make up for the oil scrubbers on the desorbers. Recovered Oil from the Oil Tanks is transferred to the Oil Sales Tanks (PV18-21) and sold as on-spec used oil.

Water separated by the centrifuge is sent to Wastewater Storage, treated by the Dissolved Air Flotation Unit to remove remaining quantities of oil and transferred to the final Wastewater Storage Tank (ST-17) for shipment off-site.

Solids from the centrifuge are collected in a roll-off container for shipment off-site for disposal.

In Appendix A drawing number 304 and 308 provide layout drawings and specifications for the centrifuges.

V.K.2 Heaters

The Clean Harbors San Leon facility utilizes three natural gas-fired heaters (HTR-1, HTR-3, HTR-4) to heat oil in the Oil Emulsion and Desorber Oil processes to enhance separation of oil, and entrained water and solids. HTR-1 is dedicated to the centrifuge system. HTR-3 is used in the desorber oil process.

V.K.3 Dissolved Air Flotation and Filter Press (Proposed)

The facility intends on installing a Dissolved Air Flotation (DAF) system and Filter Press to provide additional treatment of waste streams containing oily water and oily/watery sludges.

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Dissolved air flotation (DAF) is a water treatment process that clarifies wastewaters by the removal of suspended matter such as oil or solids. The removal is achieved by dissolving air in the water or wastewater under pressure and then releasing the air at atmospheric pressure in a flotation tank or basin. The released air forms tiny bubbles which adhere to the suspended matter causing the suspended matter to float to the surface of the water where it may then be removed by a skimming device. The feed water to the DAF float tank may be dosed with a coagulant to flocculate the suspended matter.

A portion of the clarified effluent water leaving the DAF tank is pumped into a small pressure vessel (called the air drum) into which compressed air is also introduced. This results in saturating the pressurized effluent water with air. The air-saturated water stream is recycled to the front of the float tank and flows through a pressure reduction valve just as it enters the front of the float tank, which results in the air being released in the form of tiny bubbles. The bubbles adhere to the suspended matter, causing the suspended matter to float to the surface and form a froth layer which is then removed by a skimmer. The froth-free water exits the float tank as the clarified effluent from the DAF unit

Water from the centrifuges in the Oil Recovery System is collected in the Wastewater Storage Tanks and is processed in the DAF. Clarified water from the DAF is sent to the final Wastewater Storage tank for shipment offsite for disposal. Oil and trace solids from the DAF is sent to the centrifuge feed tanks for reprocessing by the centrifuges.

The Filter Press will be used primarily to remove solids from water generated by the desorber scrubbing system as well as from various sumps and general plant water. The filter press uses the principle of pressure drive, provided by a slurry feed pump. The filter press is a fixed volume and batch operation, which simply means that the operation must be stopped to discharge the filter cake before the next batch can be started. The major components of filter press are skeleton and filter pack. The skeleton holds the filter pack together while pressure is being developed inside filter chamber. It can only hold a specific volume of solids.

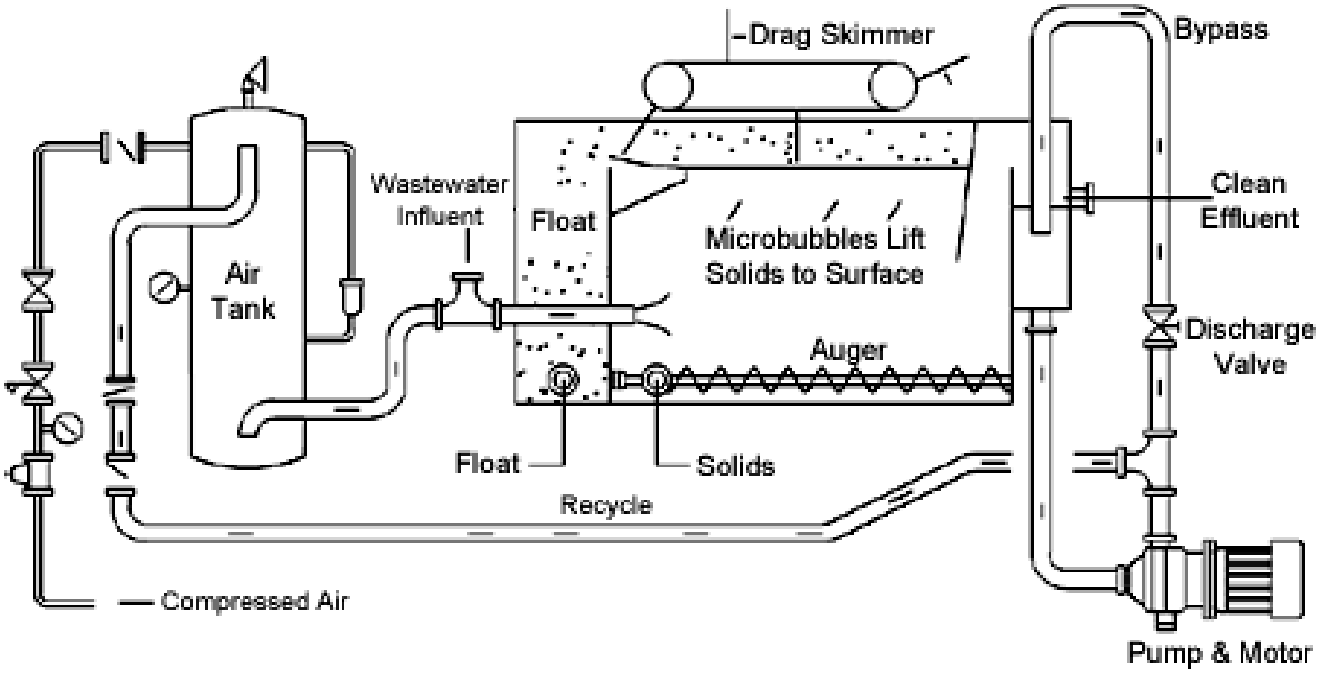
The filter press utilized by Clean Harbors San Leon is a recessed plate filter press. The filter press is made up of polypropylene squares at about 4 feet across with concave depression and a hole in the center. Two plates join together to form a chamber to pressurize the slurry and squeeze the filtrate out through the filter cloth lining in the chamber. When the filter press is closed, a series of chambers is formed. The differences with the plate and frame filter are that the plates are joined together in such ways as the

cake recess on each plate, the cake thickness is restricted to 32mm unless extra frames are used which act as spacers. The filter press is equipped with a mechanical "plate shifter". The function of the plate shifter is to move the plates and allow rapid discharge of the filter cakes accumulated between the plates.

The filter press receives wastewater containing solids from tank PV-12. Solids generated by the filter press are collected in a roll-off container and are shipped off-site for disposal. Filtrate is sent to ST209, ST10, ST211, ST17, then to final Wastewater Storage (ST-17) for shipment off-site for disposal.

In Appendix A drawing numbers 304 and 313 contain layout drawings and specifications on the Dissolved Air Flotation system and the Filter Press.

DISSOLVED AIR FLOTATION PROCESS



V.K.4 Container Wash/Decon Station (Proposed)

The proposed container wash/decontamination station will be used to clean oily and other residues from roll off containers, tote bins, flobins and other types of containers that are used to deliver recoverable material to the Clean Harbors San Leon facility. The station consists of a contained concrete pad measuring 35' by 17' designed with concrete walls on 3 sides (6' at the rear, tapering to 4' in the front. There will also be a berm at the front and a sump to collect cleaning solutions and residues removed from the container. Only containers considered RCRA-empty will be washed in the station. Typical cleaning solutions will include water and industrial grade detergents. High pressure water and steam may be used to help facilitate the cleaning. Cleaning solutions collected in the containment sumps will be pumped to storage tanks ST209, ST10, ST211, ST17 and either processed through the Dissolved Air Flotation (DAF) system to remove residual oil or shipped directly offsite for disposal. Water treated through the DAF will be stored and subsequently shipped offsite for disposal

V.K.5 Pre-Treatment Container (Proposed)

The proposed pre-treatment process will consist of mixing, treating and blending of catalyst or petroleum derived hazardous waste containing VOC's < 500 ppm in a mixing container prior to feeding the waste to the thermal desorber units. The purpose of the process is to provide a consistent feed to the thermal desorber units to enhance recovery of oil and removal of organic material from catalyst substrate.

The pre-treatment container will be a mobile roll-off box with a capacity of approximately 25 cubic yards. The container will be placed in CSA - 14. Chemicals used in the pre-treatment process include, but are not limited to, lime, absorbents, dirt, and other chemicals that enhance the separation and recovery of oil from the catalyst and petroleum waste.

Catalyst and/or petroleum-derived waste received in roll-off containers, flobins and other containers will be transferred to the pre-treatment container using a bucket connected to a motorized mechanical shovel or back-hoe. Treatment chemicals will be added to the container and the contents mixed with the bucket. When the mixing is determined to be complete by the process operator, the contents of the pre-treatment container will be transferred by the bucket either to a feed container or directly to the "Live Bottom" hopper on the thermal desorbers.

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V.K.6 Thermal Desorbers

The thermal desorber systems are described in Section XIII – Confidential Material. This section also includes the engineering report of the unit and any air pollution controls. This report is sealed, signed and dated by a Texas P.E. The trial burn based on the current unit design with noted applicable parameters can be found in Attachment A of this section.

Appendix V.L
Containment Buildings

NA

ATTACHMENT V Tables

Table V.A Facility Waste Management Handling Units

Table V.B Container Storage Area

Table V.C Tank and Tank Systems

Table V.K Miscellaneous Units

Table V.K.3 Miscellaneous Units Maximum Constituent Feed Rate

Table V.K.4 Miscellaneous Units Maximum Allowable Emissions

Table V.K.5 Miscellaneous Units Permit Conditions et al

Table V.K.8 Principal Organic Hazardous Constituents

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
1	CSA #2	044	Container storage area, roll-off box storage area with 54 roll-off boxes or other container types.	36,720 cubic feet	ACTIVE
6	Tank ST-5	004	Tank, carbon steel, cylindrical raw feedstock storage tank, 20' high by 14' diameter.	23,100 gallons	INACTIVE
7	Tank ST-6	005	Tank, carbon steel, cylindrical raw feedstock storage tank, 16' high by 14' diameter.	18,900 gallons	INACTIVE
8	Tank ST-7	006	Tank, carbon steel, cylindrical raw feedstock storage tank, 15' high by 12' diameter.	12,600 gallons	ACTIVE
9	Tank ST-8	007	Tank, carbon steel, cylindrical raw feedstock storage tank, 15' high by 12' diameter.	12,600 gallons	CLOSED
10	Tank ST-9	008	Tank, carbon steel, cylindrical raw feedstock storage tank, 15' high by 12' diameter.	12,600 gallons	ACTIVE
11	Tank ST-10	009	Tank, carbon steel, cylindrical raw feedstock storage tank, 15' high by 12' diameter.	12,600 gallons	ACTIVE
13	Tank PV-12	012	Tank, carbon steel, elevated cylindrical process tank with cone top and bottom, 8'6" seam to seam by 12' diameter.	9,786 gallons	ACTIVE

1 Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred,Post-Closure.

3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of TableV.A.

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
14	Tank PV-13	13	Tank, carbon steel, elevated cylindrical process tank with cone top and bottom, 8'6" seam to seam by 12' diameter	9,786 gallons	ACTIVE
15	Tank PV-14	14	Tank, carbon steel, elevated cylindrical process tank with cone top and bottom, 8'6" seam to seam by 12' diameter.	9,786 gallons	ACTIVE
16	Tank PV-15	15	Tank, carbon steel, elevated cylindrical process tank with cone top and bottom, 8'6" seam to seam by 12' diameter.	9,786 gallons	ACTIVE
17	Tank ST-16	16	Tank, carbon steel, elevated cylindrical process tank with cone top and bottom, 8'6" seam to seam by 12' diameter.	9,786 gallons	ACTIVE
18	Tank ST-17	11	Tank, carbon steel, elevated horizontal product storage tank with 2:1 elliptical heads, 14' diameter by 47'9" seam to seam distillate separator overhead.	63,000 gallons	ACTIVE
19	Tank PV-18	19	Tank, carbon steel, elevated horizontal process tank for chemical/physical separation, 10' diameter by 36' seam to seam.	25,200 gallons	ACTIVE
20	Tank PV-19	20	Tank, carbon steel, elevated horizontal process tank for chemical/physical separation, 10' diameter by 36' seam to seam.	25,200 gallons	ACTIVE
21	Tank PV-20	21	Tank, carbon steel, elevated horizontal process tank for chemical/physical separation, 10' diameter by 36' seam to seam.	25,200 gallons	ACTIVE

1 Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred,Post-Closure.

3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of TableV.A.

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
22	Tank PV-21	22	Tank, carbon steel, elevated horizontal process tank for chemical/physical separation, 10' diameter by 36' seam to seam.	25,200 gallons	ACTIVE
27	Tank FPV-30	23	Tank, carbon steel, elevated cylindrical process tank with cone bottom and heater, 12' diameter by 32' seam to seam.	30,870 gallons	ACTIVE
28	Tank FPV-31	24	Tank, carbon steel, elevated cylindrical process tank with cone bottom and heater, 12' diameter by 32' seam to seam.	30,870 gallons	ACTIVE
29	Tank FPV-32	25	Tank, carbon steel, elevated cylindrical process tank with cone bottom and heater, 12' diameter by 32' seam to seam.	30,870 gallons	ACTIVE
30	Tank FPV-33	26	Tank, carbon steel, elevated cylindrical process tank with cone bottom and heater, 12' diameter by 32' seam to seam.	30,870 gallons	ACTIVE
31	Tank FPV- 34	31	Tank, carbon steel, elevated cylindrical process tank with cone bottom and heater, 12' diameter by 32' seam to seam.	30,870 gallons	ACTIVE
32	Tank FPV-35	32	Tank, carbon steel, elevated cylindrical process tank with cone bottom and heater, 12' diameter by 32' seam to seam.	30,870 gallons	ACTIVE
33	Tank FPV-36	33	Tank, carbon steel, elevated cylindrical process tank with cone bottom and heater, 12' diameter by 32' seam to seam.	30,870 gallons	ACTIVE
34	Tank FPV-37	34	Tank, carbon steel, elevated cylindrical process tank with cone bottom and heater, 12' diameter by 32' seam to seam.	30,870 gallons	ACTIVE
46	Centrifuge #1	52	Miscellaneous unit, primary centrifuge for processing wastes.	84 gallons per minute	ACTIVE

1. Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

2. Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred,Post-Closure.

3. If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of TableV.A.

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
47	Centrifuge#2	53	Miscellaneous unit, primary centrifuge for processing wastes.	84 gallons per minute	ACTIVE
48	Centrifuge#3	54	Miscellaneous unit, primary centrifuge for processing wastes.	84 gallons per minute	ACTIVE
49	Centrifuge#4	55	Miscellaneous unit, high speed centrifuge for processing wastes.	84 gallons per minute	NOT YET BUILT
50	Heater#1	56	Miscellaneous unit, process heater for the centrifuge mix and transfer system.	2.6 mm BTU/hour	ACTIVE
51	Heater #2	57	Miscellaneous unit, process heater for Tank PV-1 for the processing of oil emulsion/hazardous waste fuel.	2.6 mm BTU/hour	ACTIVE
52	Heater #3	57	Miscellaneous unit, process heater for the centrifuge mix and transfer system.	2.6 mm BTU/hour	NOT YET BUILT
53	Heater #4	58	Miscellaneous unit, thermal desorber for processing wastes.	140 tons per day	ACTIVE
54	Thermal Desorber#1	59	Miscellaneous unit, thermal desorber for processing wastes.	140 tons per day	ACTIVE
55	Thermal Desrober #2	51	Container storage area, roll-off box storage area with 16 roll-off boxes or other container types.	10,800 cubic feet	ACTIVE
56	CSA-8	72	Container storage area, roll-off box storage area with 16 roll-off boxes or other container types.	10,800 cubic feet	ACTIVE

1 Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred,Post-Closure.

3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of TableV.A.

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
56	CSA-9	73	Container storage area, roll-off box storage area with 5 roll-off boxes or other container types.	3,375 cubic feet	ACTIVE
57	CSA-10	74	Container storage area, flow bin storage area with 239 flow bins or other container types.	20,793 cubic feet	ACTIVE
58	CSA-12	75	Container storage area, roll-off box storage area with 72 roll-off boxes or other container types.	48,600 cubic feet	ACTIVE
59	CSA-13	075	Container storage area, roll-off box storage area with 79 roll-off boxes or other container types.	53,325 cubic feet	ACTIVE
60	CSA-14	076	Container storage area, flow bin storage area with 100 flow bins or other container types.	8,700 cubic feet	ACTIVE
61	Tank ST-211	077	Tank, carbon steel, cylindrical raw feedstock storage tank, 15' high by 12' diameter.	12,600 gallons	ACTIVE
62	Dissolved Air Floatation	078	Miscellaneous unit, process to remove oil from oily wastewater.	50 gpm	NOT YET BUILT
63	Filter Press	067	Miscellaneous unit process to remove solids from oily and aqueous waste streams.	50 gpm	NOT YET BUILT
64	Waste Pre-Treatment container	079	Container for treatment of catalyst and petroleum derived waste containing VOC's < 500 ppm.	210 tons/day	NOT YET BUILT
65	T-0256	080	Centrifuge System, Centrate Receiving Tank	1,147 gallons	INACTIVE

1 Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred,Post-Closure.

3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of TableV.A.

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
66	T-200	081	Solids Handling System Primary Receiving Hopper	5,499 gallons	ACTIVE
67	T-64A	082	Pre-treatment building receiving tank to blend waste	17,503 gallons	NOT YET BUILT
68	T-64B	083	Pre-treatment building blend tank to blend waste	26,790 gallons	NOT YET BUILT
69	T-64C	084	Pre-treatment building feed tank to stage waste prior to treatment	23,629 gallons	NOT YET BUILT
70	T64-D	085	Pre-treatment building feed tank to stage waste prior to treatment	3,501 gallons	NOT YET BUILT
71	ST- 207	090	Desorber Oil Receiving/Transfer	21,940 gallon	Active
72	ST-208	091	Desorber Oil Receiving/Transfer	17,550 gallon	Active
73	ST-209	092	Desorber Oil Receiving/Transfer	12,600 gallons	Active
4	ST-2	017	Wastewater Receiving/Transfer	255,948 gallons	Active

1 Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.

3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of Table V.A.

Table V.B. - Container Storage Area

Permit Unit No.	Container Storage Area	N.O.R. No.	Waste Nos.[4]	Rated Capacity [3]	Dimensions	Containment Volume (including rainfall for unenclosed areas)	Unit will manage Ignitable[1], Reactive[1], or Incompatible[2] waste (state all that apply)	Unit Status
1	CSA-2	44	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	36,720	(197'5.5" x 54.7') + (131' 9" x 48' 11.5")	5,478	Ignitable	Active
55	CSA-8	72	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	10,800	24' x 198'	NA[3]	Ignitable	Active
56	CSA-9	73	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	3,375	12' x 122'	NA[3]	Ignitable	Active
57	CSA-10	74	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	20,793	(49'x 76' 10") + (56' x 61')	NA[3]	Ignitable	Active
58	CSA-12	69	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	48,600	(20' x 145')+ (80' x 121') + (50' x 97')	NA[3]	Ignitable	Active
59	CSA-13	75	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	53,325	(54' 4.5" x 121') + (97' 6.5" x 169'-0")	NA[3]	Ignitable	Active
60	CSA-14	76	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	8,700	136'-5" x 23'	NA[3]	Ignitable	Active

1. Containers managing ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's propertyline.
2. Incompatible waste must be separated from other waste or materials stored nearby in other containers, piles, open tanks, or surface impoundments by means of a dike, berm, wall, or other device.
3. Container Storage Areas need to include in capacity calculations any nonhazardous wastes and universal wastes managed in the unit in addition to hazardous wastes.
4. from Table IV.B, first column

Table V.C. - Tanks and Tank Systems

Permit Unit No.	Tank	N.O.R. No.	Storage and/or Processing	Waste Nos.[1]	Rated Capacity (gallons)	Dimensions	Containment Volume (including rainfall for unenclosed areas)	Unit will manage Ignitable, Reactive, or Incompatible waste (state all that apply)	Unit Status
6	ST-5	004	Storage	003, 005, 014,	23,100	14' X 20'	36,090 Gallons[1]	Ignitable	Active
7	ST-6	005	Storage	003, 005, 014,	18,900	14' X 16'	36,090 Gallons[1]	Ignitable	Active
8	ST-7	006	Storage	003, 005, 014,	12,600	12' X 15'	36,090 Gallons[1]	Ignitable	Active
9	ST-8	007	Storage	003, 005, 014,	12,600	12' X 15'	36,090 Gallons[1]	Ignitable	Active
10	ST-9	008	Storage	043, 047	12,600	12' X 15'	36,090 Gallons[1]	Ignitable	Active
11	ST-10	009	Storage	043, 047	12,600	12' X 15'	36,090 Gallons[1]	Ignitable	Active
13	PV-12	012	Processing	003, 005, 014, 018, 019	9,786	12' x 8' 6"	36,000 Gallons[2]	Ignitable	Active
14	PV-13	013	Processing	003, 005, 014, 018, 019	9,786	12' x 8' 6"	36,000 Gallons[2]	Ignitable	Active
15	PV-14	014	Processing	003, 005, 014, 018, 019	9,786	12' x 8' 6"	36,000 Gallons[2]	Ignitable	Active

1. from Table IV.B, first column

Table V.C. - Tanks and Tank Systems

Permit Unit No.	Tank	N.O.R. No.	Storage and/or Processing	Waste Nos.[1]	Rated Capacity (gallons)	Dimensions	Containment Volume (including rainfall for unenclosed areas)	Unit will manage Ignitable, Reactive, or Incompatible waste (state all that apply)	Unit Status
16	PV-15	015	Processing	003, 005, 014, 018, 019	9,786	12' x 8' 6"	36,000 Gallons[2]	Ignitable	Active
17	PV-16	016	Processing	003, 005, 014, 018, 019	9,786	12' x 8' 6"	36,000 Gallons[2]	Ignitable	Active
18	ST-17	011	Storage	043, 047	63,000	14' X 47' 9"	165,368 Gallons[3]	Ignitable	Active
19	PV-18	019	Processing	003, 014	25,200	10' X 36'	165,368 Gallons[3]	Ignitable	Active
20	PV-19	020	Processing	003, 014	25,200	10' X 36'	165,368 Gallons[3]	Ignitable	Active
21	PV-20	021	Processing	003, 014	25,200	10' X 36'	165,368 Gallons[3]	Ignitable	Active
22	PV-21	022	Processing	003, 014	25,200	10' X 36'	165,368 Gallons[3]	Ignitable	Active
27	FPV-30	023	Processing	003, ,024, 025, 026, 027	30,870	12' X 32'	165,368 Gallons[4]	Ignitable	Active
28	FPV-31	024	Processing	014, 018, 019, 023, 024, 025, 026, 027	30,870	12' X 32'	165,368 Gallons[4]	Ignitable	Active

1. from Table IV.B, first column

Table V.C. - Tanks and Tank Systems

Permit Unit No.	Tank	N.O.R. No.	Storage and/or Processing	Waste Nos.[1]	Rated Capacity (gallons)	Dimensions	Containment Volume (including rainfall for unenclosed areas)	Unit will manage Ignitable, Reactive, or Incompatible waste (state all that apply)	Unit Status
29	FPV-32	025	Processing	014, 018, 019, 023, 024, 025, 026, 027	30,870	12' X 32'	165,368 Gallons[3]	Ignitable	Active
30	FPV-33	026	Processing	014, 018, 019, 023, 024, 025, 026, 027	30,870	12' X 32'	165,368 Gallons[4]	Ignitable	Active
31	FPV-34	031	Processing	014, 018, 019, 023, 024, 025, 026, 027	30,870	12' X 32'	165,368 Gallons[4]	Ignitable	Active
32	FPV-35	032	Processing	014, 018, 019, 023, 024, 025, 026, 027	30,870	12' X 32'	165,368 Gallons[4]	Ignitable	Active
33	FPV-36	033	Processing	014, 023, 024, 025, 026, 027, 043, 047	30,870	12' X 32'	165,368 Gallons[4]	Ignitable	Active
34	FPV-37	034	Processing	014, 023, 024, 025, 026, 027, 043, 047	30,870	12' X 32'	165,368 Gallons[4]	Ignitable	Active
61	ST-211	77	Storage	043, 047	12,600	12' X 15'	36,090 Gallons[1]	Ignitable	Active

1. from Table IV.B, first column

Table V.C. - Tanks and Tank Systems

Permit Unit No.	Tank	N.O.R. No.	Storage and/or Processing	Waste Nos.[1]	Rated Capacity (gallons)	Dimensions	Containment Volume (including rainfall for unenclosed areas)	Unit will manage Ignitable, Reactive, or Incompatible waste (state all that apply)	Unit Status
65	T-0256	80	Storage	003, 005, , 014, 018, 023, 024, 025, 026, 027, 036, 037, 038, 039, 040, 041, 042	1,147	5'5" X 6'4"	4,166 Gallons	Ignitable	Active
66	T-200	81	Processing	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	5,499	14' 8" X 20'	40,908 Gallons	Ignitable	Active
67	T-64A	82	Processing	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	17,503	18' X 20'	NA[5]	Ignitable	Not built
68	T-64B	83	Processing	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	26,790	38' X 14' 6"	NA[5]	Ignitable	Not built
69	T-64C	84	Processing	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	23,629	31' X 18'	NA[5]	Ignitable	Not built
70	T-64D	85	Processing	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	3,501	18' X 8' + 4' X 5.2'	27,130[b]	Ignitable	Not built

1. from Table IV.B, first column

Table V.C. - Tanks and Tank Systems

Permit Unit No.	Tank	N.O.R. No.	Storage and/or Processing	Waste Nos.[1]	Rated Capacity (gallons)	Dimensions	Containment Volume (including rainfall for unenclosed areas)	Unit will manage Ignitable, Reactive, or Incompatible waste (state all that apply)	Unit Status
71	ST-207		Processing	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	21,940	13.81 X 20'	36,090 gallons	Ignitable	Active
72	ST-208		Processing	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	17,550	13.81' X 16'	36,090 gallons	Ignitable	Active
72	ST-209		Processing	001, 005, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042	12,600s	12' X 15'	36,090 gallons	Ignitable	Active
4	ST-2		Processing	NA Stormwater/wastewater before discharge	255,948	33'X40'	NA	Ignitable	Active

1. from Table IV.B, first column

NOTES FOR TABLE V.C

[a] from Table IV.B., first column

[1] Tank system area B containment based on largest tank volume and 25-year, 24-hour rainfall event.

[2] Tank system area C containment based on largest tank volume and 25-year, 24-hour rainfall event.

[3] Tank system area A containment based on largest tank volume and 25-year, 24-hour rainfall event.

[4] Tank system area D containment based on largest tank volume and 25-year, 24-hour rainfall event.

[5] Double wall tank designed with outer shell capable of containing the tanks volume.

[b] T64-D secondary containment is from T-64C.

TABLE V.K. - MISCELLANEOUS UNITS

No.*	***Miscellaneous Unit***	***N.O.R. Unit #***	***Storage, Processing, and/or Disposal***	***Waste No.s***[1]	***Rated Capacity***	***Dimensions***	***Unit will manage Ignitable***[2]***, Reactive***[2]*** , or Incompatible***[2] ***Waste*** *(state all that apply)*
46	Centrifuge # 1	052	Processing	003, 005, 014, 018, 023, 024, 025, 026, 027, 036, 037, 038, 039, 040, 041, 042	84 GPM	N/A	Ignitable
47	Centrifuge # 2	053	Processing	003, 005, 014, 018, 023, 024, 025, 026, 027, 036, 037, 038, 039, 040, 041, 042	84 GPM	N/A	Ignitable
48	Centrifuge # 3	054	Processing	003, 005, 014, 018, 023, 024, 025, 026, 027, 036, 037, 038, 039, 040, 041, 042, 044	84GPM	N/A	Ignitable

1. from Table IV.B, first column

*If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator

TABLE V.K. - MISCELLANEOUS UNITS

No.*	***Miscellaneous Unit***	***N.O.R. Unit #***	***Storage, Processing, and/or Disposal***	***Waste No.s***[1]	***Rated Capacity***	***Dimensions***	***Unit will manage Ignitable***[2]***, Reactive***[2]*** , or Incompatible***[2] ***Waste*** *(state all that apply)*
49	Centrifuge # 4	054	Processing	003, 005, 014, 018, 023, 024, 025, 026, 027, 036, 037, 038, 039, 040, 041, 042, 043, 044	84GPM	N/A	Ignitable
50	Heater # 1	056	Processing	014, 023	2.6 mm BTU/hour	N/A	Ignitable
51	Heater # 3	057	Processing	003, 005,	2.6 mm BTU/hour	N/A	Ignitable
52	Heater # 4	058	Processing	014, 023	2.6 mm BTU/hour	N/A	Ignitable
53	Thermal Desorber # 1	059	Processing	001, 003, 007, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042, 043, 044, 045, 046, 049	140 tons /day	N/A	Ignitable

1. from Table IV.B, first column

*If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator

TABLE V.K. - MISCELLANEOUS UNITS

No.*	***Miscellaneous Unit***	***N.O.R. Unit #***	***Storage, Processing, and/or Disposal***	***Waste No.s***[1]	***Rated Capacity***	***Dimensions***	***Unit will manage Ignitable***[2]***, Reactive***[2]*** , or Incompatible***[2] ***Waste*** *(state all that apply)*
54	Thermal Desorber # 2	051	Processing	001,003, 007, 016, 020, 022, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042, 044, 043, 045, 046, 049	140 tons/day	N/A	Ignitable
62	Dissolved Air Flotation	78	Processing	003, 005, 014, 018, 023, 024, 025, 026, 027, 036, 037, 038, 039, 040, 041, 042, 043	50 gpm	NA	None
63	Filter Press	67	Processing	003, 005, 014, 018, 023, 024, 025, 026, 027, 036, 037, 038, 039, 040, 041, 042	50 gpm	NA	None

1. from Table IV.B, first column

*If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator

TABLE V.K. - MISCELLANEOUS UNITS

No.*	***Miscellaneous Unit***	***N.O.R. Unit #***	***Storage, Processing, and/or Disposal***	***Waste No.s***[1]	***Rated Capacity***	***Dimensions***	***Unit will manage Ignitable***[2]***, Reactive***[2]*** , or Incompatible***[2] ***Waste*** *(state all that apply)*
64	Waste Pre-treatment Container	79	Processing	001, 003, 005, 014, 016, 020, 022, 023, 024, 025, 026, 027, 033, 035, 036, 037, 038, 039, 040, 041, 042	210 tons/day	NA	Ignitable

1. from Table IV.B, first column

*If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator

Table V.K.3.
Miscellaneous Unit Maximum Constituent Feed Rate

Constituent	Maximum Allowable Rate to Thermal Desorber Unit (lb/hr) [2]
Chlorine	50
Mercury (Hg)	0.0030
Semivolatile Metals [1] (Cd+Pb)	30
Low Volatile Metals [1] (As+Be+Cr)	60

Notes:

[1] Low volatility Metals include arsenic (As), beryllium (Be) and chromium (Cr). Semivolatile metals include lead (Pb) and cadmium (Cd). The feed rates of each metal within the volatility group are summed to compare with the respective feed rate limit for each volatility group.

[2] The final feed rate limit shall be determined based upon trial burn testing.

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Table V.K.4.
Miscellaneous Unit Maximum Allowable Emissions

Consistent	Maximum Allowable Emissions Concentration [2,3]	Units	Relevant Rule Citation [4]
Dioxin/Furan	0.40	ng TEQ/dscm @ 7% O_2	63.1219(a)(1)(i)(B)
Mercury (Hg)	130	ug/dscm @ 7% O_2	63.1219(a)(2)
Semi-volatile metals (SVM) [1] (cadmium and lead)	230	ug/dscm @ 7% O_2	63.1219(a)(3)
Low volatile metals (LVM) [1] (arsenic, beryllium, chromium)	92	ug/dscm @ 7% O_2	63.1219(a)(4)
Carbon monoxide (CO)	100	ppmdv @ 7% O_2 HRA	63.1219(a)(5)(i)
Total hydrocarbon (THC)	10	ppmdv @ 7% O_2 HRA	63.1219(a)(5)(ii)
Hydrogen chloride (HCl) and chlorine (Cl_2)	32	ppmdv @ 7% O_2	63.1219(a)(6)
Particulate matter (PM)	29	mg/dscm @ 7% O_2	63.1219(a)(7)
	0.013	grains/dscf @ 7% O_2	

Notes:

[1] Low volatility metals include arsenic (As), beryllium (Be) and chromium (CR). Semivolatile metals include lead (Pb) and cadmium (Cd). The emissions of each metal within the volatility classification are summed to compare with the respective emission standard.

[2] Compliance demonstrated during trial burn testing required under the permit.

[3] The standards are applicable to the emissions from the thermal oxidizer.

[4] Existing unit standards.

TEQ = 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (TCDD) toxicity equivalence as defined in U.S. EPA, *Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p- dioxins and -dibenzofurans (CDDs and CDFs)* and 1989 Update, March 1989.

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Table V.K.5.
Miscellaneous Unit Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems

Parameter	Monitoring Basis [1]	Monitoring Device	Device Location	Monitoring Limits			AWFCO
				Pre-Trial Burn	Trial Burn	Post Trial Burn [2]	Yes/No [3]
Minimum Thermal Oxidizer Temperature	HRA	Thermocouple	Thermal Oxidizer Chamber	1,500 °F	1,500 °F	1,500 °F	Yes
Maximum Chlorine Feed Rate	NA; Desorber Feed Material Analysis and Processing Records [4]			Limits Specified in Table V.K.3			No
Maximum Mercury (Hg) Feed Rate							No
Maximum Semivolatile Metals Feed Rate							No
Maximum Low Volatile Metals Fed Rate							No

Notes:
[1] Continuous monitor is one which continuously samples or measures the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.

Hourly Rolling Average (HRA) as defined in 40 CFR 266.102(e)(6)(ii).

[2] The post-trial burn period is the period immediately following the completion of the trial burn, consisting of the minimum period sufficient to allow for sample analysis, data computation, submittal of the trial burn results, and approval of a permit modification by the TCEQ to reflect the trial burn results. [40 CFR 270.66(b)(3)].

[3] AWFCO: Automatic Waste Feed Cutoff. For operating parameters indicated by "Yes", the value in the table triggers an AWFCO.

[4] Regulated constituents (chlorine, mercury, SVM, and LVM) feed rates will be documented via material analyses and thermal desorber operating records. Compliance is based on the monthly (four-week) rolling average hourly feed rate. The weekly hourly average feed rates are calculated using the weights of hazardous waste processed, their associated constituent concentration analyses, and total hazardous waste feed operational time of the solids feed system during a seven-day period, e.g., Monday noon to the following Monday noon. The weekly average hourly feed rates will be recorded in the operating record. The monthly (four-week) rolling average hourly feed rates will be calculated using the most recent four weeks of weekly average hourly constituent feed rates. The monthly (four-week) rolling average hourly feed rates will also be recorded in the operating record.

Table V.K.8 - Principal Organic Hazardous Constituents

List the wastes for which the trial burn demonstration will be made and the principal organic hazardous constituents (POHCs) in each waste.

Waste	Principal Organic Hazardous Constituents	Thermal Stability Ranking System Class

THIS TABLE IS NOT APPLICABLE

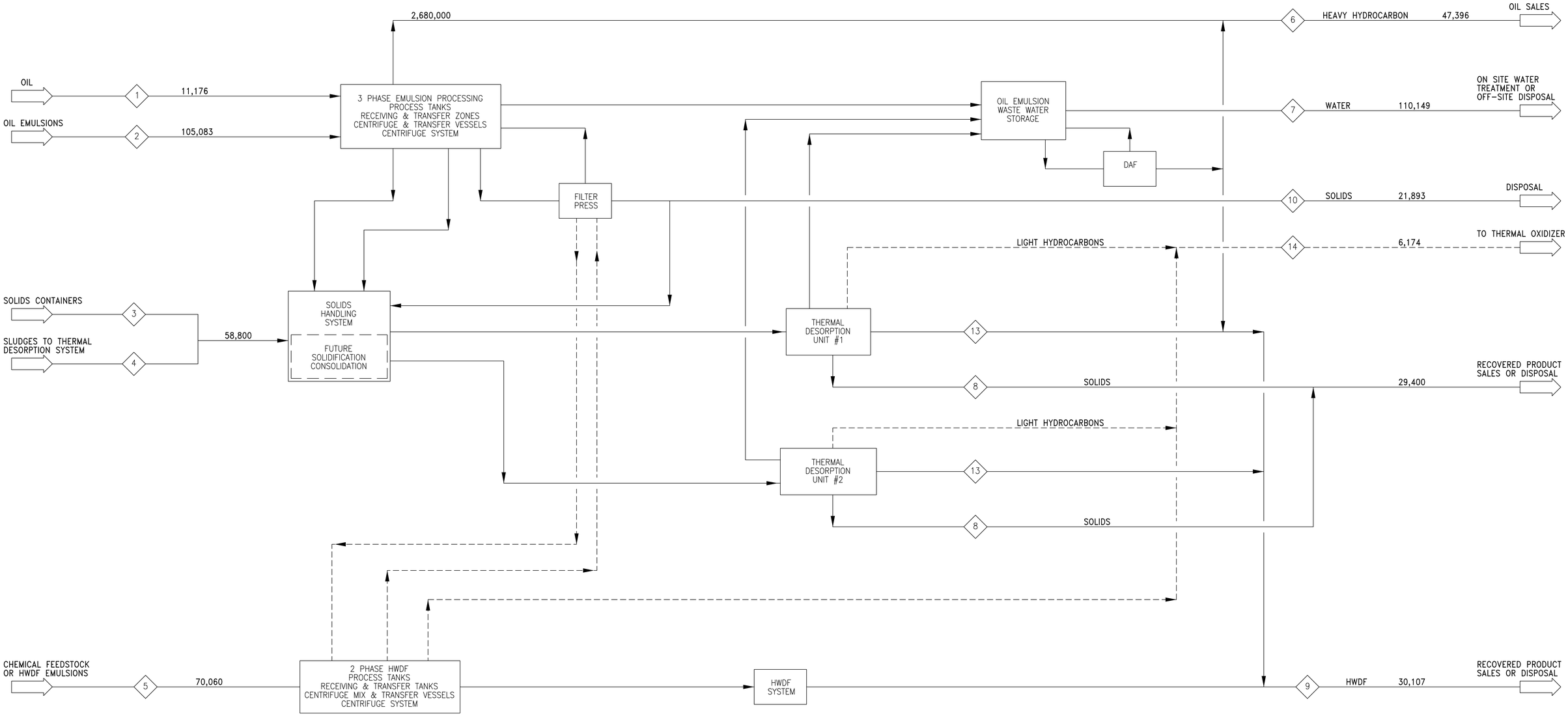
ATTACHMENT V Other

Attachment V.B Material Balance Flow Sheet

Attachment V.C Flow Diagram

Attachment V.D Facility Map Discharge Routes

Attachment V.E Tank Inspections



FLOW & STREAM LEGEND (TONS PER YEAR)

NO.	IDENTIFICATION	CONTENTS HC	CONTENTS WATER	CONTENTS SOLIDS	NO.	IDENTIFICATION	CONTENTS HC	CONTENTS WATER	CONTENTS SOLIDS	NO.	IDENTIFICATION	CONTENTS HC	CONTENTS WATER	CONTENTS SOLIDS	NO.	IDENTIFICATION	CONTENTS HC	CONTENTS WATER	CONTENTS SOLIDS
1	OIL	95%	5%		7	C.E. WATER		100%		13	HYDROCARBON	100%			19				
2	OIL EMULSIONS	35%	60%	5%	8	SOLIDS			100%	14	LIGHT HYDROCARBONS	100%			20				
3	ROLL OFF BOXES	15%	35%	50%	9	HWDF	100%			15					21				
4	DESORBER SLUDGE FEED	25%	25%	50%	10	SOLIDS		60%	40%	16					22				
5	HWDF EMULSIONS	35%	60%	5%	11					17									
6	HEAVY HYDROCARBONS	100%			12	DEBRIS			100%	18									

12 — 1,000 — GENERAL MAINTENANCE & UNPROCESSABLE DEBRIS — DISPOSAL

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	4	12/16/14	2014 PERMIT APPLICATION	WDS	REL
	3	11/14/14	2014 PERMIT APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	SC
	0	9/8/93	1992 PERMIT APPLICATION	CR	SC

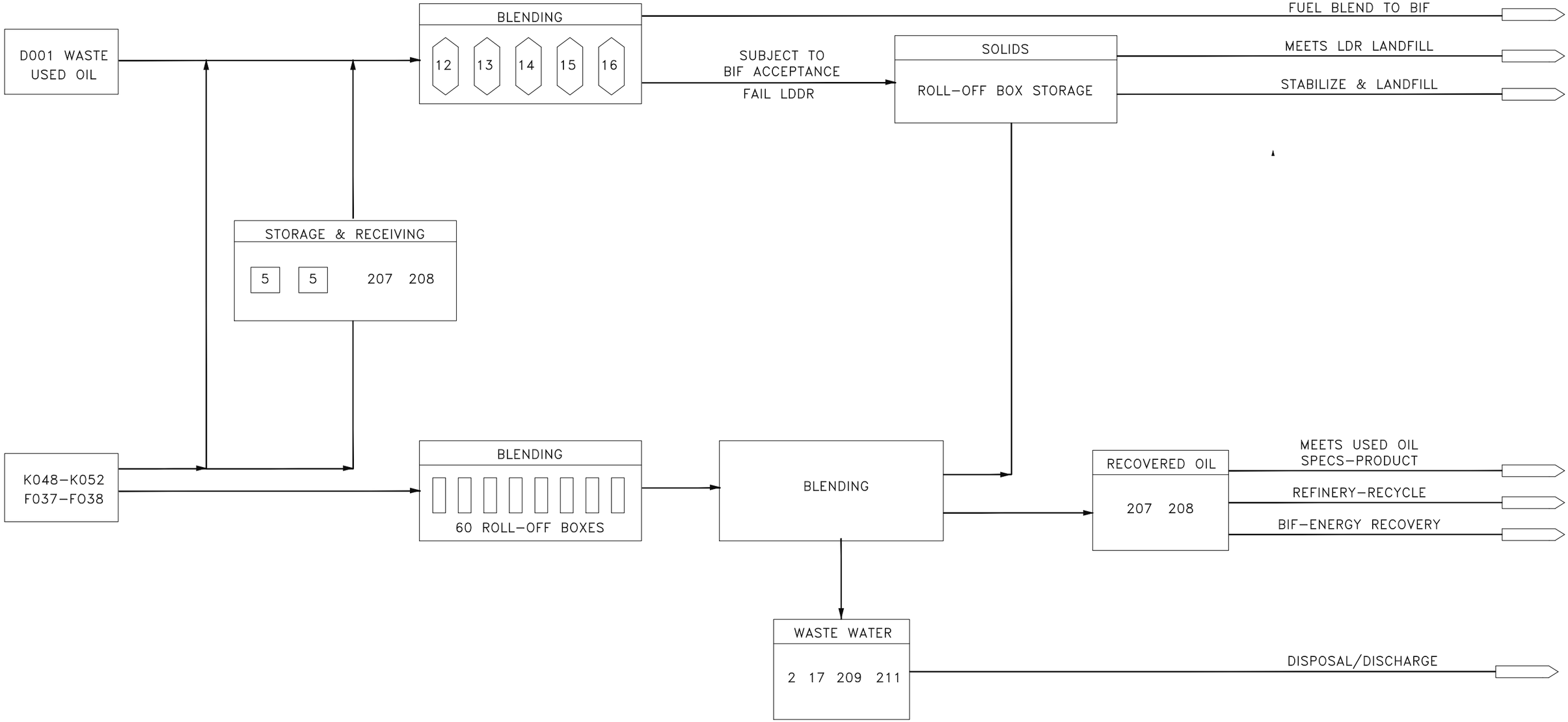
ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	9/8/93
CHECKED		
APPROVED		

CleanHarbors®
SAN LEON, INC.

SCALE: N.T.S.

MATERIAL BALANCE
COMPOSITE FLOW SHEET

DRAWING NUMBER 299 REV. 4



REFERENCE DRAWINGS				NO.	DATE	REVISIONS	BY	APP.
				2	1/23/25	2025 PERMIT RENEWAL	WS	KS
				1		ORIGINAL SUBMITTAL		

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	1/23/25
CHECKED	KS	
APPROVED		

CleanHarbors®
SAN LEON, INC.

SCALE: N.T.S.

STORAGE AND PROCESSING BLOCK FLOW DIAGRAM

DRAWING NUMBER 803 REV. 2

Galveston Central Appraisal District

Galveston Central Appraisal District

SCALE 1" = 200'
Date: 4/2/2015

SCALE 1" = 200'
Date: 4/2/2015

FACILITY

POINT OF DISCHARGE

DISCHARGE ROUTE

1/2 mi. Rad.

1/2 mi. Rad.

DICKINSON BAYOU

DICKINSON BAYOU

SAN LEON FARM HOME TRACTS

MACS SUB

GALLION SUB

JONES SUB

HART ACRES

FRANK'S SUB

COY ROBINSON SUB

LITTLE RIVIERA

1 2 3 4 5 6 7 8 9 10 11

W1 W2 W3 W4 W5 W6

Inspection Services

"People and Technology Creating a Better Environment"

Duratherm

San Leon, Texas

API 510 In-Service Inspection of Vessel

PV-18

Inspection Date: August 15, 2018

Inspection Report **Vessel No.** 18

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Summary Report

Report Reviewed By:

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096

Note: The used Oil Pressure Vessel 18 appears to be in good condition at the time of this inspection. Due to lack of information and previous inspection reports a corrosion rate could not be established.

Vessel Data			
Manufactures Serial #:	Unknown	Date Manufactured:	Unknown
Product in Vessel:	Unknown	In Service Date:	Unknown
Drawing #:	Unknown	Date of ASME VIII:	Unknown
Manufacturer:	Unknown	Mfg. under:	Unknown
Shell Material:	CS	Addenda:	Unknown
Vessel Orientation:	Horizontal	Code Cases:	Unknown
Vessel Insulated:	No	CML's	No

Next External Inspection **5 years**

Recommendations

- Plant personnel should continue to monitor the vessel.

CleanHarbors®

Inspection Report

Vessel No. 18

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

EXTERNAL VISUAL INSPECTION					
FOUNDATION	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Containment Dike	☒	☐	☐	☐	
Concrete Pad	☒	☐	☐	☐	
Grout / Coating	☒	☐	☐	☐	
Dike Area Clean	☒	☐	☐	☐	
Vessel Support					
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Type: Legs	☒	☐	☐	☐	
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
INSULATION	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Weather Jacket	☐	☐	☒	☐	
Supports (Bands, etc.)	☐	☐	☒	☐	
Insulation Condition	☐	☐	☒	☐	
Corrosion under Insulation	☐	☐	☒	☐	
Coating under insulation	☐	☐	☒	☐	
Asbestos Labeled	☐	☐	☒	☐	
Heads	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Bulges, Blisters, Deformity	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Attachments/Brackets	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	
Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating Condition	☒	☐	☐	☐	
Corrosion/Pitting (describe)	☒	☐	☐	☐	Minor pitting
Bulges/Blisters/Deformation	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Attachments/Brackets	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	

Inspection Report

Vessel No. 18

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Manways / Nozzles	General Condition				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Repad / Weep Holes	☒	☐	☐	☐	
Manway Flanges	☒	☐	☐	☐	
Manway Bolts	☒	☐	☐	☐	
Nozzle Bolts / Studs	☒	☐	☐	☐	
Nuts / Engagement	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	
Appurtenances					
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Grounding	☒	☐	☐	☐	
Gauges, Sight glass	☒	☐	☐	☐	
Anchors	☒	☐	☐	☐	

Inspection Report

Vessel No. 18

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Thickness Readings:

(W to E)	Top	Bottom	North	South
First Course	0.371''	0.378''	0.373''	0.380''
	0.376''	0.377''	0.374''	0.379''
	0.370''	0.374''	0.377''	0.367''
	0.368''	0.376''	0.379''	0.381''
Second Course	0.366''	0.372''	0.374''	0.376''
	0.367''	0.367''	0.369''	0.375''
	0.365''	0.370''	0.377''	0.372''
	0.370''	0.363''	0.374''	0.381''
Third Course	0.363''	0.371''	0.369''	0.378''
	0.371''	0.377''	0.379''	0.377''
	0.368''	0.371''	0.381''	0.376''
	0.370''	0.372''	0.378''	0.375''
Fourth Course	0.362''	0.368''	0.380''	0.379''
	0.369''	0.372''	0.379''	0.380''
	0.370''	0.364''	0.380''	0.376''
	0.371''	0.369''	0.378''	0.374''

Course 1		Course 2	
Minimum	0.367''	Minimum	0.363''
Average	0.375''	Average	0.371''
Maximum	0.381''	Maximum	0.381''
Standard Deviation	0.004''	Standard Deviation	0.005''

Course 3		Course 4	
Minimum	0.363''	Minimum	0.362''
Average	0.374''	Average	0.373''
Maximum	0.381''	Maximum	0.380''
Standard Deviation	0.005''	Standard Deviation	0.006''

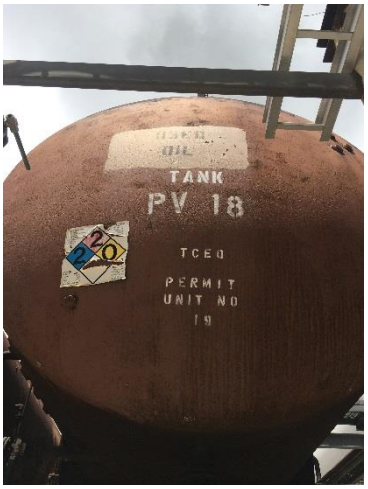
End Cap Location	Left	Middle	Right
East End	0.460''	0.471''	0.472''
	0.461''	0.464''	0.469''
West End	0.464''	0.467''	0.460''
	0.470''	0.468''	0.459''

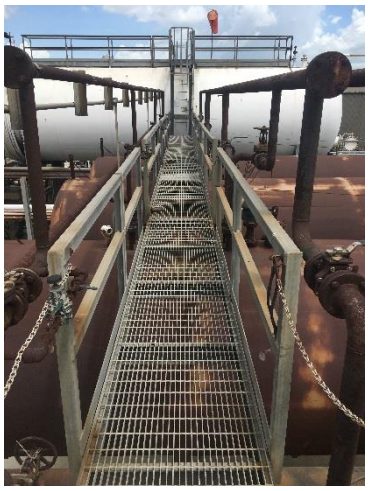
Inspection Report

Vessel No. 18

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Photographs





WARRANTY

CleanHarbors Inspection Services, Inc. ("Company") has performed inspection services on equipment designated by Clean Harbors (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, expressed or implied, with regard to goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Clean Harbors
2000 North Highway 146
La Porte, TX 77571
www.cleanharbors.com

Inspection Services

API 510 Inspection Certification Statement
9/27/2018

Guy Andreason and Andrew Partain under direct supervision of Taylor Sudol (Certified Inspector) has performed an API 510 In-Service inspection of PV-18-21. The vessels are located at the Clean Harbors Duratherm Facility in San Leon, Texas.

As determined by the condition found during the inspection of PV-18-21, the vessels appear to be in suitable condition at the time of this inspection for continued operations under normal operating parameters that the vessel was designed and manufactured to.

The services performed, documentation of inspection, identification of deterioration, and the generation of a report was performed within the generally accepted principles and practices of API 510 Pressure Vessel Inspection Code: In-service Inspection, Rating, Repair, and Alteration Tenth Edition 2014, Recommended Practice No. SNT-TC-1A 2016 Edition Personnel Qualification and Certification In Nondestructive Testing, and Clean Harbors' Written Practice and Inspection procedures.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment. The status of the Certified Inspector can be verified on the American Petroleum Institute and Steel Tank Institute website.

API: http://myicp.api.org/inspectorsearch/

STI: https://www.steeltank.com/SP001StandardFAQs/tabid/463/Default.aspx
Within question #9.

Taylor Sudol

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096
Corporate Level III

Inspection Services

"People and Technology Creating a Better Environment"

Duratherm

San Leon, Texas

API 510 In-Service Inspection of Vessel

PV-19

Inspection Date: August 15, 2018

Inspection Report **Vessel No.** 19

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Summary Report

Report Reviewed By:

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096

Note: The used Oil Pressure Vessel 19 appears to be in good condition at the time of this inspection. Due to lack of information and previous inspection reports a corrosion rate could not be established.

Vessel Data			
Manufactures Serial #:	Unknown	Date Manufactured:	Unknown
Product in Vessel:	Unknown	In Service Date:	Unknown
Drawing #:	Unknown	Date of ASME VIII:	Unknown
Manufacturer:	Unknown	Mfg. under:	Unknown
Shell Material:	CS	Addenda:	Unknown
Vessel Orientation:	Horizontal	Code Cases:	Unknown
Vessel Insulated:	No	CML's	No

Next External Inspection **5 years**

Recommendations

- Plant personnel should continue to monitor the vessel.

CleanHarbors

Inspection Report

Vessel No. 19

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

EXTERNAL VISUAL INSPECTION					
FOUNDATION	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Containment Dike	☒	☐	☐	☐	
Concrete Pad	☒	☐	☐	☐	
Grout / Coating	☒	☐	☐	☐	
Dike Area Clean	☒	☐	☐	☐	
Vessel Support					
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Type: Legs	☒	☐	☐	☐	
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
INSULATION	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Weather Jacket	☐	☐	☒	☐	
Supports (Bands, etc.)	☐	☐	☒	☐	
Insulation Condition	☐	☐	☒	☐	
Corrosion under Insulation	☐	☐	☒	☐	
Coating under insulation	☐	☐	☒	☐	
Asbestos Labeled	☐	☐	☒	☐	
Heads	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Bulges, Blisters, Deformity	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Attachments/Brackets	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	
Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating Condition	☒	☐	☐	☐	
Corrosion/Pitting (describe)	☒	☐	☐	☐	Minor pitting
Bulges/Blisters/Deformation	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Attachments/Brackets	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	

Inspection Report

Vessel No. 19

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Manways / Nozzles	General Condition				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Repad / Weep Holes	☒	☐	☐	☐	
Manway Flanges	☒	☐	☐	☐	
Manway Bolts	☒	☐	☐	☐	
Nozzle Bolts / Studs	☒	☐	☐	☐	
Nuts / Engagement	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	
Appurtenances					
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Grounding	☒	☐	☐	☐	
Gauges, Sight glass	☒	☐	☐	☐	
Anchors	☒	☐	☐	☐	
IMMEDIATED PIPING	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Piping	☒	☐	☐	☐	
Additional comments:					

Inspection Report

Vessel No. 19

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Thickness Readings:

First Course	0.381''	0.364''	0.370''	0.372''
	0.385''	0.373''	0.368''	0.372''
	0.379''	0.368''	0.367''	0.378''
	0.380''	0.374''	0.365''	0.375''
Second Course	0.374''	0.368''	0.369''	0.378''
	0.381''	0.366''	0.364''	0.377''
	0.369''	0.372''	0.360''	0.374''
	0.372''	0.373''	0.362''	0.369''
Third Course	0.369''	0.375''	0.383''	0.371''
	0.373''	0.351''	0.372''	0.362''
	0.364''	0.370''	0.368''	0.364''
	0.378''	0.369''	0.372''	0.370''
Fourth Course	0.376''	0.372''	0.377''	0.369''
	0.378''	0.362''	0.373''	0.386''
	0.374''	0.365''	0.374''	0.389''
	0.380''	0.369''	0.371''	0.380''

Course 1		**Course 2**	
Minimum	0.364''	Minimum	0.360''
Average	0.373''	Average	0.371''
Maximum	0.385''	Maximum	0.381''
Standard Deviation	0.006''	Standard Deviation	0.006''

Course 3		**Course 4**	
Minimum	0.351''	Minimum	0.362''
Average	0.369''	Average	0.375''
Maximum	0.383''	Maximum	0.389''
Standard Deviation	0.007''	Standard Deviation	0.007''

Tank: PV-19

End Caps (readings taken E to W)

Location	Left	Middle	Right
East End	0.495''	0.488''	0.501''
	0.493''	0.487''	0.497''
West End	0.510''	0.512''	0.491''

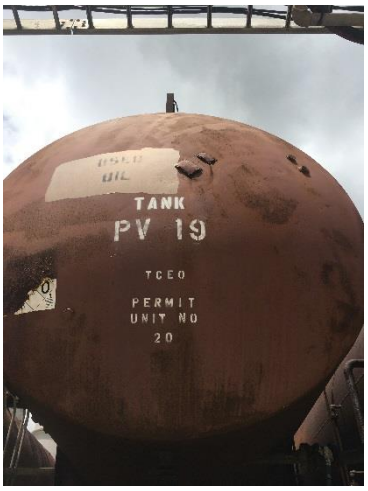
Inspection Report

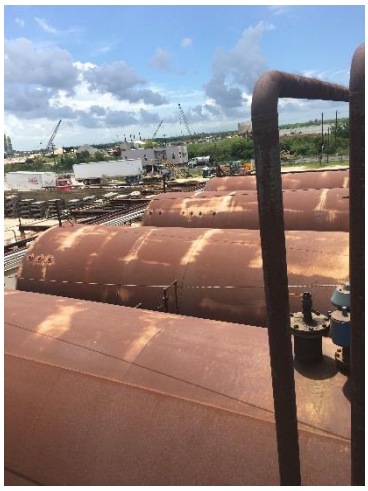
Vessel No. 19

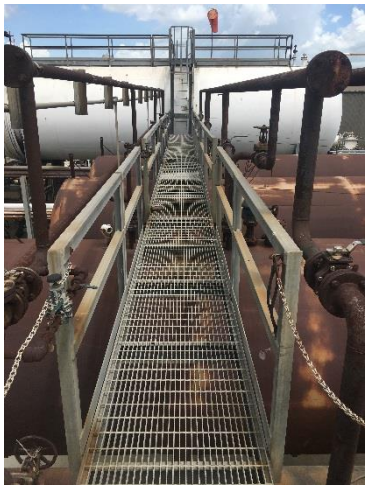
Customer	Clean Harbors	**Location**	San Leon, Texas	**Date**	08-15-2018

0.509''	0.507''	0.494''

Photographs







WARRANTY

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Company makes no warranty, express or implied, with regard to goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Inspection Services

"People and Technology Creating a Better Environment"

Duratherm

San Leon, Texas

API 510 In-Service Inspection of Vessel

PV-20

Inspection Date: 08-15-2018

Inspection Report **Vessel No.** **20**

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Summary Report

Report Reviewed By:

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096

Note: The used Oil Pressure Vessel 20 appears to be in good condition at the time of this inspection. Due to lack of information and previous inspection reports a corrosion rate could not be established.

Vessel Data			
Manufactures Serial #:	Unknown	Date Manufactured:	Unknown
Product in Vessel:	Unknown	In Service Date:	Unknown
Drawing #:	Unknown	Date of ASME VIII:	Unknown
Manufacturer:	Unknown	Mfg. under:	Unknown
Shell Material:	CS	Addenda:	Unknown
Vessel Orientation:	Horizontal	Code Cases:	Unknown
Vessel Insulated:	No	CML's	No

Next External Inspection **5 years**

Recommendations

- Plant personnel should continue to monitor the vessel.

Inspection Report

Vessel No. 20

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

EXTERNAL VISUAL INSPECTION					
FOUNDATION	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Containment Dike	☒	☐	☐	☐	
Concrete Pad	☒	☐	☐	☐	
Grout / Coating	☒	☐	☐	☐	
Dike Area Clean	☒	☐	☐	☐	
Vessel Support					
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Type: Legs	☒	☐	☐	☐	
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
INSULATION	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Weather Jacket	☐	☐	☒	☐	
Supports (Bands, etc.)	☐	☐	☒	☐	
Insulation Condition	☐	☐	☒	☐	
Corrosion under Insulation	☐	☐	☒	☐	
Coating under insulation	☐	☐	☒	☐	
Asbestos Labeled	☐	☐	☒	☐	
Heads	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Bulges, Blisters, Deformity	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Attachments/Brackets	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	
Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating Condition	☒	☐	☐	☐	
Corrosion/Pitting (describe)	☒	☐	☐	☐	Minor pitting
Bulges/Blisters/Deformation	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Attachments/Brackets	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	

Inspection Report

Vessel No. 20

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Manways / Nozzles	General Condition				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Repad / Weep Holes	☒	☐	☐	☐	
Manway Flanges	☒	☐	☐	☐	
Manway Bolts	☒	☐	☐	☐	
Nozzle Bolts / Studs	☒	☐	☐	☐	
Nuts / Engagement	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	
Appurtenances					
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Grounding	☒	☐	☐	☐	
Gauges, Sight glass	☒	☐	☐	☐	
Anchors	☒	☐	☐	☐	

Inspection Report

Vessel No. 20

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Thickness Readings:

PV-20 (W to E)	Top	Bottom	North	South
First Course	0.384''	0.384''	0.376''	0.370''
	0.381''	0.376''	0.373''	0.371''
	0.382''	0.382''	0.369''	0.373''
	0.380''	0.383''	0.370''	0.370''
Second Course	0.386''	0.384''	0.379''	0.376''
	0.388''	0.383''	0.381''	0.380''
	0.373''	0.372''	0.370''	0.382''
	0.370''	0.381''	0.376''	0.385''
Third Course	0.370''	0.380''	0.378''	0.377''
	0.365''	0.366''	0.369''	0.364''
	0.368''	0.368''	0.366''	0.367''
	0.372''	0.370''	0.369''	0.371''
Fourth Course	0.395''	0.390''	0.391''	0.389''
	0.369''	0.370''	0.370''	0.368''
	0.372''	0.371''	0.373''	0.372''
	0.376''	0.376''	0.375''	0.373''

Course 1		Course 2	
Minimum	0.369''	Minimum	0.370''
Average	0.377''	Average	0.379''
Maximum	0.384''	Maximum	0.388''
Standard Deviation	0.006''	Standard Deviation	0.006''

Course 3		Course 4	
Minimum	0.364''	Minimum	0.368''
Average	0.370''	Average	0.377''
Maximum	0.380''	Maximum	0.395''
Standard Deviation	0.005''	Standard Deviation	0.009''

End Caps (readings taken E to W)

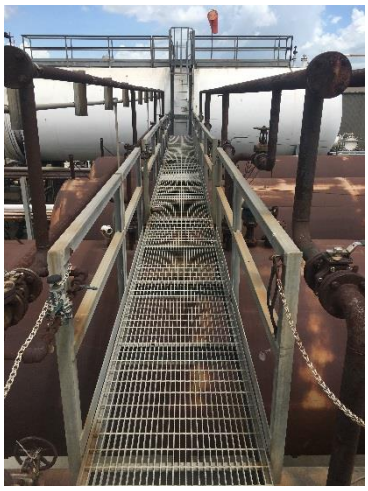
Location	Left	Middle	Right
East End	0.455''	0.460''	0.454''
	0.456''	0.463''	0.451''
West End	0.454''	0.460''	0.451''
	0.457''	0.463''	0.452''

Inspection Report

Vessel No. 20

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Photographs



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Inspection Services

"People and Technology Creating a Better Environment"

Duratherm

San Leon, Texas

API 510 In-Service Inspection of Vessel

PV-21

Inspection Date: August 15, 2018

Inspection Report **Vessel No.** 21

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Summary Report

Report Reviewed By:

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096

Note: The used Oil Pressure Vessel 21 appears to be in good condition at the time of this inspection. Due to lack of information and previous inspection reports a corrosion rate could not be established.

Vessel Data			
Manufactures Serial #:	Unknown	Date Manufactured:	Unknown
Product in Vessel:	Unknown	In Service Date:	Unknown
Drawing #:	Unknown	Date of ASME VIII:	Unknown
Manufacturer:	Unknown	Mfg. under:	Unknown
Shell Material:	CS	Addenda:	Unknown
Vessel Orientation:	Horizontal	Code Cases:	Unknown
Vessel Insulated:	No	CML's	No

Next External Inspection **5 years**

Recommendations

- Plant personnel should continue to monitor the vessel.

Inspection Report

Vessel No. 21

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

EXTERNAL VISUAL INSPECTION					
FOUNDATION	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Containment Dike	☒	☐	☐	☐	
Concrete Pad	☒	☐	☐	☐	
Grout / Coating	☒	☐	☐	☐	
Dike Area Clean	☒	☐	☐	☐	
Vessel Support					
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Type: Legs	☒	☐	☐	☐	
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
INSULATION	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Weather Jacket	☐	☐	☒	☐	
Supports (Bands, etc.)	☐	☐	☒	☐	
Insulation Condition	☐	☐	☒	☐	
Corrosion under Insulation	☐	☐	☒	☐	
Coating under insulation	☐	☐	☒	☐	
Asbestos Labeled	☐	☐	☒	☐	
Heads	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	Minor pitting
Bulges, Blisters, Deformity	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Attachments/Brackets	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	
Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating Condition	☒	☐	☐	☐	
Corrosion/Pitting (describe)	☒	☐	☐	☐	
Bulges/Blisters/Deformation	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Attachments/Brackets	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	

Inspection Report

Vessel No. 21

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Manways / Nozzles	General Condition				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating	☒	☐	☐	☐	
Corrosion	☒	☐	☐	☐	
Welds	☒	☐	☐	☐	
Repad / Weep Holes	☒	☐	☐	☐	
Manway Flanges	☒	☐	☐	☐	
Manway Bolts	☒	☐	☐	☐	
Nozzle Bolts / Studs	☒	☐	☐	☐	
Nuts / Engagement	☒	☐	☐	☐	
Thickness Measurements	☒	☐	☐	☐	
Appurtenances					
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Grounding	☒	☐	☐	☐	
Gauges, Sight glass	☒	☐	☐	☐	
Anchors	☒	☐	☐	☐	

Inspection Report

Vessel No. 21

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Thickness Readings:

(W to E)	Top	Bottom	North	South
First Course	0.367''	0.364''	0.363''	0.365''
	0.365''	0.363''	0.363''	0.361''
	0.368''	0.360''	0.362''	0.363''
	0.364''	0.361''	0.364''	0.366''
Second Course	0.362''	0.363''	0.360''	0.362''
	0.359''	0.359''	0.363''	0.360''
	0.363''	0.358''	0.361''	0.359''
	0.368''	0.364''	0.366''	0.366''
Third Course	0.370''	0.369''	0.367''	0.364''
	0.366''	0.364''	0.365''	0.366''
	0.371''	0.368''	0.370''	0.369''
	0.369''	0.366''	0.368''	0.370''
Fourth Course	0.368''	0.367''	0.368''	0.370''
	0.367''	0.364''	0.365''	0.362''
	0.370''	0.368''	0.371''	0.369''
	0.366''	0.364''	0.364''	0.365''

Course 1	
Minimum	0.360''
Average	0.364''
Maximum	0.368''
Standard Deviation	0.002''

Course 2	
Minimum	0.358''
Average	0.362''
Maximum	0.368''
Standard Deviation	0.003''

Course 3	
Minimum	0.364''
Average	0.368''
Maximum	0.371''
Standard Deviation	0.002''

Course 4	
Minimum	0.362''
Average	0.367''
Maximum	0.371''
Standard Deviation	0.003''

Inspection Report

Vessel No. 21

Customer Clean Harbors **Location** San Leon, Texas **Date** 08-15-2018

Thickness Readings:

Tank: PV-21

End Caps (readings taken E to W)

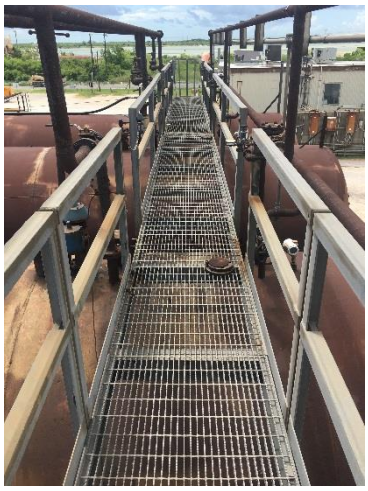
Location	Left	Middle	Right
East End	0.474''	0.460''	0.476''
	0.462''	0.461''	0.469''
West End	0.476''	0.458''	0.470''
	0.463''	0.463''	0.465''

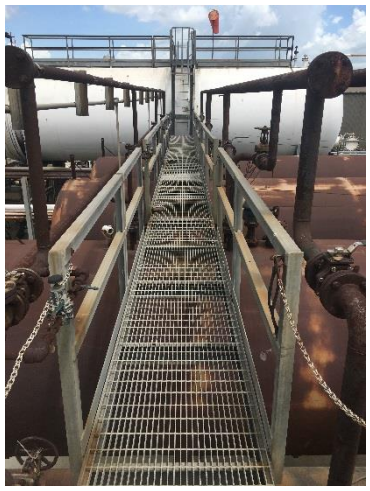
Inspection Report

Vessel No. 21

Customer	Clean Harbors	**Location**	San Leon, Texas	**Date**	08-15-2018

Photographs





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CleanHarbors Inspection Services, Inc. ("Company") has performed inspection services on equipment designated by Clean Harbors (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, expressed or implied, with regard to goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Inspection Services

"People and Technology Creating a Better Environment"

Clean Harbors

San Leon, TX

API 510 Out of Service Inspection of Vessel

ST-17

Inspection Date: August 29, 2018

Inspection Report **Vessel No.** **ST-17**

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Summary Report

Report Reviewed By:

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096

Note: The hazardous water vessel #ST-17 appears to be in serviceable condition at the time of this inspection. There was minor to moderate pitting throughout the vessel. Although the pitting is present, a corrosion rate calculation shows a remaining life of 105 years for the most severe pitting. The remaining life calculation below is based upon ultrasonic thickness readings.

Vessel Data			
Manufacturer:	McIver & Smith Fab.	Date Manufactured:	1978
Manufactures Serial #:	N-10445	Date of ASME VIII:	Unknown
Drawing #:	Unknown	Mfg. under:	Unknown
Vessel Length S/S:	47'8"	Addenda:	Unknown
Diameter I.D or O.D:	68'	Code Cases:	Unknown
No. of Shell Sections:	6	National Board Number:	160
Shell Material:	CS	Vessel Insulated:	No
Design Pressure:	87psi	CML's	N/A
Design Temperature	Unknown	Vessel Orientation:	Horizontal
Head Type:	2:1 Ellipsoidal	Head Material:	CS

Next External Inspection **5 year(s)**
Next Internal Inspection **10 year(s)**

Recommendations

- Facility personnel should continue to perform daily checks on the vessel.

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Corrosion Rate

Course	Year of Construction	Assumed Thickness (in.)	2018 Measured Thickness (in.)	Corrosion Rate (in./yr.)	Remaining Corrosion Allowance (in.)	Remaining Life (yrs.)
1	1978	0.750	0.741	0.0001	0.433	2886.67
2	1978	0.750	0.757	N/A	0.442	N/A
3	1978	0.750	0.753	N/A	0.442	N/A
4	1978	0.750	0.750	N/A	0.442	N/A
5	1978	0.750	0.749	0.00001	0.441	26,460
6	1978	0.750	0.743	0.00011	0.435	3728

***The above calculations are based on the average measured thickness and previous inspection thicknesses. If there is no previous measured thickness then an assumed or nominal thickness is utilized to establish a corrosion rate. The assumed thickness is based upon industry standard thickness for rolled plate steel. Remaining life could not be determined on courses where the actual thickness was greater than or equal to the past thickness readings.**

***It should be noted that without established Condition Monitoring Location (CML) points, data collection locations may vary between inspections.**

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

EXTERNAL VISUAL INSPECTION				
FOUNDATION	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Containment Dike	☒	☐	☐	
Concrete Pad	☒	☐	☐	
Grout / Coating	☒	☐	☐	
Dike Area Clean	☒	☐	☐	
Vessel Support				
Item	**Acc**	**Fin**	**N/A**	**Comments**
Type: Concrete Pylon	☒	☐	☐	
Coating	☒	☐	☐	
Corrosion	☒	☐	☐	
Welds	☒	☐	☐	
INSULATION	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Weather Jacket	☐	☐	☒	
Supports (Bands, etc.)	☐	☐	☒	
Insulation Condition	☐	☐	☒	
Corrosion under Insulation	☐	☐	☒	
Coating under insulation	☐	☐	☒	
Asbestos Labeled	☐	☐	☒	
Heads	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating	☒	☐	☐	
Corrosion	☒	☐	☐	
Bulges, Blisters, Deformity	☒	☐	☐	
Welds	☒	☐	☐	
Attachments/Brackets	☒	☐	☐	
Thickness Measurements	☒	☐	☐	
Shell	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating Condition	☒	☐	☐	
Corrosion/Pitting (describe)	☒	☐	☐	
Bulges/Blisters/Deformation	☒	☐	☐	
Welds	☒	☐	☐	
Attachments/Brackets	☒	☐	☐	
Thickness Measurements	☒	☐	☐	

Acc= Acceptable. FIN=Findings. N/A Not Applicable

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Manways / Nozzles	General Condition			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating	☒	☐	☐	
Corrosion	☒	☐	☐	
Welds	☒	☐	☐	
Repad / Weep Holes	☐	☐	☒	
Manway Flanges	☒	☐	☐	
Manway Bolts	☒	☐	☐	
Nozzle Bolts / Studs	☒	☐	☐	
Nuts / Engagement	☒	☐	☐	
Thickness Measurements	☐	☐	☒	
Appurtenances				
Item	**Acc**	**Fin**	**N/A**	**Comments**
Grounding	☒	☐	☐	
Gauges, Sight glass	☒	☐	☐	
Anchors	☐	☐	☒	
INTERNAL VISUAL INSPECTION				
	General Condition			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Cleanliness	☐	☒	☐	Residual product on interior walls
Corrosion	☐	☒	☐	Moderate localized pitting ranging from 0.060”-0.140”
Welds	☒	☐	☐	
Agitators	☐	☐	☒	
Coils / Heaters	☐	☐	☒	
Pipe supports/ Brackets	☐	☐	☒	
Attachments / Brackets	☒	☐	☐	
Bubble / Valve Caps	☐	☐	☒	
Packing	☐	☐	☒	
Demister Pad(s)	☐	☐	☒	
Spray Nozzles	☐	☐	☒	
Vortex Breaker(s)	☐	☐	☒	
Impingement Plate(s)	☐	☐	☒	
Thermowells	☒	☐	☐	
Trays	☐	☐	☒	
Screens	☐	☐	☒	
Screen attachments	☐	☐	☒	
Nozzles	☒	☐	☐	
Other:	☐	☒	☐	

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Thickness Readings:

	Top	Bottom	North	South
First Course	0.719''	0.733''	0.748''	0.750''
	0.723''	0.756''	0.744''	0.746''
	0.720''	0.743''	0.760''	0.745''
	0.714''	0.732''	0.758''	0.764''
Second Course	0.721''	0.767''	0.776''	0.779''
	0.706''	0.786''	0.768''	0.768''
	0.716''	0.778''	0.764''	0.763''
	0.720''	0.771''	0.771''	0.764''
Third Course	0.716''	0.749''	0.760''	0.761''
	0.734''	0.761''	0.768''	0.752''
	0.726''	0.781''	0.755''	0.760''
	0.729''	0.768''	0.764''	0.766''
Forth Course	0.725''	0.764''	0.769''	0.758''
	0.703''	0.758''	0.753''	0.764''
	0.704''	0.786''	0.751''	0.748''
	0.725''	0.768''	0.749''	0.773''
Fifth Course	0.716''	0.758''	0.756''	0.750''
	0.718''	0.767''	0.764''	0.746''
	0.715''	0.768''	0.758''	0.757''
	0.716''	0.786''	0.749''	0.762''
Sixth Course	0.694''	0.764''	0.756''	0.763''
	0.694''	0.769''	0.749''	0.758''
	0.715''	0.767''	0.752''	0.746''
	0.698''	0.763''	0.750''	0.749''

Course 1		**Course 2**	
Minimum	0.714''	Minimum	0.706''
Average	0.741''	Average	0.757''
Maximum	0.764''	Maximum	0.786''
Standard Deviation	0.016''	Standard Deviation	0.026''

Course 3		**Course 4**	
Minimum	0.716''	Minimum	0.703''
Average	0.753''	Average	0.750''
Maximum	0.781''	Maximum	0.786''
Standard Deviation	0.018''	Standard Deviation	0.024''

Course 5		**Course 6**	
Minimum	0.715''	Minimum	0.694''
Average	0.749''	Average	0.743''
Maximum	0.786''	Maximum	0.769''
Standard Deviation	0.022''	Standard Deviation	0.027''

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Thickness Reading:

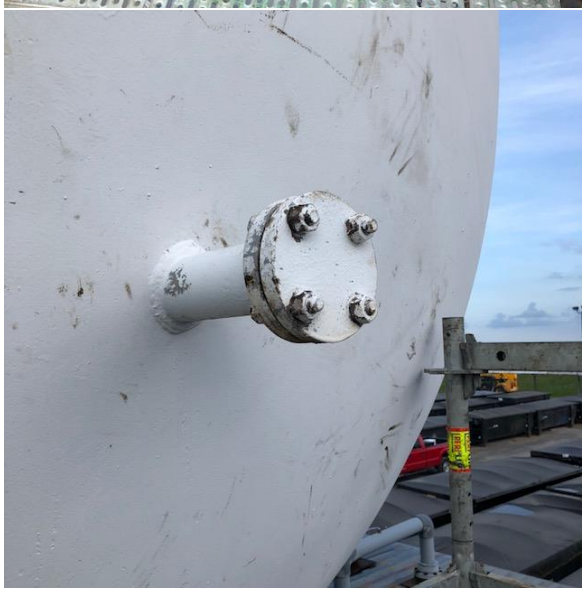
Heads	Top	Bottom	North	South
East Head	0.764"	0.767"	0.774"	0.768"
West Head	0.746"	0.754"	0.768"	0.748"

Inspection Report

Vessel No. ST-17

Customer	Clean Harbors	**Location**	San Leon, TX	**Date**	08/29/2018

Photographs:



Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Photographs:

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Photographs:

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Photographs:

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

Photographs:

Inspection Report

Vessel No. ST-17

Customer Clean Harbors **Location** San Leon, TX **Date** 08/29/2018

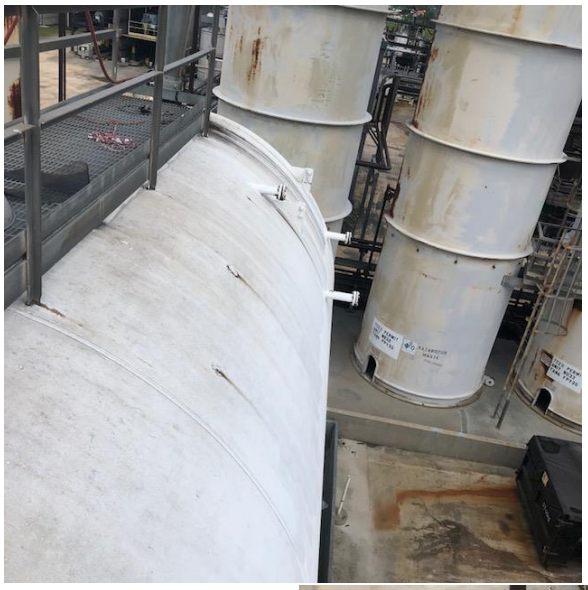
Photographs:

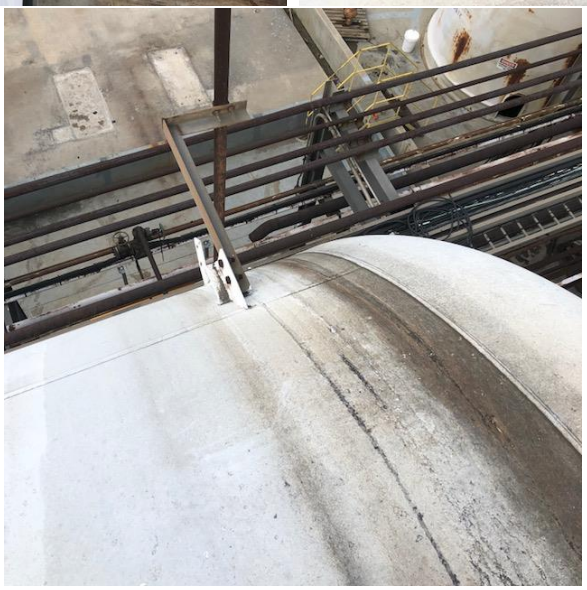
Inspection Report

Vessel No. ST-17

Customer	Clean Harbors	**Location**	San Leon, TX	**Date**	08/29/2018

Photographs:





WARRANTY

CleanHarbors Inspection Services, Inc. ("Company") has performed inspection services on equipment designated by Clean Harbors (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, express or implied, with regard to goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Inspection Services

Clean Harbors
2000 North Highway 146
La Porte, TX 77571
www.cleanharbors.com

API 510 Inspection Certification Statement
9/5/2018

Sam Gonzales under direct supervision of Taylor Sudol has performed an API 510 Out of Service inspection of ST-17. The vessel is located at the Clean Harbors Duratherm Facility in San Leon, Texas.

As determined by the condition found during the inspection of ST-17, the vessel appears to be in suitable condition for continued operations under normal operating parameters.

The services performed, documentation of inspection, identification of deterioration, and the generation of a report was performed within the generally accepted principles and practice of API 510, SNT-TC-1A and Clean Harbors' Inspection procedure.

Taylor Sudol

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096

Inspection Services

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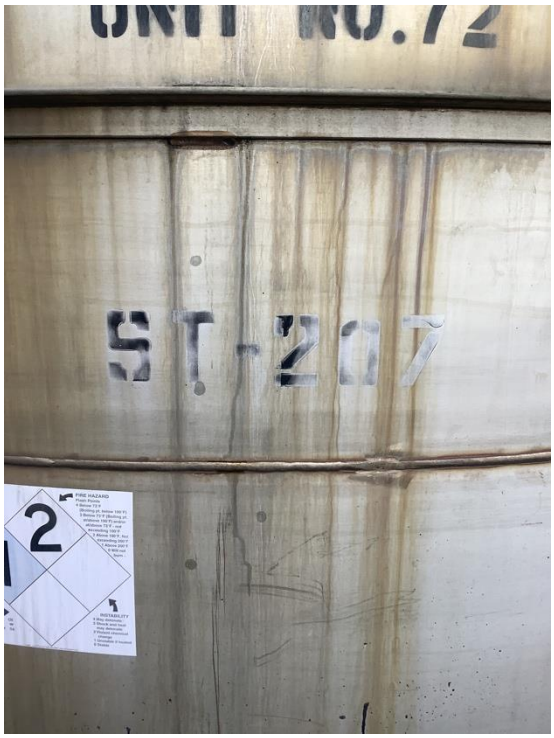
Clean Harbors ES

San Leon, Tx

STI Formal External Inspection

ST-207

Inspection Date: 2/7/2023



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Tank Data			
Design Standard:	API 650	Nominal Diameter:	13'
Build Date:	2017	Nominal Height:	20'
Manufactured By:	Certified Tk.	Material:	Stainless Steel
Orientation:	Vertical	Continuous Release Detection Method (CRDM):	Steel Diked
Release Prevention Barrier:	Double Bottom	Spill Control:	Dike/Berm

SUMMARY

Conclusion:

As determined by the condition found during the inspection of ST-207, the tank appears to be in good condition at the time of this inspection.

Recommendations:

No issues found at the time of inspection.

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Inspection Services

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EXTERNAL VISUAL INSPECTION					
Foundation	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Coating condition	☒	☐	☐	☐	
Concrete condition	☐	☐	☐	☒	
Containment / Dike walls	☒	☐	☐	☐	
Elastomeric Liner	☐	☐	☐	☒	
Site Drainage	☒	☐	☐	☐	
Equipment Support	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Base Support Type					Grade Material
Coating	☐	☐	☐	☒	
Concrete Pad	☐	☐	☐	☒	
Corrosion	☒	☐	☐	☐	
Fireproofing	☐	☐	☐	☒	
Outer Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Attachments	☒	☐	☐	☐	
Bottom Projection Plate	☒	☐	☐	☐	
Coating Condition	☐	☐	☐	☒	
Corrosion	☒	☐	☐	☐	
Deformation	☒	☐	☐	☐	
Insulation	☐	☐	☐	☒	
Insulation Support Bands	☐	☐	☐	☒	
Atmospheric Venting	☒	☐	☐	☐	
Overfill Protection	☒	☐	☐	☐	
Attached Piping	☒	☐	☐	☐	
Repair(s)	☐	☐	☐	☒	
Vegetation	☒	☐	☐	☐	
Weather Jacket	☐	☐	☐	☒	
Manways / Nozzles	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Bolting Condition	☒	☐	☐	☐	
Coating Condition	☐	☐	☐	☒	
Corrosion	☒	☐	☐	☐	
Flange Condition	☒	☐	☐	☐	
Reinforcement Pad Condition	☒	☐	☐	☐	

EXTERNAL VISUAL INSPECTION CONTINUED					
Roof	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Coating Condition	☐	☐	☐	☒	
Corrosion	☒	☐	☐	☐	
Insulation	☐	☐	☐	☒	
Proper Drainage	☒	☐	☐	☐	
Weather Jacket	☐	☐	☐	☒	
Roof Appurtenances	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Bolting Condition	☒	☐	☐	☐	
Condition of Hatch(s), Manway(s)	☒	☐	☐	☐	
Condition of Pressure/Vacuum Vent(s)	☐	☐	☒	☐	
Condition of Vent Screen(s)	☐	☐	☒	☐	
Emergency Venting	☐	☐	☒	☐	
Mixer / Agitator	☒	☐	☐	☐	
Normal Venting	☒	☐	☐	☐	
Appurtenances	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Anchors	☒	☐	☐	☐	
Gauges, Sight Glass (damage)	☐	☐	☐	☒	
Grounding (tightness & corrosion)	☒	☐	☐	☐	
Liquid Level Gauge	☒	☐	☐	☐	
Data Plate	☒	☐	☐	☐	

Thickness Data:

	0°	90°	180°	270°
First Course	0.312"	0.313"	0.311"	0.312"
	0.311"	0.313"	0.312"	0.311"
	0.313"	0.312"	0.312"	0.311"
Second Course	0.312"	0.312"	0.309"	0.312"
	0.312"	0.312"	0.311"	0.312"
	0.313"	0.312"	0.312"	0.312"
Third Course	0.310"	0.312"	0.313"	0.312"
	0.312"	0.311"	0.312"	0.312"
	0.311"	0.312"	0.312"	0.311"
Fourth Course	0.313"	0.313"	0.310"	0.313"
	0.310"	0.312"	0.311"	0.310"
	0.312"	0.312"	0.311"	0.313"

Course 1		**Course 2**	
Minimum	0.311"	Minimum	0.309"
Average	0.312"	Average	0.312"
Maximum	0.313"	Maximum	0.313"
Standard Deviation	0.001"	Standard Deviation	0.001"

Course 3		**Course 4**	
Minimum	0.310"	Minimum	0.310"
Average	0.312"	Average	0.312"
Maximum	0.313"	Maximum	0.313"
Standard Deviation	0.001"	Standard Deviation	0.001"

	0	**90**	**180**	**270**
Roof	0.312"	0.312"	0.311"	0.311"

Nozzles	**0**	**180**
Manway	0.504"	0.503"
2"	0.217"	0.215"
2"	0.213"	0.216"
4"	0.216"	0.217"
4"	0.215"	0.215"
4"	0.217"	0.217"

Photographs

Inspection Services

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Inspection Certification Certificate

Benjamin "Rocky" Cook under direct supervision of Taylor Sudol (Certified Inspector) has performed an API 653 In-Service Inspection of Tank# ST-207. The tank is located at the Clean Harbors ES facility in San Leon, Tx. As determined by the condition found during the inspection of tank# ST-207, the tank appears to be in suitable condition at the time of this inspection. Facility personnel should perform periodic inspections in accordance with API 653.

The services performed, documentation of inspection, identification of deterioration, and the generation of a report was performed within the generally accepted principles and practices of API 653 Tank Inspection, Repair, Alteration, and Reconstruction (current version), Clean Harbors' Written Practice and Inspection procedures.

Taylor Sudol
API 653# 56977

Inspection Services

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WARRANTY

Clean Harbors Inspection Services, USA. ("Company") has performed inspection services on equipment designated by Clean Harbors ES (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, express or implied, regarding goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Inspection Services

"People and Technology Creating a Better Environment"

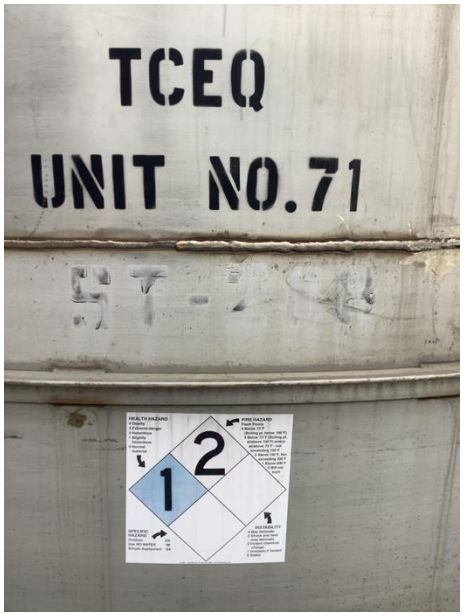
SITE NAME

San Leon, Tx

STI Formal External Inspection

ST-208

Inspection Date: 2/7/2023



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Tank Data			
Design Standard:	API 650	Nominal Diameter:	13'
Build Date:	2017	Nominal Height:	16'
Manufactured By:	Certified Tk.	Material:	Stainless Steel
Orientation:	Horizontal	Continuous Release Detection Method (CRDM):	Steel Diked
Release Prevention Barrier:	Double Bottom	Spill Control:	Dike/Berm

SUMMARY

Conclusion:

As determined by the condition found during the inspection of ST-208, the tank appears to be in good condition at the time of this inspection.

Recommendations:

No issues found at the time of inspection.

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Inspection Services

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EXTERNAL VISUAL INSPECTION					
Foundation	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Coating condition	☒	☐	☐	☐	
Concrete condition	☐	☐	☐	☒	
Containment / Dike walls	☒	☐	☐	☐	
Elastomeric Liner	☐	☐	☐	☒	
Site Drainage	☒	☐	☐	☐	
Equipment Support	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Base Support Type					Grade Material
Coating	☐	☐	☐	☒	
Concrete Pad	☐	☐	☐	☒	
Corrosion	☐	☐	☐	☒	
Fireproofing	☐	☐	☐	☒	
Outer Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Attachments	☒	☐	☐	☐	
Bottom Projection Plate	☒	☐	☐	☐	
Coating Condition	☐	☐	☐	☒	
Corrosion	☒	☐	☐	☐	
Deformation	☒	☐	☐	☐	
Insulation	☐	☐	☐	☒	
Insulation Support Bands	☐	☐	☐	☒	
Atmospheric Venting	☒	☐	☐	☐	
Overfill Protection	☐	☐	☒	☐	
Attached Piping	☒	☐	☐	☐	
Repair(s)	☐	☐	☐	☒	
Vegetation	☒	☐	☐	☐	
Weather Jacket	☐	☐	☐	☒	
Manways / Nozzles	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Bolting Condition	☒	☐	☐	☐	
Coating Condition	☐	☐	☐	☒	
Corrosion	☒	☐	☐	☐	
Flange Condition	☒	☐	☐	☐	
Reinforcement Pad Condition	☒	☐	☐	☐	

EXTERNAL VISUAL INSPECTION CONTINUED					
Roof	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Coating Condition	☐	☐	☐	☒	
Corrosion	☒	☐	☐	☐	
Insulation	☐	☐	☐	☒	
Proper Drainage	☒	☐	☐	☐	
Weather Jacket	☐	☐	☐	☒	
Roof Appurtenances	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Bolting Condition	☒	☐	☐	☐	
Condition of Hatch(s), Manway(s)	☒	☐	☐	☐	
Condition of Pressure/Vacuum Vent(s)	☐	☐	☒	☐	
Condition of Vent Screen(s)	☐	☐	☒	☐	
Emergency Venting	☐	☐	☒	☐	
Mixer / Agitator	☒	☐	☐	☐	
Normal Venting	☒	☐	☐	☐	
Appurtenances	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Anchors	☒	☐	☐	☐	
Gauges, Sight Glass (damage)	☐	☐	☐	☒	
Grounding (tightness & corrosion)	☒	☐	☐	☐	
Liquid Level Gauge	☒	☐	☐	☐	
Data Plate	☒	☐	☐	☐	

Thickness Data:

	0°	90°	180°	270°
First Course	0.313"	0.312"	0.311"	0.310"
	0.312"	0.312"	0.312"	0.311"
	0.312"	0.312"	0.312"	0.312"
Second Course	0.311"	0.312"	0.312"	0.310"
	0.311"	0.311"	0.312"	0.311"
	0.310"	0.311"	0.312"	0.310"
Third Course	0.313"	0.312"	0.313"	0.312"
	0.313"	0.313"	0.312"	0.312"
	0.313"	0.312"	0.312"	0.312"

Course 1		**Course 2**	
Minimum	0.310"	Minimum	0.310"
Average	0.312"	Average	0.311"
Maximum	0.313"	Maximum	0.312"
Standard Deviation	0.001"	Standard Deviation	0.001"

Course 3	
Minimum	0.312"
Average	0.312"
Maximum	0.313"
Standard Deviation	0.001"

	0	90	180	270
Roof	0.313"	0.313"	0.313"	0.312"

Nozzles	0	180
Manway	0.496"	0.498"
2"	0.215"	0.214"
2"	0.215"	0.215"
4"	0.215"	0.216"
4"	0.216"	0.216"
4"	0.213"	0.214"

Photographs

Inspection Services

"People and Technology Creating a Better Environment"

Inspection Certification Certificate

Benjamin "Rocky" Cook under direct supervision of Taylor Sudol (Certified Inspector) has performed an API 653 In-Service Inspection of ST-208. The tank is located at the Clean Harbors ES facility in San Leon, Tx. As determined by the condition found during the inspection of ST-208, the tank appears to be in suitable condition at the time of this inspection. Facility personnel should perform periodic inspections in accordance with API 653.

The services performed, documentation of inspection, identification of deterioration, and the generation of a report was performed within the generally accepted principles and practices of API 653 Tank Inspection, Repair, Alteration, and Reconstruction (current version), Clean Harbors' Written Practice and Inspection procedures.

Taylor Sudol
API 653# 56977

Inspection Services

"People and Technology Creating a Better Environment"

WARRANTY

Clean Harbors Inspection Services, USA. ("Company") has performed inspection services on equipment designated by Clean Harbors ES (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, express or implied, regarding goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Tank ST 211 Installation Engineer Certification

This is to certify that the following activity, tank installation relating to tank, ST-211, authorized or required by TCEQ permit 50355, has been completed, and that construction of said facility component has been performed in accordance with and in compliance with good engineering practices and the design and construction specifications of permit No. 50355.

Signed:

John W. Caldwell, PE

March 3, 2015

Tank ST-211 Compatibility

Clean Harbors San Leon, Inc. management and laboratory has reviewed the material s which will be stored in Tank ST-211 at Clean Harbors San Leon. The tank is designed and made of materials compatible with the material to be stored in tank ST-211.

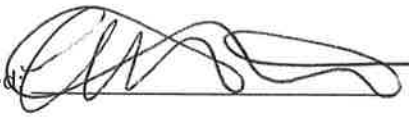
Signed _____ DATE: March 3, 2015

John W. Caldwell, PE

03/03/15

Tank ST-211 certification documents

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed:  Date: March 5, 2015

Tia Gottas-Hamman

General Manager Clean Harbors San Leon, Inc.

§264.192 Design and installation of new tank systems or components.

(a) Owners or operators of new tank systems or components must obtain and submit to the Regional Administrator, at time of submittal of part B information, a written assessment, reviewed and certified by a qualified Professional Engineer, in accordance with §270.11(d) of this chapter, attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. This assessment, which will be used by the Regional Administrator to review and approve or disapprove the acceptability of the tank system design, must include, at a minimum, the following information:

(1) Design standard(s) according to which tank(s) and/or the ancillary equipment are constructed;

Tank built to API 650 Standard Reference API report

(2) Hazardous characteristics of the waste(s) to be handled;

Information to be provided by facility

(3) For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of:

(i) Factors affecting the potential for corrosion, including but not limited to:

Tank is sitting on a steel plate inside a steel dike area Reference API report

(A) Soil moisture content; N/A

(B) Soil pH; N/A

(C) Soil sulfides level; N/A

(D) Soil resistivity; N/A

(E) Structure to soil potential; N/A

(F) Influence of nearby underground metal structures (e.g., piping); N/A

(G) Existence of stray electric current; N/A

(H) Existing corrosion-protection measures (e.g., coating, cathodic protection), and N/A

(ii) The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:

(A) Corrosion-resistant materials of construction such as special alloys, fiberglass reinforced plastic, etc.;
The tank material is Stainless Steel Reference API report

(B) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (e.g., impressed current or sacrificial anodes); and
N/A
(C) Electrical isolation devices such as insulating joints, flanges, etc.
N/A

[NOTE: The practices described in the National Association of Corrosion Engineers (NACE) standard, "Recommended Practice (RP-02-85)—Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and the American Petroleum Institute (API) Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used, where applicable, as guidelines in providing corrosion protection for tank systems.]

(4) For underground tank system components that are likely to be adversely affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and

N/A

(5) Design considerations to ensure that:

(i) Tank foundations will maintain the load of a full tank;

(ii) Tank systems will be anchored to prevent flotation or dislodgment where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of §264.18(a); and

(iii) Tank systems will withstand the effects of frost heave.

(b) The owner or operator of a new tank system must ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified, installation inspector or a qualified Professional Engineer, either of whom is trained and experienced in the proper installation of tanks systems or components, must inspect the system for the presence of any of the following items:

(1) Weld breaks;

(2) Punctures;

(3) Scrapes of protective coatings;

(4) Cracks;

(5) Corrosion;

(6) Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the tank system is covered, enclosed, or placed in use.

(c) New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.

(d) All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank system being covered, enclosed, or placed into use.

(e) Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

[NOTE: The piping system installation procedures described in American Petroleum Institute (API) Publication 1615 (November 1979), "Installation of Underground Petroleum Storage Systems," or ANSI Standard B31.3, "Petroleum Refinery Piping," and ANSI Standard B31.4 "Liquid Petroleum Transportation Piping System," may be used, where applicable, as guidelines for proper installation of piping systems.]

(f) The owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided under paragraph (a)(3) of this section, or other corrosion protection if the Regional Administrator believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation.

(g) The owner or operator must obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of paragraphs (b) through (f) of this section, that attest that the tank system was properly designed and installed and that repairs, pursuant to paragraphs (b) and (d) of this section, were performed. These written statements must also include the certification statement as required in §270.11(d) of this chapter.

Inspection Services

API 653 In Service External Inspection of Storage Tank

211

Inspection Date: February 17, 2015

CleanHarbors Inspection Services personnel
API 653 AST Inspector
Donald Savage
Certification Number: 37261

ASNT II Technician
Erick Jones

Reviewed By
Erick Jones

SUITABILITY FOR SERVICE

Tank 211 is suitable for service according to the applicable criteria.

Inspection Report

Tank No. 211

Customer Clean Harbors **Location** San Leon, TX **Date** 2/18/2015

Address 2700 Avenue S **City** San Leon **State** TX **Zip** 77539

Contact David Schaffer **Phone** 281.339.6431 **Cell** Cell No.

Tank Information:

Build Date 2013 **Manufacturer** Certified Tank & MFG. Co. **Design STD** API-650

Material Stainless Steel

Diameter: 12 **Ft.** 00 **In.**

Height: 15 **Ft.** 00 **In.**

Length: Ft. **Ft.** In. **In.**

Fill Ht.: 14 **Ft.** 00 **In.**

Capacity: 12,700

Product: HAZ Waste

Specific Gravity: 1.0

Heated: No

Max Temp: 200 F

Tank Description:

Tank Type: Vertical **Foundation:** Steel Plate **Roof:** Cone

Shell: Welded **Shell Courses:** 3 **Plates :** **Shell Coure:** 1 **Roof:** 2

Bottom: Welded ☐ **Double Bottom** ☐ **Leak Detection** **Date Installed:** 2014

Cathodic Protection: N/A **Date Installed:** N/A **Internal Coating:** Data Unavailable

Phone: 281.478.2600
Fax: 281.478.2693

802 Seaco Ct.
Deer Park, Texas 77536

CleanHarbors

Inspection Report

Tank No. 211

Customer Clean Harbors **Location** San Leon, TX **Date** 2/18/2015

Continuous Release Detection Method

- ☒ **Release Prevention Barrier (RPB)** **Type:** Dike/Berm
- ☐ **Double Wall Tank** **Checked:** Choose an item.
- ☐ **Double Bottom Vertical Tank** **Checked:** Choose an item.
- ☐ **Elevated Tank**
- ☐ **Other:** Choose an item.

Vents Quantity ☐ Unknown

Vent 1 Yes **Size:** Data Unavailable **Inches**
Manufacturer: Choose an item. **Model:** Choose an item. **Settings:** Choose an item.

Vent 2 None **Size:** Choose an item. **Inches**
Manufacturer: Choose an item. **Model:** Choose an item. **Settings:** Choose an item.

Vent 3 None **Size:** Choose an item. **Inches**
Manufacturer: N/A **Model:** N/A **Settings** N/A

FOUNDATION

Foundation Type: Steel plate **Condition:** Good **Notes:**

Horizontal Tanks: **Distance to Grade:** In. **Inches**
Saddles: **No.** No. **Width:** In. **Inches** **Distance Between Saddles (C toC)** Ft. **Feet**

- ☐ **Obvious settlement**
- ☐ **Discontinuous ringwall**
- ☐ **Broken concrete**
- ☐ **Exposed Rebar**
- ☐ **Grade sloped towards tank**
- ☐ **Grade against tanks**
- ☐ **Standing water against tank**
- ☐ **Void areas under tank**
- ☐ **Saddles**
- ☐ **No pad plates**
- ☐ **Pad plates not seal welded**
- ☐ **Saddle corrosion**

TANK EXTERIOR

Shell Type : Butt Welded

Phone: 281.478.2600
Fax: 281.478.2693

802 Seaco Ct.
Deer Park, Texas 77536

CleanHarbors

Inspection Report

Tank No. 211

Customer Clean Harbors **Location** San Leon, TX **Date** 2/18/2015

External Shell Coatings

Coating Condition: No coating

☐ Peeling ☐ Thin ☐ Cracking ☐ Stained ☐ Areas not coated

Insulation Type: None **Insulation Condition:** N/A

☐ Torn ☐ Holes ☐ Areas not insulated

External Shell Corrosion: None

☐ Active Corrosion ☐ Corrosion Damage ☐ Shell Corrosion

☐ Old Corrosion ☐ Bottom Extension Corrosion ☐ Holes

External Shell Welds: Good

☐ Pinholes/Porosity ☐ Cracks ☐ Corrosion ☐ Arc Strikes

☐ Lack of Fusion ☐ Slag ☐ Welds Plug Tested

External Shell Distortion and Buckling: None

Improper Construction Practices: None

☐ Square corner insert Plates ☐ No telltale holes ☐ Telltale holes plugged

☐ Weld Spacing not API STD ☐ Lap welded patches ☐ Unreinforced Penetrations

☐ Other _____

Grounding Cable: No grounding cable found

Level Gauge: Yes **Equipment Type:** Electronic

Roof Exterior

Phone: 281.478.2600
Fax: 281.478.2693

802 Seaco Ct.
Deer Park, Texas 77536

CleanHarbors

Inspection Report

Tank No. 211

Customer Clean Harbors **Location** San Leon, TX **Date** 2/18/2015

Condition of external roof: Choose Condition.

☐ Holes ☐ Areas that hold water ☐ Excessive waviness
☐ Active corrosion ☐ Corrosion damage

Roof Coating Condition: Choose Condition

☐ Peeling ☐ Cracking ☐ Thin ☐ Stained ☐ Insulated

Roof Thicknesses:

Roof thicknesses are taken where accessible.

Click here to enter text

Bottom External

Type of Bottom: Flat

Condition of external bottom: Inaccessible

Bottom Coating Condition: N/A

☐ Peeling ☐ Cracking ☐ Thin ☐ Stained ☐ Insulated

Bottom Thicknesses

Bottom thicknesses are taken where accessible.

Click here to enter text

Phone: 281.478.2600
Fax: 281.478.2693

802 Seaco Ct.
Deer Park, Texas 77536

CleanHarbors

Inspection Report

Tank No. 211

Customer Clean Harbors **Location** San Leon, TX **Date** 2/18/2015

Field Report Summary

Tank 211 is a brand new shop built tank built according to API 650. The Ultrasonic thickness readings ranged from 0.311"-0.312" satisfying the minimum required thickness for this type of tank. All shell attachments and appurtenances appeared to be in good condition at the time of this inspection. Plant personnel should continue to monitor the tank for any changes including but not limited to changes in the tank, leaks and the gauge is working properly to name a few.

CleanHarbors Inspections Services uses Certified API 653 inspectors and/or Qualified and Competent inspectors to perform these inspections. All reports are reviewed by a Certified API 653 inspector before they are finalized to ensure accuracy and the inspection meets all requirements and satisfy governing codes and local jurisdictions.

Recommendations

- **None**

Phone: 281.478.2600
Fax: 281.478.2693

802 Seaco Ct.
Deer Park, Texas 77536

CleanHarbors

Inspection Report

Tank No. 211

Customer Clean Harbors **Location** San Leon, TX **Date** 2/18/2015

Corrosion Rate and Next Inspection Interval

Nominal Shell Plate Thickness	**0.312**	**inch**
Lowest UT Reading Taken	**0.311**	**inch**
Minimum Remaining Thickness at Next Inspection	**0.100**	**inch**
Year of Inspection	**2/2015**	**Month/Year**
Year of Construction	**2013**	**Year**
Corrosion Rate	**0**	**inch/yr**
Interval to next inspection	**1**	**yr(s)**

Phone: 281.478.2600
Fax: 281.478.2693

802 Seaco Ct.
Deer Park, Texas 77536

WARRANTY

CleanHarbors Inspection Services, Inc. ("Company") has performed inspection services on equipment designated by SafetyKleen Systems (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, express or implied, with regard to goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Inspection Services

"People and Technology Creating a Better Environment"

Clean Harbors ES

San Leon, Tx

STI SP001 Formal Internal Inspection

ST-211

Inspection Date: 2/28/2020

Company Confidential

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Tank Data			
Construction Date:	2013	Design Temperature:	200 F
In-Service date:	2013	Operating Temperature:	Ambient
Manufacturer:	Certified Tank Mfg.	Bottom Material:	Stainless Steel
Manufacturer Serial Number:	92501	Annular Ring Material:	Stainless Steel
Design Standard:	No data Available	Shell Material:	Stainless Steel
Continuous Release Detection Method (CRDM):	RPB	Roof Material:	Stainless Steel
Release Prevention Barrier:	Concrete	Shell Diameter:	12'
Spill Control:	Dike/Berm	Tank Height:	15'
Product:	Waste Water	Specific Gravity:	No data Available
Tank Type:	Vertical	Capacity:	12,700
Type of Bottom:	Flat	Safe Fill Height	No Data Available
Tank Insulated:	No	CML's in Insulation:	N/A

SUMMARY

Conclusion:

As determined by the condition found during the inspection of tank# ST-211, the tank appears to be in suitable condition at the time of this inspection.

Recommendations:

Carbon Steel Bolts should be replaced with PTFE bolts.

Facility personnel should perform periodic inspections in accordance with STI SP001.

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Inspection Services

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EXTERNAL VISUAL INSPECTION

Foundation	General Condition			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating condition	☒	☐	☐	
Concrete condition	☒	☐	☐	
Containment / Dike walls	☒	☐	☐	
Elastomeric Liner	☐	☐	☒	
Site Drainage	☒	☐	☐	
Equipment Support	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating	☐	☐	☒	
Concrete Pad	☐	☐	☒	
Corrosion	☐	☐	☒	
Fireproofing	☐	☐	☒	
Outer Shell	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Attachments	☒	☐	☐	
Bottom Projection Plate	☒	☐	☐	
Coating Condition	☐	☐	☒	
Corrosion	☒	☐	☐	
Deformation	☒	☐	☐	
Insulation	☐	☐	☒	
Insulation Support Bands	☐	☐	☒	
Lifting Lugs	☐	☐	☒	
Atmospheric Venting	☒	☐	☐	
Overfill Protection	☐	☐	☒	
Attached Piping	☒	☐	☐	
Repair(s)	☐	☐	☒	
Weather Jacket	☐	☐	☒	
Manways / Nozzles	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Bolting Condition	☐	☒	☐	Carbon Steel bolts.
Coating Condition	☐	☐	☒	
Corrosion	☒	☐	☐	
Flange Condition	☒	☐	☐	
Insulation	☐	☐	☒	
Repad Condition	☐	☐	☒	
Weather Jacket	☐	☐	☒	

EXTERNAL VISUAL INSPECTION CONTINUED

Roof	General Condition			
Items	**Acc**	**Fin**	**N/A**	**Comments**
Coating Condition	☐	☐	☒	
Corrosion	☒	☐	☐	
Insulation	☐	☐	☒	
Proper Drainage	☐	☐	☒	
Weather Jacket	☐	☐	☒	
Roof Appurtenances	**General Condition**			
Items	**Acc**	**Fin**	**N/A**	**Comments**
Bolting Condition	☐	☒	☐	Carbon Steel Bolting
Condition of Hatch(s), Manway(s)	☒	☐	☐	
Condition of Pressure/Vacuum Vent(s)	☒	☐	☐	
Condition of Vent Screen(s)	☐	☐	☒	
Emergency Venting	☒	☐	☐	
Mixer / Agitator	☐	☐	☒	
Normal Venting	☐	☐	☒	
Appurtenances	**General Condition**			
Items	**Acc**	**Fin**	**N/A**	**Comments**
Anchors	☒	☐	☐	
Gauges, Sight Glass (damage)	☒	☐	☐	
Grounding (tightness & corrosion)	☒	☐	☐	
Liquid Level Gauge	☒	☐	☐	
Data Plate	☒	☐	☐	
Handrails	**General Condition**			
Items	**Acc**	**Fin**	**N/A**	**Comments**
Coating Condition	☒	☐	☐	
Corrosion	☒	☐	☐	
Safety Bar/Chain	☒	☐	☐	
Platform / Stairs / Ladders	**General Condition**			
Items	**Acc**	**Fin**	**N/A**	**Comments**
Bolting Condition	☒	☐	☐	
Cage Condition	☒	☐	☐	
Concrete Base Condition	☒	☐	☐	
Rung Condition	☒	☐	☐	
Stairway Tread Condition	☐	☐	☒	

Inspection Services

"People and Technology Creating a Better Environment"

INTERNAL VISUAL INSPECTION

Floor	General Condition			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Annular Ring	☐	☐	☒	
Cleanliness	☒	☐	☐	
Corrosion/Pitting	☒	☐	☐	
Liner	☐	☐	☒	
Magnetic Flux Leakage Exam	☐	☐	☒	
Repair(s)	☐	☐	☒	
Sump(s)	☐	☐	☒	
Vacuum Box Bubble Exam	☐	☐	☒	
Void(s), Low Spots	☐	☐	☒	
Floor to Shell Weld (MP)	☒	☐	☐	
Shell	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Cleanliness	☒	☐	☐	
Corrosion / Pitting	☒	☐	☐	
Liner	☐	☐	☒	
Roof	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Liner	☐	☐	☒	
Corrosion / Pitting	☒	☐	☐	
Nozzles, Man Ways and Attachments	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Baffles	☐	☐	☒	
Corrosion/Pitting	☒	☐	☐	
Downcomer(s)	☐	☐	☒	
Internal coils	☐	☐	☒	
Mixers, agitators	☐	☐	☒	
Thermowell(s)	☐	☐	☒	
Roof Support(s)	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Colum(s)	☐	☐	☒	
Restraining clip(s)	☐	☐	☒	
Reinforcing pads	☐	☐	☒	
Rafters	☐	☐	☒	

Inspection Services

"People and Technology Creating a Better Environment"

Thickness Data:

	0°	90°	180°	270°
First Course	0.268''	0.265''	0.265''	0.265''
	0.254''	0.259''	0.264''	0.264''
	0.262''	0.263''	0.260''	0.264''
Second Course	0.263''	0.265''	0.267''	0.264''
	0.265''	0.267''	0.266''	0.263''
	0.267''	0.263''	0.267''	0.265''
Third Course	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A

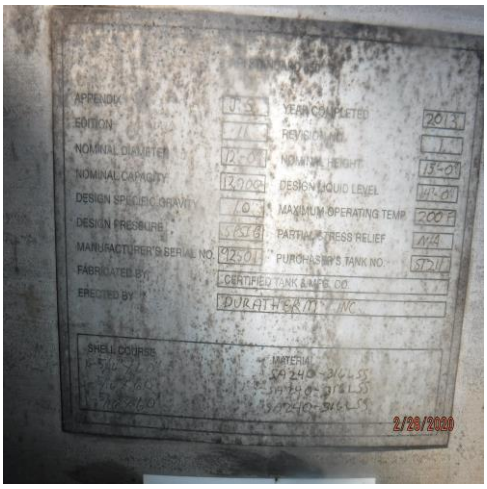
Course 1		Course 2	
Minimum	0.254''	Minimum	0.263''
Average	0.263''	Average	0.265''
Maximum	0.268''	Maximum	0.267''
Standard Deviation	0.004''	Standard Deviation	0.002''

Course 3	
Minimum	0.000''
Average	#DIV/0!
Maximum	0.000''
Standard Deviation	#DIV/0!

	Top
Manway	0.257''

	0°	90°	180°	270°
Roof	0.267''	0.265''	0.265''	0.266''

Photographs



Photographs

Photographs

Inspection Services

"People and Technology Creating a Better Environment"

Inspection Certification Certificate

Benjamin "Rocky" Cook under direct supervision of Taylor Sudol (Certified Inspector) has performed an API 653 Out of Service Inspection of Tank# ST-211. The tank is located at the Clean Harbors ES facility in San Leon. As determined by the condition found during the inspection of tank# ST-211, the tank appears to be in suitable condition at the time of this inspection.

The services performed, documentation of inspection, identification of deterioration, and the generation of a report was performed within the generally accepted principles and practices of STI SP001 6th Edition, and Clean Harbors' Written Practice and Inspection procedures.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment. My status as a Certified Inspector can be verified on the American Petroleum Institute and Steel Tank Institute websites at the below links.

Taylor Sudol
API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096
Designated Corporate Level III

API: http://inspectorsearch.api.org
STI: https://www.steeltank.com/SP001StandardFAQs/tabid/463/Default.aspx Within Question #9

Inspection Services

"People and Technology Creating a Better Environment"

WARRANTY

Clean Harbors Inspection Services, Inc. ("Company") has performed inspection services on equipment designated by Clean Harbors ES (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, express or implied, regarding goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Inspection Services

"People and Technology Creating a Better Environment"

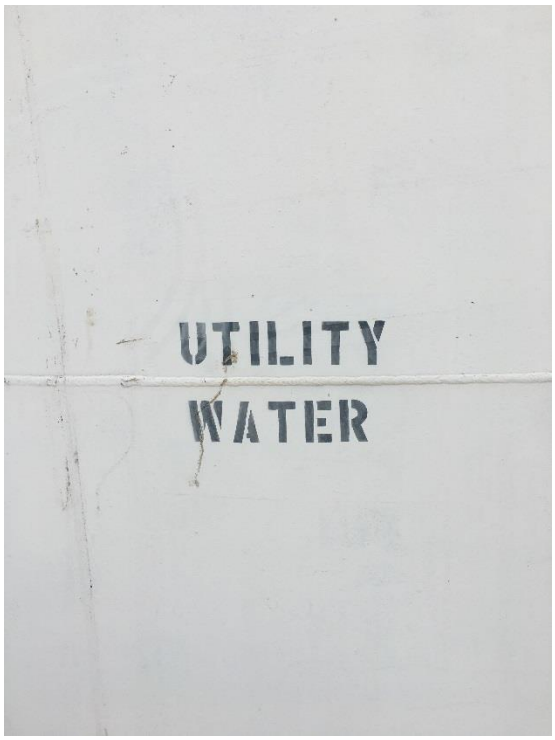
Duratherm

San Leon, Texas

API 653 In-Service Inspection of Tank

162

Inspection Date: 8-15-2018



Inspection Report **Tank No.** **162**

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Summary Report

Report Reviewed By:

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096

The utility water tank #162 appears to be in serviceable condition at the time of this inspection.

Tank Data			
Construction Date:	03-1987	Design Temperature:	Unknown
In-Service date:	unknown	Operating Temperature:	Ambient
Manufacturer:	Challenger Tank	Bottom Material:	CS
Manufacturer Serial Number:	4610	Annular Ring Material:	N/A
Design Standard:	API 12-F	Shell Material:	CS
Continuous Release Detection Method (CRDM):	None	Roof Material:	CS
Release Prevention Barrier:	Concrete	Shell Diameter:	12’
Spill Control:	Other	Tank Height:	20’
Type of Foundation:	Concrete	Max. Design Liquid Level:	Unknown
Tank Type:	Vertical	Product:	Water
Type of Bottom:	Flat	Specific Gravity:	1
Tank Insulated:	No	Capacity:	400 gallons
CML’s in Insulation:	No	Name Plate Condition:	Fair/Painted
No. of Shell Courses:	4	Plates per Shell Course:	2

Next External Inspection **5 year(s)**
Next Internal Inspection **As soon as practical**

Recommendations

- Plant personnel should continue to monitor the tank.

Inspection Report

Tank No. 162

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Corrosion Rate

Course	Year of Construction	Nominal Thickness (in.)	2018 Measured Thickness (in.)	Corrosion Rate (in./yr.)	Remaining Corrosion Allowance (in.)	Minimum Required API 653	Remaining Life (yrs.)
1	1987	0.187	0.178	0.0002	0.078	0.100	268.66
2	1987	0.187	0.174	0.0004	0.074	0.100	176.46
3	1987	0.187	0.176	0.0003	0.076	0.100	214.18
4	1987	0.187	0.181	0.0001	0.081	0.100	418.5

***The above calculations are based on the minimum measured thickness and previous inspection thicknesses. If there is no previous measured thickness then an assumed or nominal thickness is utilized to establish a corrosion rate. The assumed thickness is based upon industry standard thickness for rolled plate steel. Remaining life could not be determined on courses where the actual thickness was greater than or equal to the past thickness readings.**

***It should be noted that without established Condition Monitoring Location (CML) points, data collection locations may vary between inspections.**

CleanHarbors®

Inspection Report

Tank No. 162

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

EXTERNAL VISUAL INSPECTION				
Foundation	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Concrete condition (spalling, cracking)	☒	☐	☐	
Levelness	☒	☐	☐	
Coating Condition	☒	☐	☐	
Drain opening in ring	☒	☐	☐	
Signs of settlement around tank	☒	☐	☐	
Dike walls / Containment	☐	☐	☒	Not in a containment
Site drainage	☒	☐	☐	
Seal	☐	☐	☒	
Skirt	☐	☐	☒	
Fire proofing	☐	☐	☒	
Shell	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating condition	☒	☐	☐	
Corrosion / Pitting (describe)	☒	☐	☐	
Bulges/Blisters/Deformation	☒	☐	☐	
Weld condition	☒	☐	☐	
Repair(s)	☒	☐	☐	
Floor to shell weld	☒	☐	☐	
Bottom projection plate	☒	☐	☐	
Attachments (supports, brackets)	☐	☐	☒	
Insulation deterioration	☐	☐	☒	
Overflow vents / piping	☒	☐	☐	
UT measurements	☒	☐	☐	
Cathodic Protection	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Galvanized anode system	☐	☐	☒	
Impressed current system	☐	☐	☒	

CleanHarbors®

Inspection Report

Tank No. 162

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Manways & Nozzles	General Condition			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating condition	☒	☐	☐	
Corrosion, pitting (describe)	☒	☐	☐	
Weld condition	☒	☐	☐	
Flange condition	☒	☐	☐	
Bolting condition	☒	☐	☐	
Repad condition	☐	☐	☒	
Insulation deterioration	☐	☐	☒	
UT measurements	☒	☐	☐	
Roof	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating condition	☒	☐	☐	
Corrosion, pitting (describe)	☒	☐	☐	
Weld condition	☒	☐	☐	
Proper drainage	☒	☐	☐	
Insulation deterioration	☐	☐	☒	
UT measurements	☐	☐	☒	Not accessible
Roof Appurtenances	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Condition of hatch(s), manway(s)	☒	☐	☐	
Condition of pressure/vacuum vents	☐	☐	☒	
Condition of screens on vents	☐	☐	☒	
Normal venting	☒	☐	☐	
Emergency venting	☐	☐	☒	
Bolting condition	☒	☐	☐	
Mixer agitator	☐	☐	☒	
Insulation seal condition	☐	☐	☒	
Appurtenances	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Grounding (tightness & corrosion)	☒	☐	☐	
Gauges, Sight glass (damage)	☒	☐	☐	
Anchors	☒	☐	☐	
Handrails	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating condition	☐	☐	☒	No roof access
Corrosion, pitting (describe)	☐	☐	☒	
Attachment welds	☐	☐	☒	
Safety drop bar	☐	☐	☒	

Inspection Report

Tank No. 162

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Platforms /Stairs / Ladders	General Condition			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating condition	☐	☐	☒	
Corrosion, pitting (describe)	☐	☐	☒	
Attachment weld condition	☐	☐	☒	
Bolting condition	☐	☐	☒	
Cage condition	☐	☐	☒	
Rung condition	☐	☐	☒	
Stairway tread condition	☐	☐	☒	
Concrete base condition	☐	☐	☒	
Grating	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Coating condition	☐	☐	☒	
Thinning on grating bars	☐	☐	☒	
Condition of grating welds	☐	☐	☒	
Tie down clips	☐	☐	☒	
Miscellaneous	**General Condition**			
Item	**Acc**	**Fin**	**N/A**	**Comments**
Fire sprinkler system	☐	☐	☒	

Inspection Report

Tank No. 162

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Shell Thicknesses:

T-162	0°	90°	180°	270°
First Course	0.185''	0.181''	0.184''	0.181''
	0.182''	0.182''	0.183''	0.184''
	0.178''	0.183''	0.184''	0.182''
	0.186''	0.186''	0.178''	0.185''
Second Course	0.188''	0.181''	0.183''	0.181''
	0.180''	0.182''	0.179''	0.178''
	0.179''	0.180''	0.177''	0.184''
	0.177''	0.181''	0.179''	0.174''
Third Course	0.185''	0.186''	0.185''	0.184''
	0.186''	0.184''	0.186''	0.183''
	0.176''	0.185''	0.182''	0.181''
	0.185''	0.186''	0.185''	0.182''
Fourth Course	0.185''	0.181''	0.182''	0.187''
	0.185''	0.184''	0.183''	0.182''
	0.181''	0.183''	0.185''	0.186''
	0.184''	0.185''	0.186''	0.181''

Course 1		**Course 2**	
Minimum	0.178''	Minimum	0.174''
Average	0.183''	Average	0.180''
Maximum	0.186''	Maximum	0.188''
Standard Deviation	0.002''	Standard Deviation	0.003''

Course 3		**Course 4**	
Minimum	0.176''	Minimum	0.181''
Average	0.184''	Average	0.184''
Maximum	0.186''	Maximum	0.187''
Standard Deviation	0.003''	Standard Deviation	0.002''

Inspection Report

Tank No. 162

Customer	Clean Harbors	**Location**	San Leon, Texas	**Date**	8-15-2018

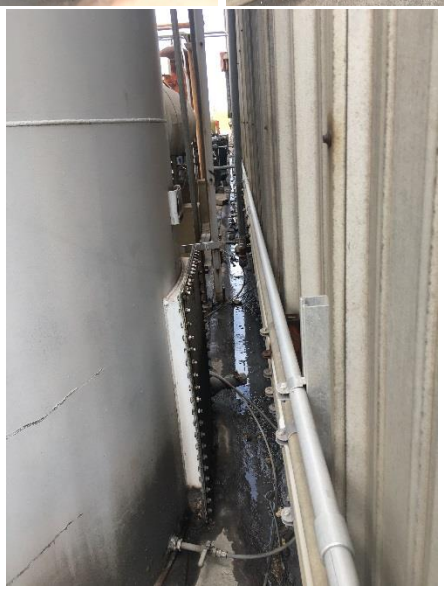
Photographs

Inspection Report

Tank No. 162

Customer	Clean Harbors	**Location**	San Leon, Texas	**Date**	8-15-2018

Photographs



WARRANTY

CleanHarbors Inspection Services, Inc. ("Company") has performed inspection services on equipment designated by Clean Harbors (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

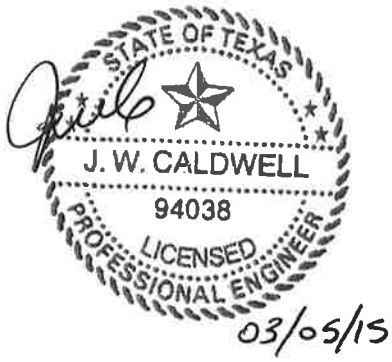
Company makes no warranty, express or implied, regarding goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

Tank T 200 Installation Engineer Certification

This is to certify that the following activity, tank installation relating to tank, T 200, authorized or required by TCEQ permit 50355, has been completed, and that construction of said facility component has been performed in accordance with and in compliance with good engineering practices and the design and construction specifications of permit No. 50355.

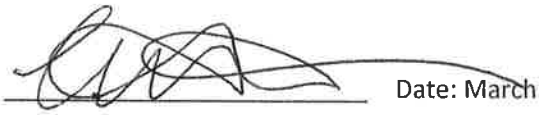
Signed:

John W. Caldwell, PE



Tank T 200 certification documents

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed:  Date: March 5, 2015

Tia Gottas-Hamman

General Manager Clean Harbors San Leon, Inc.

March 5, 2015

Tank ST-200 Compatibility

Clean Harbors San Leon, Inc. management and laboratory has reviewed the material s which will be stored in Tank T-200 at Clean Harbors San Leon. The tank is designed and made of materials compatible with the material to be stored in tank T-200.

Signed _____ DATE: March 5, 2015

John W. Caldwell, PE

§264.192 Design and installation of new tank systems or components.

(a) Owners or operators of new tank systems or components must obtain and submit to the Regional Administrator, at time of submittal of part B information, a written assessment, reviewed and certified by a qualified Professional Engineer, in accordance with §270.11(d) of this chapter, attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. This assessment, which will be used by the Regional Administrator to review and approve or disapprove the acceptability of the tank system design, must include, at a minimum, the following information:

(1) Design standard(s) according to which tank(s) and/or the ancillary equipment are constructed;

Tank built to ASME Standard

(2) Hazardous characteristics of the waste(s) to be handled;

Information to be provided by facility

(3) For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of:

(i) Factors affecting the potential for corrosion, including but not limited to:

Tank is anchored and suspended from the ground

(A) Soil moisture content; N/A

(B) Soil pH; N/A

(C) Soil sulfides level; N/A

(D) Soil resistivity; N/A

(E) Structure to soil potential; N/A

(F) Influence of nearby underground metal structures (e.g., piping); N/A

(G) Existence of stray electric current; N/A

(H) Existing corrosion-protection measures (e.g., coating, cathodic protection), and N/A

(ii) The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:

(A) Corrosion-resistant materials of construction such as special alloys, fiberglass reinforced plastic, etc.;
N/A

(B) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (e.g., impressed current or sacrificial anodes); and
The external surface of the vessel has been recoated per API report recommendations.
(C) Electrical isolation devices such as insulating joints, flanges, etc.
N/A

[NOTE: The practices described in the National Association of Corrosion Engineers (NACE) standard, "Recommended Practice (RP-02-85)—Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and the American Petroleum Institute (API) Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used, where applicable, as guidelines in providing corrosion protection for tank systems.]

(4) For underground tank system components that are likely to be adversely affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and

N/A

(5) Design considerations to ensure that:

(i) Tank foundations will maintain the load of a full tank;

(ii) Tank systems will be anchored to prevent flotation or dislodgment where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of §264.18(a); and

(iii) Tank systems will withstand the effects of frost heave.

(b) The owner or operator of a new tank system must ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified, installation inspector or a qualified Professional Engineer, either of whom is trained and experienced in the proper installation of tanks systems or components, must inspect the system for the presence of any of the following items:

(1) Weld breaks;

(2) Punctures;

(3) Scrapes of protective coatings;

(4) Cracks;

(5) Corrosion;

(6) Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the tank system is covered, enclosed, or placed in use.

(c) New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.

(d) All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank system being covered, enclosed, or placed into use.

(e) Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

[NOTE: The piping system installation procedures described in American Petroleum Institute (API) Publication 1615 (November 1979), "Installation of Underground Petroleum Storage Systems," or ANSI Standard B31.3, "Petroleum Refinery Piping," and ANSI Standard B31.4 "Liquid Petroleum Transportation Piping System," may be used, where applicable, as guidelines for proper installation of piping systems.]

(f) The owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided under paragraph (a)(3) of this section, or other corrosion protection if the Regional Administrator believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation.

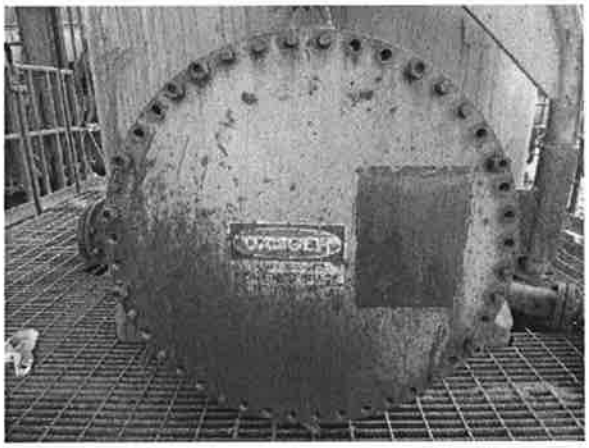
(g) The owner or operator must obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of paragraphs (b) through (f) of this section, that attest that the tank system was properly designed and installed and that repairs, pursuant to paragraphs (b) and (d) of this section, were performed. These written statements must also include the certification statement as required in §270.11(d) of this chapter.

Clean Harbors
802 Seaco Ct
Deer Park, TX 77536
281.478.2600
www.cleanharbors.com

Inspection Services

Location: **Duratherm San Leon, TX**
Inspection Type: **External API**
Vessel ID: **T-200**
Equipment Type: **Pressure Vessel**
Process Description: **Out of Service**
Inspection Date: **February 17, 2015**
Inspector of Record: **Donald Savage**
Headline: General API inspection to satisfy regulatory requirements

Summary: External visual inspection of T-200 was performed to identify defects that would prevent continued service. Ultrasonic thickness readings were obtained at the time of this inspection. There are no previous inspection reports to compare the UT data collected at the time of this inspection. There is coating failure on several areas of the vessel.



Shell External
All visible portions of the shell showed no signs of deterioration.

Head External
The heads had no visible deformation or pitting/corrosion that were noted on the surface at the time of this inspection.

Nozzles
The nozzles appeared to be in good condition at the time of this inspection.

Recommendations

1. **Clean, prep and coat all areas missing the protective coating.**

Repairs made

1. **The pressure vessel has been recoated per the recommendation.**

	North	South	East	West
Course 1	0.314	0.403	0.371	0.401
	0.364	0.387	0.368	0.394
	0.365	0.388	0.385	0.387
Course 2	0.375	0.386	0.384	0.390
	0.372	0.387	0.388	0.393
	0.378	0.389	0.386	0.387

Course 1		Course 2	
Minimum	0.314	Minimum	0.372
Average	0.377	Average	0.385
Maximum	0.403	Maximum	0.393
Standard Deviation	0.024	Standard Deviation	0.006

Bottom nozzles

	N1	N2	N3	N4
T	0.658	0.563	0.529	0.644
R	0.662	0.544	0.521	0.614
L	0.663	0.562	0.543	0.597
B	0.664	0.592	0.513	0.632

	N5		MW
T	0.455	T	0.546
R	0.440	N	0.473
L	0.416	B	0.525
B	0.439	S	0.545

Top Head Nozzles

	N1	N2	N3	N4
North	0.605	0.645	0.519	0.434
South	0.595	0.645	0.517	0.451
East	0.580	0.644	0.502	0.431
West	0.585	0.646	0.539	0.450

	N5	N6
North	0.565	0.511
South	0.569	0.532
East	0.575	0.514
West	0.567	0.538

Top Head	North	South	East	West
	0.477	0.520	0.518	0.516

Prepared by	Approved by	Date	Doc Rev.
Donald Savage Report Writer	Donald Savage API Inspector	2/18/2015	A

Inspection Services

"People and Technology Creating a Better Environment"

Clean Harbors ES

San Leon, TX

API 653 Internal Inspection

Fire Water

Inspection Date: 4/19/2022

Company Confidential

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Tank Data			
Design Standard:	API 650	Nominal Diameter:	34' 2"
Build Date:	No data available	Nominal Height:	20' 0"
Manufactured By:	No data available	Material:	Steel
Orientation:	Vertical	Continuous Release Detection Method (CRDM):	Not Present
Release Prevention Barrier:	Not Present	Spill Control:	Not Present

SUMMARY

Conclusion:

As determined by the condition found during the inspection of tank# fire water, the tank appears to be in poor condition at the time of this inspection.

Recommendations:

The fire water tank is not suitable for continued service and access to the roof is unsafe. The fire water tank should be taken out of service and repaired in accordance with API 653 code.

Areas with coating failure should be cleaned, properly prepped and re-coated.

Next External Inspection: Required after appropriate repairs are made and before continuing service.
Next Internal Inspection: Required after appropriate repairs are made and before continuing service.

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Corrosion Rate

Course	Year of Construction	Current Thickness (in.)	Corrosion Rate (in./yr.)
1	1992	0.259	N/A
2	1992	0.261	N/A

***The above calculations are based on the average measured thickness and previous inspection thicknesses. If there is no previous measured thickness, then an assumed or nominal thickness is utilized to establish a corrosion rate. The assumed thickness is based upon industry standard thickness for rolled plate steel. Remaining life could not be determined on courses where the actual thickness was greater than or equal to the past thickness readings.**

***It should be noted that without established Condition Monitoring Location (CML) points, data collection locations may vary between inspections.**

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Inspection Services

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EXTERNAL VISUAL INSPECTION					
Foundation	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Coating condition	☐	☐	☐	☒	
Concrete condition	☐	☐	☐	☒	
Containment / Dike walls	☐	☐	☐	☒	
Elastomeric Liner	☐	☐	☐	☒	
Site Drainage	☐	☐	☒	☐	
Equipment Support	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Base Support Type					Grade Material
Coating	☐	☐	☐	☒	
Concrete Pad	☐	☐	☐	☒	
Corrosion	☐	☐	☐	☒	
Fireproofing	☐	☐	☐	☒	
Outer Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Attachments	☐	☒	☐	☐	
Bottom Projection Plate	☐	☒	☐	☐	Chime corroded to the shell in locations.
Coating Condition	☐	☒	☐	☐	Coating Failure
Corrosion	☐	☒	☐	☐	Corrosion of the chime and damaged area (SR 2 west side) is showing signs of corrosion.
Deformation	☐	☒	☐	☐	Mechanical damage should be repaired in accordance with API 653. SR 2 located west on the tank.
Insulation	☐	☐	☐	☒	
Insulation Support Bands	☐	☐	☐	☒	
Lifting Lugs	☐	☐	☐	☒	
Atmospheric Venting	☐	☐	☒	☐	
Overfill Protection	☐	☒	☐	☐	Overflow cap/lid is corroded closed.
Attached Piping	☐	☐	☒	☐	Corroded, no more coating on attached piping at some locations.
Repair(s)	☐	☐	☐	☒	
Vegetation	☐	☒	☐	☐	Vegetation Under Tank Bottom
Weather Jacket	☐	☐	☐	☒	
Manways / Nozzles	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Bolting Condition	☐	☐	☒	☐	
Coating Condition	☐	☒	☐	☐	
Corrosion	☐	☒	☐	☐	
Flange Condition	☒	☐	☐	☐	
Reinforcement Pad Condition	☐	☒	☐	☐	Corrosion at the corner weld on the repad.

EXTERNAL VISUAL INSPECTION CONTINUED					
Roof	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Coating Condition	☐	☒	☐	☐	Coating Failure
Corrosion	☐	☒	☐	☐	Holes in the roof.
Insulation	☐	☐	☐	☒	
Proper Drainage	☐	☒	☐	☐	
Weather Jacket	☐	☐	☐	☒	
Roof Appurtenances	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Bolting Condition	☐	☐	☒	☐	Roof is not acceptable for access to visually inspect.
Condition of Hatch(s), Manway(s)	☐	☐	☒	☐	
Condition of Pressure/Vacuum Vent(s)	☐	☐	☒	☐	
Condition of Vent Screen(s)	☐	☐	☒	☐	
Emergency Venting	☐	☐	☒	☐	
Mixer / Agitator	☐	☐	☒	☐	
Normal Venting	☐	☐	☒	☐	
Appurtenances	**General Condition**				
Items	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Anchors	☐	☐	☐	☒	
Gauges, Sight Glass (damage)	☐	☐	☒	☐	
Grounding (tightness & corrosion)	☐	☐	☒	☐	
Liquid Level Gauge	☒	☐	☐	☐	Appears operational at inspection. Eye bolts should be replaced for proper anchorage.
Data Plate	☒	☐	☐	☐	

INTERNAL VISUAL INSPECTION					
Floor	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Annular Ring	☐	☐	☐	☒	
Cleanliness	☐	☐	☐	☐	
Corrosion/Pitting	☐	☒	☐	☐	Thru bottom pitting/ holes in the bottom
Liner	☐	☒	☐	☐	Liner is damaged/bad
Magnetic Flux Leakage Exam	☐	☐	☐	☒	
Repair(s)	☐	☐	☐	☒	
Sump(s)	☐	☐	☐	☒	
Vacuum Box Bubble Exam	☐	☐	☐	☒	
Void(s), Low Spots	☐	☐	☐	☒	
Floor to Shell Weld (MP only)	☐	☐	☐	☒	
Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Cleanliness	☒	☐	☐	☐	
Corrosion / Pitting	☐	☒	☐	☐	Minor corrosion to the ID shell at the HAZ. Access ladder should be removed, corroded thru and not acceptable for use.
Liner	☐	☒	☐	☐	Liner is damaged.
Roof	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Liner	☐	☐	☐	☒	
Corrosion / Pitting	☐	☐	☐	☒	Roof not accessible for close visual inspection.
Nozzles, Man Ways and Attachments	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Baffles	☐	☐	☐	☒	
Corrosion/Pitting	☐	☒	☐	☐	Top bracket of the overflow located at the south of the tank is corroded thru and should be removed/replaced.
Down comer(s)	☐	☐	☐	☒	
Internal coils	☐	☐	☐	☒	
Mixers, agitators	☐	☐	☐	☒	
Thermowell(s)	☐	☐	☐	☒	
Roof Support(s)	**General Condition**				
Item	**Acc**	**Fin**	**N/I**	**N/A**	**Comments**
Colum(s)	☐	☒	☐	☐	Column should be brought up to code.
Restraining clip(s)	☐	☐	☒	☐	
Reinforcing pads	☐	☐	☒	☐	
Rafters	☐	☐	☒	☐	

Thickness Data:

	0°	90°	180°	270°
First Course	0.261''	0.254''	0.261''	0.264''
	0.253''	0.258''	0.270''	0.269''
	0.256''	0.261''	0.263''	0.264''
Second Course	0.256''	0.262''	0.259''	0.257''
	0.263''	0.263''	0.263''	0.268''
	0.254''	0.255''	0.254''	0.259''

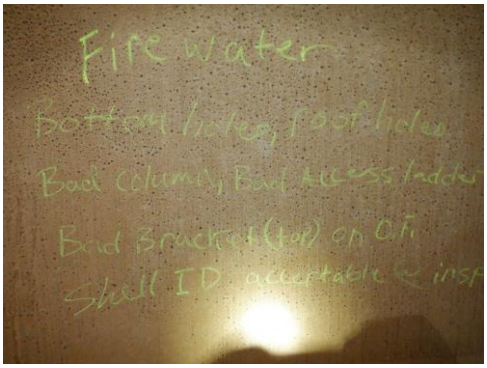
Walls		**Floor**	
Minimum	0.253''	Minimum	0.254''
Average	0.261''	Average	0.259''
Maximum	0.270''	Maximum	0.268''
Standard Deviation	0.005''	Standard Deviation	0.004''

	0°	90°	180°	270°
Roof	0.175''	0.183''	0.169''	0.174''

Nozzles	0°	180°
MW	0.512''	0.515''
6"	0.312	0.308''
8"	0.300	0.304
12"	0.375	0.376

Photographs

Photographs



Photographs

Photographs

Photographs

Inspection Services

"People and Technology Creating a Better Environment"

Inspection Certification Certificate

Clinton Dallas (Certified Inspector) has performed an API 653 Out of Service Inspection of Tank# Fire Water. The tank is located at the Clean Harbors ES facility in San Leon, TX. As determined by the condition found during the inspection of tank# Fire Water, the tank appears to be in suitable condition at the time of this inspection. Facility personnel should perform periodic inspections in accordance with API 653.

The services performed, documentation of inspection, identification of deterioration, and the generation of a report was performed within the generally accepted principles and practices of API 653 Tank Inspection, Repair, Alteration, and Reconstruction (current version), Clean Harbors' Written Practice and Inspection procedures.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment.

Clinton Dallas
API 653# 74510

Inspection Services

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WARRANTY

Clean Harbors Inspection Services, USA. ("Company") has performed inspection services on equipment designated by Clean Harbors ES (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, express or implied, regarding goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

AMERICAN PETROLEUM INSTITUTE
Individual Certification Programs: ICP™

API Individual Certification Programs

verifies that

Clinton Dallas

has met the requirements for API certification

API-653 Aboveground Storage Tank Inspector

Certification Number *74510*

Original Certification Date *August 31, 2017*

Current Certification Date *August 31, 2020*

Expiration Date *August 31, 2023*

Manager, Individual Certification Programs

ICP

2019-297 | 25M | Printed in the USA |

Inspection Services

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Duratherm

San Leon, Texas

API 653 In Service Inspection of Tank

261

Inspection Date: 8-15-2018

Inspection Report **Tank No. 261**

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Summary Report

Report Reviewed By:

API 510# 61515
API 570# 71792
API 653# 56977
STI SP001# AC44096

Note: The Fire water tank #261 appears to be in serviceable condition at the time of this inspection.

Tank Data			
Construction Date:	1984	Design Temperature:	Unknown
In-Service date:	1992	Operating Temperature:	Ambient
Manufacturer:	Tank Builders	Bottom Material:	CS
Manufacturer Serial Number:	Unknown	Annular Ring Material:	No
Design Standard:	AWWA	Shell Material:	CS
Continuous Release Detection Method (CRDM):	None	Roof Material:	CS
Release Prevention Barrier:	None	Shell Diameter:	34’-2’’
Spill Control:	None	Tank Height:	20’-2’’
Type of Foundation:	Grade	Max. Design Liquid Level:	20’ 2”
Tank Type:	Vertical	Product:	Water
Type of Bottom:	Flat	Specific Gravity:	1
Tank Insulated:	No	Capacity:	3,000 BBLS
CML’s in Insulation:	N/A	Name Plate Condition:	Good
No. of Shell Courses:	2	Plates per Shell Course:	2

Next External Inspection **5 year(s)**

Recommendations

- **The through wall corrosion on the roof should be repaired.**
- **Plant personnel should continue to monitor the tank.**

Inspection Report

Tank No. 261

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Corrosion Rate

Course	Year of Construction	Assumed Thickness (in.)	2018 Measured Thickness (in.)	Corrosion Rate (in./yr.)	Remaining Corrosion Allowance (in.)	Minimum Required API 653	Remaining Life (yrs.)
1	1984	0.3125	0.260	0.0015	0.160	0.100	103.61
2	1984	0.3125	0.264	0.0014	0.164	0.100	114.96

***The above calculations are based on the minimum measured thickness and previous inspection thicknesses. If there is no previous measured thickness then an assumed or nominal thickness is utilized to establish a corrosion rate. The assumed thickness is based upon industry standard thickness for rolled plate steel. Remaining life could not be determined on courses where the actual thickness was greater than or equal to the past thickness readings.**

***It should be noted that without established Condition Monitoring Location (CML) points, data collection locations may vary between inspections.**

Inspection Report

Tank No. 261

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

EXTERNAL VISUAL INSPECTION					
Foundation	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Concrete condition (spalling, cracking)	☐	☐	☒	☐	
Levelness	☐	☐	☒	☐	
Coating Condition	☐	☐	☒	☐	
Drain opening in ring	☐	☐	☒	☐	
Signs of settlement around tank	☐	☒	☐	☐	
Dike walls / Containment	☐	☐	☒	☐	
Site drainage	☐	☒	☐	☐	
Seal	☐	☐	☐	☐	
Skirt	☐	☐	☒	☐	
Fire proofing	☐	☐	☒	☐	
Shell	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating condition	☐	☒	☐	☐	Moderate coating failure
Corrosion / Pitting (describe)	☒	☐	☐	☐	
Bulges/Blisters/Deformation	☐	☒	☐	☐	Coating blistering
Weld condition	☒	☐	☐	☐	
Repair(s)	☒	☐	☐	☐	
Floor to shell weld	☒	☐	☐	☐	
Bottom projection plate	☐	☒	☐	☐	Vegetation present
Attachments (supports, brackets)	☐	☐	☒	☐	
Insulation deterioration	☐	☐	☒	☐	
Overflow vents / piping	☐	☐	☒	☐	
UT measurements	☒	☐	☐	☐	
Cathodic Protection	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Galvanized anode system	☐	☐	☒	☐	
Impressed current system	☐	☐	☒	☐	

Acc= Acceptable. FIN=Findings. N/A Not Applicable, NI=Not Inspected

CleanHarbors®

Inspection Report

Tank No. 261

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Manways & Nozzles	General Condition				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating condition	☒	☐	☐	☐	
Corrosion, pitting (describe)	☒	☐	☐	☐	
Weld condition	☒	☐	☐	☐	
Flange condition	☒	☐	☐	☐	
Bolting condition	☐	☒	☐	☐	Bolting is mismatched
Repad condition	☒	☐	☐	☐	
Insulation deterioration	☐	☐	☒	☐	
UT measurements	☐	☐	☒	☐	
Roof	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating condition	☐	☒	☐	☐	Moderate coating failure
Corrosion, pitting (describe)	☐	☒	☐	☐	Through wall corrosion
Weld condition	☒	☐	☐	☐	
Proper drainage	☐	☒	☐	☐	Sagging areas
Insulation deterioration	☐	☐	☒	☐	
UT measurements	☒	☐	☐	☐	
Roof Appurtenances	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Condition of hatch(s), manway(s)	☐	☒	☐	☐	Severe flash rust
Condition of pressure/vacuum vents	☐	☐	☒	☐	
Condition of screens on vents	☐	☐	☒	☐	
Normal venting	☐	☐	☒	☐	
Emergency venting	☐	☐	☒	☐	
Bolting condition	☒	☐	☐	☐	
Mixer agitator	☐	☐	☒	☐	
Insulation seal condition	☐	☐	☒	☐	
Appurtenances					**General Condition**
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Grounding (tightness & corrosion)	☒	☐	☐	☐	
Gauges, Sight glass (damage)	☐	☒	☐	☐	
Anchors	☐	☒	☐	☐	No signs of anchors
Handrails	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating condition	☒	☐	☐	☐	
Corrosion, pitting (describe)	☒	☐	☐	☐	
Attachment welds	☒	☐	☐	☐	
Safety drop bar	☐	☐	☐	☐	

Acc= Acceptable. FIN=Findings. N/A Not Applicable, NI=Not Inspected

Inspection Report

Tank No. 261

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Platforms /Stairs / Ladders	General Condition				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating condition	☒	☐	☐	☐	
Corrosion, pitting (describe)	☒	☐	☐	☐	
Attachment weld condition	☒	☐	☐	☐	
Bolting condition	☒	☐	☐	☐	Welded to tank
Cage condition	☐	☐	☒	☐	
Rung condition	☐	☐	☒	☐	
Stairway tread condition	☒	☐	☐	☐	
Concrete base condition	☐	☐	☒	☐	
Grating	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Coating condition	☐	☐	☒	☐	
Thinning on grating bars	☐	☐	☒	☐	
Condition of grating welds	☐	☐	☒	☐	
Tie down clips	☐	☐	☒	☐	
Miscellaneous	**General Condition**				
Item	**Acc**	**Fin**	**N/A**	**NI**	**Comments**
Fire sprinkler system	☐	☐	☒	☐	

Acc= Acceptable. FIN=Findings. N/A Not Applicable, NI=Not Inspected

Inspection Report

Tank No. 261

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Shell Thicknesses:

T-261	0°	90°	180°	270°
First Course	0.260''	0.273''	0.280''	0.270''
	0.265''	0.279''	0.284''	0.272''
	0.268''	0.281''	0.287''	0.274''
	0.271''	0.282''	0.284''	0.279''
	0.265''	0.279''	0.281''	0.278''
	0.262''	0.274''	0.283''	0.276''
Second Course	0.265''	0.278''	0.276''	0.274''
	0.277''	0.280''	0.265''	0.277''
	0.279''	0.286''	0.264''	0.279''
	0.282''	0.288''	0.269''	0.278''
	0.281''	0.284''	0.272''	0.274''
	0.275''	0.290''	0.276''	0.269''

Course 1		Course 2	
Minimum	0.260''	Minimum	0.264''
Average	0.276''	Average	0.276''
Maximum	0.287''	Maximum	0.288''
Standard Deviation	0.008''	Standard Deviation	0.007''

Inspection Report

Tank No. 261

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Roof Thickness:

Tank: T-261

Location	12	3	6	9
Re-Pad	0.255''	0.255''	0.255''	0.254''

Tank: T-261 Roof

(shots from E to W Starting with point A)

Location	Shot 1	Shot 2	Shot 3	Shot 4	Shot 5	Shot 6
A	0.181''	0.178''	0.181''	0.179''	0.179''	0.176''
B	0.180''	0.178''	0.178''	0.178''	0.181''	0.179''
C	0.174''	0.172''	0.179''	0.198''	0.172''	0.174''
D	0.189''	0.187''	0.179''	0.186''	0.187''	0.205''
E	0.193''	0.200''	0.177''	0.180''	0.178''	0.176''
F	0.174''	0.176''	0.173''	0.180''		
G	0.177''	0.159''	0.177''	0.179''		
H	0.178''	0.176''	0.178''	0.176''		
Manway	**12**	**3**	**6**	**9**		
	0.373''	0.355''	0.354''	0.375''		

Inspection Report

Tank No. 261

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Photographs

Acc= Acceptable. FIN=Findings. N/A Not Applicable, NI=Not Inspected

Inspection Report

Tank No. 261

Customer Clean Harbors **Location** San Leon, Texas **Date** 8-15-2018

Photographs

WARRANTY

CleanHarbors Inspection Services, Inc. ("Company") has performed inspection services on equipment designated by Clean Harbors (owner/operator) and has evaluated its condition based on observations and measurements made by Company's inspectors. While our evaluation accurately describes the condition of the equipment at the time of inspection, the owner/operator must independently assess the inspection information/report provided by Company and any conclusions reached by owner/operator and any action taken or omitted to be taken are the sole responsibility of the owner/operator. With respect to inspection and testing, Company warrants only that the services have been performed in accordance with accepted industry practice. If any such services fail to meet the foregoing warranty, Company shall re-perform the service to the same extent and on the same conditions as the original service.

Company makes no warranty, express or implied, regarding goods or services provided by Company other than those warranties set forth herein. The preceding paragraph sets forth the exclusive remedy for claims based on failure or of defect in materials or services, whether such claim is made in contract or tort (including negligence) and however instituted, and, upon expiration of the warranty period, all such liability shall terminate. The foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY, nor shall Company be liable for any loss or damage whatsoever by reason of its failure to discover, report, repair or modify latent defects or defects inherent in the design of any equipment inspected. In no event, whether a result of breach of contract, warranty or tort (including negligence) shall Company be liable for any consequential or incidental damages including, but not limited to, loss of profit or revenues, loss of use of equipment tested or services by Company or any associated damage to facilities, down-time costs or claims of other damages.

THERMAL DESORBER
TRIAL BURN PLAN
CLEAN HARBORS SAN LEON, INC.

PREPARED FOR:

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
CLEAN HARBORS SAN LEON, INC. (CHSL)
2700 AVENUE S
SAN LEON, TX 77539

REVISION: 0
MAY 2025
FOCUS PROJECT NO. P-001617

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Appendix A Quality Assurance Project Plan

1.0 INTRODUCTION

1.1 GENERAL

Clean Harbors San Leon, Inc. (CHSL) operates a recycling facility located in San Leon, Galveston County, Texas. This facility receives mostly reusable/recyclable solid media from the petroleum and chemical industry. These materials are treated via thermal desorption to separate the solids and liquids. Vaporized liquids in the thermal desorber offgas are condensed and recovered. The recovered liquid may be further processed to remove solids. The recovered oil may be returned to the generator for reintroduction into the refining or chemical process. Alternatively, the recovered oil (subject to not exceeding used oil specifications) and solids removed may be sold as fuel materials, or may be disposed of at an applicably permitted facility. The offgas from the oil recovery process, along with vapors from the oil storage tanks and truck loading operations, are directed to an on-site thermal oxidizer. Treated solids from thermal desorber are returned to the customer for reuse or sent to others for additional treatment/recycling/reuse. Thermally treated solids that cannot be recycled or reused are shipped off-site for disposal at an applicably permitted facility.

Some materials received and treated are classified as hazardous waste under the Resource Conservation and Recovery Act (RCRA). Therefore, the thermal desorber system is regulated by the Texas Commission on Environmental Quality (TCEQ) as a RCRA 40 CFR 264, Subpart X Miscellaneous Unit. This test plan is designed to demonstrate thermal desorber system compliance with the emissions standards deemed by TCEQ to be necessary to protect human health and the environment when treating RCRA-regulated materials.

1.2 SYSTEM CONFIGURATION

The thermal desorber consists of a steel drum which rotates inside of an outer furnace. Solid feed materials are indirectly heated via hot gas circulated in the annular space between the outside of the thermal desorber drum and the inside of the furnace. The treated solids are conveyed to a roll-off box. Nitrogen is used as a sweep gas through the thermal desorber. The organic vapor laden offgas from the thermal desorber is directed to an oil condenser which uses a recirculating oil stream to condense and remove organic vapors and particulate materials from the gas phase. The gas exiting the oil condenser contains light hydrocarbons and water vapor. This exit gas stream is routed to a thermal oxidizer to destroy the remaining hydrocarbons before the gas is discharged to the atmosphere. Nitrogen is used as the carrier gas to maintain the thermal desorber offgas oxygen content low (<5%) at all points in the process to prevent conflagrations.

1.3 TEST OPERATING PROTOCOL

The test is planned as a single operating condition. Sampling and analyses will be performed to demonstrate the thermal desorber offgas emissions discharged to atmosphere via the thermal oxidizer

comply with the emissions standards summarized in Table 1-1 from 40 CFR 63.1219(a) deemed by TCEQ to be necessary to protect human health and the environment.

1.4 ANTICIPATED OPERATING LIMITS

CHSL anticipates the following thermal desorber operating limits will be established based on the test-demonstrated operation:

- Maximum total mercury feed rate
- Maximum total semivolatile metals [SVM, cadmium (Cd) + lead (Pb)] feed rate]
- Maximum total low volatile metals [LVM, arsenic (As) + beryllium (Be) + chromium (Cr)] feed rate
- Maximum total chlorine feed rate
- Minimum thermal oxidizer temperature.

1.5 TEST PLAN ORGANIZATION

This test plan is prepared in a chapter format. The major sections of the test plan are as follows:

- Section 1.0 - Introduction
- Section 2.0 - Engineering Description
- Section 3.0 - Feed and Treated Materials Descriptions
- Section 4.0 - Test Design and Protocol
- Section 5.0 - Sampling, Analysis, and Monitoring Procedures
- Section 6.0 - Test Schedule
- Section 7.0 - Permitted Operating Objectives
- Section 8.0 - Test Report.

1.6 REFERENCE DOCUMENTS

Reference documents which have been used in developing this test plan include the following:

- National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors, 40 CFR 63 Subpart EEE, October 12, 2005.
- EPA, “Guidance on Setting Permit Conditions and Reporting Trial Burn Results”, Volume II of the Hazardous Waste Guidance Series”, EPA/625/6-89/019, January 1989.
- Quality Assurance/Quality Control (QA/QC) Procedures for Hazardous Waste Incineration, EPA/625/6-89/023, January 1990.
- American Society for Testing and Materials, "Annual Book of ASTM Standards”, latest annual edition.
- EPA, "New Source Performance Standards, Test Methods and Procedures,” Appendix A, 40 CFR 60.
- EPA, "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods (SW-846)”, Third Edition, 1986 and updates (December 1997).

- Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (QAMS-005/80).

Table 1-1. Thermal Oxidizer Emissions Standards

Emissions	Standard	Rule Citation
Dioxin/furan	0.40 ng TEQ/dscm @ 7% O_2	63.1219(a)(1)(i)(B)
Mercury (Hg)	130 ug/dscm @ 7% O_2	63.1219(a)(2)
Semi-volatile metals (SVM) (cadmium and lead)	230 ug/dscm @ 7% O_2	63.1219(a)(3)
Low volatile metals (LVM) (arsenic, beryllium, chromium)	92 ug/dscm @ 7% O_2	63.1219(a)(4)
Carbon monoxide (CO)	100 ppmdv @ 7% O_2 HRA	63.1219(a)(5)(i)
Total hydrocarbon (THC)	10 ppmdv @ 7% O_2 HRA	63.1219(a)(5)(ii)
Hydrogen chloride (HCl) and chlorine (Cl_2)	32 ppmdv @ 7% O_2	63.1219(a)(6)
Particulate matter (PM)	29 mg/dscm @ 7% O_2 (0.013 grains/dscf @ 7% O_2)	63.1219(a)(7)

2.0 ENGINEERING DESCRIPTION

2.1 THERMAL DESORBER

A process flow schematic of the Unit 1 thermal desorption system is presented as Figure 2-1.

The thermal desorber system consists of a steel drum which rotates inside of an outer furnace. Thermal desorber feed materials are indirectly heated (~500-1,350°F) via hot gas circulated in the annular space between outside of the thermal desorber drum and the inside of the furnace. This gas is circulated by a blower which forces the gas through a burner box. The burner box is equipped with four (4) natural gas fired burners.

2.2 SOLIDS FEED SYSTEM

The solid feed is transferred into the thermal desorber by a screw conveyor system. The solids feed system is a feed hopper with a hydraulically driven variable speed screw (live bottom) conveyors. The screw conveyors ensure continuous movement of solid material and a uniform feed rate. The solids feed rate is controlled by adjusting the speed of the screws and a knife gate valve at the feed inlet. The variable speed conveyors discharge to the inlet screw conveyor. The inlet screw conveyor feeds the solids into the thermal desorber.

The solid feed is loaded to feed the hopper by three methods: 1) directly placed in the feed hopper using a long reach forklift retrofitted with a front-end loader bucket or an industrial truck and hydraulic shovel or clamshell, 2) transferred via a hopper conveyor system, or 3) from the pretreatment process via an enclosed conveyor. A head of material is always maintained in the feed hopper to minimize air infiltration and prevent high oxygen content gas conditions from developing inside the thermal desorption system where a conflagration could occur. Air leakage through the feed hopper is monitored using an oxygen monitor at the inlet of the downstream oil condenser.

2.3 TREATED SOLIDS MANAGEMENT

Treated solids are discharged from the thermal desorber drum and pass over a thermocouple to monitor the solids discharge temperature. The treated solids are conveyed to a roll-off box. Two roll-off boxes are used which are fed by a reversing screw which can feed either of the two boxes. This allows one box to be changed out while the other box is on-line. These solids are generally returned to the customer for reuse or sent to others for additional treatment/recycling/reuse. Treated materials that cannot be recycled or reused are shipped off-site for disposal at an applicably permitted facility.

2.4 OIL CONDENSER

The offgas from the thermal desorber drum (~650°F) flows to an oil condenser which uses a recirculating oil stream to condense/recover organic compounds and remove entrained particulate material from the gas

phase. The gas temperature at the exit of the oil condenser is controlled (~230-260°F) to minimize condensing of lighter molecular weight, low flash point hydrocarbons and moisture which can form an emulsion in the condensed/recovered oil. The condensed/recovered oil from the condenser is:

- Routed directly to an oil storage tank, or
- Routed through a centrifuge to separate solids and then to an oil storage tank.

The recovered oil may be returned to the generator for reintroduction into the refining or chemical process. Alternatively, the recovered oil (subject to not exceeding used oil specifications) and solids removed may be sold as fuel materials, or may be disposed of at an applicably permitted facility. The sludge from the centrifuge may be further processed through a plate and frame filter press to remove solids. The separated oil is routed to an oil storage tank. The filter press solids may be used as fuel (typically cement kiln fuel) or disposed of at an applicably permitted facility.

2.5 OFFGAS TREATMENT

The gas exiting the oil condenser contains light hydrocarbons and water vapor. The gas stream is normally directly routed to a thermal oxidizer to destroy the hydrocarbons before the gas is discharged to the atmosphere. There are no additional offgas treatment devices.

Alternatively, gas exiting the oil condenser can be routed to either of two condensing systems: 1) an air-to-air heat exchanger (fin-tube) heat exchanger, or 2) direct contact water condenser. The condensed oil/water stream is an emulsion that requires additional treatment. The condensate stream from either of these two devices (if used), also containing condensed moisture, has a low flash point (<100^{o}F), is sent to an oil/water separator. The offgas from either of these devices is routed to the thermal oxidizer. Neither of these condensing systems is routinely or currently used.

2.6 THERMAL OXIDIZER

Process gas exiting the oil condenser (or either of the condensing systems, if used) is treated by a thermal oxidizer typically operating at an exit gas temperature of 1,500-1,550°F. Treating the gas through the thermal oxidizer eliminates the light molecular weight, low flash point organics.

2.7 INERTING SYSTEM

Thermal desorber offgas oxygen content is measured at the entrance to the oil condenser and the entrance to the thermal oxidizer. For gas that comes into direct contact with solid feed materials, the oxygen content is maintained at <5% at all points in the process to prevent conflagrations. The thermal desorber system is equipped with a nitrogen purge (sweep gas) system to maintain the low oxygen concentration in the drum and offgas.

2.8 PROCESS CONTROL SYSTEM

The thermal desorber system is controlled by a programmable logic controller (PLC) system. The key parameters that are monitored include gas temperatures, thermal desorber solids temperatures, thermal desorber pressure, and offgas gas oxygen content. The thermal desorber operation is controlled by:

- Solids feed rate
- Drum rotation speed
- Temperature via heater burner firing rate and damper valves in the hot gas recirculation system to control the temperature differential along the length of the drum
- Level controllers on the oil condenser vessel, accumulator, and demister vessel.

2.9 EMERGENCY SHUTDOWN SYSTEM

The Emergency Shutdown System (ESS) is designed to shutdown the thermal desorber system in a critical emergency situation. The ESS is activated by pressing one of several large red buttons labeled "Emergency Shutdown". ESS buttons are located in the thermal desorber control room, at the truck loading area, in the tank farm, and at the perimeter to the thermal desorber unit area.

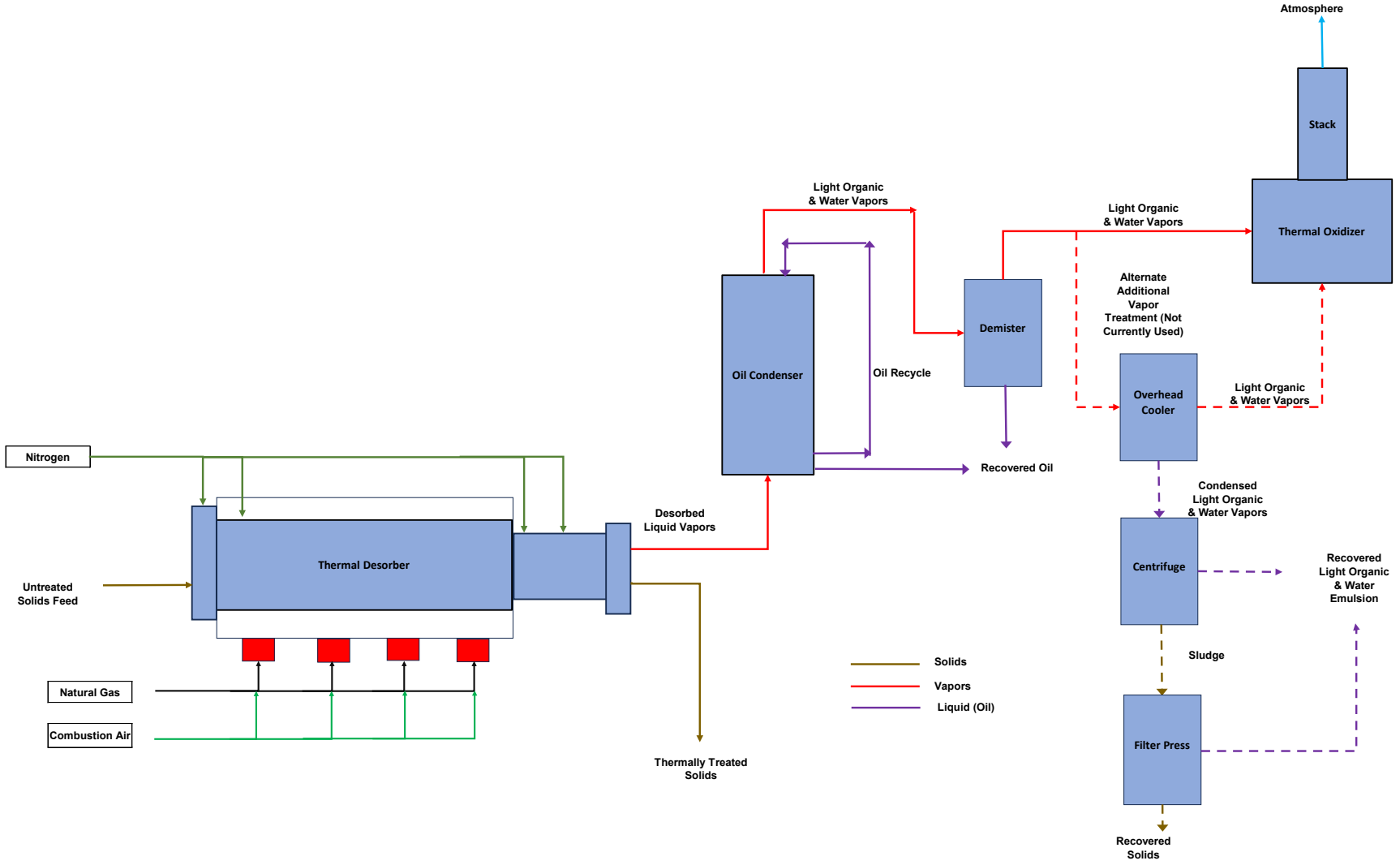

Figure 2-1. Thermal Desorber Process Schematic

3.0 FEED AND TREATED MATERIAL DESCRIPTIONS

3.1 FEED MATERIAL RECEIVING AND STORAGE

The CHSL facility receives materials for treatment via truck. Recovered oil and solids from thermal treatment are similarly shipped offsite.

3.2 FEED MATERIAL MANAGEMENT

Solid materials are received and handled in roll-off containers, super-sack bags, and drums. Semi-solid (sludge) materials are received in tanker trucks and transferred to storage tanks. The trucks are unloaded under fixed roof storage areas. Vapors from storage tanks and displaced from the tanker trucks are captured and sent to the on-site thermal oxidizer.

3.3 FEED MATERIAL CHARACTERISTICS

The thermal desorption system is capable of handling a wide variety of feed streams. Catalyst feed streams will typically be 95-100% solids with a coating or accumulation of oily residue or sludge. Typical petroleum residual feed streams will consist of oily sludges and solids composed of the following approximate fractions:

- Water 25%
- Light Hydrocarbon 1%
- Heavy Hydrocarbon 24%
- Non-combustible Solids 50%

Table 3-1 summarizes the typical properties of materials routinely treated in the thermal desorber. Potential chloride and metals emissions compliance analysis is summarized in Table 3-2. Potential emissions compliance is based on the following:

- Maximum thermal desorber material feed rate of 10,000 lb/hr
- Average feed concentrations of chlorine and metals
- Thermal oxidizer stack flow rate of 2,168 dscfm (3,684 dscm/hr)
- Thermal oxidizer stack gas oxygen concentration of 5.89% dry volume.

The maximum theoretical emissions concentration (MTEC) values for chlorine and metals are presented in Table 3-2. Most materials received are known not to contain chlorine and are assigned a default chlorine concentration of 4,000 mg/kg which overstates the actual concentration. Mercury compliance is potentially possible via MTEC. LVM data is currently limited to arsenic. SVM data is currently limited to lead. Going

forward, CHSL will need to implement analyses for chromium, beryllium, and cadmium for LVM and SVM feed rate compliance.

3.4 TREATMENT RESIDUALS MANAGEMENT

The recovered oil may be returned to the generator for reintroduction into the refining or chemical process. Alternatively, the recovered oil (subject to not exceeding used oil specifications) and solids removed may be sold as fuel materials, or may be disposed of at an applicably permitted facility.

3.5 TREATED MATERIAL MANAGEMENT

Thermally treated solids, particularly catalyst material, are returned to the customer for reuse or sent to others for additional treatment/recycling/reuse. Materials that cannot be recycled or reused are shipped off-site for disposal at an applicably permitted facility.

Table 3-1. Typical Properties of Received Materials

Parameter	Units	Average	Maximum	Median	Std Dev
Ash	wt%	77.1	99.8	74.2	15.2
Chlorine	ppmw	3,985	19,000	4,000	1,120
Mercury	ppmw	0.0140	0.7736	0.00100	0.0294
Arsenic	ppmw	555	7812	274	1015
Lead	ppmw	113	508	115	38
Heat Value	Btu/lb	2,397	12,256	2,490	1,634
Density	g/cc	0.962	2.094	0.969	0.168
Water	wt%	10.9	0.00	10.5	6.1

Table 3-2. Potential Thermal Oxidizer Emissions Compliance

Stack Flow	dscfm	2,168			
	dscf/hr	130,096			
	dscm/hr	3,684			
Oxygen	vol%, dry	5.89			
Material Feed Rate	lb/hr	10,000			
Ash	lb/hr	7,713	Emission Standard	Required System Control	Potential Feed Rate (lb/hr)
Chlorine MTEC	ppmdv	3,325	32	99.04%	39.9
Mercury MTEC	ug/dscm @ 7% O_2	15.9	130	-716%	1.40E-04
LVM MTEC (As Only)	ug/dscm @ 7% O_2	633,560	92	99.985%	5.55
SVM MTEC (Pb Only)	ug/dscm @ 7% O_2	128,756	230	99.82%	1.13
Heat	MMBtu/hr	23.97			
Water	lb/hr	1,086			

4.0 TEST DESIGN AND PROTOCOL

4.1 TEST PERFORMANCE AND EMISSIONS OBJECTIVES

The thermal desorber test is designed to demonstrate compliance with the emissions standards summarized in Table 1-1. Emissions sampling will be performed at the thermal oxidizer stack.

4.2 TEST OPERATING OBJECTIVES

The test is proposed a single operating condition. The following thermal desorber operating limits are expected to be established based on the test results:

- Maximum total chloride feed rate
- Maximum total mercury feed rate
- Maximum total semi-volatile metals (SVM) feed rate
- Maximum total low volatile metals (LVM) feed rate
- Minimum thermal oxidizer temperature.

Table 4-1 summarizes the target thermal desorber operating conditions during testing.

4.3 TEST FEED MATERIAL

For this test program, CHSL plans to use actual customer feed materials available at the time of testing. Pre-test or as-fed samples of the selected materials will be analyzed to determine the native ash, chlorine, metals, and heating value. The native chlorine and metals contents will be considered in establishing the final feed rate limits for these constituents. The feed rate of the selected materials will be documented during testing to calculate the native contributions of chlorine and metals.

4.4 FEED MATERIAL SPIKING

All thermal desorber feedstocks are solid to semi-solid materials. The chlorine and metals are infused within or adhered to these materials. CHSL plans to spike chlorine and metal to the thermal desorber feedstock to establish chlorine and metals feed rate limits that will accommodate the widest variety of potential feed materials. Table 4-2 summarizes the target feed rates, chemical species, and methods.

4.5 METALS FEED RATE EXTRAPOLATION

During testing, CHSL proposes to spike mercury, lead, and chromium representative of mercury, SVM and LVM, respectively. These metals will be spiked at the rates noted in Table 4-2 to establish feed rate limits. Metals feed rate and emissions concentration data will be used to extrapolate and establish final feed rate limits. Per TCEQ guidance, the final metals feed rate limits are capped at three times (3X) the test-

demonstrated feed rates as recommended by EPA Region 6. The basic equation for extrapolating the metals feed rate limits is:

$$FR_{LIMIT} = FR_{TEST} * (ES_{METAL}/EC_{TEST})$$

where:

FR_{LIMIT} = Metal Feed Rate Limit

FR_{TEST} = Average Metal (Native + Spiked) Feed Rate During Test

ES_{METAL} = Metal Emissions Standard

EC_{TEST} = Average Metal Emissions Concentration During Test

The final feed rate limits for mercury, SVM, and LVM will be established as the lesser of FR_{LIMIT} or $3*FR_{TEST}$. Potential final feed rate limits based on 3X the metals spiking rates are shown in Table 4-2.

Table 4-1. Thermal Desorber Test Operational Targets

Parameter	Units	Target
Solids Feed Rate	lb/hr	5,000-10,0000
Thermal Oxidizer Temperature	deg F	1,400

Table 4-2. Chlorine and Metals Spiking

Constituent	Test Target Rate (lb/hr)	Potential Final Feed Rate Limit (lb/hr)	Chemical Form	Spiking Method
Chlorine	50	50 +Native	Calcium Chloride ($CaCl_2$) or Sodium Chloride (NaCl)	Pre-weighed packets fed at 10-minute intervals
Mercury	0.0010	0.0030 +Native	Mercury (II) Oxide (HgO)	Pre-weighed packets fed at 10-minute intervals
Semivolatile Metals	10	30 +Native	Lead (II) Oxide (PbO)	Pre-weighed packets fed at 10-minute intervals
Low Volatile Metals	20	60 +Native	Chromium (III) Oxide (Cr_2O_3)	Pre-weighed packets fed at 10-minute intervals

5.0 SAMPLING, ANALYSIS, AND MONITORING PROCEDURES

5.1 GENERAL

The proposed test will consist of a single test condition with three (3) replicate sampling runs.

5.2 SAMPLING AND ANALYSIS PROTOCOL

The planned sampling and analyses are summarized in Table 5-1.

5.2.1 Thermal Desorber Solid Feedstock

Thermal desorber target operating conditions are summarized in Table 4-1. Actual customer feed materials will be used during testing. To the extent possible, the selected feedstocks will be limited to the fewest number of distinct lots or batches of uniform materials. Ideally, a single uniform feedstock lot or batch will be used for the entire test period, but is unlikely. Samples of the selected materials will be collected prior to the test or as-fed during the test. The samples will be analyzed for heating value, ash, chlorine, and metals. Thermal desorber operating records will be used to document the material feed times and mass feed rates. The thermal desorber feed operating data in conjunction with the analyses will be used to document the native ash, chlorine, and metals feed rates. Solids feed will be at the test target rate for at least one hour before commencing emissions sampling.

5.2.2 Chlorine and Metals Spiking

Table 4-2 summarizes the chlorine and metals spiking materials and target rates. The spiking materials will be added as solids to the solid feed at 10-minute intervals. Spiking will be performed for at least one hour before commencing emissions sampling.

5.2.3 Stack Gas Method 23 (Dioxin/Furan)

The thermal oxidizer stack gas will be sampled isokinetically for dioxin/furan using an EPA Method 23 sampling train. Method 23 samples will be analyzed for dioxin/furan via EPA Method 23/SW-846 Method 8290 [high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS)]. The target dioxin/furan compounds are presented in Section 9.0 of the Quality Assurance Project Plan (QAPP).

At 40 CFR 63.1208(b)(1)(iii), provided the Method 23 sampling train is operated for a minimum of 180 minutes (3 hours) to sample a minimum of 2.5 dry standard cubic meters (dscm) of stack gas during each sampling run, any dioxin/furan congener which is non-detect may be counted as zero in calculating 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (TCDD) toxicity equivalents (TEQ). The Method 23 sampling train will be operated for the minimum specified time and to obtain the minimum specified volume as required. Analysis results will be reported for each of the seventeen (17) 2,3,7,8-chlorinated dioxin and furan congeners and the totals per tetra- through octa-chlorinated homologue groups.

5.2.4 Stack Gas Method 29 (Metals)

The thermal oxidizer stack gas will be sampled isokinetically for metals using an EPA Method 29 sampling train. Non-mercury (non-Hg) metals will be analyzed by SW-846 Method 6010C [Inductively Coupled Argon Plasma Spectroscopy (ICP or ICAP)] or Method 6020B [Inductively Coupled Argon Plasma Spectroscopy/Mass Spectroscopy (ICP-MS or ICAP-MS)]. Mercury will be analyzed by SW-846 Method 7470A [Cold Vapor Atomic Absorption Spectroscopy (CVAAS)].

5.2.5 Stack Gas Method 5/26A (Particulate, Hydrogen Chloride and Chlorine)

The thermal oxidizer stack gas will be sampled isokinetically for filterable particulate matter, and HCl and Cl_2 according to EPA Method 26A. HCl and Cl_2 emissions will be determined via analysis of the acid and basic impinger solutions respectively for chloride ion as specified in EPA Method 26A/SW-846 Method 9056A. For particulate matter emissions compliance, the acetone probe rinse and filter fractions from the EPA Method 26A sampling train will be recovered and analyzed via EPA Method 5 for filterable particulate matter as allowed by Section 2.1 of Method 26A.

5.2.6 Stack Gas Continuous Emissions Monitoring

During the test, the thermal oxidizer stack gas will be monitored continuously for carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), and total hydrocarbon (THC) concentrations. The CO CEMS will be calibrated and operated in accordance with the procedures in 40 CFR 60, Appendix A, Method 10. The CO_2 and O_2 CEMS will be calibrated and operated in accordance with the procedures in 40 CFR 60, Appendix A, Method 3A. The THC CEMS will be calibrated and operated in accordance with the procedures in 40 CFR 60, Appendix A, Method 25A.

5.3 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

Appendix A contains the Quality Assurance Project Plan (QAPP) prepared according to EPA Guidance. The QAPP delineates the QA/QC procedures for the test sampling and analyses.

Table 5-1. Thermal Desorber Test Emissions Sampling and Analysis

Sample Name	Sampling Location/ Access	Sampling Equipment	Sampling Reference Method [1]	Sample Size/Frequency	Analytical Parameters	Analytical Reference Method [1]
Thermal Desorber Solid Feed	Material Lot or Batch	Sampling Scoop; 500 mL wide-mouth jars	ASTM E-300-03	Each lot or batch of material will be sampled pre-test or as-fed during testing	Heating Value Chlorine Target Metals [4]	ASTM D-240 SW-846 Method 5050/9056A SW-846 Method 6010C or 6020B for non-Hg metals SW-846 Method 7470A/7471B for Hg
Thermal Oxidizer Stack Gas	Isokinetic Port	Method 23 Sampling Train	EPA Method 23	Minimum of 3 hours and 2.5 dry standard cubic meters [2,3]	Dioxin/Furan	EPA Method 23/SW846-8290 (Dioxin/Furan)
Thermal Oxidizer Stack Gas	Isokinetic Port	Method 29	EPA Method 29	120 minutes [2,3]	Target Metals [4]	EPA Method 29 SW-846 Method 6010C or 6020B for non-Hg metals SW-846 Method 7470A for Hg
Thermal Oxidizer Stack Gas	Isokinetic Port	Method 5/26A	EPA Method 5/26A	120 minutes [2,3]	HCl/Cl_2 Particulate	EPA Method 26A/SW-846 Method 9056A EPA Method 5 (Filterable Particulate)
Thermal Oxidizer Stack Gas	Non-Isokinetic Port	Temporary CO CEMS	40 CFR 60, Appendix A, Method 10	Continuous	CO	40 CFR 60, Appendix A, Method 10
Thermal Oxidizer Stack Gas	Non-Isokinetic Port	Temporary CO_2 and O_2 CEMS	40 CFR 60, Appendix A, Method 3A	Continuous	CO_2 and O_2	40 CFR 60, Appendix A, Method 3A
Thermal Oxidizer Stack Gas	Non-Isokinetic Port	Temporary THC CEMS	40 CFR 60, Appendix A, Method 25A	Continuous	THC	40 CFR 60, Appendix A, Method 25A

Table 5-1. Thermal Desorber Test Emissions Sampling and Analysis (continued)

Notes:

1. Reference Method Sources:
    - “ASTM” refers to American Society for Testing Materials, Annual Book of ASTM Standards, Annual Series
    - “SW846" refers to Test Methods for Evaluating Solid Waste, Third Edition, November 1986, and Updates.
    - “EPA Method" refers to New Source Performance Standards, Test Methods and Procedures, Appendix A, 40 CFR 60.

2. The exact volume of gas sampled will depend on the isokinetic sampling rate.

3. Isokinetic sampling trains include:
    - Collecting one set of bag samples (or using CEM) for oxygen and carbon dioxide to determine stack gas molecular weight (EPA Method 3A)
    - Performing stack gas velocity, pressure, and temperature profile measurement for each sampling location (EPA Method 2)
    - Determining the moisture content of the stack gas for each sampling train sample (EPA Method 4).

4. Method 29 target metals are arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), lead (Pb) and mercury (Hg).

6.0 TEST SCHEDULE

6.1 PLANNED TEST DATE

The test date is to be determined later based on coordination with TCEQ. CHSL will notify TCEQ at least 60 days before the planned date for starting the test. The test start date will be confirmed one week before the start of the test.

6.2 TEST DURATION

The test consists of one test condition. The test will consist of three (3) replicate sampling runs. The anticipated general schedule for testing is:

- Monday-Test team travels to test site, participates in on-site health and safety training, and begins test equipment setup.
- Tuesday-Complete testing set up; conduct Run 1.
- Wednesday-Conduct Run 2.
- Thursday-Conduct Run 3.
- Friday-Contingency day; otherwise test team demobilizes from test site.

Emission sampling may begin once thermal desorber operation has stabilized for at least one hour on the selected solid feedstock material and spiking of chlorine and metals. The stack is equipped with a single set of isokinetic sampling ports. Therefore, the isokinetic sampling cannot be performed concurrently. Sampling will be performed sequentially as noted in Figure 6-1. Method 5/26A and Method 29 sampling will be performed concurrently. The Method 23 sampling will be performed in a separate segment. The required sampling times and sequential sampling will only allow for completing one run each test day.

6.3 TEST MATERIALS

Table 6-1 summarizes the amount of solid feed and spiking materials required for testing.

6.4 TEST INTERRUPTIONS

In the event of solid feedstock stoppage or similar test interruption, all stack gas sampling will be suspended immediately. Stack sampling pumps will be switched off, but probes may remain in the stack. Should the situation be resolved very shortly (15 minutes or less), and solid feedstock is resumed at or above 90% of the rate prior to the test stoppage event, and other target conditions are comparable to before the test interruption, stack sampling may be resumed at the discretion of the test manager and after consultation with the thermal desorber operations staff. Optionally, the test manager may elect to hold off the re-start of sampling solid feedstock and spiking have re-established at or closer to test targets.

Should the situation take longer to be resolved (more than 15 minutes), all sampling will be suspended until the thermal desorber feed and spiking have been re-established at target conditions for at least one hour. The stack gas sampling probes will be removed from the stack ports and the nozzles sealed off with Teflon tape. Stack sampling equipment will be maintained on hot standby pending a test re-start decision. Once the situation is corrected and the thermal desorber feed and spiking have been re-established at for at least one hour, testing will resume at the direction of the test manager.

Should the situation become evident testing cannot be resumed in 1-2 hours, or will take even longer to resolve, the test manager may suspend testing for the day. The test manager will assess whether any stack gas sampling trains which have been completed should be retained or discarded. Most incomplete sampling trains may be held for up to 24 hours and then resumed. If testing can be resumed the following day, the incomplete stack gas sampling trains and completed sampling train samples will be secured for the night in such manner as to properly preserve the samples. Sampling will resume the following day where testing the previous day ended once the unit is back at the target test conditions. Optionally, the test run may be scrubbed altogether with all samples to that point being discarded, and all sampling started anew when testing can be resumed. No incomplete sampling train will be held over for more than 24 hours.

All test start/stop/suspension/scrub decisions will be communicated to the regulatory observers present at the time of testing. Such decisions may include consultations between the test manager, the thermal desorber operations staff, and the regulatory observers present.

Table 6-1. Thermal Desorber Test Solid Feed and Spiking Materials Requirements

Parameter	Feed Rate		Hours*	Total	
Solids Feed Rate	10,000	lb/hr	32	320,000	lbs
Chlorine	50	lb/hr as Cl	32	1,600	lbs as Cl
	78.2	lb/hr as $CaCl_2$		2,501	lbs as $CaCl_2$
	83.5	lb/hr as NaCl		2,672	lbs as NaCl
Mercury	0.0010	lb/hr as Hg	32	0.032	lbs as Hg
	0.00108	lb/hr as HgO		0.0346	lbs as HgO
	0.45	g/hr as Hg		15	grams as Hg
	0.490	g/hr as HgO		15.7	grams as HgO
Semivolatile Metals	10	lb/hr	32	320	lbs
	10.8	lb/hr as PbO		345	lbs as PbO
Low Volatile Metals	20.0	lb/hr	32	640	lbs
	29.2	lb/hr as Cr_2O_3		935	lbs as Cr_2O_3

*Based on eight (8) hours of testing each day for three (3) days plus one day contingency.

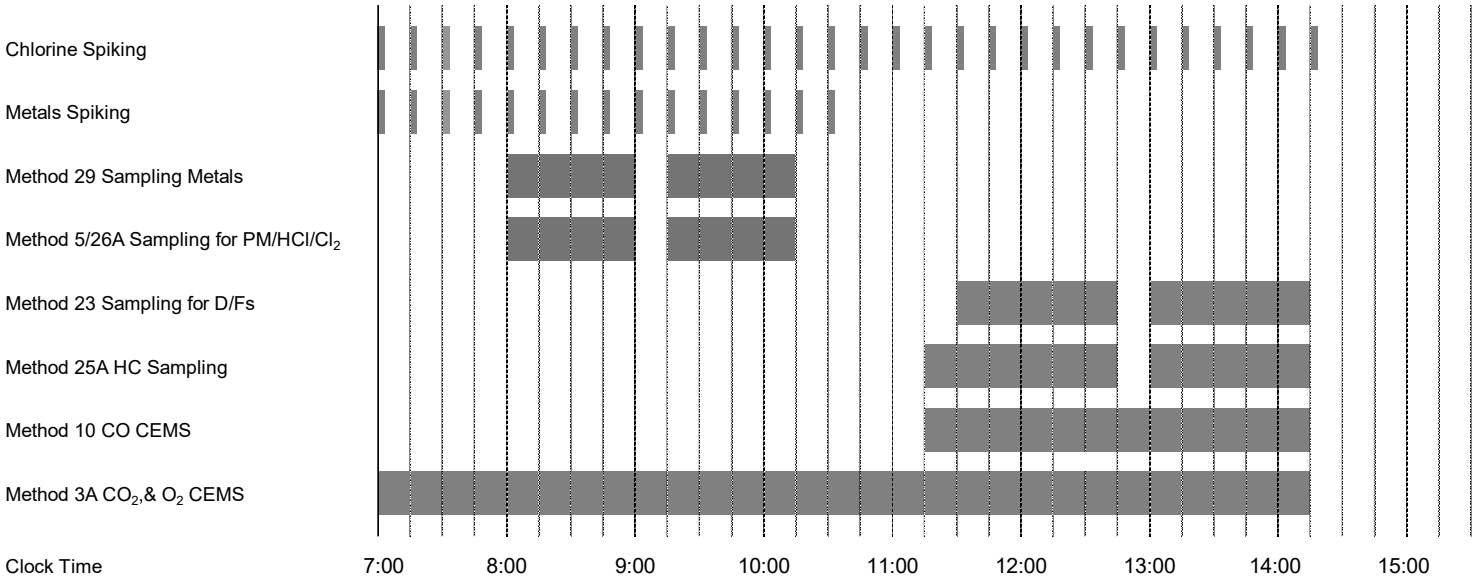

Figure 6-1. Thermal Desorber Trial Burn Sampling Activities

7.0 PERMITTED OPERATING OBJECTIVES

7.1 GENERAL

Table 7-1 summarizes the expected thermal desorber operating limits. These operating limits apply only when the solid feed is classified as a RCRA hazardous waste.

7.2 PROCESS CONTROL PARAMETERS BASED ON TEST CONDITIONS

Based on the results of the testing, CHSL will propose operating limits for thermal desorber and thermal oxidizer operation. Regulated constituents (chlorine, mercury, SVM, and LVM) feed rates will be documented via material analyses and thermal desorber operating records. Compliance is based on the monthly (four-week) rolling average hourly feed rate. The weekly average hourly feed rates are calculated using the weights of hazardous waste processed, their associated constituent concentration analyses, and total hazardous waste feed operational time of the solids feed system during a seven-day period, e.g., Monday noon to the following Monday noon. The weekly average hourly feed rates will be recorded in the operating record. The monthly (four-week) rolling average hourly feed rates will be calculated using the most recent four weeks of weekly average hourly constituent feed rates. The monthly (four-week) rolling average hourly feed rates will also be recorded in the operating record.

7.2.1 Maximum Chlorine/Chloride Feed Rate

CHSL will determine the total feed rate (native plus spiked) and emission rate of chlorine/chloride during each test run. Provided the stack gas HCl/Cl_2 emissions comply with the applicable emissions standard, the final limit for total chlorine/chloride feed rate will be established as an hourly limit based on the average total chlorine/chloride feed rate demonstrated during each run test. Compliance will be based on the monthly (four-week) rolling average chlorine/chloride feed rate calculated as described in Section 7.2.

7.2.2 Maximum Mercury Feed Rate

CHSL will determine the total feed rate (native plus spiked) and emission rate of mercury during each test run. Provided the stack gas mercury emissions comply with the applicable emissions standard, the final limit for total mercury feed rate will be established as an hourly limit based on the average total mercury feed rate demonstrated during each run test extrapolated to the lesser of the allowable emissions limit or three times (3X) the average test demonstrated feed rate. Extrapolation equations are presented in Section 4.5. Compliance will be based on the monthly (four-week) rolling average total mercury feed rate calculated as described in Section 7.2.

7.2.3 Maximum Semivolatile Metals Feed Rate

CHSL will determine the total feed rate (native plus spiked) and emission rate of semivolatile metals during each test run. Provided the stack gas semivolatile metals emissions comply with the applicable emissions standard, the final limit for total semivolatile metals feed rate will be established as an hourly limit based on

the average total semivolatile metals feed rate demonstrated during each run test extrapolated to the lesser of the allowable emissions limit or three times (3X) the average test demonstrated feed rate. Extrapolation equations are presented in Section 4.5. Compliance will be based on the monthly (four-week) rolling average total semivolatile metals feed rate calculated as described in Section 7.2.

7.2.4 Maximum Total Low Volatile Metals Feed Rate

CHSL will determine the total feed rate (native plus spiked) and emission rate of low volatile metals during each test run. Provided the stack gas low volatile metals emissions comply with the applicable emission standard, the final limit for total low volatile metals feed rate will be established as an hourly limit based on the average total low volatile metals feed rate demonstrated during each run test extrapolated to the lesser of the allowable emissions limit or three times (3X) the average test demonstrated feed rate. Extrapolation equations are presented in Section 4.5. Compliance will be based on the monthly (four-week) rolling average total low volatile metals feed rate calculated as described in Section 7.2.

7.2.5 Minimum Thermal Oxidizer Temperature for Stack Gas CO and THC Emissions

The maximum hourly rolling average thermal oxidizer stack gas carbon monoxide concentration will be maintained at or below 100 ppmv corrected to 7% oxygen (dry basis) during the test. The maximum hourly rolling average thermal oxidizer stack gas total hydrocarbon concentration will be maintained at or below 10 ppmv corrected to 7% oxygen (dry basis) during the test. To assure compliance with the carbon monoxide and total hydrocarbon emissions standards, CHSL expects a minimum thermal oxidizer temperature limit. The minimum thermal oxidizer temperature limit will be established as an hourly rolling average (HRA) limit based on the average of the average temperatures demonstrated during each run of the test. An automatic waste feed cutoff (AWFCO) will be triggered if the thermal oxidizer temperature HRA limit falls below the minimum limit.

Table 7-1. Expected Thermal Desorber Operating Parameter Limits

Parameter	Units	Limit	AWFCO
Minimum Thermal Oxidizer Temperature	deg F, HRA	1,400	Yes
Maximum Chlorine Feed Rate	lb/hr	50	No
Maximum Mercury Feed Rate	lb/hr	0.0030	No
Maximum Semivolatile (Cd+Pb) Metals Feed Rate	lb/hr	30	No
Maximum Low-Volatile (As+Be+Cr) Metals Feed Rate	lb/hr	60	No

HRA-hourly rolling average
OMA-one-minute average

8.0 TEST REPORT

The final test report will be postmarked before the close of business on the 90th day after completion of the test unless a time extension must be requested. The final test report will be a comprehensive test report which contains a discussion of the test objectives; sampling, analysis, and QA/QC activities performed; summaries of process operating conditions; the results of the test determinations; and proposed RCRA Permit operating conditions. The planned outline of the test report is shown in Table 8-1.

Table 8-1. Example Thermal Desorber Test Report Outline

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APPENDIX A

QUALITY ASSURANCE PROJECT PLAN

THERMAL DESORBER TRIAL BURN

CLEAN HARBORS SAN LEON, INC.

PREPARED FOR:

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
CLEAN HARBORS SAN LEON, INC. (CHSL)
2700 AVENUE S
SAN LEON, TX 77539

REVISION: 0
MAY 2025
FOCUS PROJECT NO. P-001617

FOCUS ENVIRONMENTAL INC.
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1.0 QUALITY ASSURANCE PROJECT PLAN APPROVAL FORM AND DISTRIBUTION LIST

Project Title: Clean Harbors San Leon, Inc.
Thermal Desorber Trial Burn
San Leon, Texas

Expected Test Date: To Be Determined

Project Approvals:

Name/Function/Organization	Signature	Date
Bruce Riffel Test Project Manager Clean Harbors San Leon, Inc.		
Chris McBride Test Manager Focus Environmental, Inc.		
TBD Stack Sampling Team Leader Alliance Technical Group		
Courtney Adkins Laboratory Project Manager Eurofins Knoxville		
Teresa Bales Quality Assurance Officer Focus Environmental, Inc.		

QAPP Approval Statement: The individuals listed above:

1) Have received, read, and agreed to the appropriate information pertaining to assigned project responsibilities listed and provided in this QAPP, and

2) Agree if there are modifications or deviations from the sampling and analytical methods as specified in the associated TBP, they are to be identified and explained in the sampling and analytical narratives, and discussed in the body of the test report.

QAPP Distribution List

Project Organization Title	Organization/Name
Test Project Manager	Clean Harbors San Leon, Inc.
Test Manager	Focus Environmental, Inc.
Stack Sampling Team Leader	Alliance Technical Group, Inc.
Laboratory Project Manager	Eurofins Knoxville
Quality Assurance Officer	Focus Environmental, Inc.
Texas Commission on Environmental Quality	TCEQ

The QAPP was distributed to these individuals, was read by the individuals, and they agree to the appropriate information pertaining to their project responsibilities as listed and provided in this QAPP.

Key Project Personnel Contact Information

Name/Function/Organization	Phone	E-Mail
Bruce Riffel Test Project Manager Clean Harbors San Leon, Inc.	281-339-6443	[redacted]
Chris McBride Test Manager Focus Environmental, Inc.	865-271-7776	[redacted]
TBD Stack Sampling Team Leader Alliance Technical Group	TBD	TBD
Courtney Adkins Laboratory Project Manager Eurofins Knoxville	865-291-3019	[redacted]
Teresa Bales Quality Assurance Officer Focus Environmental, Inc.	865-591-4141	[redacted]

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ACRONYMS AND ABBREVIATIONS

ASTM	American Society for Testing Materials
B.P.	boiling point
CAR	corrective action request
CCB	continuing calibration blank
CCC	calibration check compound
CCV	continuing calibration verification
CEM	continuous emissions monitor
CEMS	continuous emissions monitoring system
CF	calibration factor
cfm	cubic feet per minute
CFR	Code of Federal Regulations
Cl_2	molecular chlorine
CLP	Contract Laboratory Program
CO	carbon monoxide
CMS	continuous monitoring system
COC	chain of custody
DF	polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofuran
DI	deionized (water)
DOT	U.S. Department of Transportation
DQO	data quality objective
DRE	destruction and removal efficiency
dscf	dry standard cubic foot
dscfm	dry standard cubic feet per minute
dscm	dry standard cubic meter
dscmm	dry standard cubic meters per minute
EDL	estimated detection limit
EPA	U.S. Environmental Protection Agency
GC	gas chromatography
GC/ECD	gas chromatography/electron capture detector
GC/FID	gas chromatography/flame ionization detector
GC/MS	gas chromatography/mass spectrometry
g	grams
gr	grains
HCl	hydrogen chloride (gas) or hydrochloric acid (aqueous)
HRGC/HRMS	high resolution gas chromatography/ high resolution mass spectrometry
IATA	International Air Transport Association
ICB	initial calibration blank
Cl^-	chloride ion
ICV	initial calibration verification
IDL	instrument detection limit
inwc	inches water column
kg	kilograms
L	liter

lpm	liters per minute
lb or lbs	pounds
LCS	laboratory control standard
LCSD	laboratory control standard duplicate
m^3/min	cubic meters per minute
MDL	method detection limit
mg	milligrams
mg/L or mg/l	milligrams/liter
μg or ug	micrograms
$\mu g/m^3$ or ug/m^3	micrograms/cubic meter
min	minute
mL or ml	milliliters
mm	millimeters
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
NaOH	sodium hydroxide
ND	non-detect
NELAP	National Environmental Laboratory Accreditation Program
ηg or ng	nanograms
non-Hg	non-mercury
O_2	oxygen
OCl^-	hypochlorite
OSW	EPA Office of Solid Waste
OTS	Office of Toxic Substances
PCDD	polychlorinated dibenzo-p-dioxin
PCDF	polychlorinated dibenzofuran
PDS	post-digestion spike
PE	performance evaluation
pg	picograms
PIC	product of incomplete combustion
PID	product of incomplete destruction
PM	particulate matter
ppm	parts per million
ppmv or ppmdv	parts per million dry volume
QA	quality assurance
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	quality control
RDL	reliable detection limit
RF	response factor
RFA	request for analysis
RL	reporting limit

RPD	relative percent difference
RRF	relative response factor
RRT	relative retention time
RSD	relative standard deviation
RT	retention time
SPCC	system performance check
SOP	standard operating procedure
SRE	system removal efficiency
SQL	sample quantitation limit
SVOC	semi-volatile organic compound
SW-846	"Test Methods for Evaluating Solid Wastes Physical/Chemical Methods (SW-846)," Third Edition, 1986 and updates (December 1997).
TCL	target compound list
wc	water column
WM	wide-mouth

3.0 PROJECT DESCRIPTION

3.1 GENERAL

This Quality Assurance Project Plan (QAPP) is an integral part of the Clean Harbors San Leon, Inc. (CHSL) Thermal Desorber Trial Burn Plan (TBP), and must be used in conjunction with this plan. This section provides a brief description of the test objectives, the unit operating protocol, the associated sampling and analytical protocol, and how they relate to testing of the thermal desorber. Refer to the TBP for more detailed information on the scope of the testing.

3.2 QUALITY ASSURANCE PROJECT PLAN SCOPE

This QAPP presents the organization, objectives, functional activities, and specific Quality Assurance (QA) and Quality Control (QC) activities for test data collection. This QAPP also describes the specific QA/QC protocols that will be followed for sampling, sample handling and storage, chain-of-custody, and laboratory analysis during the test program.

All QA/QC procedures will be in accordance with applicable professional technical standards, government regulations and guidelines, and specific project goals and requirements. The TBP and this associated QAPP have been prepared in accordance with EPA hazardous waste thermal treatment system testing and QAPP guidance documents, in particular the following:

- EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5 EPA/240/B-01/003), March 2001
- Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (QAMS-005/80)
- Quality Assurance/Quality Control (QA/QC) Procedures for Hazardous Waste Incineration, EPA/625/6-89/023, January 1990.
- EPA, "New Source Performance Standards, Test Methods and Procedures," Appendix A, 40 CFR 60.
- EPA, "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods (SW-846)", Third Edition, 1986 and updates.

3.3 FACILITY BACKGROUND INFORMATION

CHSL operates a recycling facility located in San Leon, Galveston County, Texas. This facility receives mostly reusable/recyclable solid media from the petroleum and chemical industry. These materials are treated via thermal desorption to separate the solids and liquids. Vaporized liquids in the thermal desorber offgas are condensed and recovered. The recovered liquid may be further processed to remove solids. The recovered oil may be returned to the generator for reintroduction into the refining or chemical process. Alternatively, the recovered oil (subject to not exceeding used oil specifications) and solids removed may be sold as fuel materials, or may be disposed of at an applicably permitted facility. The offgas from the oil recovery process, along with vapors from the oil storage tanks and truck loading operations, are directed

to an on-site thermal oxidizer. Treated solids from thermal desorber are returned to the customer for reuse or sent to others for additional treatment/recycling/reuse. Thermally treated solids that cannot be recycled or reused are shipped off-site for disposal at an applicably permitted facility.

Some materials received and treated are classified as hazardous waste under the Resource Conservation and Recovery Act (RCRA). Therefore, the thermal desorber system is regulated by the Texas Commission on Environmental Quality (TCEQ) as a RCRA 40 CFR 264, Subpart X Miscellaneous Unit. This test plan is designed to demonstrate thermal desorber system compliance with the emissions standards deemed by TCEQ to be necessary to protect human health and the environment when treating RCRA-regulated materials.

3.4 UNIT CONFIGURATION AND GENERAL OPERATION

The thermal desorber consists of a steel drum which rotates inside of an outer furnace. Solid feed materials are indirectly heated via hot gas circulated in the annular space between the outside of the thermal desorber drum and the inside of the furnace. The treated solids are conveyed to a roll-off box. Nitrogen is used as a sweep gas through the thermal desorber. The organic vapor laden offgas from the thermal desorber is directed to an oil condenser which uses a recirculating oil stream to condense and remove organic vapors and particulate materials from the gas phase. The gas exiting the oil condenser contains light hydrocarbons and water vapor. This exit gas stream is routed to a thermal oxidizer to destroy the remaining hydrocarbons before the gas is discharged to the atmosphere. Nitrogen is used as the carrier gas to maintain the thermal desorber offgas oxygen content low (<5%) at all points in the process to prevent conflagrations.

3.5 TEST OPERATING AND SAMPLING PROTOCOLS

The test program is designed to demonstrate compliance with the emissions standards summarized in Table 3-1 and establish operating limits for maximum chlorine and metals feed rates, and a minimum thermal oxidizer temperature limit. Table 3-2 summarizes the planned sampling and analysis protocol. There are limited number of sampling ports on the stack: one set of two ports configured for isokinetic sampling, and a third port for non-isokinetic or temporary continuous emissions monitoring system (CEMS) sampling. Therefore, the isokinetic sampling cannot be performed concurrently. Sampling will be performed sequentially as noted in Figure 3-1. Method 5/26A and Method 29 sampling will be performed concurrently. The Method 23 sampling will be performed in a separate segment. The required sampling times and sequential sampling will only allow for completing one run each test day.

Table 3-1. Thermal Oxidizer Emissions Standards

Emissions	Standard	Rule Citation
Dioxin/furan	0.40 ng TEQ/dscm @ 7% O_2	63.1219(a)(1)(i)(B)
Mercury (Hg)	130 ug/dscm @ 7% O_2	63.1219(a)(2)
Semi-volatile metals (SVM) (cadmium and lead)	230 ug/dscm @ 7% O_2	63.1219(a)(3)
Low volatile metals (LVM) (arsenic, beryllium, chromium)	92 ug/dscm @ 7% O_2	63.1219(a)(4)
Carbon monoxide (CO)	100 ppmdv @ 7% O_2 HRA	63.1219(a)(5)(i)
Total hydrocarbon (THC)	10 ppmdv @ 7% O_2 HRA	63.1219(a)(5)(ii)
Hydrogen chloride (HCl) and chlorine (Cl_2)	32 ppmdv @ 7% O_2	63.1219(a)(6)
Particulate matter (PM)	29 mg/dscm @ 7% O_2 (0.013 grains/dscf @ 7% O_2)	63.1219(a)(7)

Table 3-2. Thermal Desorber Test Emissions Sampling and Analysis

Sample Name	Sampling Location/ Access	Sampling Equipment	Sampling Reference Method [1]	Sample Size/Frequency	Analytical Parameters	Analytical Reference Method [1]
Thermal Desorber Solid Feed	Material Lot or Batch	Sampling Scoop; 500 mL wide-mouth jars	ASTM E-300-03	Each lot or batch of material will be sampled pre-test or as-fed during testing	Heating Value Chlorine Target Metals [4]	ASTM D-240 SW-846 Method 5050/9056A SW-846 Method 6010C or 6020B for non-Hg metals SW-846 Method 7470A/7471B for Hg
Thermal Oxidizer Stack Gas	Isokinetic Port	Method 23 Sampling Train	EPA Method 23	Minimum of 3 hours and 2.5 dry standard cubic meters [2,3]	Dioxin/Furan	EPA Method 23/SW846-8290 (Dioxin/Furan)
Thermal Oxidizer Stack Gas	Isokinetic Port	Method 29	EPA Method 29	120 minutes [2,3]	Target Metals [4]	EPA Method 29 SW-846 Method 6010C or 6020B for non-Hg metals SW-846 Method 7470A for Hg
Thermal Oxidizer Stack Gas	Isokinetic Port	Method 5/26A	EPA Method 5/26A	120 minutes [2,3]	HCl/Cl_2 Particulate	EPA Method 26A/SW-846 Method 9056A EPA Method 5 (Filterable Particulate)
Thermal Oxidizer Stack Gas	Non-Isokinetic Port	Temporary CO CEMS	40 CFR 60, Appendix A, Method 10	Continuous	CO	40 CFR 60, Appendix A, Method 10
Thermal Oxidizer Stack Gas	Non-Isokinetic Port	Temporary CO_2 and O_2 CEMS	40 CFR 60, Appendix A, Method 3A	Continuous	CO_2 and O_2	40 CFR 60, Appendix A, Method 3A
Thermal Oxidizer Stack Gas	Non-Isokinetic Port	Temporary THC CEMS	40 CFR 60, Appendix A, Method 25A	Continuous	THC	40 CFR 60, Appendix A, Method 25A

Table 3-2. Thermal Desorber Test Emissions Sampling and Analysis (continued)

Notes:

1. Reference Method Sources:
    - “ASTM” refers to American Society for Testing Materials, Annual Book of ASTM Standards, Annual Series
    - “SW846" refers to Test Methods for Evaluating Solid Waste, Third Edition, November 1986, and Updates.
    - “EPA Method" refers to New Source Performance Standards, Test Methods and Procedures, Appendix A, 40 CFR 60.

2. The exact volume of gas sampled will depend on the isokinetic sampling rate.

3. Isokinetic sampling trains include:
    - Collecting one set of bag samples (or using CEM) for oxygen and carbon dioxide to determine stack gas molecular weight (EPA Method 3A)
    - Performing stack gas velocity, pressure and temperature profile measurement for each sampling location (EPA Method 2)
    - Determining the moisture content of the stack gas for each sampling train sample (EPA Method 4).

4. Method 29 target metals are arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), lead (Pb) and mercury (Hg).

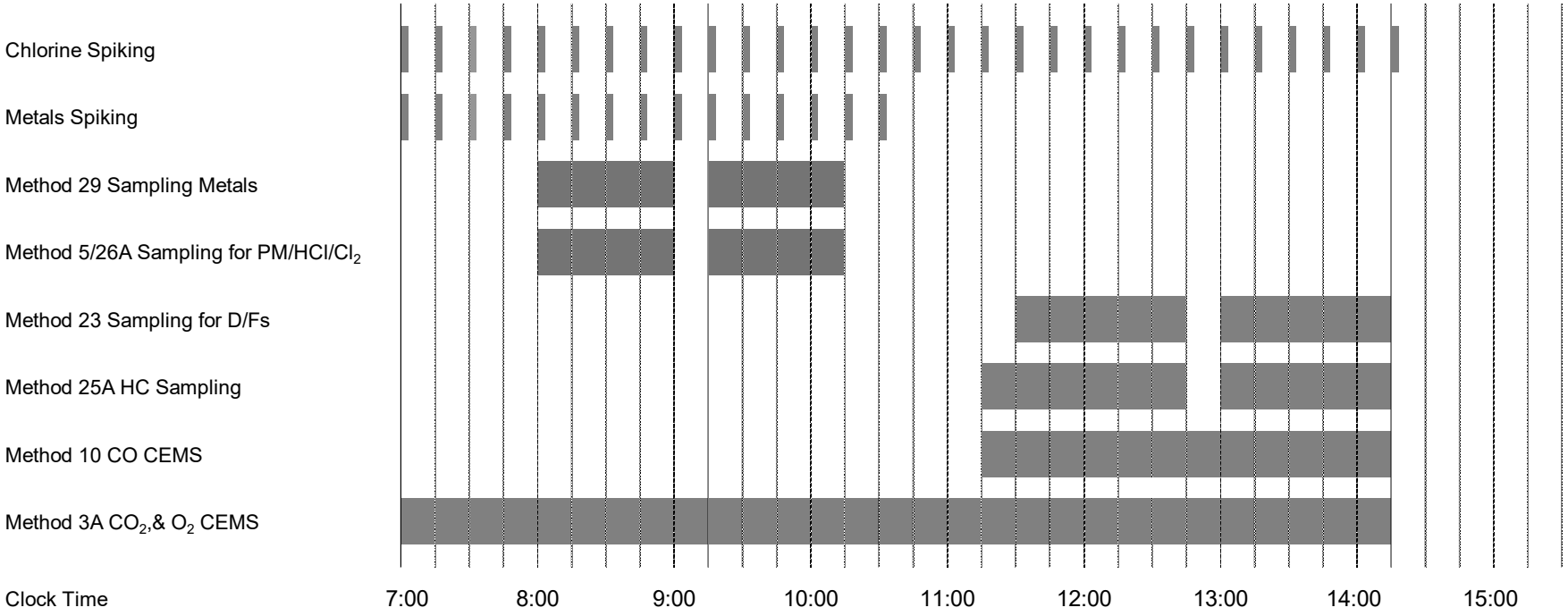

Figure 6-1. Thermal Desorber Trial Burn Sampling Activities

4.0 PERSONNEL, RESPONSIBILITIES, AND QUALIFICATIONS

4.1 GENERAL

The project organization for the thermal desorber trial burn program is presented in Figure 4-1.

4.2 CHSL TEST PROJECT MANAGER

The Test Project Manager is the corporate representative for CHSL. During the test, the Test Project Manager will be responsible for ensuring that the thermal desorber operates properly and that the unit achieves the desired test conditions on each test day. As such, the Test Project Manager, working through the CHSL Operations Manager, will assign responsibilities the unit operations. The Test Project Manager will be responsible for ensuring all the applicable thermal desorber operating data are collected during each cycle and test run. The Test Project Manager will also be the official communication link between CHSL and the respective contractors and regulatory observers.

4.3 CHSL OPERATIONS MANAGER

The CHSL Operations Manager will be responsible for the operation of the thermal desorber. The Operations Manager and thermal desorber Operators' duties will include:

- Operating the thermal desorber at the target operating conditions
- Maintaining logs of process data
- Downloading and providing the thermal desorber one-minute operating data to the Test Manager in Microsoft Excel format.

4.4 TEST MANAGER

The Focus Environmental, Inc (Focus) Test Manager is experienced in the technical coordination and QA/QC associated with the testing of thermal treatment systems similar to the thermal desorber. The Test Manager is responsible for the execution of the Thermal Desorber TBP and associated QAPP, preparation of the final test report, and interpretation of the test results. During the test, the Test Manager is responsible for the overall implementation of the test program. The Test Manager will serve as the focal point between the CHSL Test Project Manager and the stack sampling contractor on testing related matters, and will coordinate activities among various project team members. Specific Test Manager responsibilities include:

- Assuring all individuals included in the QAPP Distribution List receive copies of the test plan and QAPP
- Ensuring compliance with the TBP and the QAPP by all project team members during the test
- Documenting testing activities in a field logbook
- Providing sample checklists, labels, and request for analysis (RFA) and chain of custody (COC) forms for use by the Stack Sampling Contractor

- Assisting the CHSL Test Project Manager in interfacing with the regulatory observers and/or oversight contractors during the test
- Providing coordination between the CHSL Test Project Manager and the sampling team during the test, especially regarding decisions to start/stop/void/repeat sampling runs
- Performing inspections of the process equipment, process controls, process operations, data acquisition and recording systems, and sampling activities for compliance with this QAPP and the test plan
- Providing field review of process operating logs, and completed sample collection sheets, stack sampling logs, COC forms, and RFA forms
- Interfacing with the Laboratory Project Manager while samples are being analyzed
- Interfacing with the other testing contractors while the stack sampling and other test data are being reduced
- Supervising production of the test report.

4.5 STACK SAMPLING TEAM LEADER

The Stack Sampling Contractor, Alliance Technical Group, Inc. (Alliance), is experienced in conducting the stack sampling called for in the test plan and will conduct the stack sampling for this project. The Stack Sampling Team Leader will have overall responsibility for the collection and handling of all stack gas related samples. The Stack Sampling Team Leader has the following oversight responsibilities:

- Preparing and shipping stack sampling equipment, and shipping containers to the test site
- Providing reagents necessary for assembling and recovering sampling trains
- Preparing and calibrating stack sampling equipment
- Directing and/or participating in stack sampling activities
- Recording field test data required by the test plan and stack sampling methods
- Reviewing and approving stack sample collection sheets and stack sampling field data sheets
- Overseeing recovery of stack sampling-related samples and preservation of those samples
- Notifying the Test Manager of all samples collected
- Reducing stack sampling data and performing all calculations and QA activities required by the stack sampling methods
- Preparing a draft and final report of stack sampling activities.

4.6 METALS AND CHLORINE SPIKING

CHSL will assign an operator to be responsible for adding the pre-weighed packets of metals and chlorine spiking materials to the thermal desorber solid feed at the required intervals. The spiking material packets will be prepared by a qualified contractor who will provide preparation documentation, e.g., serial numbered packets labeled with the material contents and weights. The packet preparer's documentation will include assays for the spiking chemicals used. During testing, the assigned CHSL operator has the following responsibilities:

- Adding spiking the material the packets the solid feed at regular intervals as prescribed by the TBP
- Recording spiking material serial numbers and drop times
- Notifying the Test Manager immediately of any difficulties or interruption of the spiking operations.

4.7 LABORATORY PROJECT MANAGER

The Eurofins Environment Testing, Inc., Knoxville, Tennessee Laboratory (Eurofins) is experienced with the sampling methods and analyses associated with the thermal desorber testing. The Laboratory Project Manager will have overall responsibility for the analysis of the test samples. The Laboratory Project Manager has the following responsibilities:

- Preparation of the master sample list with input from the Test Manager
- Preparation of the pre-labeled sample recovery containers
- Preparation and providing the XAD resin traps and filters for the various sampling trains
- Preparation of the RFA/COC documentation for the sample collection
- Receiving, verifying, and documenting that incoming field samples correspond to the sample chain of custody information
- Notifying the Test Manager and CHSL Test Project Manager of any discrepancies or problems in the COC and RFA information, preservation, or sample condition
- Maintaining records of incoming samples
- Tracking samples through processing, analysis, and disposal
- Designating QC samples for analysis during the project
- Verifying that laboratory personnel are trained and qualified in specified laboratory QC and analytical procedures
- Verifying that laboratory QC and analytical procedures are being followed as specified in this QAPP, the laboratory specific QA/QC Plan, and the laboratory specific analytical standard operating procedures (SOPs)
- Reviewing QC and sample data during analysis and determining if repeat analyses are needed
- Submitting certified QC and sample analysis results and data packages to the Test Manager
- Notifying the Test Manager of any QC excursions during the preparation and analysis of the field samples or associated QC samples
- Archiving analytical data
- Preparing a statement of the analysis activities for inclusion in the final test report executive summary regarding if any of the test data are invalid or unusable.

4.8 QUALITY ASSURANCE OFFICER

The Quality Assurance Officer's (QAO's) responsibilities include the following:

- Reviewing the stack sampling and analytical reports for completeness and accuracy
- Conducting or coordinating any required audits of the data reduction or laboratory procedures to ensure compliance with the QAPP

- Reviewing the stack sampling report for completeness of the data including documentation of the required calibrations
- Conducting validation of the analytical data generated for completeness of the reports including documentation of the required QA/QC analyses and corrective actions
- Preparing a report of the QA/QC activities that summarizes the findings, including a statement for inclusion in the final the report executive summary regarding if any of the test data are invalid or unusable.

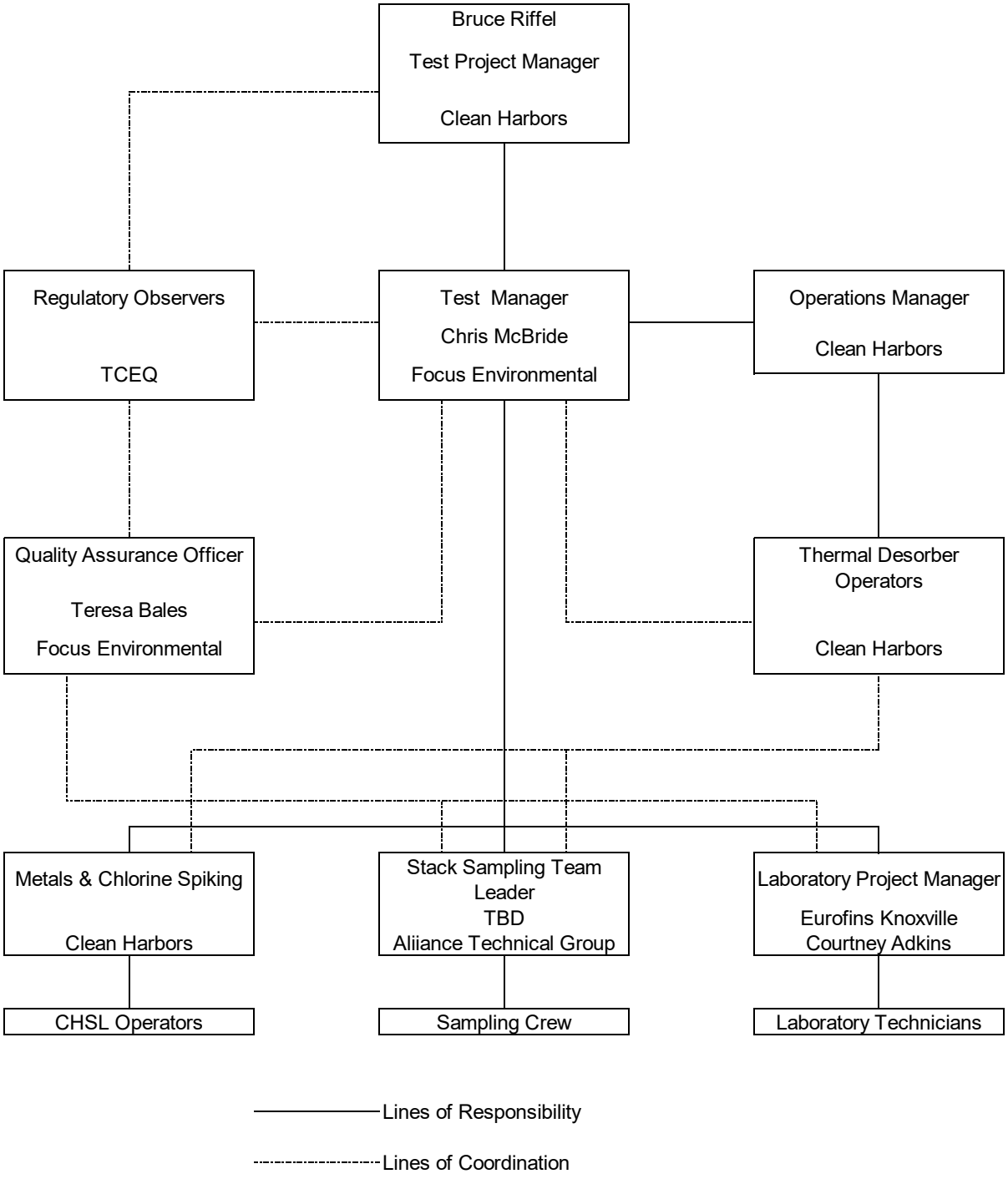

Figure 4-1. CHSL Thermal Desorber Test Project Organization and Responsibility

5.0 QUALITY ASSURANCE OBJECTIVES AND QUALITY CONTROL OBJECTIVES

5.1 GENERAL

The project sampling and analysis scope is summarized in Section 3.0 of this QAPP. The selected stack sampling contractor and the contract laboratory are well experienced in the types of sampling and analyses represented by this test program. The analytical laboratory will provide method detection limits (MDL) and reporting limits (RL) for each analysis. The laboratory will provide the best and lowest detection limits for all testing parameters.

The overall quality assurance objective is to produce a complete data set that can be used to fully assess and validate the operation of thermal desorber relative to the RCRA Subpart X requirements. This includes a number of quality indicators necessary to assess the precision and accuracy of all the test data.

The field and laboratory data obtained during this test will be reviewed by the Test Manager and Quality Assurance Officer for compliance with data quality objectives (DQOs) and the overall project objective. Data that are outside of the target DQO limits will be evaluated relative to the impact(s) on the overall project objective of assessing the thermal desorber's performance. The data evaluation narrative will be included in the final test report.

Table 5-1 presents target DQOs for precision and accuracy for each type of analysis that will be performed during the test program. QA/QC objectives for precision, accuracy, representativeness, completeness and comparability are defined in this section. Procedures and formulas for determining accuracy and precision are presented in Section 13.0 of this document. The following definitions briefly describe the meaning of each QA/QC objective:

Precision: A measure of mutual agreement among individual measurements of the same property, usually under "prescribed similar conditions". Various measures of precision exist depending on the prescribed similar conditions. If the number of samples is less than three, the precision is described as range percent or relative percent difference (RPD) from the average of replicate measured values for analysis of the same parameter. If the number of samples is three or greater, precision is best described in terms of relative standard deviation (RSD).

Accuracy: The degree of agreement of a measurement (or an average of measurements of the same parameter) X, with an accepted reference or true value, T. Accuracy is usually expressed as the difference between the two values, X - T, or the difference as a percentage of the reference or true value, 100 (X - T)/T, and sometimes expressed as a ratio, X/T. In some cases, accuracy is described as the percentage recovery of a known quantity of material added to a sample prior to analysis. Accuracy is a measure of the bias in a system.

Completeness: A measure of the amount of valid data obtained compared to the amount expected to be collected under normal conditions. Completeness is usually expressed as a percentage.

Representativeness: The degree to which data accurately and precisely represent a characteristic of a population, parameter variation at a sampling point, process condition, or an environmental condition.

Comparability: The confidence with which one set of data can be compared to another.

5.2 PRECISION AND ACCURACY

A number of procedures will be implemented to assess the precision and accuracy of the sampling and analytical data. All sampling and analytical activities will be conducted following referenced procedures. All reference materials used as calibration standards, surrogate compounds, or laboratory control samples will be of the highest purity commercially available. The calibration of instruments used during analysis will be verified each day that samples are analyzed as described in later sections of this QAPP. Assessment of data precision and accuracy will be accomplished by evaluating the results from multiple analyses of the same parameter, and analysis of standards, duplicates, and spiked samples. Field and laboratory contamination will be assessed through the analysis of reagent, instrument, method, and field and trip blanks.

Precision estimates presented in Table 5-1 represent variability for replicate measurements of the same parameters, expressed in terms of relative percent difference (RPD) for duplicate samples or relative standard deviation (RSD) for three or more measurements, as appropriate. For analyses of samples with detectable concentrations of the target analytes, precision is evaluated by conducting duplicate analyses of unspiked samples and assessing the RPD. In the evaluation of larger data sets (three or more data points), the RSD is assessed. When duplicate analyses are performed, the original analysis result will be used in test calculations. If the variances in the duplicate analyses bring into question the analytical precision, additional analyses, if allowed by the method, will be performed to better determine the actual value or to evaluate the potential reason(s) for the measurement variability.

For analytical results near the detection limit, precision can be impacted. For the cases where the original and duplicate results are a combination of detect and non-detect results at the method detection limit (MDL) where precision cannot be calculated, the data will be flagged as estimated.

Accuracy values in Table 5-1 include components of both random error and bias, expressed as a percentage of the “true” of “known” value (for reference materials) or percent analyte recovery (for spiked samples). The QA/QC program will focus upon controlling measurement error within the estimated limits of measurement uncertainty, as specified in Table 5-1. It should be noted that these limits are estimates that are, in most cases, described in the referenced analytical methods or in QA/QC guidance for hazardous waste thermal treatment. They represent the range of results that can be expected from these methods based on actual field sampling results and laboratory-based QA/QC studies. Therefore, it is reasonable to expect that the measurement errors associated with this project will be within the objectives shown in Table 5-1. QA/QC determinations which fall outside of the target range will be flagged and an assessment of the impact, if any, on the usefulness of the data on the overall results and conclusions of the test program will be provided in the final test report.

The analytical laboratory's National Environmental Laboratory Accreditation Program (NELAP) accredited standard operating procedures (SOPs) for each analysis will be followed. If during the course of test sample analyses, an analytical result exceeds the calibrated range for a target analyte, or any other analytical anomalies are noted with any test samples, the Test Manager is to be contacted immediately to discuss the results/issues and possible options before proceeding with the subject analyses. If ongoing QA/QC procedures reveal that a measurement's error has exceeded the estimated data quality limits, the source of the excessive error will be identified and corrective action will be taken, as described in Section 14.0. If data fall outside the acceptable range of precision and accuracy, even after corrective action has been taken, those data points will be flagged in the final analytical report. The precision and accuracy for those measurements will be reported as determined using the actual data. Also, alternative procedures (either sampling or analytical) may be considered and recommended if possible.

5.2.1 Solid Feed Sample Properties

Duplicate analyses will be used to demonstrate the precision (reproducibility) and accuracy of the thermal desorber solid feed sample analyses for heating value and total chlorine content. Where possible, laboratory standards will be used to demonstrate the accuracy of the analytical method applied to the project samples.

5.2.2 Solid Feed Sample Metals

Duplicate analyses will be used to demonstrate the precision (reproducibility) and accuracy of the thermal desorber solid feed sample analyses for metals content. The solid feed metals analyses also include system of matrix spikes are performed to provide appropriate and defensible reporting limits for metals in these samples. Spiked samples will be spiked with metal analytes at 3 to 5 times the MDL used for the inductively coupled argon plasma spectroscopy (ICP) for non-mercury (non-Hg) metals and cold vapor atomic adsorption spectroscopy (CVAA) for mercury (Hg) to demonstrate the recovery and reproducibility of the methods. Where possible, laboratory standards will be used to demonstrate the accuracy of the analytical method applied to the project samples.

5.2.3 Method 23 PCDD/PCDF Sampling Precision and Accuracy

EPA Method 23 will be used to sample the stack gas for emissions of PCDD/PCDF. Prior to use in the field, all the XAD-2 resin traps for use in the Method 23 sampling train are spiked with isotopically-labeled the PCDD/PCDF sampling surrogate compounds as noted in Table 5-2. Two of the XAD-2 resin traps prepared for this project will also have PCDD/PCDF matrix spikes applied and are retained by the laboratory. These two XAD resin traps are then included with the field samples when they are returned to the laboratory for analysis. The recoveries of the PCDD/PCDF isotopically-labeled sampling surrogates and matrix spike compounds from these two retained XAD resin trap samples provide an accuracy assessment of the Method 23 analytical methodology. The recovery of the isotopically-labeled sampling

surrogates spiked onto every field-use XAD resin sample provides a field through analysis accuracy assessment of the Method 23 methodology. The recoveries of the internal standard, alternate standard, and recovery standard compounds applied during the preparation and analysis of the Method 23 sampling train components provide accuracy and precision measurements for the sample preparation and analysis steps. Table 5-1 notes the RPD and RSD values for the Method 23 PCDD/PCDF analyses. Table 5-2 lists the isotopically-labeled sampling surrogates and matrix spike compounds per the Method 23 analytical methodology.

5.2.4 Method 29 Multi-Metals Precision and Accuracy

A Method 29 sampling train will be operated to measure metals emissions. Non-detect results are expected for Method 29 stack gas samples for metals due to the relatively low feed rates of metals and the corresponding low concentrations of metals expected in the stack gas. The test program includes collection of a blank Method 29 train and reagent blanks to assess blank contamination levels. The analysis program includes post-digestion spikes of actual Method 29 samples. The recovery and reproducibility of these spikes and analyses will be used to verify that any non-detect values for Method 29 stack gas samples are valid. The spiked samples will be spiked with metal analytes at 3X to 5X the MDL used for the ICP and CVAA to demonstrate the recovery and reproducibility of the preparation and analysis methods.

5.2.5 Method 5/26A Chloride Sampling Precision and Accuracy

The analysis of the Method 5/26A samples for chloride includes a system matrix spike/matrix spike duplicate (MS/MSD) analyses to evaluate the precision and accuracy of the ion chromatography analytical methodology. Matrix spikes to Method 26A field samples and reagent blanks will be performed at the greater of 2 times (2X) the sample's apparent native concentration or 10 times (10X) the MDL used for the ion chromatography method to demonstrate the recovery and reproducibility of the method. The relative recoveries of the matrix spikes provide a measure of the accuracy of the chloride ion analysis methodology. Additionally, precision is assessed via duplicate analyses of field, reagent blank, calibration standard, and QC samples.

The gravimetric analysis of the Method 5/26A samples for particulate analyses includes replicate weighings to assess analysis precision. The analytical balance accuracy is verified using Class S weights.

5.2.6 Temporary CO_2, O_2, CO, and THC CEMS Precision and Accuracy

Temporary analyzers for carbon monoxide, carbon dioxide, oxygen, and total hydrocarbons will be used to demonstrate compliance with CO, O_2, and THC emissions standards and measure concentrations of O_2 and CO_2 for determination of stack gas molecular weight and flow. The temporary CEMS will be calibrated and operated in accordance with 40 CFR 60, Appendix A, Methods 3A, 10, and 25A. The precision and accuracy of the analyzers will be assessed during the test using the recommended calibration gases. During the test, the analyzers will be calibrated before and after each test run.

5.3 DETECTION LIMITS AND REPORTING

How the detection limits will be used in data reduction and reporting is described in Section 11.0.

Method detection limits (MDLs) are statistically determined using guidance provided in 40 CFR Part 136, Appendix A, based on at least seven replicate samples with a concentration of the compound near the estimated MDL . Reporting limits (RLs) are based on the lowest calibration standard. PCDD/PCDFs are reported to Estimated Detection Limits (EDL) . The EDL for isotope dilution analysis methods as defined in SW-846 Method 8290A is:

> EDL (from SW-846 Method 8290A) -*"The sample specific estimated concentration of a given analyte required to produce a signal with a peak height of 2.5 times the background signal level."*

The actual detection limits may be influenced by interferences or matrix complications that cannot be predicted prior to sampling and analysis. If interferences or matrices effects are encountered then re-evaluation of detection limits may need to be performed.

For inorganic analyses, the laboratory report will provide both the sample specific Method Detection Limit (MDL) and the Reporting Limit (RL) for each analysis. If the analyte is detectable at some value between either the MDL and RL, the detected value will be reported and flagged as estimated. The laboratory will also provide a description detailing how each detection limit and reporting limit was derived.

For the PCDD/PCDF isotope dilution analysis, the non-detects will be determined using the method-specific SW-846 definition of an Estimated Detection Limit (EDL) without the use of empirical factors or other mathematical manipulations specific to the laboratory. EPA Method 23 also requires determination of a MDL and RL. All non-detects for target PCDD/PCDF analytes will be reported at the laboratory EDL, MDL, and RL.

5.3.1 Stack Gas Dioxin/Furan

Sampling for PCDD/PCDF emissions will be measured using Method 23. The Method 23 sampling train XAD-2 resin traps will be pre-spiked with isotopically labeled sampling surrogate compounds for PCDD/PCDF as prescribed by Method 23. The recoveries of the surrogate spikes will demonstrate the required accuracy performance. PCDD/PCDF will be analyzed via HRGC/HRMS. The RL, EDL and MDL will be reported for each 2,3,7,8-chlorinated dioxin and furan congener, and tetra- through octa- congener groups.

5.3.2 Stack Gas Metals Samples

Non-detect results may be reported for Method 29 stack gas samples for some metals. The test program includes collection of a blank Method 29 train and reagent blanks to assess blank levels of the target metal analytes. The analysis program also includes a system of matrix spike/matrix spike duplicate (MS/MSD) and post-digestion spikes (PDS) of actual Method 29 samples. The recovery and reproducibility of these

spikes and analyses will serve to prove that any non-detect values for Method 29 stack gas samples are valid. The spiked samples will be spiked with metal analytes at 3 to 5 times the MDL used for the ICP and CVAA to demonstrate the recovery and reproducibility of the preparation and analysis methods.

5.3.3 Stack Gas Chloride and Particulate

Non-detect results may be reported for Method 26A stack gas chloride. The matrix spike samples and reagent blanks of the Method 26A impinger solutions will show that any non-detect values are appropriate. Matrix spikes will be performed at levels 3 to 5 times the MDL used for the ion chromatography method to demonstrate the recovery and reproducibility of the method. Each field sample, calibration standard, and QC sample will be analyzed in duplicate. For particulate analyses, duplicate measurements will entail replicate weight determinations to demonstrate reproducibility and consistency, and balance calibration standards will be used to assess analytical accuracy.

5.4 COMPLETENESS

Data completeness represents the valid data collected from the total number of valid tests conducted. Samples resulting from test runs that are judged invalid based on field performance indicators or aborted runs will not be submitted to the laboratory for analysis. Because the possibility exists that a sample may be lost or broken, the data from each individual analytical parameter may not be complete for all test runs. The impact of any occurrence of sample loss will be assessed with regard to the objective of obtaining valid runs and will be discussed in the final test report. The completeness objective of this test program is to generate sufficient data for the regulatory agencies to assess the compliance performance of the system.

5.5 REPRESENTATIVENESS AND COMPARABILITY

The sampling procedures chosen for the test program are, wherever possible, approved EPA or American Society for Testing Materials (ASTM) sampling methods that are typically employed on thermal treatment system tests. The use of standard sampling methods affirms sample consistency and representativeness.

Use of standard, approved sampling and analysis methods, standardized data reduction procedures, and QC samples will provide data that is technically defensible and is comparable from test run to test run, test condition to test condition.

5.6 PERFORMANCE EVALUATIONS (AUDIT SAMPLES)

At the time of this TBP publication, EPA's Stationary Source Audit Sample Program (SSASP) is suspended. From EPA's website:

> https://www.epa.gov/emc/emc-technical-support#audit
>
> "*List of Accredited Audit Sample Providers and Audit Samples*

> *The general provisions to 40 CFR Parts 60 and 63 (see §60.8(g)(1) and §63.7(c)(2)(iii)(A)) require that the owner or operator obtain audit samples if the audit samples are "commercially available" and have defined "commercially available" as two or more independent accredited audit sample providers (AASP) to have blind audit samples available for purchase. Since there are no longer two providers, the requirement to obtain these audit samples is no longer in effect until such time as another independent AASP has audit samples available for purchase.*
>
> *When there are two or more AASP with audit samples available for purchase, we will update this webpage with the name or names of the providers and audit sample(s) available for purchase. At that time, this information must be listed on the EMC website for 60 days before audits are required again.*"

The two SSASP sample providers were Sigma Aldrich and ERA. Sigma Aldrich has stopped selling audit samples to support the SSASP thus suspending the SSASP requirement. However, audit sample availability for Method 26A, Method 29, and Method 23 will be determined at the time of testing and samples obtained as possible. If obtained, audit samples will be included with the other emissions samples for analysis by the selected analytical laboratory.

Table 5-1. Test Analytical Data Quality Objectives

Parameter	QC type	Precision	Accuracy
Solid Feed Analyses			
Heating value and total chlorine	Duplicates	≤ 10% RPD	---
	Reference Sample	---	± 10%
Metals	Duplicates	≤ 35% RPD	---
	Matrix Spikes	≤ 30% RPD	± 35%
Method 23 Sampling Train (PCDD/PCDF)			
Method 23 PCDD/PCDF	Spiked Resin Blanks	≤ 25% RPD	75-125%
	PCDD/PCDF C^{13} Labeled Sampling Surrogate Spike	≤ 35% RSD	Table 5-2
	PCDD/PCDF C^{13} Isotope Dilution Internal Standard Spikes	---	Table 5-2
	PCDD/PCDF C^{13} Labeled Pre-Analysis Internal Standard Spikes	---	Table 5-2
Method 5/26A Sampling Train			
Particulate Matter	Replicate Weighings	± 0.5 mg	± 0.5 mg
Hydrogen Chloride/Chlorine	Duplicate Analysis	≤ 35% RPD	---
	Matrix Spikes	≤ 35% RPD	± 30%
	Reference Sample	---	± 10%
Continuous Emissions Monitors			
Carbon Monoxide	EPA Method 10	± 3% of Span	± 5% of Certified Calibration Gas
Total Hydrocarbons	EPA Method 25A	± 3% of Span	± 5% of Certified Calibration Gas
Carbon Dioxide	EPA Method 3A	± 0.5% Carbon Dioxide	± 0.5% Carbon Dioxide
Oxygen	EPA Method 3A	± 0.5% Oxygen	± 0.5% Oxygen

Table 5-2. Dioxin/Furan Isotopically-Labeled Spike Compounds

Spike Compound	Target Recovery
Pre-sampling Adsorbent Standard	
$^{13}C_{12}$-1,2,3,4-TetraCDD	70-130%
$^{13}C_{12}$-1,2,3,4,7-PentaCDD	70-130%
$^{13}C_{12}$-1,2,3,4,6-PentaCDF	70-130%
$^{13}C_{12}$-1,2,3,4,6,9-HexaCDF	70-130%
$^{13}C_{12}$-1,2,3,4,6,8,9-HeptaCDF	70-130%
Pre-extraction Filter Recovery Standard	
$^{13}C_{12}$-1,2,7,8-TetraCDF	70-130%
$^{13}C_{12}$-1,2,3,4,6,8-HexaCDD	70-130%
Pre-extraction Standard	
$^{13}C_{12}$-2,3,7,8-TetraCDD	20-130%
$^{13}C_{12}$-2,3,7,8-TetraCDF	20-130%
$^{13}C_{12}$-1,2,3,7,8-PentaCDD	20-130%
$^{13}C_{12}$-1,2,3,7,8-PentaCDF	20-130%
$^{13}C_{12}$-2,3,4,7,8-PentaCDF	20-130%
$^{13}C_{12}$-1,2,3,4,7,8-HexaCDD	20-130%
$^{13}C_{12}$-1,2,3,6,7,8-HexaCDD	20-130%
$^{13}C_{12}$-1,2,3,7,8,9-HexaCDD	20-130%
$^{13}C_{12}$-1,2,3,4,7,8-HexaCDF	20-130%
$^{13}C_{12}$-1,2,3,6,7,8-HexaCDF	20-130%
$^{13}C_{12}$-2,3,4,6,7,8-HexaCDF	20-130%
$^{13}C_{12}$-1,2,3,7,8,9-HexaCDF	20-130%
$^{13}C_{12}$-1,2,3,4,6,7,8-HeptaCDD	20-130%
$^{13}C_{12}$-1,2,3,4,6,7,8-HeptaCDF	20-130%
$^{13}C_{12}$-1,2,3,4,7,8,9-HeptaCDF	20-130%
$^{13}C_{12}$-OctaCDD	20-130%
$^{13}C_{12}$-OctaCDF	20-130%
Pre-analysis Standard	
$^{13}C_{12}$-1,3,6,8-TetraCDD	S/N≥10
$^{13}C_{12}$-1,2,3,4-TetraCDF	S/N≥10
$^{13}C_{12}$-1,2,3,4,6,7-HexaCDD	S/N≥10
$^{13}C_{12}$-1,2,3,4,6,7,9-HeptaCDD	S/N≥10
Alternate Recovery Standard	
$^{13}C_{12}$-1,3,7,8-TetraCDD	20-130%
$^{13}C_{12}$-1,2,4,7,8-PentaCDD	20-130%

6.0 SAMPLING AND MONITORING PROCEDURES

6.1 GENERAL

The objective of this test program is the collection of representative solid feed and stack gas samples to demonstrate compliance of the thermal desorber with the RCRA Subpart X performance and emissions standards. To meet this objective requires minimizing the potential sources of sample contamination or bias imparted to the samples by the sampling equipment, ambient conditions, handling, and preservation. The test program samples will be collected using the methods summarized in Table 6-1. The total numbers of field samples expected to be generated during the thermal desorber testing are also summarized Table 6-1.

Guidelines followed to determine sampling equipment to be used, sampling points, and the frequency at which samples are to be taken are presented in the TBP and are incorporated here by reference. The reference sources for the standard sampling method references include:

- Appendix A to 40 CFR 60, Test Methods and Procedures, New Source Performance Standards, 40 CFR 60 (EPA)
- Test Methods for Evaluating Solid Waste, SW-846, Third Edition, 1986 and updates (SW-846)
- American Society for Testing and Materials (ASTM) Annual Book of ASTM Standards.

Reference sampling and analytical methods are identified in the TBP and this QAPP. The specifics of the sampling and analytical methodologies followed during the course of test execution by the selected sampling and analytical contractors include the referenced nationally recognized methods (ASTM, SW-846, 40 CFR 60 Appendix A, etc.) and/or the contractor-specific standard operating procedures (SOPs) as recognized by NELAP.

During the course of sampling and analysis, situations may still arise that require modifying the specific sampling or analytical procedures included or referenced in the TBP or this QAPP. For the stack gas samples, there are few alternatives to the analysis methods prescribed in SW-846 or 40 CFR 60. The NELAP-approved laboratory SOPs, which include a number of procedures for special circumstances, will be followed. In cases where the laboratory finds it necessary to make adjustments to the analytical methods, the changes will be documented following the corrective action procedures noted in Section 14.0 of this QAPP. Any such changes must be approved by the Test Manager. Regulatory observer approval (if present on-site during testing) will be requested if significant deviations from planned sampling procedures are encountered during the testing.

All stack sampling equipment and glassware will be prepared prior to the test according to the method specifications. Following each test run, the samples will be recovered from the sampling trains. The sample recovery procedures include prescribed rinses of the trains, which serve a dual purpose of sample recovery

and decontamination of the train in preparation for the next run. Rinses that are not included in the sample recovery will be placed into a waste solvent container.

Process samples will be collected using dedicated sampling equipment (sample bottles, funnels, jars, etc.) at each sampling location, thus eliminating the potential for cross contamination from one sample matrix to another. New sampling containers are used for each test run. If the same equipment will be used for more than one run, the equipment will be decontaminated by additional solvent rinses. Any decontamination solution generated will be collected by the facility operators for proper disposal.

During the test program, the thermal desorber will be operated and tested at the conditions specified in the TBP. The following samples will be collected during the test:

- Solid Feed Samples
- Stack Gas Samples
  - SW-846 Method 23 for PCDD/PCDF
  - EPA Method 29 for Metals
  - EPA Method 5/26A for Filterable Particulate and HCl/Cl_2
  - Temporary CEMS for CO_2 and O_2 (EPA Method 3A)
  - Temporary CEMS for CO (EPA Method 10)
  - Temporary CEMS for THC (EPA Method 25A).

Sample tracking is documented using unique alphanumeric sample numbering applied to every sample.

6.2 SOLID MATERIAL FEED SAMPLES

Actual customer feed materials will be used during testing. To the extent possible, the selected feedstocks will be limited to the fewest number of distinct lots or batches of uniform materials. Ideally, a single uniform feedstock lot or batch will be used for the entire test period, but is unlikely. Samples for analysis will be collected prior to the test or as-fed during the test.

6.3 STACK GAS SAMPLING METHODS

6.3.1 General

During the test program, the Stack Sampling Team Leader and the Test Manager are responsible for monitoring the sampling team's adherence to the standard stack sampling procedures, especially sampling train preparation; leak checks and recoveries (including blank trains); and reagent, field, and trip blanks. The Stack Sampling Team Leader is responsible for the operation and recovery of the stack sampling equipment and stack gas samples. The Test Manager is responsible for ensuring the stack gas and process samples are prepared for shipment to the laboratory. Sampling train calibration procedures are discussed in Section 8.0.

EPA Methods 1 and 2 will be used to determine the number and location of sampling traverse of isokinetic sampling locations and check for cyclonic flow. Documentation of Method 1 (including cyclonic flow check) and Method 2 (pitot tube measurements) will be included in the stack sampling report. Pitot tube traverses will also be performed at 16.7%, 50%, and 83.3% of the stack diameter at the temporary CEMS sampling port to check for stratification.

The cyclonic flow check will be performed at the isokinetic sampling ports prior to beginning the testing in accordance with the methodology specified in Section 11.4 of Method 1. Specifically, a Type S pitot tube will be positioned at each traverse point, in succession, so that the planes of the face openings of the pitot tube are perpendicular to the stack cross-sectional plane; when the Type S pitot tube is in this position, it is at "0 degree reference". The differential pressure (dP) reading at each traverse point will be recorded. If a null (zero) pitot reading is obtained at 0 degree reference at a given traverse point, an acceptable flow condition exists at that point.

If the pitot reading is not zero at 0 degree reference, the pitot tube will be rotated (up to ±90 degree yaw angle), until a null reading is obtained. The value of the rotation angle using an angle finder will be recorded to the nearest degree. After the null technique has been applied at each traverse point, the average of the absolute values of the rotation angles will be calculated. Zero will be assigned to those points for which no rotation was required, and these points will be included in the overall average. The overall flow condition in the duct is acceptable if the average value of the rotation angle is less than or equal to 20 degrees

During each test run, the stack gas carbon dioxide and oxygen concentrations will be measured using EPA Method 3A. The stack gas carbon dioxide and oxygen concentrations are used to determine the stack gas molecular weight. Certified calibration gases containing at least five percent (5%) volume carbon dioxide and/or at least five percent (5%) volume oxygen may be used as reference standards analyzer.

Stack gas moisture content will be determined for each isokinetic sampling train via EPA Method 4 (sampling train moisture gain). Isokinetic sampling train silica gel impingers will be filled with fresh, dry indicating silica gel at the beginning of the test program. During the sampling train recovery process, and subsequent test runs, each indicating silica gel impinger will be inspected prior to reuse to verify that sufficient capacity remains for moisture absorption during the next test run. Silica gel more than 50% utilized will be discarded and the impinger recharged with fresh dry indicating silica gel.

6.3.2 EPA Method 23 for PCDD/PCDF

An EPA Method 23 sampling train will be used to sample stack gas for PCDD/PCDF. The Method 23 sampling train will be operated for 180 minutes (3 hours) to sample a target volume of 2.5 dry standard cubic meters of stack gas during each sampling run. Prior to each test run, the Method 23 sampling train will be assembled and leak checked. During sampling, the sampling rate will be adjusted to maintain an isokinetic sampling rate. The sorbent traps will be kept below 68ºF during sampling to ensure that the XAD resin stays efficient during the testing.

At the completion of the test run, a final leak test will be performed on the sampling system. The Method 23 sampling train will be recovered as follows:

1. Container No. 1 - The filter will be removed from its holder, placed in a glass Petri dish, and sealed with Teflon tape.

2. Container No. 2 - The probe and nozzle will be brushed and rinsed three times (3X) with acetone and then 3X with toluene. The front half of the filter holder will be rinsed 3X with acetone and then 3X with toluene. The back half of the filter holder, coil condenser, and connecting glassware will be rinsed 3X with acetone and then 3X toluene. All acetone and toluene rinses will be combined in a single sample bottle.

3. The sorbent trap will be removed, sealed with Teflon tape, weighed for moisture gain, and the weight recorded. The trap will be sealed in a Ziplock bag and refrigerated or stored on ice.

4. Each water impinger will be individually weighed for moisture gain and the weight recorded. The contents of the water impingers may be discarded after weighing as this sampling train fraction is not used for PCDD/PCDF analyses.

5. The silica gel impinger will be weighed for moisture gain and the weight recorded. The silica gel will be inspected for possible reuse or replacement. If more than 50% used, the silica gel will be replaced with fresh silica gel.

The Method 23 sampling train analysis includes a spiking program that will allow for complete assessment of the sampling and analytical effort regarding the overall method accuracy. Spiked compounds will be placed on the components of the train at different stages of the sampling and analytical program so that the efficiency of the method's performance can be measured quantitatively. By assuming that these compounds have chemical characteristics that are identical to the PCDD/PCDF target compounds, the overall method efficiency can be assessed. These types are defined as follows:

- Sampling Spikes – These compounds are spiked directly onto the XAD-2 resin at the laboratory during resin tube preparation and prior to any field handling or sampling. The final recovery of these compounds gives the most comprehensive indication that the determination of native compounds using the PCDD/PCDF methodology is accurate. For the PCDD/PCDF analyses the Isotope Dilution Internal Standards are used to quantitate target analyte concentrations present in the samples.
- Isotope Dilution Internal Standard Spikes – These compounds are placed directly onto the sample just prior to the preparation and extraction steps. The final recovery efficiency of these compounds reflects the overall accuracy of the sample's laboratory handling and analysis. For PCDD/PCDF analysis the Recovery Standards are used to calculate the recovery of the Isotope Dilution Internal Standards that were added prior to the sample preparation.
- PCDD/PCDF Recovery Standards – These compounds are applied to the sample extracts just before the extracts are introduced onto the GC/MS instrument injection ports. These compounds are precisely applied at this step in the analytical scheme and provide the actual relative response factors that are used to calculate analyte concentrations.

Table 5-2 lists the isotopically labeled surrogates used as required by Method 23. Spiking levels may be adjusted in accordance with the laboratory QA requirements and SOPs.

Once during the trial burn, a Method 23 blank train will be assembled and charged with all required reagents in a fashion that is identical to that of the actual sample train. This blank train will be heated and leak-checked in the same manner as the actual train, placed near the base of the stack, and sealed for the duration of one sampling run. Upon completion, the blank train samples will be recovered applying the same procedures used to collect actual trial burn train samples. The blank train samples will be analyzed for the PCDD/PCDF using the same handling and analysis procedures performed on the actual sampling trains. The results of the blank train samples will indicate any possible contamination introduced to the samples by contaminated reagents, improper preparation or handling techniques, or contamination problems due to impure reagents. As well, field and trip blank XAD-2 resin tube samples will be collected to assess fugitive contamination reaching the samples during various sample handling stages.

6.3.3 EPA Method 29

An EPA Method 29 sampling train will be used to sample the stack gas mercury, SVM, and LVM emissions. The sampling train will be assembled at the sampling location. Prior to each test run, the Method 29 sampling train will be leak checked. During sampling, the sampling rate will adjusted to maintain an isokinetic sampling rate. Upon completion of each test run and final leak check, the sampling train will be recovered as follows:

1. The filter is removed from the filter holder and placed in a clean Petri dish and labeled as Container No. 1.

2. Optional for PM emissions determination only: A brush and acetone are used to clean the probe and other fittings as required. The rinses from the inner surfaces of the nozzle and upstream portions of the filter holder are collected in a bottle and labeled Container No. 2.

3. A brush and 0.1N HNO_3 are then used to rinse the probe and other fittings as required. The rinses from the inner surfaces of the nozzle and upstream portions of the filter holder are collected in a glass bottle and labeled as Container No. 3.

4. Impingers 1, 2, and 3 are individually weighed for moisture gain and the weight recorded. The contents of all three impingers are then transferred to a single glass collection bottle. Each impinger is then rinsed with 0.1N HNO_3 and the rinses added to the to the collection bottle. The collection bottle is labeled as Container No. 4.

5. Impinger 4 is weighed for moisture gain and the weight recorded. The contents of the impinger are then transferred to a glass collection bottle. The impinger is then rinsed with 0.1N HNO_3 and the rinses are transferred to the bottle. The collection bottle is labeled as Container No. 5A.

6. Impingers 5 and 6 are individually weighed for moisture gain and the weight recorded. The contents of all three impingers are then transferred to a single glass collection bottle. Each impinger is then rinsed with acidic permanganate solution and DI water and the rinses are transferred to the bottle. The collection bottle is labeled as Container No. 5B. The impingers are then rinsed with 8N HCl. The HCl rinses are transferred to a single glass collection bottle. The collection bottle is labeled as Container No. 5C.

7. Impinger 7 containing silica gel is weighed for moisture gain and the weight recorded. The silica gel will be inspected for possible reuse or replacement. If more than 50% used, the silica gel will be replaced with fresh silica gel.

8. A 200 ml reagent blank of the nitric acid will be placed in Container No. 6.

9. A 200 ml reagent blank of the acidified peroxide solution will be placed in Container No. 7.

10. A 200 ml reagent blank of the acidified permanganate will be placed in Container No. 8.

11. A 200 ml reagent blank of the 8N HCl will be placed in Container No. 9.

12. A glass petri dish with a particulate filter reagent blank will be collected as Container No. 10.

Non-mercury metals will be analyzed by SW-846 Method 6010C [inductively coupled argon plasma spectroscopy (ICP or ICAP)]. Mercury will be analyzed by SW-846 Method 7470A [cold vapor atomic absorption spectroscopy (CVAA or CVAAS)]. Accuracy and precision are measured though the use of a post-digestion matrix spike and matrix spike duplicate analyses. The six (6) Method 29 sampling train fractions will undergo five (5) separate analyses as follows:

- The nitric acid probe rinse and the particulate filter will be combined and digested in the laboratory as the front half composite sample and analyzed for Hg and the non-Hg target metals.
- The condensate knockout impinger (Impinger 1) and the HNO_3/H_2O_2 impingers (Impingers 2-3) catches will be digested in the laboratory and analyzed for Hg and the non-Hg target metals.
- The empty impinger (Impinger 4) catch will be digested in the laboratory and analyzed for Hg.
- The $KMnO_4/H_2SO_4$ impinger (Impingers 5-6) catches will be digested in the laboratory and analyzed for Hg.
- The 8N HCl rinse of Impingers 5-6 will be digested in the laboratory and analyzed for Hg.

Once during the trial burn, a Method 29 blank train will be assembled and charged with all required reagents in a fashion that is identical to that of the actual sample train. This blank train will be heated and leak-checked in the same manner as the actual train, placed near the base of the stack, and sealed for the duration of one sampling run. Upon completion, the blank train samples will be recovered applying the same procedures used to collect actual trial burn train samples. The blank train samples will be analyzed for the target metals using the same handling and analysis procedures performed on the actual sampling trains. The results of the blank train samples will indicate any possible contamination introduced to the samples by contaminated reagents, improper preparation or handling techniques, or contamination problems due to impure reagents.

6.3.4 EPA Method 5/26A for Particulate and HCl/Cl_2

An EPA Method 5/26A sampling train will be used to sample the stack gas for particulate and HCl/Cl_2. Prior to each test run, the Method 5/26A sampling train will be assembled and leak checked. During sampling, the sampling rate will adjusted to maintain an isokinetic sampling rate. At the conclusion of each test run, after the final leak check is performed, the train will be recovered as follows:

1. The particulate filter will be recovered, placed in a glass petri dish, and labeled as Container No. 1.
2. The probe and nozzle will be brushed and rinsed with acetone. The front half of the filter holder will be rinsed with acetone. All acetone rinses will be collected in a single amber glass bottle and labeled as Container No. 2.
3. The contents of Impinger 1 will be weighed for moisture gain and then placed in Container No. 3. The impinger will then be rinsed with deionized water and the contents placed in this container.
2. The contents of Impingers 2 and 3 will be weighed for moisture gain and then placed in Container No. 4. The impingers will then be rinsed with deionized water and the contents placed in this container.
3. The contents of Impingers 4 and 5 will be weighed for moisture gain and then placed in Container No. 5. The impingers will then be rinsed with deionized water and the contents placed in this container.
4. Impinger 6 (indicating silica gel) will be weighed for moisture gain and inspected for possible reuse or replacement. If more than 50% used, the silica gel will be replaced with fresh silica gel.
5. A 200 ml reagent blank of the 0.1N H_2SO_4 will be placed in Container No. 6.
6. A 200 ml reagent blank of the 0.1N NaOH will be placed in Container No. 7.
7. A 200 ml reagent blank of the deionized water will be placed in Container No. 8.
8. A 200 ml reagent blank of the acetone will be placed in Container No. 9.
9. A glass petri dish with a particulate filter reagent blank will be collected as Container No. 10.

The chloride concentrations of the deionized water impinger samples, the sulfuric acid impinger samples and the sodium hydroxide impinger samples will be reported separately. Analyses of these samples will be conducted using EPA Method 26A.

The stack gas filterable particulate emissions are determined by analysis of the Method 5/26A sampling train tare weighed filter and front-half acetone probe rinses. The tare weighed particulate filter PM catch is determined by the differential weight of the particulate collected. Filter samples are dried to a constant weight to the nearest 0.1 mg. Constant weight shall mean a difference between two consecutive weighings of no more than 0.5 mg.

The acetone probe rinse fraction is transferred to a tare weighed flask, evaporated and dried to a constant weight to the nearest 0.1 mg. Constant weight shall mean a difference between two consecutive weighings of no more than 0.5 mg.

The corresponding test run filter and probe rinse residue differential weights are added together. The sum is reported as the test run filterable particulate catch.

Precision for the particulate analyses is determined via replicate weighings. Accuracy is determined by using Class-S weight to verify the scale accuracy.

The stack gas HCl/Cl_2 is sampled by sparging the sampled gas through impingers containing 0.1N H_2SO_4 (acid) and 0.1N NaOH (alkaline) solutions in series. In the acid impingers, HCl gas is captured. Any Cl_2 in the sampled stack gas passes through to the acid impingers and is captured in the alkaline impingers. The chloride concentrations of the acid and alkaline impinger samples are analyzed separately for chloride ion and are reported as HCl and Cl_2 catches, respectively. During the sampling train recovery, the pH of the NaOH impingers are checked separately and noted on the sampling train recovery sheet. Precision for these samples is determined through the use of duplicate analyses of the calibration standard, QC, reagent blank and field samples. Accuracy is determined by matrix spike analyses.

In the alkaline impinger, Cl_2 is captured in solution by its dissociation into chloride ion (Cl^-) and hypochlorite ion (OCl^-). Sodium thiosulfate ($Na_2S_2O_3$) is added to the recovered NaOH solution to convert the hypochlorite (OCl^-) in the sample to chloride (Cl^-). The analysis of the alkaline impinger may include additional thiosulfate addition by the laboratory analyst to complete the conversion of the hypochlorite (OCl^-) in the sample to chloride (Cl^-). The sample is then analyzed for chloride ion concentration. In the data reduction, the chloride analysis result for the alkaline impingers is reported as Cl_2.

The analysis of Method 26A includes H_2SO_4, NaOH and deionized water reagent blanks to assess blank contamination. Precision for the chloride analyses is determined through the use of duplicate analyses of all calibration standards, all QC samples and all field samples. Accuracy is determined by matrix spike analyses of field samples and reagent blanks.

6.4 FIELD QUALITY CONTROL SAMPLES

Field QC samples will be collected during the test to provide an indication of quality assurance for the test samples. The field QC samples include:

- Spiked XAD-2 resin blanks for Method 23 (PCFF/PCDF) retained by the laboratory and included with the field samples when they are delivered to the laboratory
- Blank train for Method 23 (PCDD/PCDF)
- Blank train for Method 29 (Metals)
- Reagent blanks for all sampling trains.

Table 6-1 includes the field QC samples that will be collected.

6.4.1 Spiked Resin Blanks

Two XAD-2 resin traps prepared for the Method 23 sampling train will be spiked with a sampling surrogate and matrix spike compounds. These samples will be extracted and analyzed for PCDD/PCDF by the XAD-2 trap preparation laboratory to demonstrate the resin is free of background contamination, and to confirm that efficient surrogate recoveries are achievable.

6.4.2 Blank Trains and Reagent Blanks

Blank train samples are the samples recovered from sampling trains that have been assembled and charged with all the required chemical reagents and collection media in the same manner as the sampling trains used to sample the stack gases. The sampling trains are leak checked and heated to temperature in a location near the stack. The sampling train remains sealed at the stack location for a period equivalent to the length of time the corresponding sampling train is operated during the test run. The blank train is then recovered in the same way that actual stack gas sampling trains are recovered. The recovered blank train components are labeled as blank train samples and submitted for analysis with the actual stack gas train samples. The results of the blank train samples provide an indication of possible contamination introduced to the samples by reagents, glassware, sampling environment, and sampling recovery. The blank train samples for the stack sampling trains used during this test program will be collected as summarized in Table 6-1. For this test program one blank train for Method 23 PCDD/PCDF and one Method 29 blank train for metals will be collected for analysis.

Reagent blanks are samples of the reagent source solvents, solutions, and other media used in stack sampling. Reagent blank samples for all sampling trains as summarized in Table 6-1.

Table 6-1. Summary of Expected CPT Field Samples

Sample Matrix	Container	Field Samples per Run	Number of Runs	Total Samples
Solid Feed (Batch)				
Physical/Chemical Properties	500 mL amber glass	1	3	3
Metals & Hg	500 mL amber glass	1	3	3
Archive	500 mL amber glass	1	3	3
Stack Method 29 Metals				
Filter	Glass petri dish	1	3	3
Nitric acid probe rinse	250 ml amber glass	1	3	3
Acidified peroxide impinger solution and rinses	1 liter amber glass	1	3	3
Initially empty impinger solution and rinses	500 ml amber glass	1	3	3
Permanganate impinger solution and rinses	500 ml amber glass	1	3	3
HCl rinse of permanganate impingers	500 ml amber glass	1	3	3
Filter (blank train)	Glass petri dish	1	NA	1
Nitric acid probe rinse (blank train)	500 ml amber glass	1	NA	1
Acidified peroxide impinger solution and rinses (blank train)	500 ml amber glass	1	NA	1
Initially empty impinger solution and rinses (blank train)	500 ml amber glass	1	NA	1
Permanganate impinger solution and rinses (blank train)	500 ml amber glass	1	NA	1
HCl rinse of permanganate impingers (blank train)	500 ml amber glass	1	NA	1
Filter reagent blank	Glass petri dish	1	NA	1
Nitric acid solution reagent blank	250 ml amber glass	1	NA	1
Nitric acid/hydrogen peroxide solution reagent blank	250 ml amber glass	1	NA	1
Acidified potassium permanganate solution reagent blank	250 ml amber glass	1	NA	1
HCl solution reagent blank	250 ml amber glass	1	NA	1
Subtotal Method 29 Metals				**29**
Stack Method 0023A PCDD/PCDFs and ODCB				
Filter	Glass petri dish	1	3	3
XAD-2 Resin Trap	Glass trap	1	3	3
Combined acetone/toluene rinses	250 ml amber glass	1	3	3
Filter (Blank Train)	Glass petri dish	1	NA	1
XAD-2 Resin Trap (Blank Train)	Glass trap	1	NA	1
Combined acetone/toluene rinses (Blank Train)	250 ml amber glass	1	NA	1
Acetone Reagent Blank	250 ml amber glass	1	NA	1
Toluene Reagent Blank	250 ml amber glass	1	NA	1
Subtotal Method 0023A PCDD/PCDF & ODCB				**31**
Stack Method 26A Particulate & HCl/Cl_2				
Filter	Glass petri dish	1	3	3
Front half acetone rinse	250 ml amber glass	1	3	3
DI water knockout impinger and rinses	1 liter amber glass	1	3	3
Acid impinger solution and rinses	1 liter amber glass or polyethylene	1	3	3
Alkaline impinger solution and rinses	500 ml amber glass or polyethylene	1	3	3
Acetone reagent blank	250 ml amber glass	1	NA	1
Sulfuric acid solution reagent blank	250 ml amber glass or polyethylene	1	NA	1
Sodium hydroxide solution reagent blank	250 ml amber glass or polyethylene	1	NA	1
DI water reagent blank	250 ml amber glass or polyethylene	1	NA	1
Subtotal Method 26A Particulate & HCl/Cl_2				**19**

7.0 SAMPLE HANDLING, TRACEABILITY, AND HOLDING TIMES

7.1 SAMPLE CUSTODY AND SECURITY

A sample will be considered to be in the custody of a person if it is in his or her possession, in his or her sight, or secured by that person in an approved location accessible only to authorized personnel. Evidence tamper seals will be placed on each sample container.

Sample collection will include preparation of a chain of custody (COC). The COC will accompany the samples from the field to the analytical laboratory. If overnight couriers are utilized, the air bill will serve to document the transfer of custody to the courier. The courier's air bill becomes part of the chain of custody (COC) record. Upon transfer of the samples from the courier to the analytical laboratory, sample custody will be maintained by the analytical laboratory performing the analyses.

Samples for organic analysis (Method 23, etc.) will be maintained on ice ($4\pm2^{o}C$) and shipped to the analytical laboratory in insulated shipping containers. All ice used for shipping samples shall be double bagged in Ziplock® bags to prevent leakage of water during shipping. "Blue ice" may also be used to chill samples. Samples not requiring chilling (particulate, chloride, properties, etc.) may be shipped without ice.

7.2 SAMPLE IDENTIFICATION

Refer to Figure 7-1. In consultation with the Test Manager, the Laboratory Project Manager will prepare the master sample list for the test program. Once the master sample list is set, the alpha-numeric sample numbers will be assigned to every sample. The sample numbers are used to track individual samples from collection through analysis. These items will be shipped to the test site in sealed transport containers. The stack sampling contractor will provide the sampling reagents for field use.

7.3 STACK SAMPLE COLLECTION FORMS

While stack sampling is being performed, the sampling technician will complete a stack sampling record. An example stack field sampling record for iso-kinetic sampling is presented as Figure 7-2. The stack sampling record will be completed in its entirety for every sampling train. This will provide information necessary to perform the emissions calculations. The sampling technician shall provide the completed stack sampling record to the Stack Sampling Team Leader at the completion of each sampling run.

7.4 SAMPLE LABELING

An example sample label format is presented in Figure 7-3. Each sample container will be labeled to show the source of the sample as CHSL; the project identification; sampler's initials; laboratory to which the sample will be shipped; the unique alphanumeric sample number; date and time; sample description; test number; and run number. If a single sample requires multiple containers, the number of the container and the total number of containers will be noted on the label. Project samples will be tracked via the assigned

unique alphanumeric sample numbers. The sample number will appear on the sample label, the request for analysis (RFA), and the chain of custody (COC).

7.5 SAMPLE COLLECTION CHECKLIST

The master sample list identifies every sample by the assigned unique alphanumeric sample numbers (Refer to Figure 7-1), and the corresponding analytical test(s) required. As field samples are acquired and routed through the Sample Custodian, the samples will be checked off against the master list to ensure that all of the appropriate samples have been collected.

7.6 REQUEST FOR ANALYSIS/CHAIN OF CUSTODY

Collected samples will be shipped from the site to the laboratory in sealed containers with COC and RFA forms. Example RFA and COC forms are presented as Figures 7-4 and 7-5, respectively. The Sampling Technician and Sample Custodian will complete the COC and RFA forms for every sample. Some samples may consist of several sub-samples. Each individual component of the sample will be listed separately on the RFA/COC with its own unique alphanumeric sample identification number. The samples will be preserved as needed, and will remain in the possession of the Sample Custodian. The Sample Custodian will secure the samples in a location accessible only to authorized personnel until custody is transferred to a courier for delivery to the laboratory.

7.7 SAMPLE SHIPMENT

Field samples may be transported directly to the analytical laboratory by the test management or sampling contractor. If the samples are shipped via overnight courier, e.g., Federal Express, an individual trained in Federal Department of Transportation (DOT) and International Air Transport Association (IATA) regulations will package the samples to assure compliance with the applicable portions of these regulations.

Prior to shipping any samples, the condition of the samples will be verified: sample temperatures for organic analyses samples, condition of all containers, level of sample within all containers (to be marked on the outside of the container), and type of packing material used. RFA/COCs will be checked to verify there is a RFA and COC for every sample being shipped.

7.8 SAMPLE DELIVERY

Upon receipt of samples at the laboratory, the receiver will accept custody for the shipment by an exchange of signatures with the delivering agent. The shipping containers will be opened by the Laboratory Project Manager or his/her designee and inspected. The container contents will verified against the accompanying RFA/COC. Any damage to the contents of the shipping container or deviations from the original shipment documents will be noted on the COC. A labeled temperature blank (labeled bottle or VOA vial with water) will be shipped in every container with samples for organic analysis expressly for the purpose of determining sample temperatures. The Laboratory Project Manager or designee will, immediately upon opening the

sample packaging, open the temperature blank and measure the temperature of the water inside the temperature blank using a thermometer. This temperature will be recorded on the COCs and any applicable laboratory documentation (sample receipt log).

Individual samples will be sorted and directed to the respective laboratory section responsible for the analyses noted on the RFA. Samples will be secured in a location accessible only to authorized personnel. Samples for organic analysis shall be secured in refrigerated sample storage. The COC forms are used specifically to track the samples. To provide specific instructions to the analysts, the RFAs will accompany the respective COCs.

Transfer of custody to and within the analytical laboratory is addressed in the Laboratory's QA Manual. Upon completion of analysis, samples will be maintained at the laboratory under COC until they are released for proper disposal.

7.9 SAMPLE PRESERVATION

Table 7-1 shows the appropriate containers, preservation, and holding times for all samples to be collected during the test.

Table 7-1. Sample Containers, Preservation, and Holding Times

Parameter	Sample Name/Matrix	Sample Containers	Preservation	Maximum Holding Time[a]
Solid Feed Samples for Properties Analysis	Solid	Amber glass wide mouth bottles or jars with Teflon-lined caps	NA	180 days
Solid Feed Samples for Metals Analysis	Solid	Amber glass wide mouth bottles or jars with Teflon-lined caps	NA	180 days for non-Hg Metals 28 days for Hg
Stack Gas PCDD/PCDF	Stack Gas Method 23 Filter	Glass petri dish	Chill to 4°C	30 days until extraction 45 days after extraction
	Stack Gas Method 23 Sorbent Tube	Standard cartridge wrapped in aluminum foil and sealed in plastic bag	Chill to 4°C	
	Stack Gas Method 23 Solvents	Amber glass bottles with Teflon-lined caps	Chill to 4°C	
Stack Gas Metals	Method 29 Filters	Glass petri dish		180 days for non-Hg Metals 28 days for Hg
	Method 29 Liquids	Amber glass bottles with Teflon-lined caps		
Stack Gas Particulate	Method 5/26A Filters	Glass or plastic petri dish	NA	180 days
	Method 5/26A Acetone Probe Rinses	Amber glass bottles with Teflon-lined caps	NA	180 days
	Method 5/26A Knockout Impinger Impingers Contents and Deionized water Rinses	Amber glass bottles with Teflon-lined caps	NA	180 days
Stack Gas Chloride	Method 26A Impinger Liquids	Amber glass bottles with Teflon-lined caps or polyethylene bottles	NA	30 days

Notes:

[a] Reference: Quality Assurance/Quality Control (QA/QC) Procedures for Hazardous Waste Incineration, EPA/625/6-89/023, January, 1990 and promulgated method.

Clean Harbors San Leon, LLC
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THERMAL DESORBER TRIAL BURN MASTER SAMPLE LIST

Eurofins, Knoxville, TN
17-Mar-26

Field Sample No.		Test No.	Run No.	RFA/COC No.	Sample Source	Sample Description	Sample Container	Analytical Parameters	Analytical Laboratory	QC Analysis
A-	4000	NA	1	001	Solid Feed	Solid Feed	250 mL amber jar	Properties	Eurofins-Knox	DUP
A-	4001	NA	1	002	Solid Feed	Solid Feed	250 mL amber jar	Metals	Eurofins-Knox	MS/MSD
A-	4002	NA	1	003	Method 23 Train	Particulate Filter	Petri dish	PCDD/PCDF	Eurofins-Knox	
A-	4003	NA	1	003	Method 23 Train	Acetone & Toluene FH&BH Rinses	250 mL amber bottle	PCDD/PCDF	Eurofins-Knox	
A-	4004	NA	1	003	Method 23 Train	Acetone Reagent Blank	250 mL amber bottle	PCDD/PCDF	Eurofins-Knox	RB
A-	4005	NA	1	003	Method 23 Train	Methylene Chloride Reagent Blank	250 mL amber bottle	PCDD/PCDF	Eurofins-Knox	RB
A-	4006	NA	1	003	Method 23 Train	Toluene Reagent Blank	250 mL amber bottle	PCDD/PCDF	Eurofins-Knox	RB
A-	4007	NA	1	004	Method 5/26A Train	Particulate Filter	Petri dish	Filterable Particulate	Eurofins-Knox	
A-	4008	NA	1	004	Method 5/26A Train	Acetone Probe Rinses	250 mL amber bottle	Filterable Particulate	Eurofins-Knox	
A-	4009	NA	1	004	Method 5/26A Train	Knockout Impinger	1-L amber bottle	Cond. PM & Chloride	Eurofins-Knox	
A-	4010	NA	1	004	Method 5/26A Train	H2SO4 Impingers	500 mL HPDE bottle	Chloride	Eurofins-Knox	
A-	4011	NA	1	004	Method 5/26A Train	NaOH Impingers	500 mL HPDE bottle	Chloride	Eurofins-Knox	
A-	4012	NA	1	004	Method 5/26A Train	H2SO4 Reagent Blank	250 mL HDPE bottle	Chloride	Eurofins-Knox	RB
A-	4013	NA	1	004	Method 5/26A Train	NaOH Reagent Blank	250 mL HDPE bottle	Chloride	Eurofins-Knox	RB
A-	4014	NA	1	004	Method 5/26A Train	DI Water Reagent Blank	250 mL HDPE bottle	Chloride	Eurofins-Knox	RB
A-	4015	NA	1	005	Method 29 Train	Particulate Filter	Petri dish	Metals & Hg	Eurofins-Knox	
A-	4016	NA	1	005	Method 29 Train	Nitric Acid Probe & FH Rinse	250 mL amber bottle	Metals & Hg	Eurofins-Knox	
A-	4017	NA	1	005	Method 29 Train	Acidfied Peroxide Impingers	1-L amber bottle	Metals & Hg	Eurofins-Knox	
A-	4018	NA	1	005	Method 29 Train	Empty Impinger	250 mL amber bottle	Hg	Eurofins-Knox	
A-	4019	NA	1	005	Method 29 Train	Acidified Permanganate	500 mL amber bottle	Hg	Eurofins-Knox	
A-	4020	NA	1	005	Method 29 Train	8N HCl Rinses	500 mL amber bottle	Hg	Eurofins-Knox	
A-	4021	NA	1	005	Method 29 Train	Nitric Acid	250 mL amber bottle	Metals & Hg	Eurofins-Knox	RB
A-	4022	NA	1	005	Method 29 Train	Acidfied Peroxide	250 mL amber bottle	Metals & Hg	Eurofins-Knox	RB
A-	4023	NA	1	005	Method 29 Train	Acidified Permanganate	250 mL amber bottle	Hg	Eurofins-Knox	RB
A-	4024	NA	1	005	Method 29 Train	8N HCl	250 mL amber bottle	Hg	Eurofins-Knox	RB
A-	4025	NA	1	005	Method 29 Train	Particulate Filter	Petri dish	Metals & Hg	Eurofins-Knox	RB

Figure 7-1. Example Master Sample List

Isokinetic Stack Sample Data Collection Sheet

Contract No.	80201		Method: Method 5/26A					Page 1 of 1				
Facility	Clean Harbors San Leon, LLC		Initial Leak Rate (ft^3 @ in.Hg)		<0.010 @ 10"			Operator MJK				
Source	TO Stack		Final Leak Rate (ft^3 @ in.Hg)		<0.010 @ 10"			Pitot No. K-004				
Date	14-Apr-26	Start Time	0800	Meter No.	1442			PTCF	0.84			
Condition No.	NA	End Time	0926	DGMCF	1.004			Init. Pitot Leak Check	0.0			
Run No.	1	Duration (min)	120	Δ H @	1.645			Final Pitot Leak Check	0.0			
Stat. Press. (in. H_2O)	-0.94	Bar. Press. (in.Hg)	29.73	Nozzle Dia.(")	0.251			Kf	2.3			

Point	Time	Volume	Δ P	Δ H	Temperatures (°F)							Vacuum
No.	(24 Hr)	(ft^3)	(in. H_2O)	(in. H_2O)	Flue Gas	Probe	Filter	Impingers	Meter in	Meter Out	Cond. Exit	(in. Hg)
A-1	0800	352.13	0.78	1.79	294	225	258	68	103	105	NA	6.0
A-1	0805	353.94	0.78	1.79	294	260	257	67	105	104		6.0
A-2	0810	355.75	0.74	1.70	294	257	261	66	106	104		6.0
A-2	0815	357.48	0.74	1.70	294	261	258	66	107	104		6.0
A-3	0820	359.05	0.68	1.56	292	258	257	64	108	104		6.0
A-3	0825	360.75	0.68	1.56	292	257	258	63	109	104		6.0
A-4	0830	362.68	0.77	1.77	292	258	258	67	104	104		6.0
A-4	0835	364.68	0.77	1.77	292	258	256	67	109	103		6.0
A-5	0840	366.60	0.77	1.70	293	258	259	61	110	104		6.0
A-5	0845	368.55	0.77	1.70	289	256	258	61	108	104		6.0
A-6	0850	370.34	0.74	1.43	285	259	255	62	106	105		6.0
A-6	0855	372.06	0.74	1.43	290	258	255	62	105	103		6.0
STOP	0900	373.61										
B-1	0920	373.71	0.62	1.77	292	255	259	66	96	95		7.0
B-1	0925	375.47	0.62	1.77	292	259	257	65	96	95		7.0
B-2	0930	377.38	0.77	1.43	293	257	257	62	99	95		7.0
B-2	0935	379.11	0.77	1.29	289	257	258	62	102	95		6.0
B-3	0940	380.76	0.62	1.04	285	258	257	62	104	97		6.0
B-3	0945	382.26	0.56	1.10	290	257	253	61	106	99		7.0
B-4	0950	383.90	0.45	1.50	296	257	257	63	109	100		6.0
B-4	0955	383.96	0.56	1.50	296	253	258	64	111	101		6.0
B-5	1000	387.26	0.45	0.99	296	257	259	61	112	103		6.0
B-5	1005	388.76	0.44	0.94	297	258	258	60	112	104		5.5
B-6	1010	390.24	0.65	0.85	297	259	258	61	113	105		5.5
B-6	1015	391.59	0.65	0.85	294	258	257	61	112	105		5.5
END	1020	392.97										

Comments:

Figure 7-2. Example Stack Sampling Record

Clean Harbors San Leon, LLC
San Leon, TX
Focus Project No. P-001617

Sample Type:	Method 5/26A PM Filter	**Sample No.:**	**A-4007**
Test No. ___1___	**Run No.** ___1___	**Container(s):**	__1__ of __1__
Analysis Required:	Particulate Method 5 (Gravimetric)		
Analysis Laboratory:	Eurofins, Knoxville, TN		
Date:	14-Apr-26	**Initials:**	MJK
Time:	1215	**Preservation:**	NA

Figure 7-3

Example Sample Label Format

Request for Analysis/Chain of Custody No. 004
Clean Harbors San Leon, LLC
San Leon, TX
Focus Project No. P-001617

Eurofins-Knoxville Lot No. _H-XXXXXXXX_____
Eurofins-Knoxville Project No. ___XXXXXXX_____

Project Description:	CHSL TDU Trial Burn
Client Project No.:	Focus Project No. P-001617
Test America Project No:	XXXXXXX
Client Project Mgr:	Chris McBride
	865-692-8662
Test America Contact:	Courtney Adkins
	865-291-3019

Laboratory Deliverable Requirements

Analytical Due Date: 21 days from lab receipt

Data Package Due Date: 30 days from lab receipt
Holding Time: 180 to analysis
Data Package Due Date: 30 days from lab receipt

Analytical Testing QC Requirements:
MS - Matrix Spike
MSD - Matrix spike duplicate
PDS - Post-digestion spike
DUP - Duplicate
BT- Blank train

Laboratory Destination:

Eurofins-Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
(865)-291-3000

Courier: Hand deliver

Project Deliverables:
Report analytical results on R-02 Reports and in data packages. Include "Field Number", "Sample Type", "test Number", and "Run Number" on all R-02 Reports.

Holding Time Requirements:	
Particulate	180 days to analysis

Field Sample No.	Test No.	Run No.	Sample Collection Date	Sample Container	Sample Description	Analysis Specifications	Project QC Requirements
A-4007	NA	1	14-Apr-26	Petri dish	Particulate Filter	Desiccate to constant mass; determine differential from logbook recorded original tare weight (EPA Method 5)	Replicate weighings
A-4008	NA	1	14-Apr-26	250 mL amber bottle	Acetone Probe Rinses	Transfer sample to tare weighed beaker; evaporate/desiccate to constant mass; determine differential mass (EPA Method 5)	Replicate weighings
A-4009	NA	1	14-Apr-26	250 mL amber bottle	Knockout Impinger	Transfer sample to tare weighed beaker; evaporate/desiccate to constant mass; determine differential mass (EPA Method 5)	Replicate weighings

Figure 7-4. Example Request for Analysis

Request for Analysis/Chain of Custody No. 004
Clean Harbors San Leon, LLC
San Leon, TX
Focus Project No. P-001617

Sample Receipt Log and Condition of the Samples Upon Receipt

Please fill in the following information:		Comments
		(Please write "NONE" if no comment is applicable.)
(1)	Record the identities of any samples that were listed on the Request for Analysis form but were not found in the sample shipment	
(2)	Record the sample shipping cooler temperature of all coolers transporting samples listed on the Request for Analysis form.	
(3)	Record any apparent sample loss or breakage.	
(4)	Record any unidentified samples transported with this shipment of samples.	
(5)	Indicate if all samples were received according to the project's required specifications (i.e, no non-conformances).	

Custody Transfer

	Name	Company	Date/Time
Relinquished by:			
Accepted by:			
Relinquished by:			
Accepted by:			
Relinquished by:			
Accepted by:			

Figure 7-5. Example Chain of Custody

8.0 SPECIFIC CALIBRATION PROCEDURES AND FREQUENCY

The objective of this section is to assure that gas sampling equipment and analytical instruments are performing properly before conducting the test and analyzing samples. Equipment and instruments used to generate data for determining compliance with performance requirements or to establish quantitative allowable operating limits will be calibrated according to the manufacturer's instructions, prior to and/or during the test as necessary.

The calibration procedures are separated into groups according to the personnel who will perform them. Stack sampling equipment will be calibrated by the stack sampling contractor and analytical instruments will be calibrated by the contracted laboratory personnel. The calibration procedures for stack gas sampling and laboratory analytical instruments are described in the following subsections.

8.1 STACK SAMPLING EQUIPMENT

Sampling equipment is calibrated according to the criteria specified in the reference method being employed. In addition, the guidelines set forth in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods (EPA-600/4-77-027b) will be followed. Dry gas meters, orifices, nozzles, pitot tubes, etc. are calibrated in accordance with this document. The range of the calibration is specified for all environmental measurements to encompass the range of probable experimental values. This approach ensures that all results are based upon interpolative analyses rather than extrapolative analyses.

Calibrations are designed to include, where practical, at least three measurement points evenly spaced over the range. This practice minimizes the probability that false assumptions of calibration linearity will be made. In addition, it is common practice to select, when practical, at least one calibration value approximating the levels anticipated in the actual measurement. Typically, calibration frequency is dictated by the need to demonstrate the stability of the calibration value over the course of measurements. Calibrations are made both pre- and post-test to accomplish the demonstration of stability.

Following the test program, calibrations are checked on all relevant items of sampling equipment to ensure the validity of data collected in the field. New items for which calibration is required are calibrated before initial field use. Equipment whose calibration status may change with use or time is inspected in the field before testing begins and again upon return from each field use. When an item of equipment is found to be out of calibration, it is repaired and recalibrated or retired from service. All equipment is periodically recalibrated in full, regardless of the outcome of these regular inspections.

Data obtained during calibrations are recorded on standardized forms, which are checked for completeness and accuracy by management personnel. Data reduction and subsequent calculations are performed using standard procedures, and are computerized where appropriate. Calculations are checked at least twice for accuracy. Copies of calibration forms are included in the test or project reports.

Emissions sampling equipment requiring calibration include pitot tubes, pressure gauges, thermometers, dry gas meters, and barometers. The following sections elaborate on the calibration procedures for these specific equipment items.

8.1.1 Pitot Tubes

All Type S pitot tubes, whether separate or attached to a sampling probe, are inspected in accordance with the geometry standards contained in EPA Method 2.

For Type S pitot tubes with a D_t between 3/16 and 3/8 inches, the pitot tube may be calibrated according to the procedure outlined in Sections 10.1.2 through 10.1.5 of Method 2 before and after the test, or a baseline (isolated tube) coefficient value of 0.84 may be assigned.

All Type S pitot tubes >3/8 inches are calibrated over an eight-point range with a wind tunnel and a calibration coefficient is calculated for each pitot tube. The acceptance limits are listed in Table 8-1.

8.1.2 Differential Pressure Gauges

Some meter consoles are equipped with 10-inch water column (W.C.) inclined-vertical manometers. Fluid manometers do not require calibration other than leak-checks. Manometers are leak-checked in the field prior to each test series.

8.1.3 Digital Temperature Indicator

One digital temperature indicator is used to determine the flue gas temperature, probe temperature, oven temperature, "train temperature" and dry gas meter temperature. The digital temperature indicator is calibrated over a seven-point range (32°F-450°F) using an ASTM mercury-in-glass thermometer as a reference. The calibration is acceptable if the agreement is within ±2% or 2°F from 50°F-180°F.

8.1.4 Dry Gas Meter and Orifice

A calibrated wet test meter is used to calibrate the dry gas meter and orifice. The full calibration procedure is used to obtain the calibration factor of the dry gas meter. Full calibrations are performed using a calibrated wet test meter as a reference standard.

8.1.4.1 Dry Gas Meter

Each metering system receives a full calibration at the time of purchase and quarterly. Upon request, a post-test calibration can be performed after each field use. If the calibration factor deviates by less than five percent from the initial value, the test data are acceptable. If it deviates by more than 5%, the meter is recalibrated and the meter coefficient (initial or recalibrated) that yields the lowest sample volume for the test runs is used.

EPA Method 5 requires another full calibration anytime the post-test calibration check indicates that the calibration factor has changed by more than 5%. Standard practice is to recalibrate the dry gas meter quarterly and check the orifice calibration during and after each field use.

8.1.4.2 Orifice

An orifice calibration factor is calculated for each of the eighteen flow settings during a full calibration. The arithmetic average of the values obtained during the calibration is used.

8.1.5 Barometer

Each field barometer is adjusted before each test series to agree within ±0.1 inches of a reference aneroid barometer. The reference barometer is checked against the weather station pressure value (corrected for elevation difference) reported by the National Weather Service or mercury barometer. This information is obtained via a call to the weather line or the nearest airport

8.2 LABORATORY ANALYTICAL EQUIPMENT

The laboratory instruments will be calibrated as specified by the appropriate method before analyzing the test samples. The laboratory instrument calibration procedures are based on instructions in the referenced analytical methods and are summarized, along with other routine quality control checks, in Table 8-2. The calibrations performed and the results will be reported as appropriate to assure the quality of data in the laboratory sample analysis report.

Table 8-1. Sampling Equipment Calibration Requirements

Stack Sampling Equipment	Acceptance Criteria	Measurement Frequency	Action If Criteria Are Not Met
Volumetric Flow Measurements			
Type S pitot tube inspection	All dimension specifications met	Calibrate prior to test and visually inspect after each field test	Use pitot tubes that meet face opening specifications; repair or replace as required
Type S pitot tube calibration	± 3% for volumetric flows >1,000 fpm ± 5-6% for volumetric flows >600 and <1,000 fpm	Refer to Section 10.0 of Method 2: If D_t is between 0.48 and 0.95 cm (3/16 and 3/8 in.), and if P_A and P_B are equal and between 1.05 and 1.50 D_t, there are two possible options: (1) the pitot tube may be calibrated according to the procedure outlined in Sections 10.1.2 through 10.1.5 of Method 2 before and after the test, or (2) a baseline (isolated tube) coefficient value of 0.84 may be assigned to the pitot tube with pitot tube inspection before and after the test.	Check for blockage. If blockage is significant, recalculate calibration coefficient.
Barometers	±0.1 inches Hg (± 2.5mm Hg) of mercury-in-glass barometer	Calibrate initially versus mercury-in-glass barometer; check before and after field test	Adjust to agree with a certified barometer
Stack gas temperature measurement system	Capable of measuring within ± 2°F (± 1°C) of mercury-in-glass thermometer	Calibrate prior to test and after each field use	Adjust to agree with Hg bulb thermometer; construct calibration curve, correct readings
Pressure sensors (excludes inclined manometer)	Agree within ± 5 percent of inclined manometers	Prior to and after field use	Adjust to agree with Hg bulb thermometer; construct calibration curve, correct readings
Wet test meter	$Y_{mi} = Y_m \pm 0.030$ Y (before test) Y_{mf}/Y_{mi} is 0.95 to 1.05 (after test)	Calibration prior to test Check calibration after test	Before test: Adjust until specifications are met. After test: Recalculate calibration coefficient.
Dry gas meters	$Y_i = Y \pm 0.02$ Y (before test) Y_{mf}/Y_{mi} is 0.95 to 1.05 (after test)	Calibration versus wet test meter initially, and when post-check exceeds $\Delta Y \pm 0.05$	Before test: Repair or replace and then calibrate After test: Recalculate calibration coefficient.

Table 8-1. Sampling Equipment Calibration Requirements

Stack Sampling Equipment	Acceptance Criteria	Measurement Frequency	Action If Criteria Are Not Met
Assembled isokinetic sampling train leakage	0.02 cfm (0.00057 m^3/min) at vacuum of $\geq$ 10 inches Hg (250 mm Hg) before the start of stack sampling, and $\geq$ maximum vacuum value recorded during sampling run for post sampling leak checks	Just prior to start of first sampling traverse (required); after first sampling traverse (recommended); after moving sampling train from first traverse port to second traverse port (recommended); end of second sampling traverse (required).	Before stack sampling or at post port change: Isolate and repair leak point(s); repeat leak check. End of first traverse or end of second traverse: Determine leak rate; If <4% of sampling rate, correct sample volume per procedures in Section 6.3 of Method 5. If >4% of sampling rate, invalid test sample; discard sample and repeat sampling run for invalid train.
Oxygen and carbon dioxide analyzers used for Method 3A analyses	3-point Calibration Error Test: $\pm$ 0.5 vol% 2-point Calibration Drift Check: $\pm$ 0.5 vol% 2-point System Bias Check: $\leq$ 0.5 vol%)	Calibration Error: Beginning of each test day Calibration Drift: Before and after each test run System Bias: Before and after each test run	Calibration Error: Repair or replace Monitor Calibration Drift: Void test run; re-calibrate or repair/replace monitor System Bias: Void test run; re-calibrate or repair/replace monitor
Analytical balance (for moisture)	± 1 mg of Class-S weights	Check with Class-S weights upon receipt and daily	Adjust or repair
Sampling Train Heating Systems and Thermocouples			
Probe heating system (isokinetic sampling trains)	Capable of maintaining 248° ± 25°F (120°C ± 14°C) at a flow of 0.75 cfm (21.2 L/min)	Calibrate initially by APTD-0576(11) or use published calibration curves	Repair, or replace, and then verify the calibration
Probe nozzle (isokinetic sampling trains)	Average of three ID measurements of nozzle within 0.001 inches (0.0025 mm); difference between high and low 0.002 inches (0.0050 mm)	Use a micrometer to measure to nearest 0.025mm (0.001 in.); check before and after field test	Recalibrate, reshape, and sharpen when nozzle becomes nicked, dented, or corroded

Table 8-1. Sampling Equipment Calibration Requirements

Stack Sampling Equipment	Acceptance Criteria	Measurement Frequency	Action If Criteria Are Not Met
Probe heating system (VOST)	Maintained at a temperature >130°C (>266°F)	Periodic check during sampling	Immediately increase the VOST system to the proper temperature
Thermocouples (stack gas meters and final impinger)	Impinger thermocouple ± 1°C (2°F) [Method 5]; dry gas thermocouple ± 3°C (5.4°F) [Method 0010]; stack thermocouple within ± 1°C(± 2°F) of absolute temperature.	Calibrate prior to test against a mercury thermometer	Adjust; determine a correction factor or reject

Sources:
Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods, EPA-600/R-94/038c, September 1994.
Maintenance, Calibration, and Operation of Isokinetic Source Sampling Equipment, APTD-0576, U.S. EPA, Office of Air Programs, March 1972.
Construction of Isokinetic Source Sampling Equipment, APTD-0581, U.S. EPA, Office of Air Programs, April 1971.
Method 0030, Volatile Organics Sampling Train and Method 0010, Modified Method 5 Sampling Train, Test Method for Evaluating Solid Waste Physical/Chemical Methods (SW-846), U.S. EP A Office of Solid Waste, Update III, December 1997.
Determination of Particulate Emissions from Stationary Sources, U.S. EPA, Test Methods and Procedures, New Source Performance Standards, 40 CFR 60, Appendix A.

Table 8-2. Laboratory QC Checks, Frequencies, Acceptance Criteria, and Corrective Actions

Parameter/Method	Quality Control Check	Method of Determination	Frequency	Acceptance Criteria	Corrective Action
Heat Content (Btu) (ASTM D-240; KNOX-WC-0010)	Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)	LCS/LCSD analysis	Once per sample batch (maximum 20 samples)	Accuracy:%Recovery: 98 – 102%, Precision: RPD ≤ 2%	Retest. If the retest fails, correct the cause and retest all samples.
	Duplicate Analyses	Duplicate analysis	Once prior to sample batch analysis (maximum 20 samples), minimum of 1 per set of test samples	Precision: RPD ≤ 10%	(1) Flag data, (2) Discuss in report narrative
Metals by ICAP or CVAAS (SW846 3050B/6010C or 6020B and 7470A/7471B CVAA; KNOX-IP-0004, KNOX-MT-0007, KNOX-MT-0009, & KNOX-MT-0010)	Initial calibration	Multiple standards (AAS) or 1 standard (ICAP) and a calibration blank, bracketing the expected concentrations. Critical level should be at least twice the lowest calibration standard.	Prior to sample analysis	Correlation coefficient of linear plot >0.995 (AAS). Not applicable for ICAP.	Recalibrate
	Reagent blank	Analysis of blank	After every 10 samples and at end of analysis	Less than instrument detection limit (IDL)	Reanalyze if greater than the reporting limit and discuss in case narrative if greater than the IDL
	Calibration check	Analysis of independent calibration check standard	Once after initial calibration	90 - 110% of theoretical value	Reanalyze and recalibrate, if necessary
	Serial dilution	Analysis of serial dilution (DF=5)	Once per matrix for high level analytes (ICAP only)	90 - 110% of undiluted sample value (ICAP samples > 50 times the IDL)	Flag data; discuss in case narrative
	Post digestion spike	Analysis of post digest spike, spiked at 2 to 5 times the original sample value	One sample per test for ICAP	85 - 115% of theoretical value	Flag data; discuss in case narrative
	Calibration accuracy (ICAP only)	Reanalysis of high level standard	After every initial calibration	90 - 110% of theoretical value	Recalibrate and recheck
	Interference check (ICAP only)	Analysis of interference sample	After every initial calibration and at the end of each run	80 - 120% of theoretical value	Recalibrate and recheck

Table 8-2. Laboratory QC Checks, Frequencies, Acceptance Criteria, and Corrective Actions

Parameter/Method	Quality Control Check	Method of Determination	Frequency	Acceptance Criteria	Corrective Action
Metals by ICAP or CVAAS (continued)	Continuing calibration	Midlevel standard and blank	Beginning and end of each analysis period and after every 10 samples	CVAAS – Midlevel standard 80 - 120% of theoretical value; blank <50% of lowest calibration standard. ICAP – Midlevel standard 90 - 110% of theoretical value; blank <50% of lowest calibration standard or within 3 SD of average blank.	Identify and correct problems; reanalyze samples run since last acceptable continuing calibration check.
PCDD/PCDF by High Resolution GC/High Resolution MS (EPA Method 23/SW846 8290A; KNOX-OP-0010 & KNOX-ID-0004)	Initial Calibration	All five high resolution concentration calibration solutions must be used for the initial calibration	Prior to sample analysis	PCDD/PCDF: The %RSD for the mean RRF from the each of the unlabeled standards must not exceed ± 20%, and those for the labeled reference compounds must not exceed ± 30%.	Recalibrate
	Continuing Calibration	Midlevel standard	At the beginning and end of each 12 hour shift	PCDD/PCDF: RFs must be within ± 20% of the initial calibration mean RRF for unlabeled standards and ± 30% for labeled standards	Reanalyze standard. If second analysis does not meet criteria, recalibrate and reanalyze samples or justify acceptance of sample results since the last successful check.
	Retention time window verification and GC column performance	Monitor retention times	Start of each 12 hour shift	PCDD/PCDF: Compliance with Section 8.2.1 of Method 8290A	Correct according to method
	Method Blank	Analysis of blanks	Analyze one with each analytical batch	Results less than method detection limit	Flag data as discussed in case narrative
Particulate and Gravimetric (EPA Method 5 & KNOX-WC-0006)	Calibration check	Calibration of balance with standardized weights	Prior to analysis, between each group of sample weighings, and at the end of each day.	99 – 101% of theoretical value	Recalibrate and recheck sample weights.

Table 8-2. Laboratory QC Checks, Frequencies, Acceptance Criteria, and Corrective Actions

Parameter/Method	Quality Control Check	Method of Determination	Frequency	Acceptance Criteria	Corrective Action
Chloride by Ion Chromatography (SW846 Methods 505/9056A; Method 26A; KNOX-WC-0005 & KNOX-WC-0016)	Initial Calibration	4 standards bracketing expected concentrations Note: Separate calibrations are required for the acid and alkaline samples	Prior to sample analysis	Linear correlation coefficient >0.995	Recalibrate
	Retention time check for ion identification	Determine average retention time for ions of interest or relative retention time of several ions for every calibration curve	Prior to sample analysis	Average Retention Time - Sample identification is positive if results are within retention time window of standards Relative Retention Time – Sample identification is positive if results are within 3 SD of average RRT	Ions of interest are not present if criteria are not met.
	Control check sample	Midlevel independent standard analyzed in duplicate	Beginning and end of each analysis period and after every 10 samples	90 – 110% of theoretical value	Repeat calibration check. If second check fails criteria, regenerate analytical system and reanalyze all samples since last acceptable calibration check.
	Reagent blank (ICB and CCBs)	Analysis of blanks	Immediately following the ICV and following each CCV.	Less than 1 mg/L	Contamination source must be found and corrected. All samples analyzed since the last acceptable CCB must be reanalyzed.
	Reagent blank (ICB and CCBs)	Analysis of blanks	Immediately following the ICV and following each CCV.	Less than 1 mg/L	Contamination source must be found and corrected. All samples analyzed since the last acceptable CCB must be reanalyzed.

Table 8-2 Reference Method Sources:

"ASTM" refers to American Society for Testing Materials, Annual Book of ASTM Standards, Annual Series

"SW846" refers to Test Methods for Evaluating Solid Waste, Third Edition, November 1986, and Updates.

"EPA Method" refers to New Source Performance Standards, Test Methods and Procedures, Appendix A, 40 CFR 60.

"KNOX" refers to Eurofins Environment Testing, Knoxville, TN (Eurofins) standard operating procedure (SOP) and are based on the reference method(s) noted as accredited by TCEQ.

Eurofins SOP No.	Title
KNOXID0004	Analysis of Polychlorinated Dioxins/Furans by High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGS/HRMS) Based on Methods 8290, 8290A, 1613B, 23, 0023A, and TO-9A
KNOXIP0004	Acid Digestion of Soils, SW846 Method 3050B
KNOXMT0006	Multi-Metals (MMT) Sampling Train Preparation
KNOXMT0007	Inductively Coupled Plasma-Atomic Emission Spectroscopy, Spectrometric Method for Trace Element Analyses, SW-846 Method 6010B, 6010C and EPA Method 200.7
KNOXMT0009	Preparation and Analysis of Mercury in Aqueous Samples by Cold Vapor Atomic Absorption, SW-846 7470A and EPA 245.1
KNOXMT0010	Preparation and Analysis of Mercury in Solid Samples by Cold Vapor Atomic Absorption Spectroscopy, SW-846 7471A, 7471B and EPA Method 245.5
KNOXOP0010	Method 0023A and Method 0010 Sampling Train Pre-Sampling Preparation and Sample Extraction Procedure (Includes TO-09A Sampling Components)
KNOXWC0005	Anion Analysis by Ion Chromatography
KNOXWC0006	Sampling Train Particulate Determination
KNOXWC0010	Heat of Combustion (Gross Calorific Value)
KNOXWC0016	Sample Preparation for Total Halogen Determination

9.0 ANALYTICAL PROCEDURES

Analytical procedures and methods are summarized in Tables 3-2.

Table 9-1 presents the solid feed property analysis expected detection limits.

Table 9-2 presents the solid feed metals analysis expected detection limits.

Table 9-3 presents expected detection limits for stack gas PCDD/PDCF for the Method 23 samples.

Table 9-4 presents expected detection limits for stack gas metals for the Method 29 samples.

Table 9-5 presents expected detection limits for stack gas filterable particulate and HCl and Cl_2 for the Method 5/26A samples.

The selected analytical laboratories are NELAC qualified for each type of sample analysis delineated in this test plan. Reference sampling and analytical methods are identified throughout the test plans and this QAPP. The specifics of the sampling and analytical methodologies followed during the course of test execution by the selected sampling and analytical contractors include the referenced nationally recognized methods (ASTM, SW846, 40 CFR 60 Appendix A, etc.) and/or the contractor-specific standard operating procedures (SOPs) as recognized by the TCEQ and NELAC.

In cases where the laboratory finds it necessary to make adjustments to the analysis methods, the changes will be documented following the corrective action procedures noted in Section 14.0 of the QAPP. Any such changes must be approved by the test-designated Quality Assurance Officer (QAO).

Table 9-1. Detection Limits for Solid Feed Chlorine and Heating Value Analyses

Analyte	Units	Method Detection Limit (MDL)	Reporting Limit (RL)
Chlorine [1]	mg/kg	60	200
Heating Value [2]	Btu/lb	500	1,800

Notes:

[1] Chlorine MDL and RL are for SW846 5050/9056A.

[2] Heating value MDL and RL are based on ASTM Method D-240.

Table 9-2. Detection Limits for Solid Feed Metal Target Analytes [1]

Metal	Method Detection Limit (mg/kg)	Reporting Limit (mg/kg)
Enumerated HWC MACT Metals		
Arsenic (As)	0.59	1.0
Beryllium (Be)	0.020	0.50
Total Chromium (Cr)	0.40	1.0
Total LVM (As+Be+Cr)	1.0	2.5
Cadmium (Cd)	0.080	0.50
Lead (Pb)	0.11	0.30
Total SVM (Cd+Pb)	0.19	0.80
Total Mercury (Hg)	0.010	0.033

Notes:

[1] Method detection limits (MDLs) and reporting limits are for Inductively Coupled Argon Plasma (ICAP or ICP) analysis SW-846 Method 6010C for all metal analytes except mercury. Mercury MDL is based on Cold Vapor Atomic Absorption SW-846 Method 7470A/7471B.

Table 9-3. Stack Gas Dioxin/Furan Target Analytes

Compound	CAS No.	Per Analysis EDL (pg) [1]	Per Analysis RL (pg) [1]	Train Detection Limit @ EDL (ng/m^3) [1,2,3]	Train Detection Limit @ RL (ng/m^3) [1,2,3]	2,3,7,8-TCDD TEQ Factor	2,3,7,8-TCDD TEQ @ EDL (ng/m^3) [1,2]	2,3,7,8-TCDD TEQ @ RL (ng/m^3) [1,2]
2,3,7,8 - TCDD	1746-01-6	0.685	10.0	0.000274	0.00400	1	0.00400	0.000274
Total TCDD	41903-57-5	0.685	10.0	0.000274	0.00400	NA	NA	NA
2,3,7,8 - TCDF (DB225)	51207-31-9	1.41	10.0	0.000564	0.00400	0.1	0.000400	0.000056
Total TCDF	55722-27-5	0.796	10.0	0.000318	0.00400	NA	NA	NA
1,2,3,7,8 - PeCDD	40321-76-4	0.663	50.0	0.000265	0.0200	0.5	0.0100	0.000133
Total PeCDD	36088-22-9	0.663	50.0	0.000265	0.0200	NA	NA	NA
1,2,3,7,8 - PeCDF	57117-41-6	0.322	50.0	0.000129	0.0200	0.05	0.00100	0.00000644
2,3,4,7,8 - PeCDF	57117-31-4	0.316	50.0	0.000126	0.0200	0.5	0.0100	0.0000632
Total PeCDF	30402-15-4	0.319	50.0	0.000128	0.0200	NA	NA	NA
1,2,3,6,7,8 - HxCDD	57653-85-7	0.398	50.0	0.000159	0.0200	0.1	0.00200	0.0000159
1,2,3,4,7,8 - HxCDD	39227-28-6	0.377	50.0	0.000151	0.0200	0.1	0.00200	0.0000151
1,2,3,7,8,9 - HxCDD	19408-74-3	0.369	50.0	0.000148	0.0200	0.1	0.00200	0.0000148
Total HxCDD	34465-46-8	0.381	50.0	0.000152	0.0200	NA	NA	NA
1,2,3,6,7,8 - HxCDF	57117-44-9	0.469	50.0	0.000188	0.0200	0.1	0.00200	0.0000188
1,2,3,4,7,8 - HxCDF	70648-26-9	0.430	50.0	0.000172	0.0200	0.1	0.00200	0.0000172
1,2,3,7,8,9 - HxCDF	72918-21-9	0.464	50.0	0.000186	0.0200	0.1	0.00200	0.0000186
2,3,4,6,7,8 - HxCDF	60851-34-5	0.505	50.0	0.000202	0.0200	0.1	0.00200	0.0000202
Total HxCDF	55684-94-1	0.467	50.0	0.000187	0.0200	NA	NA	NA
1,2,3,4,6,7,8 - HpCDD	35822-39-4	2.18	50.0	0.000872	0.0200	0.01	0.00020	0.00000872
Total HpCDD	37871-00-4	2.18	50.0	0.000872	0.0200	NA	NA	NA
1,2,3,4,6,7,8 - HpCDF	67562-394	0.346	50.0	0.000138	0.0200	0.01	0.00020	0.00000138
1,2,3,4,7,8,9 - HpCDF	55673-89-7	0.416	50.0	0.000166	0.0200	0.01	0.00020	0.00000166
Total HpCDF	38998-75-3	0.381	50.0	0.000152	0.0200	NA	NA	NA
Total OCDD	3268-87-9	0.432	100	0.000173	0.0400	0.001	0.0000400	0.000000173
Total OCDF	39001-02-0	0.328	100	0.000131	0.0400	0.001	0.0000400	0.000000131
TOTALS				**0.00265**	**0.208**		**0.0401**	**0.000665**

Notes:
[1] Detection limits based on combined analysis of the Method 23 with no splitting of extracts for other analyses. PCDD/PCDF detection limits using isotope dilution and HRGS/HRMS analysis method can vary. The detection values represent approximate, relative limits of detection.
[2] Based on 2.5 dry standard cubic meters (dscm) of stack gas sampled.
[3] Based on sum of the individual congener group "Total" detection limits.

Table 9-4. Stack Gas Metal Target Analytes [1]

Metal	Front Half MDL (ug)	Back Half MDL(ug)				Train MDL (ug/m^3) [3]	Front Half Reporting Limit (ug)	Back Half Reporting Limit (ug)				Train Reporting Limit (ug/m^3) [3]
Enumerated MACT Metals												
Arsenic (As) [2]	0.35	0.33				0.45	1.0	1.0				1.3
Beryllium (Be) [2]	0.089	0.18				0.18	0.50	0.50				0.67
Total Chromium (Cr) [2]	0.25	0.28				0.35	1.0	1.0				1.3
Total LVM (As+Be+Cr) [2]	0.69	0.79				0.99	2.5	2.5				3.3
Cadmium (Cd) [2]	0.050	0.082				0.09	0.50	0.50				0.67
Lead (Pb) [2]	0.20	0.37				0.38	1.0	1.0				1.3
Total SVM (Cd+Pb) [2]	0.25	0.45				0.47	1.5	1.5				2.0
Total Mercury (Hg) [2]	0.060	0.12	0.12	0.047	0.072	0.28	0.20	0.40	0.40	0.16	0.14	0.87

Notes:

[1] Method detection limits (MDLs) and reporting limits are for Inductively Coupled Argon Plasma (ICAP or ICP) analysis SW-846 Method 6010C for all metal analytes except mercury. Mercury MDL is based on Cold Vapor Atomic Absorption Spectrometry (CVAAS or CVAA) SW-846 Method 7470A. MDLs and RLs are based on previous similar Method 29 sampling and analysis.

[2] Sum of detection limits for applicable fractions from Multi-Metals Train.

[3] Based on 1.5 dry standard cubic meters of stack gas sampled.

Table 9-5. Stack Gas Particulate and HCl/Cl_2

Parameter	Probe Rinse (mg)	Filter (mg)	Train Detection Limit (mg/m3) [1]	Train Detection Limit (gr/dscf) [2]
Particulate				
Particulate Matter	0.50	0.50	0.67	0.00029

Parameters	H_2SO_4 Impinger Method Detection Limit (ug)	NaOH Impinger Method Detection Limit (ug)	Train Method Detection Limit (ug/m^3) [2]	H_2SO_4 Impinger Reporting Limit (ug)	NaOH Impinger Reporting Limit (ug)	Train Reporting Limit (ug/m^3) [2]
HCl/Cl_2						
Hydrogen Chloride	150	NA	100	300	NA	200
		ug/m^3 as HCl:	103		ug/m^3 as HCl:	206
		ppm as HCl:	0.068		ppm as HCl:	0.14
Chlorine	NA	150	100	NA	300	200
		ug/m^3 as Cl_2:	100		ug/m^3 as Cl_2:	200
		ppm as Cl_2:	0.034		ppm as Cl_2:	0.068
Total as Cl^-	150	150	200	300	300	400
		ug/m^3 as Cl^-:	200		ug/m^3 as Cl^-:	400
		ppm as Cl^-:	0.14		ppm as Cl^-:	0.27

Notes:
[1] For particulate, the measurement is of differential weight, EPA Method 5. The detection limit accuracy for gravimetric is ±0.5 mg or ±500 ug for each of the two fractions, the filter and the probe rinse. The stack gas concentration limit is based on 1.5 cubic meters of stack gas sampled using a Method 5 or 26A sampling train.
[2] Detection limits are for chloride ion via Ion Chromatography (IC) analysis, SW-846 Method 9056/9057. The stack gas concentration limit is based on 1.5 cubic meters of stack gas sampled using a Method 26A sampling train. MDL and RL limit are based on previous similar testing.

10.0 SPECIFIC INTERNAL QUALITY CONTROL CHECKS

10.1 DEFINITIONS

The various types of QA/QC checks that may be performed as part of the test, both for sampling and analysis, are defined below. One or more of these QA/QC checks are associated with each measurement system in order to assess the compliance of the data to the DQOs established in Section 5.0. Table 10-1 is a summary of all the sample analyses and their associated internal quality control checks associated with this test program.

Audit Sample An audit sample is a field or alternate laboratory prepared blank spike submitted to the test laboratory to assess accuracy or potential sample degradation.

Blank, Field A field blank is a sampling train or sampling component that is set-up in the field but is not used for test sampling. The field blank is used to assess background contamination that may affect the representativeness of the field samples.

Blank, Media A sample of unused sampling media analyzed to ensure the media are uncontaminated. This type of sample may also be referred to as a “reagent blank” (see below).

Blank, Method A method blank is a sample of unused media that is prepared and analyzed in the test laboratory to assess background contamination that may exist in the laboratory, on glassware, or in the analytical system.

Blank, Reagent A sample of unused reagent(s) used to demonstrate the absence of contamination in the reagents.

Blank, Spike A blank spike is a laboratory prepared sample of blank media that is spiked with a known amount of target analyte(s) used to assess the accuracy of the analytical method.

Blank, System An aliquot of uncontaminated reagent used to clean out the analytical system after high level samples have been analyzed or before analysis begins.

Blank, Trip A trip blank is an unused sample component that is shipped to the field along with the sampling equipment/media and/or returned to the laboratory without having been exposed to field conditions. If contamination is encountered in the field blank(s), the trip blank is analyzed to assess whether or not the contamination originates in the field, is inherent in the equipment/media, or results from exposure during shipping and handling.

Breakthrough Check The result of the analysis of a secondary component (i.e., sorbent tube) in a sampling train is compared to the result of the primary component to assess whether or not the primary component has successfully captured the target analytes. If the result of the secondary component analysis is high compared to the primary component analysis, the possibility exists that the analytical results may be artificially low.

Calibration Check A standard solution from a source other than the calibration standards used to verify the integrity of an instrument's calibration.

Calibration Standards High purity compounds or mixtures of compounds used to adjust the response of an analytical instrument. The laboratory will use traceable standards and submit standard preparation logs as part of the deliverables package.

Contingency Sample An archived portion of a field sample from the same location as other field samples that is collected and held in case of breakage or QA/QC failure during the handling or analysis of the primary sample. This type of sample is sometimes referred to as an “archive sample.”

Continuing Calibration Verification A mid-point standard, from the same Calibration source as the initial calibration solution analyzed periodically to verify that calibration conditions have not drifted from the initial calibration.

Duplicate Analysis A duplicate is a sample that is split in the laboratory and prepared and analyzed twice. The results of the two analyses are compared as a measure of precision.

Duplicate Injection A second analysis of a single sample preparation. This QC test may be used to assess analytical QC failures, matrix interferences, or as a measure of analytical system precision.

Initial Calibration A series of analyses of solutions, that have known concentrations, used to establish the correspondence between the amount of an analyte present in the solution and the instrument's response across the expected analytical range of the samples. Initial calibrations also establish retention time windows for identification purposes in chromatographic methods.

Internal Standard Recovery Internal standards are non-target spikes added to samples for quantitation purposes. The percent recovery of the internal standards is checked to assess whether or not significant matrix interferences may affect the accuracy and precision of analytical results.

Performance Evaluation (PE) Sample See Audit Sample.

Proficiency Test A series of blank spikes analyzed in the test laboratory to demonstrate an analyst's ability to successfully perform the method with acceptable precision and accuracy.

Replicate One of a series of identical samples or splits of a single sample used to assess precision.

Serial Dilution The result of the analysis of a highly contaminated sample, run undiluted, is compared to the results for the same sample after serial dilution. The two results are expected to match to within method specified criteria. This test is a measure of the linearity of ICP calibration and the analysis technique.

Spike, Field See Audit Sample.

Spike, Matrix Spike of the known or controlled amount of an actual target analyte to an actual sample matrix that is then analyzed for that analyte. The percent recovery of the spiked analyte provides a measure of the matrix bias.

Surrogates Non-target or isotopically labeled analytes spiked into field samples as a measure of method efficiency and accuracy.

10.2 SPECIFIC QUALITY CONTROL CHECKS AND ACCEPTANCE CRITERIA

A variety of QC checks are required both in the field and in the laboratory to ensure the collection of samples that accurately represent the field conditions under study, to assess compliance with the Data Quality Objectives (DQOs), and to assess biases in the measurement system.

10.2.1 Field Activities

In order to ensure the representativeness of samples collected during the test, and to ensure integrity of field measurements, a variety of QC checks and controls will be implemented throughout the sampling program. These checks and controls will include:

- Standard forms and/or standard field notebooks will be used to document field activities and for data collection. The data collection forms and field notebooks will be reviewed routinely by senior staff for accuracy, completeness, and internal consistency.
- The strict adherence to detailed operating procedures as documented in the various project controlling documents and related SOPs will be enforced by experienced senior technical staff.
- Project personnel will be selected based on appropriate levels of training and experience and will receive site-specific training prior to working on-site. The site-specific training will include health and safety requirements; security requirements; briefings on overall project goals, objectives, and schedules; and, specific technical training related to their assigned tasks.
- Routine calibration will be performed on measurement systems and sampling equipment including metering systems, thermocouples, barometers, rotameters, and pitot tubes. Guidance related to equipment calibration is provided in Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods and Quality Assurance/Quality Control Procedures for Hazardous Waste Incinerators, Appendix A. The detailed specifications, acceptance criteria, and corrective action requirements are presented in Section 8.0 of this QAPP. All calibrations will be documented and the documentation maintained in the project files.
- Leak checks will be performed according to method specifications before and after sampling.
- Field QC samples for sampling train are submitted including field blanks, media blanks, reagent blanks, trip blanks, and contingency samples. The frequency of submittal for these field QC samples and other field samples are provided in Table 6-1.
- Field QC samples of process samples, e.g., spiking material, are not routinely collected unless split or duplicate samples are to be provided to a third party to perform their own independent comparative analysis.
- Field audits/surveillance will be performed periodically to assess conformance to specifications. If nonconforming conditions are noted, the corrective action provisions of the QA plan will be invoked.

10.2.2 Laboratory Activities

Standard laboratory QA procedures, required of each laboratory, provide discussions related to QA/QC checks and controls within the laboratory. Specific data quality objectives, calibration requirements, acceptance criteria, and corrective action requirements for this test program are presented in Table 5-1 and Table 8-2 of this plan.

In addition to the requirements referenced above the laboratory will provide for quality control of sampling media and sample collection equipment. Sorbents used in the organic sampling trains will be prepared according to method specifications. Samples of the prepared media will be tested according to the intended method of use. The results of these tests will be retained in the laboratory's files for future reference.

Table 10-1. Summary of Test Program Analyses

Analysis	Sample Matrix	Test	Field QC	Reference Preparation Method	Reference Analytical Method	QC Analysis	QC Analysis Frequency	QC Analyses	Total Analyses
Total chloride	Solid Feed (per batch)	3	--	Bomb or flask combustion (ASTM Method D-808; SW-846 Method 5050)	Ion chromatography of residue (SW-846 Method 9056; KNOX-WC-0005)	Duplicate	One for test program	1	4
Heat Content			--	NA	Bomb calorimeter (ASTM Method D-240)	Duplicate	One for test program	1	4
Metals by ICP	Solid Feed (per batch)	3	--	Digestion (SW-846 Method 3050B)	ICP (SW-846 Method 6010C)	MS/MSD	One for test program	2	5
	Analytical system QC	NA	NA	NA	ICP (SW-846 Method 6010C)	LCS	One per batch/ matrix specific	1 or more	1
						Serial dilution	One per batch/ matrix specific	1 or more	1
						Method Blank	One per batch/ matrix specific	1 or more	1
Mercury by CVAA	Solid Feed (per batch)	3	--	CVAA (SW-846 Method 7470A/7471B)	CVAA (SW-846 Method 7470A/7471B)	MS/MSD	One for test program	2	5
	Analytical system QC	NA	NA	CVAA (SW-846 Method 7470A/7471B)	CVAA (SW-846 Method 7470A/7471B)	LCS	One per batch/ matrix specific	1 or more	1
						Method Blank	One per batch/ matrix specific	1 or more	1

Table 10-1. Summary of Test Program Analyses (cont'd)

Analysis	Sample Matrix	Test	Field QC	Reference Preparation Method	Reference Analytical Method	QC Analysis	QC Analysis Frequency	QC Analyses	Total Analyses
Metals by Method 29	Method 29 front half: filter, and nitric acid probe rinse	3	1	Method 29	ICP (SW-846 Method 6010C)	PDS	One for test program	1	5
					CVAA (SW-846 Method 7470A)	PDS	One for test program	1	5
	Method 29 10%HNO_3/5%H_2O_2 impingers	3	1	Method 29	ICP (SW-846 Method 6010C)	PDS	One for test program	1	5
					CVAA (SW-846 Method 7470A)	PDS	One for test program	1	5
	Method 29 empty impinger	3	1	Method 29	CVAA (SW-846 Method 7470A)	PDS	One for test program	1	5
	Method 29 10%H_2SO_4/4%$KMnO_4$ impingers	3	1	Method 29	CVAA (SW-846 Method 7470A)	PDS	One for test program	1	5
	Method 29 6N HCl impinger rinses	3	1	Method 29	CVAA (SW-846 Method 7470A)	PDS	One for test program	1	5
	Method 29 filter reagent blank	--	1	Method 29	ICP (SW-846 Method 6010C)	PDS	One for test program	Archive; analyze if necessary.	Archive; analyze if necessary.
					CVAA (SW-846 Method 7470A)	PDS	One for test program	Archive; analyze if necessary.	Archive; analyze if necessary.
	Method 29 10%HNO_3 reagent blank	--	1	Method 29	ICP (SW-846 Method 6010C)	PDS	One for test program	Archive; analyze if necessary.	Archive; analyze if necessary.
					CVAA (SW-846 Method 7470A)	PDS	One for test program	Archive; analyze if necessary.	Archive; analyze if necessary.
	Method 29 10%HNO_3/5%H_2O_2 reagent blank	--	1	Method 29	ICP (SW-846 Method 6010C)	PDS	One for test program	Archive; analyze if necessary.	Archive; analyze if necessary.
					CVAA (SW-846 Method 7470A)	PDS	One for test program	Archive; analyze if necessary.	Archive; analyze if necessary.

Table 10-1. Summary of Test Program Analyses (cont'd)

Analysis	Sample Matrix	Test	Field QC	Reference Preparation Method	Reference Analytical Method	QC Analysis	QC Analysis Frequency	QC Analyses	Total Analyses
Metals by Method 29 (cont'd)	Method 29 10%H_2SO_4/4%$KMnO_4$ reagent blank	--	1	Method 29	CVAA (SW-846 Method 7470A)	PDS	One for test program	Archive; analyze if necessary.	Archive; analyze if necessary.
	Method 29 6N HCl ireagent blank	--	1	Method 29	CVAA (SW-846 Method 7470A)	PDS	One for test program	Archive; analyze if necessary.	Archive; analyze if necessary.
	Analytical system QC	NA	NA	NA	ICP (SW-846 Method 6010C)	LCS	One per batch/ matrix specific	1	1
						Serial dilution	One per batch/ matrix specific	1	1
						Method blank	One per batch/ matrix specific	1	1
					CVAA (SW-846 Method 7470A)	LCS	One per batch/ matrix specific	1	1
						Serial dilution	One per batch/ matrix specific	1	1
						Method blank	One per batch/ matrix specific	1	1

Table 10-1. Summary of Test Program Analyses (cont'd)

Analysis	Sample Matrix	Test	Field QC	Reference Preparation Method	Reference Analytical Method	QC Analysis	QC Analysis Frequency	QC Analyses	Total Analyses
PCDD/PCDFs by Method 23	Method 23 front-half & back half composite	3	1	Soxhlet extraction (SW-846 Methods 3542 & 23)	HRGC/HRMS for PCDD/PDDFs (SW-846 Method 8290A)	PCDD/PCDF isotope dilution internal standard spike	Every analysis	4	4
						PCDD/PCDF recovery standard spike	Every analysis	4	
	Method 23 acetone reagent blank	--	1	NA	HRGC/HRMS for PCDD/PDDFs (SW-846 Method 8290A)	PCDD/PCDF isotope dilution internal standard spike	Every analysis	Archive; anlayze if necessary.	Archive; anlayze if necessary.
						PCDD/PCDF recovery standard spike	Every analysis	Archive; anlayze if necessary.	
	Method 23 toluene reagent blank	--	1	NA	HRGC/HRMS for PCDD/PDDFs (SW-846 Method 8290A)	PCDD/PCDF isotope dilution internal standard spike	Every analysis	1	Archive; anlayze if necessary.
						PCDD/PCDF recovery standard spike	Every analysis	1	
	Analytical system QC	NA	NA	NA	HRGC/HRMS for PCDD/PDDFs (SW-846 Method 8290A)	Method blank	1 per analytical batch	1	1
						Blank spike	2 per analytical batch	2	2

Table 10-1. Summary of Test Program Analyses (cont'd)

Analysis	Sample Matrix	Test	Field QC	Reference Preparation Method	Reference Analytical Method	QC Analysis	QC Analysis Frequency	QC Analyses	Total Analyses
Particulate by Method 5/26A	Method 5/26A particulate filter	3	--	Desiccate to constant mass	Gravimetric (Method 5)	Replicate weighing to constant weight	Every sample	3	3
	Method 5/26A probe and filter holder acetone rinses	3	--	Evaporate/Desiccate to constant mass	Gravimetric (Method 5)	Replicate weighing to constant weight	Every sample	3	3
	Method 5/26A knockout impinger	3	--	Evaporate/Desiccate to constant mass	Gravimetric (Method 5)	Replicate weighing to constant weight	Every sample	3	3
	Method 5/26A filter reagent blank	--	1	Desiccate to constant mass	Gravimetric (Method 5)	Replicate weighing to constant weight	Every sample	1	1
	Method 5/26A acetone reagent blank	--	1	Evaporate/Desiccate to constant mass	Gravimetric (Method 5)	Replicate weighing to constant weight	Every sample	1	1
	Method 5/26A deionized water reagent blank	--	1	Evaporate/Desiccate to constant mass	Gravimetric (Method 5)	Replicate weighing to constant weight	Every sample	1	1

Table 10-1. Summary of Test Program Analyses (cont'd)

Analysis	Sample Matrix	Test	Field QC	Reference Preparation Method	Reference Analytical Method	QC Analysis	QC Analysis Frequency	QC Analyses	Total Analyses
HCl by Method 26A	Method 5/26A knockout impinger	3	--	NA	Ion chromatography (EPA Method 26A; SW-846 Method 9056)	Duplicate	Every sample	3	7
						MS/MSD analyzed in duplicate [c]	1 per batch (assuming all samples batched together)	1	
	Method 5/26A H_2SO_4 impingers	3	--	NA	Ion chromatography (EPA Method 26A; SW-846 Method 9056)	Duplicate	Every sample	3	7
						MS/MSD analyzed in duplicate [c]	1 per batch (assuming all samples batched together)	1	
	Method 5/26A H_2SO_4 reagent blank	--	1	NA	Ion chromatography (EPA Method 26A; SW-846 Method 9056)	Reagent Blank	One for test program	1	1
Cl_2 by Method 26A	Method 5/26A NaOH impingers	3	--	NA	Ion chromatography (EPA Method 26A; SW-846 Method 9056)	Duplicate	Every sample	3	7
						MS/MSD analyzed in duplicate [c]	1 per batch (assuming all samples batched together)	1	
	Method 5/26A NaOH reagent blank	--	1	NA	Ion chromatography (EPA Method 26A; SW-846 Method 9056)	Reagent Blank	One for test program	1	1

Table 10-1. Summary of Test Program Analyses (cont'd)

Analysis	Sample Matrix	Test	Field QC	Reference Preparation Method	Reference Analytical Method	QC Analysis	QC Analysis Frequency	QC Analyses	Total Analyses
Cl^- ion by Method 26A	Method 5/26A deionized water reagent blank	--	1	NA	Ion chromatography (EPA Method 26A; SW-846 Method 9056)	Reagent Blank	One for test program	1	1
Cl^- ion chromatography	Analytical system QC	NA	NA	NA	Ion chromatography (EPA Method 26A; SW-846 Method 9056)	LCS/LCSD	1 per batch following initial calibration (separate calibration for each matrix)	1	3
						Method Blank	One per batch/ matrix specific - analyzed in duplicate	2	
TOTAL	Emissions sample analyses only; total excludes solid feed samples analyzed per batch.								**88**

11.0 DATA REDUCTION, DATA VALIDATION, AND DATA REPORTING

11.1 DATA REDUCTION

This section of the QAPP describes the approach that will be used to report, review, and reduce the field and laboratory data. The raw data include field samples and sampling documentation, sample tracking documentation, laboratory preparation documentation, and raw analytical data. The analytical results from the laboratory are assembled into complete analytical data packages. The analytical data packages include the analytical results and their defensible backup data. The analytical data are evaluated for compliance with the project DQOs. Data determined to meet the analytical requirements will be used to calculate the unit performance and emissions.

11.2 ORGANIC ANALYSES

Organic analyses will be conducted using gas chromatography (GC) techniques. Although the principles of operation and specific methods of calibration differ according to the analyte specific methods, the general data reduction scheme is the same for all of these tests. The individual methods should be consulted for details. A summary of the data reduction scheme is presented below.

Depending on the specific method, analytical instrumentation is calibrated using 3 to 5 points covering the expected analytical range. The gas chromatograph/flame ionization detector (GC/FID) or gas chromatograph/electron capture detector (GC/ECD) methods generally employ an external standard calibration technique while the GC/MS methods employ an internal standard technique. For GC/FID and GC/ECD methods, a calibration factor (CF) is calculated using the following formula:

$$CF = \frac{R}{M}$$

Where: CF = Calibration Factor

R = Response or Area of the GC Peak

M = Mass Injected (in nanograms)

The calibration factors must agree to within method specified criteria for the percent relative standard deviation (%RSD). The formula for %RSD is given below.

$$\%\,\mathrm{RSD} = \frac{\sigma}{\mathrm{avg\,CF}} \times 100$$

Where: $\%RSD$ = Percent Relative Standard Deviation

σ = Standard Deviation of the Calibration Factors

$avg\ CF$ = Average Calibration Factor

For gas chromatograph/mass spectral (GC/MS) calibrations, a response factor (RF) is used rather than the CF. The formula for the RF is:

$$RF = \frac{(A_s \times C_{is})}{(A_{is} \times C_s)}$$

Where: RF = Response Factor

A_s = Response for the Analyte

A_{is} = Response for the Internal Standard

C_s = Concentration of the Analyte

C_{is} = Concentration of the Internal Standard

The RFs must also pass a test of the %RSD in order for the calibration to be considered valid.

When samples are analyzed, the area of the peak produced by a given analyte is compared to the CF or RF to arrive at an analytical result according to the following formula:

$$M_x = A_x \times CF$$

Where: M_x = The Mass of Analyte in the Sample

A_x = The Response of the Analyte in the Sample

CF = The Calibration (or Response) Factor

Samples containing a concentration of an analyte exceeding the concentration the instrument is calibrated for, will have a serial dilution performed, if such a dilution is practical given the sample preparation method, to bring the concentration within the calibrated range of the instrument. Such dilutions will be documented in the analytical data report and preparation logs. In that case M_x is multiplied by the dilution factor to arrive at the final result. If, under the circumstances of the method, a dilution is not possible (sample is completely consumed in original analysis), the original analytical result must be considered estimated.

To arrive at a concentration in the gas sample the mass of any sub-samples must be added together and then compared to the volume of gas sampled according to the following formula:

$$C_x = \frac{(M_1 + M_2 + ...M_n)}{V}$$

Where: C_x = The Concentration of the Analyte in the Gas Sample

M_n = The Result (Mass) for Each Component in the Sampling Train

V = The Volume of Gas Sampled

11.3 ANALYSIS OF METALS BY ICP AND ATOMIC ABSORPTION

The analysis of metals also begins with an instrument calibration at 2 to 6 points, depending on the specific analytical method. For inductively coupled argon plasma spectroscopy (ICP) for non-mercury (non-Hg) metals analyses and cold vapor atomic adsorption spectroscopy (CVAA) for mercury (Hg) analyses, instruments are profiled and calibrated according to the instrument manufacturer's instructions. A calibration blank and a QC check standard are then analyzed to ensure appropriate instrument response. A percent recovery (%R) is calculated according to the following formula:

$$\%R = \frac{Found}{True} \times 100$$

where: $\%R$ = Percent Recovery

$Found$ = The Result of the Analysis

$True$ = The Expected Result

The %R is expected to be within method specifications before analysis can begin. The calibration is verified periodically according to method specifications using the same technique.

Atomic absorption instruments are calibrated at three to five points. A linear regression is performed and a correlation coefficient is calculated to assess linearity of the curve. It is beyond the scope of this document to provide a detailed explanation of the statistics supporting linear regression and the calculation of the correlation coefficient. Reference can be made to any standard statistics text for additional information. Calibration checks are performed as above and periodically verified.

Analytical results for metals are read directly from the instrument in terms of concentration. Dilution factors must be used as discussed above if applicable. In order to combine the results of the sub-samples of a metals sampling train, the concentration is converted back to mass using the following formula:

$$M_{xs} = C_{xs} \times V_{xs}$$

where: M_{xs} = Mass in the Sub-sample

C_{xs} = Concentration in the Sub-sample

V_{xs} = Volume of the Sub-sample

The concentration in the gas sample can then be calculated.

11.4 ION CHROMATOGRAPHY

Anions, such as chloride, are separated on the ion chromatograph using a system comprising separator columns, guard columns, and eluents. The system is calibrated using a minimum of 3 points and the calibration is verified with a mid-range standard. Samples are quantitated in the same manner as described above.

11.5 DIRECT READING INSTRUMENTS

Gravimetric, temperature, pressure, flow, and CEMS data are directly read from the measurement instrumentation. The instrumentation will be calibration checked prior to the test, and routinely prior to reading measurements, however, no data reduction beyond formatting into tables is expected

11.6 ANALYTICAL DATA PACKAGES

Analytical data packages will be organized in accordance with the laboratory standard operating procedures. The complete analytical data package is a stand-alone deliverable that includes the final analysis results, raw analytical instrument data, initial and continuing calibration data, parameter-specific quality control documentation, sample preparation documentation, and records of sample traceability. These data are sufficient for performing independent verification of the final analytical results. Every analytical data package includes the following:

- Cover Page—Identifies the laboratory-assigned lot number, project identification, laboratory project manager, and issue date.
- Table of Contents—Organization of the data package.
- Sample Summary—Cross reference to project sample identifications and laboratory sample identifications.
- Analytical/Preparation Methods Summary—Identifies the methods used to prepare and analyze the samples.

- Narrative— Summarizes the project-specific information and any pertinent information concerning data quality. The narrative documents sample delivery and condition upon receipt, and any analytical difficulties or anomalies encountered during sample preparation and analysis.

- QC Data Association Summary—Comparison of sample results to the project and laboratory DOQs and association of project samples to laboratory QC.

- Analytical Data Report—Summarized analytical data for all samples and associated quality assurance samples including as appropriate: data flags, duplicate analysis results, surrogate recovery results, method blank results, laboratory control sample results, and matrix spike/matrix spike duplicate/post digestion spike (MS/MSD/PDS) results.

- Chain-of-custody (COC) documentation

Each analytical data package will include the identification and signature or initials of each analyst who handles the test samples. The Laboratory Project Manager will certify via signature the contents of each analytical data package. Analytical data packages will be transmitted in Acrobat® PDF format. Acrobat® PDF files will be transmitted to CHSL and its testing consultants using Eurofins' secure file transfer protocol (FTP) portal website.

11.6.1 Organic Analyses

The organic analytical data packages will include the following:

- Sample Results
- Raw Sample Data
- Standards Data
  - Initial Calibration Summary(s) and Raw Data
  - Continuing Calibration Summary(s) and Raw Data
  - Initial Calibration(s) Tuning Raw Data (GC/MS only)
  - Continuing Calibration(s) Tuning Raw Data (GC/MS only)
- Raw QC Data
  - Method Blank Data
  - MS/MSD Data and Evaluation Reports
  - Laboratory Control Standard Data and Evaluation Reports
- Miscellaneous data
  - Sample Data Review Checklist
  - Calibration Data Review Checklists
  - Run Logs
  - Extraction sheets.
  - Sample Results
- Example Calculations

11.6.2 Non-Metal Inorganic Analyses

The data packages for other inorganic analyses will include the following:

- Sample Results
- QC Summary
  - Method Blank Report
  - Sample Duplicate report
  - MS/MSD Data and Evaluation Report(s)
  - Laboratory Control Sample Data and Evaluation Report
- Raw Data
  - Data Review Checklist
  - Sample, Standards, and Quality Control Data
  - Distillation, Extraction, and Sample Preparation Sheets
  - Standards Preparation Logs
  - Run Logs

11.6.3 Metals Analyses

The metals analytical data packages will include the following:

- Sample Results
- Quality Control Summary
  - Method Blank Report
  - Sample Duplicate Report
  - MS/MSD/PDS Data and Evaluation Report
  - Laboratory Control Sample Data and Evaluation Report
- Quality Control Summaries
  - Initial Calibration Verification and Blank Results
  - Continuing Calibration Verification and Blank Results
  - Interference Check Sample
  - PDS Sample Recovery
  - Serial Dilutions Documentation for ICAP
  - Instrument Detection Limits
  - ICAP Correction Factors
  - ICAP Linear Ranges
- Raw Data
  - Data Review Checklist
  - Sample, Standards, and Quality Control Data
  - Digestion/Extraction Sheets
  - Preparation Log
  - Analysis Run Log.

11.7 DATA REPORTING

11.7.1 Project Reporting Format

The outline for the final test report is presented in Figure 11-1.

11.7.2 Detection Limit Definitions

The detection limit for each project target analyte will be derived according to the referenced analytical method and the laboratory's standard operating procedures. The laboratory will provide detection limits for each analyte. There are a number of types of detection limits associated non-isotope dilution analytical

methods. The U.S. EPA Office of Solid Waste (OSW) in the "Human Health Risk Assessment Protocol" (RA Protocol) published in July 1998 defines the following detection limits:

> *Instrument Detection Limit (IDL)-the smallest signal above background that an instrument can reliably detect, but not quantify. Also, commonly described as a function of the signal-to-noise (S/N) ratio.*

> *Method Detection Limit (MDL)-the minimum concentration of a substance that can be measured (via non-isotope dilution methods) and reported with 99 percent confidence that the analyte concentration is greater than zero, and is determined from analysis of a sample in a specific matrix type containing the analyte. The MDL is considered the lowest level at which a compound can be reliably detected. The MDL is based on statistical analyses of laboratory data. In practice, the MDLs are determined on analytical reagents (e.g., water) and not on the matrix of concern. MDLs for a given method, are laboratory and compound specific. The determine the MDL as specified in 40 CFR Part 136, Appendix A, at least seven replicate samples with a concentration of the compound of interest near the estimated MDL are analyzed. The standard deviation among these analyses is calculated and multiplied by 3.14. The result of the calculation becomes the MDL. The factor of 3.14 is based on a t-test with six degrees of freedom and provides a 99 percent confidence that the analyte can be detected at this concentration.*

> *Reporting Limit (RL)-the laboratory determined detection, normally the lowest calibration standard.*

Isotope dilution methods quantify non-detects using estimated detection limits (EDLs) as defined in SW-846 Method 8290A. The EDL is defined as follows:

> EDL (from SW-846 Method 8290A) -*"The sample specific estimated concentration of a given analyte required to produce a signal with a peak height of 2.5 times the background signal level."*

The laboratory will provide the RL and MDL for each non-isotope dilution analyte on the analytical certificate. If matrix interference(s) occurs or serial dilutions are necessary, the sample specific RL and MDL will be reported. The analytical data package shall include the documentation of the serial dilutions or other measures taken to determine the detection limit. Isotope dilution analyses shall include the sample-specific and analyte-specific RL, MDL, and EDL for each sample and each analyte.

11.7.3 Detection Limits and Data Reduction

Analytical results for all analyses that are reported as "not-detect" in compliance demonstration samples will be handled in the following manner. The analytical result will be reported as "non-detect" and the appropriate detection limit as discussed above will be shown. In subsequent calculations, the following rules will apply for data reporting and performance demonstrations:

- For analyses of single component samples (e.g., feed or residue samples) that are reported as non-detect, the values will be accompanied by a “less than” (“<”) and/or a data flag that denotes a non-detect result was obtained. .
- For analyses of single component samples (e.g., feed or residue samples) that are reported as non-detect, any subsequent calculations using detection limit values will be accompanied by a “less than” (“<”) sign.
- For analyses of multi-component samples (e.g., Method 29), where multiple analytical results must be combined or summed for use in subsequent calculations and the calculations involve the use of one or more non-detect values in combination with one or more detectable values, the final calculated values shall also include “<”.
- For analyses of multi-component samples where all the multiple analytical results are non-detect values, the final calculated values shall include a data flag such as “ND” with the “<” to indicate that the target analyte was non-detect in all of the relevant sample fractions.
- Where destruction and removal efficiency (DRE), system removal efficiency (SRE), or similar performance measurements are calculated using emissions rates reported with “<” or non-detect flagged values, the resulting performance measurement will be accompanied by a “greater than” (“>”) sign.

In accordance with 40 CFR 63.1208(b)(1)(iii), by operating the Method 23 sampling train a minimum of 180 minute (3 hours) to sample a minimum of 2.5 dry standard cubic meters of stack gas during each sampling run, any dioxin/furan congener that is non-detect is allowed to be counted as zero in determining compliance. For this test program, a sampling time of 180 minutes is planned to a sample volume of 2.5 dry standard cubic meters is targeted. For the analyses of the Method 23 samples, if a fraction is non-detect for a specific dioxin/furan congener, the specific congener’s EDL will be reported. For calculating total dioxin/furan emissions, the EDL value will be used for non-detect results. In calculating 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (TCDD) toxicity equivalent (TEQ) emissions, any 2,3,7,8-chlorinated dioxin/furan congener that is non-detect will be counted as zero.

For calculating metals and HC/Cl_2 emissions, the MDL value will be used for non-detect results.

For calculating particulate matter emissions, 0.5 mg will be used for non-detect results.

11.7.4 Other Quality Control Data Reporting

The following quality assurance measures will be discussed in the analytical data validation report prepared by the Quality Assurance Officer:

- Sample holding times
- Sample surrogate recovery results
- Duplicate results
- MS/MSD results
- Blank train results
- Reagent blank results (if analyzed)
- Trip and field blank results
- RPD and RSD evaluations of accuracy or precision

These data will be evaluated against the target DQOs. Any data that fall outside of the DQO limits will be flagged, footnoted, and assessed relative to the performance and emissions testing objectives. The data from the field blanks and trip blanks will be used to assess possible contamination from field handling and transport of the samples to the laboratory. The reagent blank and blank train results will be used to assess contamination resulting from reagents used, sample handling, and sample recovery procedures. Any blank results that may have impacted performance and emissions testing results or evaluations will be flagged, footnoted, and discussed in the test report and analytical data validation report.

11.7.5 Final Case Files

At a minimum, the following documents will be retained as part of the facility operating upon the completion of the project. These files will be maintained at the CHSL facility for a period of at least five (5) years or until the next compliance test is completed, whichever occurs later:

- All legal documents and orders,
- All field documents including those used for preliminary field activities,
- Copies of all analytical data,
- Copies of the final report and background documents, and
- All correspondence relating to the project as well as corrective action requests.

The test report will be maintained on-site in hard copy form and electronically (Acrobat® PDF format on computer hard drive and/or flash drive). Supporting documentation (test report appendices such as the stack sampling report, analytical data packages, etc.) will be maintained on-site electronically (PDF format on computer hard drive and/or flash drive). Final versions of the test report and supporting documentation (stack sampling report, analytical data packages, etc.) will be maintained electronically by CHSL in a files system that is not connected to the internet. Files maintained there can only be accessed by CHSL personnel.

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Figure 11-1. Example Thermal Desorber Test Report Outline

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- APPENDIX A PROCESS OPERATING DATA
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12.0 ROUTINE MAINTENANCE PROCEDURES AND SCHEDULES

12.1 SAMPLING EQUIPMENT

All equipment used in emission testing measuring systems must be maintained in good operating order. To achieve this objective, a routine preventive maintenance program is necessary. Procedures used in this program follow those outlined in Maintenance Calibration and Operation of Isokinetic Source Sampling Equipment, Publication No. APTD-05-76 and Volume III of the Quality Assurance Handbook for Air Pollution Measurement Systems.

The potential impact of equipment malfunction on data completeness is minimized through two complementary approaches. First, an equipment maintenance program is part of routine operations. The maintenance program's strengths include:

- Trained technicians experienced in the details of equipment maintenance and fabrication,
- Adequate spare parts inventory, and
- The availability of tools and specialized equipment.

The second approach is based upon equipment redundancy. Backup equipment, spare parts and tools are included on the materials transported to the field for each sampling task. This approach allows the sampling team to respond to equipment breakage or malfunction in a timely fashion, minimizing the quantity of lost data.

For field equipment, preventive maintenance schedules are based on the results of routine inspections and on accumulated experience. At a minimum, equipment will be inspected prior to the beginning of and at the conclusion of each test. A record of each inspection (Figure 12-1) will be kept as part of the final case file. Maintenance schedules for continuous emissions monitors follow manufacturer's recommendations.

Each item of field test equipment is assigned a unique, permanent identification number. An effective preventive maintenance program is necessary to ensure data quality. Each item of equipment returning from the field is inspected before it is returned to storage. During the course of these inspections, items are cleaned, repaired, reconditioned and recalibrated where necessary. Each item of equipment transported to the field for this test program is inspected again before being packed to detect equipment problems that may originate during periods of storage. This minimizes lost time on the job site due to equipment failure. Occasional equipment failure in the field is unavoidable despite the most rigorous inspection and maintenance procedures. For this reason, adequate spare parts are kept in a central location so the sampling contractor can quickly respond to the job site with replacement equipment for all critical sampling train components.

12.2 LABORATORY INSTRUMENTS

The laboratories perform regular maintenance on all analytical instruments. An inventory of replacement parts is kept to prevent downtime. Manufacturers' service representatives are also contracted, as required, for major instrument repairs.

Preventive and routine maintenance is covered in each of the laboratories' QA Manuals and SOPs or in accordance with manufacturer's recommendations (i.e., instrument manuals). Daily maintenance (such as replacement of injector septa, etc.) is covered in instrument SOPs. Inoperative equipment is tagged as non-usable until repairs are performed. Logbooks are maintained for each instrument to record usage, maintenance, and repairs.

Equipment Inspection Record

Clean Harbors San Leon, Inc., San Leon, TX

Date/Time of inspection: _____

Equipment Inspected:

1) _____

Condition: Good See Problems Section Below

2) _____

Condition: Good See Problems Section Below

3) _____

Condition: Good See Problems Section Below

4) _____

Condition: Good See Problems Section Below

5) _____

Condition: Good See Problems Section Below

Problems Noted:

_____

_____

_____

_____

Action Taken

_____

_____

_____

Inspector's Signature_____

Figure 12-1. Example Equipment Inspection Record Form

13.0 ASSESSMENT PROCEDURES FOR ACCURACY, PRECISION, & COMPLETENESS

The QA activities implemented in this study will provide a basis for assessing the accuracy and precision of the analytical measurements. Section 5.0 discusses the QA activities that will generate the accuracy and precision data for each sample type. The generalized forms of the equations that will be used to calculate accuracy and precision are presented below.

13.1 ACCURACY

When a reference standard material is used in the analysis, percent Accuracy (A) will be calculated as follows:

$$A = \frac{\text{Found concentration}}{\text{True concentration}} \times 100$$

Percent analyte Recovery (R) will be calculated as follows:

$$R = \frac{X - N}{S} \times 100$$

Where X is the experimentally determined value, N is the amount of native material in the sample, and S is the amount of spiked material of the species being measured. Recoveries are used to determine accuracy when standards are not available, or are not appropriate for a given matrix.

13.2 PRECISION

When less than three analyses of the same parameter are available, precision will be calculated as a Relative Percent Difference (RPD) from the average of replicate measurements according to:

$$\text{RPD} = \frac{\left(X_1 - X_2\right)}{\text{Average } X} \times 100$$

Where X_1 and X_2 are the highest and lowest results of replicate measurements.

Where three or more analyses of the same parameter are available, the precision will be determined as the Relative Standard Deviation (RSD) according to:

$$\text{RSD} = \frac{\text{Standard deviation}}{\text{Average X}} \times 100$$

13.3 COMPLETENESS

Completeness of data generated from a test program is usually calculated as follows:

$$\%\,\text{Completeness} = \frac{\text{Valid data}}{\text{Expected data}} \times 100$$

Data completeness is defined in Section 5.0 of this QAPP as the percentage of valid data collected from the total number of valid tests conducted. Three valid test runs, at each test condition, are required for the test to be completed. If an individual sample from a test run is lost or broken, the data for that individual analytical parameter may not be 100% complete. This, however, may not invalidate the test run. The completeness objective for this test program is to generate sufficient data for the regulatory agencies to judge the performance of the system.

14.0 AUDIT PROCEDURES, CORRECTIVE ACTION, AND QA REPORTING

14.1 PERFORMANCE AND SYSTEM AUDITS

This section presents information related to the procedures used by the QA staff to assess conformance of the project staff to the specifications contained in the relevant project controlling documents. Further, auditing may be employed to assess the ability of subcontractors to successfully perform the work.

14.1.1 Field Surveillance

The Test Manager assigned to the project will actively evaluate the operations at the site during testing to ensure that work is being performed in accordance with the various project controlling documents and associated standard operating procedures. Checklists appropriate to the activities may be used. The field surveillance will cover, but is not necessarily be limited to, such areas as:

- Conformance to SOPs
- Completeness and accuracy of documentation
- Chain of custody procedures
- Compliance with Health and Safety requirements.

The Test Manager will be present on-site for the testing. The Test Manager is there to observe and provide overall direction of testing and sampling activities. Review includes unit operations, sampling train preparation, process and emissions sampling activities, process and emissions sample recovery, and recovered sample management.

14.1.2 Performance Evaluations (Analytical Audits)

Refer to Section 5.6. No audit samples are currently available for Method 26A (HCl/Cl_2), Method 29 (Multi-Metals), or Method 23 (PCDD/PCDF).

14.1.3 Laboratory Audits

The selected laboratory is audited and accredited annually under the National Environmental Laboratory Accreditation Program (NELAP). However, CHSL or its appointed representative may choose to audit the laboratory at any time during the course of this test project to assess the laboratory's ability to successfully perform the work and to ensure mutual agreement between CHSL and the laboratory with regard to the scope of work, QA/QC requirements, and deliverable requirements. Reasonable notice will be provided prior to any on-site inspection of the laboratory.

14.2 CORRECTIVE ACTION

The following procedures have been established to ensure that nonconforming conditions, such as malfunctions, deficiencies, deviations, and errors are promptly investigated, documented, evaluated and corrected. Every person employed in the test program is expected to function as a QC inspector to ensure the quality of the final product. Quality, as it relates to this project, is defined as "performing the work according to the agreed upon specifications contained in the TBP and relevant SOPs or causing the specification to be changed *in a controlled manner*." Each individual is encouraged to identify any condition adverse to the successful completion of the work or any modification to the specifications that might result in a better end product. These improvements might be framed in terms of higher quality, greater safety, greater efficiency, and/or lower cost.

14.2.1 Field

When a nonconforming condition or an opportunity for improvement is noted at the site or contractor location, the corrective action provisions of this plan will be invoked to identify the condition and recommend corrective action. Condition identification, cause, reference documents and the corrective action planned to be taken will be documented.

“Non-conformances” are identified on a case-by-case basis. Field corrections and adjustments will be made as necessary. Such field corrections or adjustment will be communicated and documented in the test report quality assurance discussion as they may impact compliance determinations or data acceptance. The laboratory report narrative will similarly address any minor variances, e.g., surrogate results outside of DQOs limits due to matrix interference. A formal “non-conformance” report will only be generated and communicated for significant changes or deviations from the test plan or QAPP that could impact compliance determinations or data acceptance.

A Corrective Action Request (CAR), as shown in Figure 14-1, should be used to identify the adverse condition or opportunity for improvement, reference document(s) and recommended corrective action(s). The CAR is directed to the Test Manager. The Test Manager affixes his signature and the date to the corrective action block that states the cause of the condition(s) and corrective action(s) to be taken. The Test Manager is responsible for first notifying the regulatory agency representative of any problems or deviations from the QAPP, or the test plan identified in the CAR.

14.2.2 Laboratory

The laboratories' QA Manuals and the related SOPs, contain detailed discussions of corrective actions to be taken if established criteria fail during laboratory analysis. The laboratory has the responsibility to immediately notify the Test Manager when any analytical QC nonconformance occurs, so a mutually acceptable course of action can be pursued.

14.3 QA REPORT

The Test Manager will include in the final test report that addresses the following:

- Overview of activities and significant events related to QA/QC
- Summary of any audit results
- Review of corrective action request status
- Laboratory QA/QC reports
- Data validation results
- Summary of significant changes in procedures or QA/QC programs
- Recommendations.

The Test Manager will include the information in the final test report. Additionally, the QAO's analytical data validation report is included with the final test report. The analytical data validation report compares the data to the data quality objectives (DQO) delineated in the QAPP and includes assessment of the data usability.

Corrective Action Request

Number:
Date:
File Name:
Client: Clean Harbors San Leon, Inc., San Leon, TX

REQUEST

To:

You are hereby requested to take corrective actions indicated below and as otherwise determined by you (A) to resolve the noted condition and (B) to prevent it from recurring. Your written response is to be returned to the project Test Manager or other responsible manager by.

Condition:

Reference Documents:

Recommended Corrective Actions:

_____	_____	_____	_____	_____	_____
Originator	Date	Approval	Date	Approval	Date

RESPONSE

Cause of Condition:

Resolution:

Prevention:

Affected Documents:

Test Manager	Date
Responsible Party	Date
Test Manager Follow-up	Date

Figure 14-1. Example Corrective Action Request Form

SECTION VI -Geology Report

This section of the application has been deemed not applicable from previous permit submittals based on the following information. The Clean Harbors San Leon, Inc. is above-ground tank based with secondary containments. No surface impoundments, landfills, land treatment units, waste piles, under-ground storage tanks or drip pads are included in this permit renewal. Further, all Tables for this section are not included in the submission.

Appendix VI.A
Geology and Topography
NA

Appendix VI.B
Facility Groundwater
NA

Appendix VI.C
Exemption from Groundwater Monitoring for an Entire Facility
NA

Appendix VI.D
Unsaturated Zone Monitoring
NA

SECTION VII
Closure and Post-Closure Plans

Appendix VII.A
Unit Closure

The Plan is a stand-alone document and can be found in Attachment VII.A of this section. Table VII.A, which identifies the Permitted Units for closure, possible method of decontamination and possible method of disposal can be found in Attachment VII Tables.

Appendix VII. B
Unit Closure Cost Estimate

An estimate of the closure cost for Clean Harbors San Leon, Inc. has been developed and the cost factors preexisting and proposed individual unit are detailed in Table VII.B which can be found in Attachments VII Tables.

The estimates provided in Table VII.B were originally based on an approved closure plan dated May 2018 dollars ; however, the final cost estimate has been updated to reflect all of the inflation factors since 2018 bringing the estimate to 2024 totals. As required by 40 CFR 264 Subpart G, the closure cost estimates were developed assuming the worst case scenario, which is closure of all existing units by third-party contractors and assumes covered units are at maximum capacity. This might be required if all operations, technical and engineering staff had been dismissed, leaving only management personnel to supervise environmental contractors. Projected closure cost for all permitted units have also been calculated, even though we will fund closure of active units only. The closure cost estimates for proposed units will facilitate amendment as additional units are brought into service. Maximum capacity assumes that all storage and process tanks are full and processing units are also full. The major cost factor would be due to the need to empty, transport and dispose of the entire maximum inventory of waste offsite. This situation would only arise if the facility's processing tanks and thermal desorbers become inoperable and no additional waste could be processed onsite. During a planned phase-out of operations, rather than an abrupt termination of operations, waste inventories would be worked off in a routine production mode and nearly all of these projected costs would be avoided.

In addition, the following 2018 assumptions were used in developing the closure cost estimates provided in Table VII.B.

All tanks are full to permitted limits.
All container storage areas are full to permitted limits
Containers are processed through the desorber(s)
Based on historical averages after processing, 60% solids are non RCRA and 40% solids are RCRA regulated
Drum capacity: 50 gallons
Tanker capacity: 5000 gallons
Roll-off capacity: 20 cubic yards
All aqueous waste has specific gravity of 1.0
All organic waste has specific gravity of 0.9
All solid waste has specific gravity of 1.1
Tank decontamination includes all ancillary equipment and piping
Container storage area decontamination includes all ancillary equipment
Administrative cost: $29.00 Per Hour
Administrative time: 8 Hours/Per Unit
Labor Rate - burdened = $33.00/ hour
Hydroblasting -1 operator $33.00, 1 technician $18.00, 1 unit $12.00 = $63/ hour
Incineration trans costs are based on shipments to Veolia in Port Arthur, Texas
Transportation to Port Arthur, TX - $679/ load
Landfill trans costs are based on shipments to US Ecology Robstown, TX
Transportation to Robstown, TX - $970/ load
Transportation to Angleton, TX - $550/ load
All washwater disposal is deep well injected at Texas Molecular in Deer Park, Texas = $0.32/gal
Transportation to Texas Molecular - $479/ load
RCRA landfill disposal at US Ecology, Robstown, TX = $240/T
Non RCRA landfill disposal at Waste Connections Seebreeze, Angleton TX = $31/T
Incineration of Bulk Solids - Based on 12 month market price = $0.34/#
Incineration of RCRA Bulk Fuels - Based on 12 month market price = $0.12/#
Incineration of RCRA Liquid - Based on 12 month market price = $0.17/#
Rinseate analysis includes TOC and TOX analysis:
Rinseate analysis cost (includes 1 blank per 2 analyses) = $89.00/ analysis $ 89.00 per analysis $ 90.00 per analysis
Solid analysis cost includes TOC, TOX, metals = $154.00/ analysis $244.00 per analysis
Background samples =12 @ non-waste areas ($100 for Geoprobe +$154 for analysis) = $4128
Background sample - prorated over 41 units =$100/ unit $ 66.00 per unit
Engineering Certification (41 units, 2 units per 8hr day, $110 per hr) = $440/ unit
$ 440.00 per unit, $ 63.00 per hour , $ 0.04 per pound

The cost of estimating assumptions of soil sampling, analysis and remedial activities described in previous sections of this plan are:

- Soil core sampling to a depth of approximately 10 feet from approximately 15 locations (tank systems, container storage areas and process areas).
- Through each boring, a surface sample will be collected. Each sample will be analyzed for the chemicals of concern (COC) listed in Attachment VII.A of this plan at a laboratory using EPA approved methods and quality control procedures. The soils shall be considered uncontaminated if the contaminant levels in the samples taken do not exceed the contaminant levels given in Attachment VII.A, as documented by the independent engineer.
- Re-sampling and analysis to verify effectiveness of remedial.

Additional costs for third-party contractor decontamination of tank systems, container storage areas, process units and ancillary equipment have been conservatively estimated to include not only decontamination procedures, but sampling, analysis, transportation and disposal of decontamination residuals as well. Table VII.B. details these costs by permit unit number and the balance of the costs associated with soil sampling, analysis and removal of any contaminated soils, as well as contingency funds. This is an estimate of a low-probability, worst-case scenario. No salvage value or economic benefit has been assigned to these fuel quality wastes or incorporated into the closure costs.

No later than sixty (60) days prior to receipt of waste into any permitted unit that is installed or constructed, Clean Harbors San Leon will update the closure cost estimate using the following formula:

$$\frac{CE\ (Inflation\ Factor\})}{Y}$$

Where: CE = Closure cost estimate for the unit
Y = Number of years and fractions of a year remaining in the initial permit.

Additionally, sixty (60) days prior to the first receipt of waste into any newly installed or constructed unit, Clean Harbors San Leon will provide the following to the Manager of the TCEQ Financial Assurance Section, with a copy to the TCEQ Region 12 Office: Written notice stating that the receipt of waste into a unit is planned, and a copy of the financial assurance documentation for that unit.

VII.C

Post-Closure

The secondary containment systems utilized at the Clean Harbors San Leon for containers and tanks are designed in accordance with 40 CFR 264.175 and 264.193. Therefore, as provided by 40 CFR 264.197 (c), a post-closure care plan is not required at this time. Clean Harbors San Leon intends to remove all wastes and waste residues and leave no waste constituents in place at the time of closure of its Hazardous waste management units (HWMUs).

Further, the Facility does not operate land disposal units. If contaminated soils are present around one or more of the HWMUs, and cannot be practicably removed or decontaminated, the unit will be closed in accordance with the requirements that apply to landfills (40 CFR 264.310). In this event, a post-closure care plan will also be developed and implemented at that time.

VII. D
Post-Closure Cost Estimate

The facility does not have any post-closure activities onsite so therefore, a Post-Closure Cost Estimate does not apply.

Appendix VII.E
Closure and Post-Closure Cost Summary

The Closure Cost Summary (Table VII.E.1) identifies the Permitted Units Closure Cost Summary (existing and proposed) which can be found in Attachment VII Tables. The facility does not have any post-closure activities onsite so therefore, a Post-Closure Cost Summary does not apply.

ATTACHMENT VII TABLES

Table VII.A Unit Closure

Table VII.B Unit Closure Cost Estimate

Table VII.E.1 Permitted Unit Closure Cost Summary

Table VII.A. - Unit Closure

For each unit to be permitted, list the facility components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure:

Equipment or HWM Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
ST5	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
ST6	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
ST-211	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
PV12	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
PV13	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
PV14	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
PV15	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
PV16	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
ST17	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
PV18	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
PV19	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..

1. Applicants may list more than one appropriate method.

Table VII.A. - Unit Closure

For each unit to be permitted, list the facility components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure:

Equipment or HWM Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
PV20	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
PV21	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
FPV30	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
FPV31	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
FPV32	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
FPV33	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
FPV34	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
FPV35	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
FPV36	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..

1. Applicants may list more than one appropriate method.

Table VII.A. - Unit Closure

For each unit to be permitted, list the facility components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure:

Equipment or HWM Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
FPV37	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
T200	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
T0256	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
ST207	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
ST208	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
ST 209	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
ST 2	Remove contents Wash/flush equipment Remove equipment	Tank contents and rinsate to be treated,/disposed offsite. The tank and ancillary equipment (piping) to remain onsite following decontamination or removed tor offsite reuse or scrapped..
CSA-2	Remove all waste, rinse containment, buildings and staging areas until decontaminated	All waste will be processed onsite, rinsewaters will be sent off site for disposal.
CSA-8	Remove all waste, rinse containment, buildings and staging areas until decontaminated	All waste will be processed onsite, rinsewaters will be sent off site for disposal.
CSA-9	Remove all waste, rinse containment, buildings and staging areas until decontaminated	All waste will be processed onsite, rinsewaters will be sent off site for disposal.
CSA-10	Remove all waste, rinse containment, buildings and staging areas until decontaminated	All waste will be processed onsite, rinsewaters will be sent off site for disposal.
CSA-12	Remove all waste, rinse containment, buildings and staging areas until decontaminated	All waste will be processed onsite, rinsewaters will be sent off site for disposal.

1. Applicants may list more than one appropriate method.

Table VII.A. - Unit Closure

For each unit to be permitted, list the facility components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure:

Equipment or HWM Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
CSA-13	Remove all waste, rinse containment, buildings and staging areas until decontaminated	All waste will be processed onsite, rinsewaters will be sent off site for disposal.
CSA-14	Remove all waste, rinse containment, buildings and staging areas until decontaminated	All waste will be processed onsite, rinsewaters will be sent off site for disposal.
Centrifuge 1	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Centrifuge 2	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Centrifuge 3	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Heater1	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Heater 3	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Desorber 1	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Desorber 2	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Centrifuge 4	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Heater 4	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.

1. Applicants may list more than one appropriate method.

Table VII.A. - Unit Closure

For each unit to be permitted, list the facility components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure:

Equipment or HWM Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
Filter Press	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
Waste pre-treatment container	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.
DAF	Remove and containerize all waste, rinse containment, equipment, and buildings until decontaminate,	All waste will be sent off site for disposal. The facility may process the recovered waste onsite. Components may be sent for disposal or scraped.

1. Applicants may list more than one appropriate method.

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
1 (CSA-2)	
(RCRA landfill) Ship and dispose 57 roll-off boxes ((18.55T x $240/ T)+970)x 57	$309,054
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 8,361 gallons (8361 gal x $.32/gal) +400	$3,075
Rinseate analysis	$154
Labor – 80 manhours @ $33/ hr	$2,640
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$316,707
Contingency (10% minimum)	$31,671
Total Closure Cost Year 2017	$348378
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$442,093

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
6 (ST-5)	
(RCRA fuel) Ship and dispose 23,100 gal (23100gal x 8.35#/gal x $.12/#)+(679 x 5)	$26,541
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 231 gallons (231gal x $.32/ gal)+200	$274
Labor – 30 manhours @ $33/ hr	$990
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$29,743
Contingency (10% minimum)	$2,974
Total Closure Cost Year 2017	$32,717
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$41,518

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
7 (ST-6)	
(RCRA fuel) Ship and dispose 18,900 gal (18900gal x 8.35#/gal x $.12/#)+(679 x 4)	$21654
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 231 gallons (231gal x $.32/ gal)+200	$274
Labor – 30 manhours @ $33/ hr	$990
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$24,856
Contingency (10% minimum)	$2,486
Total Closure Cost Year 2017	$27,342
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$34,697

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
8 (ST-7) CLOSED	
9 (ST-8) CLOSED	
10 (ST-9) CLOSED	
11 (ST-10) CLOSED	
Other tasks	
Subtotal	
Contingency (10% minimum)	
Total Closure Cost Year 2017	
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	0

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
61 (ST-211)	
(Deepwell) Ship and dispose 12,600 gal (12,600gal x $.32/gal)+(479 x 3)	$5,469
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 231 gallons (231gal x $.32/ gal)+200	$274
Labor – 30 manhours @ $33/ hr	$990
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$8,671
Contingency (10% minimum)	$867
Total Closure Cost Year 2017	$9,538
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$12,104

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
13 (PV-12)	
(RCRA fuel) Ship and dispose 9,786 gal (9786gal x 8.35#/gal x $.12/#)+(679 x 2)	$11,164
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 98 gallons (98gal x $.32/ gal)+100	$131
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$13,893
Contingency (10% minimum)	$1,389
Total Closure Cost Year 2017	$15,282
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$19,392

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
14 (PV-13)	
(RCRA fuel) Ship and dispose 9,786 gal (9786gal x 8.35#/gal x $.12/#)+(679 x 2)	$11,164
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 98 gallons (98gal x $.32/ gal)+100	$131
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$13,893
Contingency (10% minimum)	$1,389
Total Closure Cost Year 2017	$15,282
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$19,392

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
15 (PV-14)	
(RCRA fuel) Ship and dispose 9,786 gal (9786gal x 8.35#/gal x $.12/#)+(679 x 2)	$11,164
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 98 gallons (98gal x $.32/ gal)+100	$131
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$13,893
Contingency (10% minimum)	$1,389
Total Closure Cost Year 2017	$15,282
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$19,392

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
16 (PV-15)	
(RCRA fuel) Ship and dispose 9,786 gal (9786gal x 8.35#/gal x $.12/#)+(679 x 2)	$11,164
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 98 gallons (98gal x $.32/ gal)+100	$131
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$13,893
Contingency (10% minimum)	$1,389
Total Closure Cost Year 2017	$15,282
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$19,392

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
17 (PV-16)	
(RCRA fuel) Ship and dispose 9,786 gal (9786gal x 8.35#/gal x $.12/#)+(679 x 2)	$11,164
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 98 gallons (98gal x $.32/ gal)+100	$131
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$13,893
Contingency (10% minimum)	$1,389
Total Closure Cost Year 2017	$15,282
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$19,392

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
18 (ST-17)	
(RCRA fuel) Ship and dispose 63,000 gal (63000gal x 8.35#/gal x $.12/#)+(679 x 13)	$71,953
Hydroblasting – 32 hr @ $63/hr	$2,016
(Deepwell) Ship and dispose 630 gallons (630gal x $.32/ gal)+200	$402
Labor – 40 manhours @ $33/ hr	$1,320
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides (east and west)	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$77,125
10% contingency	$7712
Total Unit Closure Cost 2017	$84,837
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$107,658

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
19 (PV-18)	
(RCRA fuel) Ship and dispose 25,200 gal (25200gal x 8.35 #/gal x $.12/#)+(679 x 5)	$28,645
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 252 gallons (252gal x $.32/ gal)+200	$281
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$32,532
10% contingency	$3253
Total Unit Closure Cost 2017	$35,785
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$45,411

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
20 (PV-10)	
(RCRA fuel) Ship and dispose 25,200 gal (25200gal x 8.35 #/gal x $.12/#)+(679 x 5)	$28,645
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 252 gallons (252gal x $.32/ gal)+200	$281
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$32,532
10% contingency	$3253
Total Unit Closure Cost 2017	$35,785
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$45,411

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
21 (PV-20)	
(RCRA fuel) Ship and dispose 25,200 gal (25200gal x 8.35 #/gal x $.12/#)+(679 x 5)	$28,645
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 252 gallons (252gal x $.32/ gal)+200	$281
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$32,532
10% contingency	$3253
Total Unit Closure Cost 2017	$35,785
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$45,411

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
22 (PV-21)	
(RCRA fuel) Ship and dispose 25,200 gal (25200gal x 8.35 #/gal x $.12/#)+(679 x 5)	$28,645
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 252 gallons (252gal x $.32/ gal)+200	$281
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$32,532
10% contingency	$3253
Total Unit Closure Cost 2017	$35,785
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$45,411

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
27(FPV-30)	
(RCRA fuel) Ship and dispose 30,870 gal (30870gal x 8.35 #/gal x $.12/#)+(679 x 6)	$35,006
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 309 gallons (309gal x $.32/ gal)+200	$299
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$38911
10% contingency	$3891
Total Unit Closure Cost 2017	$42,802
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$54,316

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
28(FPV-31)	
(RCRA fuel) Ship and dispose 30,870 gal (30870gal x 8.35 #/gal x $.12/#)+(679 x 6)	$35,006
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 309 gallons (309gal x $.32/ gal)+200	$299
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$38911
10% contingency	$3891
Total Unit Closure Cost 2017	$42,802
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$54,316

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
29(FPV-32)	
(RCRA fuel) Ship and dispose 30,870 gal (30870gal x 8.35 #/gal x $.12/#)+(679 x 6)	$35,006
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 309 gallons (309gal x $.32/ gal)+200	$299
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$38911
10% contingency	$3891
Total Unit Closure Cost 2017	$42,802
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$54,316

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
30(FPV-33)	
(RCRA fuel) Ship and dispose 30,870 gal (30870gal x 8.35 #/gal x $.12/#)+(679 x 6)	$35,006
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 309 gallons (309gal x $.32/ gal)+200	$299
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$38911
10% contingency	$3891
Total Unit Closure Cost 2017	$42,802
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$54,316

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
31(FPV-34)	
(RCRA fuel) Ship and dispose 30,870 gal (30870gal x 8.35 #/gal x $.12/#)+(679 x 6)	$35,006
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 309 gallons (309gal x $.32/ gal)+200	$299
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$38911
10% contingency	$3891
Total Unit Closure Cost 2017	$42,802
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$54,316

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
32(FPV-35)	
(RCRA fuel) Ship and dispose 30,870 gal (30870gal x 8.35 #/gal x $.12/#)+(679 x 6)	$35,006
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 309 gallons (309gal x $.32/ gal)+200	$299
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$38911
10% contingency	$3891
Total Unit Closure Cost 2017	$42,802
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$54,316

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
33(FPV-36)	
(RCRA fuel) Ship and dispose 30,870 gal (30870gal x 8.35 #/gal x $.12/#)+(679 x 6)	$35,006
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 309 gallons (309gal x $.32/ gal)+200	$299
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$38911
10% contingency	$3891
Total Unit Closure Cost 2017	$42,802
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$54,316

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
34(FPV-37)	
(RCRA fuel) Ship and dispose 30,870 gal (30870gal x 8.35 #/gal x $.12/#)+(679 x 6)	$35,006
Hydroblasting – 24 hr @ $63/hr	$1,512
(Deepwell) Ship and dispose 309 gallons (309gal x $.32/ gal)+200	$299
Labor – 20 manhours @ $33/ hr	$660
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$38911
10% contingency	$3891
Total Unit Closure Cost 2017	$42,802
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$54,316

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
46 (Centrifuge 1)	
(RCRA fuel) Ship and dispose 1,000 gal (1000gal x 8.35#/gal x $.12/#)+(679)	$1,681
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 50 gallons (50gal x $.32/ gal)+200	$216
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$4,363
10% contingency	$436
Total Unit Closure Cost 2017	$4,799
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$6,090

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
47 (Centrifuge 2)	
(RCRA fuel) Ship and dispose 1,000 gal (1000gal x 8.35#/gal x $.12/#)+(679)	$1,681
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 50 gallons (50gal x $.32/ gal)+200	$216
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$4,363
10% contingency	$436
Total Unit Closure Cost 2017	$4,799
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$6,090

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
48 (Centrifuge 3)	
(RCRA fuel) Ship and dispose 1,000 gal (1000gal x 8.35#/gal x $.12/#)+(679)	$1,681
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 50 gallons (50gal x $.32/ gal)+200	$216
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$4,363
10% contingency	$436
Total Unit Closure Cost 2017	$4,799
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$6,090

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
50 (Heater 1)	
Clean exterior surfaces and flush lines: RCRA incineration (500 gal) (500 gal x 8.35#/gal x $.17/#)+200	$910
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Background sample	$100
Engineering certification	$440
Subtotal	$2,364
10% contingency	$236
Total Unit Closure Cost 2017	$2,600
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$3,299

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
51 (Heater 3)	
Clean exterior surfaces and flush lines: RCRA incineration (500 gal) (500 gal x 8.35#/gal x $.17/#)+200	$910
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Background sample	$100
Engineering certification	$440
Subtotal	$2,364
10% contingency	$236
Total Unit Closure Cost 2017	$2,600
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$3,299

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
53 (Desorber 1)	
Clean exterior surfaces and flush lines: RCRA incineration (500 gal) (500 gal x 8.35#/gal x $.17/#)+200	$910
Labor – 40 manhours @ $33/ hr	$1,320
Rinseate analysis	$154
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Administrative	$232
Background sample	$100
Engineering certification	$440
Subtotal	$3,664
Contingency (10% minimum)	$366
Total Closure Cost Year 2017	$4,030
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$5,114

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
54 (Desorber 2109)	
Clean exterior surfaces and flush lines: RCRA incineration (500 gal) (500 gal x 8.35#/gal x $.17/#)+200	$910
Labor – 40 manhours @ $33/ hr	$1,320
Rinseate analysis	$154
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Administrative	$232
Background sample	$100
Engineering certification	$440
Subtotal	$3,664
Contingency (10% minimum)	$366
Total Closure Cost Year 2017	$4,030
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$5,114

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
55 (CSA-8)	
(RCRA landfill) Ship and dispose 16 roll-off boxes ((18.55T x $240/ T)+970)x 16	$86,752
Hydroblasting – 24 hr @ $63/hr	$1512
(Deepwell) Ship and dispose 8,361 gallons (8361 gal x $.32/gal) +400	$3,075
Rinseate analysis	$154
Labor – 80 manhours @ $33/ hr	$2,640
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$95,413
Contingency (10% minimum)	$9541
Total Closure Cost Year 2017	$104,954
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$133,187

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
56 (CSA-9)	
(non RCRA landfill) Ship and dispose 5 roll-off boxes ((18.55T x $31/ T)+550)x 5	$5,625
Hydroblasting – 24 hr @ $63/hr	$1512
(Deepwell) Ship and dispose 8,361 gallons (8361 gal x $.32/gal) +400	$3,075
Rinseate analysis	$154
Labor – 80 manhours @ $33/ hr	$2,640
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$14,286
Contingency (10% minimum)	$1,428
Total Closure Cost Year 2017	$15,714
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$19,941

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
57 (CSA-10)	
(RCRA landfill) Ship and dispose - stored flow bins: 239 bins (1 bin is 3,500 lb) ((239 x 3500# /2000 #/T) x $240/T) + (22 x $970)	$121,720
Hydroblasting – 24 hr @ $63/hr	$1512
(Deepwell) Ship and dispose 200 gallons (200 gal x $.32/gal) 200	$264
Rinseate analysis	$154
Labor – 40 manhours @ $33/ hr	$1,320
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$126,250
10% contingency	$12625
Total Unit Closure Cost 2017	$138,875
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$176,232

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
58 (CSA-12)	
(non RCRA landfill) Ship and dispose 48 bins (25,000#/bin) ((12.5T x $31/ T)+550)x 48	$45,000
Hydroblasting – 24 hr @ $63/hr	$1512
(Deepwell) Ship and dispose 200 gallons (200 gal x $.32/gal) +200	$264
Rinseate analysis	$154
Labor – 40 manhours @ $33/ hr	$1,320
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$49,530
10% contingency	$4,953
Total Unit Closure Cost 2017	$54,483
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$69,137

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
59 (CSA-13)	
(non RCRA landfill) Ship and dispose 79 bins (25,000#/bin) ((12.5T x $31/ T)+550)x 79	$74,062
Hydroblasting – 24 hr @ $63/hr	$1512
(Deepwell) Ship and dispose 200 gallons (200 gal x $.32/gal) +200	$264
Rinseate analysis	$154
Labor – 40 manhours @ $33/ hr	$1,320
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$78,592
10% contingency	$7,859
Total Unit Closure Cost 2017	$86,451
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$109,706

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
60 (CSA-14)	
(non RCRA landfill) Ship and dispose 100 bins (3,500#/bin) ((1.75T x $31/ T)+550)x 100	$60,425
Hydroblasting – 24 hr @ $63/hr	$1512
(Deepwell) Ship and dispose 200 gallons (200 gal x $.32/gal) +200	$264
Rinseate analysis	$154
Labor – 40 manhours @ $33/ hr	$1,320
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$64,955
10% contingency	$6,495
Total Unit Closure Cost 2017	$71,450
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$90,670

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
65 (T-0256)	
(RCRA fuel) Ship and dispose 1,147 gal (1147gal x 8.35#/gal x $.12/#)+(200)	$1,349
Hydroblasting – 8 hr @ $63/hr 528	$504
(Deepwell) Ship and dispose 50 gallons (50gal x $.32/ gal)+200	$216
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$4,031
10% contingency	$403
Total Unit Closure Cost 2017	$4, 434
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$5,627

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
66 (T-200)	
(RCRA fuel) Ship and dispose 5,499 gal (5499gal x 8.35#/gal x $.12/#)+(679)	$6189
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 50 gallons (50gal x $.32/ gal)+200	$216
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$8,871
10% contingency	$887
Total Unit Closure Cost 2017	$9,758
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$12,383

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
4 (ST-2)	
(Deepwell) Ship and dispose 255,948 gal (255,948 gal x $.32/gal)+(479 x 21)	$91,962
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 2559 gallons (2559 gal x $.32/ gal)+200	$1,019
Labor – 30 manhours @ $33/ hr	$990
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$95,909
10% contingency	$959
Total Unit Closure Cost 2017	$96,868
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$122,926

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
71 (ST-207)	
(RCRA fuel) Ship and dispose 21,940 gal (21,940 gal x 8.35#/gal x $.12/#)+(679 x 5)	$25,379
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 231 gallons (231gal x $.32/ gal)+200	$274
Labor – 30 manhours @ $33/ hr	$990
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$28,581
10% contingency	$2858
Total Unit Closure Cost 2017	$31,439
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$39,896

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
72 (ST-208)	
(RCRA fuel) Ship and dispose 17,550 gal (17550gal x 8.35#/gal x $.12/#)+(679 x 5)	$20,980
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 231 gallons (231gal x $.32/ gal)+200	$274
Labor – 30 manhours @ $33/ hr	$990
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$24182
10% contingency	$2418
Total Unit Closure Cost 2017	$26,600
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$33,591

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
73 (ST-209)	
(Deepwell) Ship and dispose 12,690 gal (12690gal x $.32/gal)+(479 x 3)	$5,498
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 231 gallons (231gal x $.32/ gal)+200	$274
Labor – 30 manhours @ $33/ hr	$990
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$8,702
10% contingency	$870
Total Unit Closure Cost 2017	$9,573
Total Unit Closure Cost with inflation factor June 2025 (1.024)	$9,803

Table VII.E.1. - Permitted Unit Closure Cost Summary

Proposed Unit Closure Cost Estimate	
Unit	Cost
52 (Heater 4) PROPOSED	
Clean exterior surfaces and flush lines: RCRA incineration (500 gal) (500 gal x 8.35#/gal x $.17/#)+200	$910
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Background sample	$100
Engineering certification	$440
Subtotal	$2,364
10% contingency	$236
Total Unit Closure Cost	$2,600
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	**$3,299**

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Proposed Unit Closure Cost Estimate	
Unit	Cost
49 (Centrifuge 4) PROPOSED	
(RCRA fuel) Ship and dispose 1,000 gal (1000gal x 8.35#/gal x $.12/#)+(679)	$1,681
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 50 gallons (50gal x $.32/ gal)+200	$216
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$4,363
10% contingency	$436
Total Unit Closure Cost	$4,799
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	**$6,090**

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re- calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Proposed Unit Closure Cost Estimate	
Unit	Cost
62 (Dissolved Air Floatation- DAF) PROPOSED	
Remove contamination from internal and external components:	
(RCRA incineration) Ship and dispose 1200# (1200# x $.34/#)+$200	$608
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 1000 gallons (1000 gal x $.32/gal) +200	$520
Rinseate analysis	$154
Labor – 16 manhours @ $33/ hr	$528
Administrative	$232
Engineering certification	$440
Subtotal	$2,986
10% contingency	$299
Total Unit Closure Cost	$3,285
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	**$4,169**

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Proposed Unit Closure Cost Estimate	
Unit	Cost
64 (Waste Pre-Treatment Container) PROPOSED	
(non RCRA landfill) Ship and dispose 1 bins (25,000#/bin) ((12.5T x $31/ T)+550)	$937
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 200 gallons (200 gal x $.32/gal) +200	$264
Rinseate analysis	$154
Labor – 16 manhours @ $33/ hr	$528
Administrative	$232
Engineering certification	$440
Subtotal	$3,059
10% contingency	$306
Total Unit Closure Cost	$3,365
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	**$4,270**

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Proposed Unit Closure Cost Estimate	
Unit	Cost
67 (T-64A) PROPOSED	
(RCRA fuel) Ship and dispose 17,503 gal (17503gal x 8.35#/gal x $.12/#)+(679 x 3)	$19,575
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 200 gallons (200gal x $.32/ gal)+200	$264
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$22,305
10% contingency	$2,231
Total Unit Closure Cost	$24,536
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$31,137

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re- calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Proposed Unit Closure Cost Estimate	
Unit	Cost
68 (T-64B) PROPOSED	
(RCRA fuel) Ship and dispose 17,503 gal (17503gal x 8.35#/gal x $.12/#)+(679 x 3)	$30,239
Hydroblasting – 8 hr @ $63/hr	$1,008
(Deepwell) Ship and dispose 200 gallons (200gal x $.32/ gal)+200	$264
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$33,473
10% contingency	$3347
Total Unit Closure Cost	$36,820
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$46,725

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Proposed Unit Closure Cost Estimate	
Unit	Cost
69 (T-64C) PROPOSED	
(RCRA fuel) Ship and dispose 17,503 gal (17503gal x 8.35#/gal x $.12/#)+(679 x 3)	$27,071
Hydroblasting – 8 hr @ $63/hr	$1,008
(Deepwell) Ship and dispose 200 gallons (200gal x $.32/ gal)+200	$264
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$30,305
10% contingency	$3031
Total Unit Closure Cost	$33,336
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$42,304

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re- calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Proposed Unit Closure Cost Estimate	
Unit	Cost
70 (T-64D) PROPOSED	
(RCRA fuel) Ship and dispose 17,503 gal (17503gal x 8.35#/gal x $.12/#)+(679 x 3)	$4187
Hydroblasting – 8 hr @ $63/hr	$504
(Deepwell) Ship and dispose 200 gallons (200gal x $.32/ gal)+200	$264
Labor – 16 manhours @ $33/ hr	$528
Rinseate analysis	$154
Administrative	$232
Drilling cost $100/geoprobe for two sides	$200
Soils analysis – 2 @ $154	$308
Background sample	$100
Engineering certification	$440
Subtotal	$6,917
10% contingency	$692
Total Unit Closure Cost	$7,609
Total Unit Closure Cost with inflation factor June 2018 (1.018), June 2019 (1.023) June 2020 (1.018) June 2021 (1.012) June 2022 (1.042) June 2023 (1.07) June 2024 (1.036) June 2025 (1.024)	$9,656

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re- calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Existing Unit Closure Cost Estimate	
Unit	Cost
1 (CSA-2)	$442,093
6 (ST-5)	$41,518
7 (ST-6)	$34,697
61 (ST-211)	$12,104
13 (PV-12)	$19,392
14 (PV-13)	$19,392
15 (PV-14)	$19,392
16 (PV-15)	$19,392
17 (PV-16)	$19,392
18 (ST-17)	$107,658
19 (PV-18)	$45,411
20 (PV-19)	$45,411
21 (PV-20)	$45,411
22 (PV-21)	$45,411
27 (FPV-30)	$54,316
28 (FPV-31)	$54,316

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Existing Unit Closure Cost Estimate	
Unit	Cost
29(FPV-32)	$54,316
30 (FPV-33)	$54,316
31 (FPV-34)	$54,316
32 (FPV-35)	$54,316
33 (FPV-36)	$54,316
34 (FPV-37)	$54,316
46 (Centrifuge 1)	$6,090
47 (Centrifuge 2)	$6,090
48 (Centrifuge 3)	$6,090
50 (Heater 1)	$3,299
51 (Heater 3)	$3,299
53 (Desorber 1)	$5,114
54 (Desorber 2)	$5,114
55 (CSA-8)	$133,187
56 (CSA-9)	$19,941
57 (CSA-10)	$176,232

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VII.E.1. - Permitted Unit Closure Cost Summary

Existing Unit Closure Cost Estimate	
Unit	Cost
58 (CSA-12)	$69,137
59 (CSA-13)	$109,706
60 (CSA-14)	$90,670
65 (T-056)	$5,627
66 (T-200)	$12,383
4 (ST-2)	$122,926
71 (ST-207)	$39,896
72 (ST-208)	$33,591
73 (ST-209)	$9,803
Total Existing Unit Closure Cost Estimate[1] Year 2025	$2,209,397

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Proposed Unit Closure Cost Estimate	
Unit	Cost
52 (Heater 4) Proposed	$3,299
49 (Centrifuge 4) Proposed	$6,090
62 (Dissolved Air Floatation- DAF) Proposed	$4,169
64 (Waste Pre-treatment Container) Proposed	$4,270
67 (T-64A) Proposed	$31,137
68 (T-64B) Proposed	46725
69 (T-64C) Proposed	42304
70 (T-64D) Proposed	9656
Total Proposed Unit Closure Cost Estimate	$151,818

Closure Cost for 2025 existing units	**$ 2,209,397**
Closure Cost for 2025 Proposed Units	**$ 151,818**
Total Closure Cost for 2025	**$2,361,215**

Closure costs estimate includes the inflation factor from June 2025 and brings the total up to June 2025 costs.

The bond increase will occur to reflect the total costs estimate in this table once the renewal is approved.

1 As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

SECTION VIII-Financial Assurance

Appendix VIII.A
Financial Assurance Information

Financial Assurance Mechanism

Clean Harbors San Leon, Inc, maintains a Surety Bond to guarantee closure. The most recent Financial Assurance information and bond can be found in Attachment A of this section. Upon approval of the closure in this renewal, a new bond will be submitted to the TCEQ.

TABLE VIII.B
Estimated Capital Costs

This does not apply therefore the Table is not included in the submission.

Financial Capability

September 11, 2025

Mr. Martin Torres, Manager
Industrial and Hazardous Waste Permits Section
Texas Commission on Environmental Quality
Building F, MC 130
12100 Park 35 Circle
Austin, Texas 78753
Re: Financial Disclosure Letter for Clean Harbors San Leon, Inc.
Permit Renewal
Hazardous Waste Permit No. 50355
EPA ID No. TXD981053770
RN 100890235

Dear Mr. Torres:

This letter is furnished to you in response to financial disclosure requirements as applicable under Texas Health and Safety Code Section 361.085 and Title 30, Texas Administrative Code (30 TAC), Section 305.50 to provide assurance that Clean Harbors San Leon, Inc has sufficient financial resources.

In keeping with the above law and rule requirements I hereby certify that Clean Harbors San Leon Inc. is adequately capitalized and has sufficient financial resources to construct, safely operate, properly close and provide adequate liability coverage for the above-referenced facility in a safe manner, and in compliance with the permit and all applicable rules.

Clean Harbors San Leon, Inc. currently provides a Surety Bond financial assurance mechanism as set out in 30 TAC, Chapter 37, Subchapter C to meet Clean Harbors San Leon's financial assurance obligations.

I am authorized to make these statements on behalf of Clean Harbors San Leon, Inc.. I understand that the TCEQ may request additional information as part of their review.

Sincerely,

Jennifer Kelley, BCES
Vice President Environmental Compliance

Financial Disclosure Statement

In compliance with 30 TAC 305.50(4)B.1, the undersigned duly authorized signatory hereby affirmatively represents the permit applicant herein, Clean Harbors San Leon, Inc. has sufficient financial resources available from its parent company, Clean Harbors Environmental Services, Inc. to construct, safely operate, properly close and provide adequate liability coverage for the facility which is owned and operated by the permit applicant herein, as evidenced by the attached financial information of Clean Harbors Environmental Services, Inc., including the most current quarterly financial statement prepared in accordance with generally accepted accounting principles (GAAP), and audited financial statements, which include balance sheets, income statements, cash flow statements, notes to the financial statements, and the attached copies of the Securities and Exchange Commission's (SEC) form 10-K for the last two years (including the pertinent accountants' opinion letters therein) and the most current SEC form 10-Q.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

For: Clean Harbors San Leon, Inc.

By: Jennifer Kelley, BCES

Title: Vice President Environmental Compliance
Clean Harbors

This certification is made in compliance with the requirements of 30 TAC 305.44

Clean Harbors Environmental Services, Inc.
610 131st Place
Hammond, IN 46327
219-746-5050
800.282.0058
www.cleanharbors.com

VIA FEDERAL EXPRESS TRK #779567942317

October 28, 2024

Mr. Mark Stoebner
Revenue Section, Financial Assurance
Texas Commission on Environmental Quality
Building A/3, MC-184
12100 Park 35 Circle
Austin, TX 78753

RE: Hazardous Waste Facility Liability Insurance
Safety-Kleen Systems, Inc – Multiple locations
Altair Disposal Services, LLC – EPA ID # TXD980624274
Disposal Properties, LLC – EPA ID # TXD052649027
Clean Harbors Deer Park, LLC – EPA ID # TXD055141378
Clean Harbors San Leon, Inc. – EPA ID # TXD981053770
Clean Harbors LaPorte, LLC – EPA ID # TXD982290140
Clean Harbors Industrial Services, Inc. – EPA ID # TXR000025791

Dear Mr. Stoebner:

Please find enclosed an Endorsement (#62) for Liability State of Texas and a State of Texas Underground Storage Tank Endorsement (#61) for the facilities referenced above. The endorsements are issued by Great American Insurance Company. The policy number is PRE E603235 0**4** and the policy period is November 1, 2024 – November 1, 2025.

A signed duplicate original of the policy will be made available in 30-60 days and submitted upon request from the TCEQ.

If you have any questions or concerns regarding this submittal, please feel free to contact me at [redacted] or at 219-746-5050.

Sincerely,

Pamela K. Harvey

Pamela K. Harvey, CHMM
Sr. Manager Environmental Compliance

Enclosures

GREAT AMERICAN INSURANCE GROUP | Environmental

Administrative Offices
301 E. 4th Street
Cincinnati, OH 45202
Tel: 1-513-389-5000

Endorsement No. 62

This endorsement, effective 12:01 a.m., 11/1/2024, forms a part of Policy No: PRE E603235 04 issued to Clean Harbors, Inc. By Great American Insurance Company

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ENDORSEMENT FOR LIABILITY STATE OF TEXAS

This endorsement modifies insurance provided under the following:

PREMISES ENVIRONMENTAL LIABILITY INSURANCE POLICY

The INSURED and the Company agree to the following Policy change(s):

1. This endorsement certifies that the policy to which the endorsement is attached provides liability insurance covering bodily injury and property damage in connection with the Insured's obligation to demonstrate financial responsibility under 30 TAC §37.404 (relating to Liability Requirements for Sudden and Nonsudden Accidental Occurrences). The coverage applies at:

Permit Number	Name	Address (Physical and Mailing)
Sudden Accidental Occurrences $1,000,000 each occurrence and $2,000,000 annual aggregate		
SWR# 64042	Safety-Kleen Systems, Inc.	4234 Oil Belt Lane Abilene, TX 79605
SWR# 86125	Safety-Kleen Systems, Inc.	1750 W Loop 335 S Amarillo, TX 79110
SWR # 68053	Safety-Kleen Systems, Inc.	3820 & 3822 Bratton Road Corpus Christi, TX 78413
SWR# 65124	Safety-Kleen Systems, Inc.	1722 Cooper Creek Road Denton, TX 87208
SWR# 88130	Safety-Kleen Systems, Inc.	4050 Flager Road El Paso, TX 79938
SWR# 83150	Safety-Kleen Systems, Inc.	10272 Hicks Field Road Fort Worth, TX 76179
SWR# 55195	Safety-Kleen Systems, Inc.	6529 Midway Road Fort Worth, TX 76117
SWR# 55194	Safety-Kleen Systems, Inc.	2130 E. Grauwyler Road "A" Irving, TX 75603
SWR# 67028	Safety-Kleen Systems, Inc.	202 Michael Road Longview, TX 75061
SWR# 68062	Safety-Kleen Systems, Inc.	1311 East Tamarack McAllen, TX 78501
SWR# 72078	Safety-Kleen Systems, Inc.	10607 West County Road Midland, TX 79711
SWR# 71144	Safety-Kleen Systems, Inc.	1580 Industrial Road Missouri City, TX 77459
SWR# 70026	Safety-Kleen Systems, Inc.	3454 Womack Road Orange, TX 77632

GREAT AMERICAN INSURANCE GROUP | Environmental

Administrative Offices
301 E. 4th Street
Cincinnati, OH 45202
Tel: 1-513-389-5000

SWR# 71143	Safety-Kleen Systems, Inc.	3329 Federal Road Pasadena, TX 77504
SWR #31905	Disposal Properties, LLC	4303 Profit Drive San Antonio, TX 78219
SWR #69048	Safety-Kleen Systems, Inc.	5423 Sinclair Road San Antonio, TX 78222
SWR # 66171	Safety-Kleen Systems, Inc.	22006 Woodway Drive Waco, TX 76712
Sudden and Nonsudden Accidental Occurrences $4,000,000 each occurrence and $8,000,000 annual aggregate		
SWR# 50225	Clean Harbors LaPorte LLC	500 Independent Parkway South LaPorte, TX 77571
SWR# 50089	Clean Harbors Deer Park, LLC	2027 Independence Parkway South, Deer Park, TX 77536
SWR# 34814	Clean Harbors San Leon, Inc.	2700 Avenue South San Leon, TX 77539
MSW #203A	Altair Disposal Services, LLC	2 Miles North of Altair, West Side of Hwy 71, Altair, TX 77412

The limits of liability are stated above, exclusive of legal defense costs.

2. The insurance afforded with respect to such occurrences is subject to all of the terms and conditions of the policy; provided, however, that any provisions of the policy inconsistent with subsections (a) through (e) of this Paragraph are hereby amended to conform with subsections (a) through (e):

   (a) Bankruptcy or insolvency of the insured shall not relieve the insurer of its obligations under the policy to which this endorsement is attached.

   (b) The Insurer is liable for the payment of amounts within any deductible, applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 30 TAC §37.541 (relating to Financial Test for Liability).

   (c) Whenever requested by the TCEQ executive director, the Insurer agrees to furnish to the executive director a signed duplicate original of the policy and all endorsements.

   (d) Cancellation of this endorsement, whether by the Insurer, the Insured, or a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the facility, will be effective only upon written notice and only after the expiration of 60 days after a copy of such written notice is received by the TCEQ executive director.

   (e) Any other termination of this endorsement will be effective only upon written notice and only after the expiration of 30 days after a copy of such written notice is received by the TCEQ executive director.

Attached to and forming part of POLICY No. PRE E603235 04 issued by Great American Insurance Company herein called the Insurer, of 301 E 4th St, Cincinnati, OH 45202, to Clean Harbors, Inc. and entities named above this 1st day of November, 2024. The effective date of said policy is this 1st day of November, 2024.

GREAT AMERICAN INSURANCE GROUP | Environmental

Administrative Offices
301 E. 4th Street
Cincinnati, OH 45202
Tel: 1-513-389-5000

I hereby certify that the wording of this endorsement is identical to the wording specified in 30 TAC §37.641. as such regulations were constituted on the date first above written and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

Heather A Boyd
(Signature of Authorized Representative of Insurer)

(Date): 11/1/2024

(Type Name): Heather A. Boyd

(Title) Divisional Vice President, Environmental Division, Authorized Representative of Great American Insurance Company (Address of Representative): 31 St. James Ave., Suite 830, Boston, MA 02116

All other terms and conditions remain the same.

GREAT AMERICAN INSURANCE GROUP | Environmental

Administrative Offices
301 E. 4th Street
Cincinnati, OH 45202
Tel: 1-513-389-5000

Endorsement No. 61

This endorsement, effective 12:01 a.m., 11/1/2024, forms a part of Policy No: PRE E603235 04 issued to Clean Harbors, Inc. By Great American Insurance Company

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

STATE OF TEXAS
UNDERGROUND STORAGE TANK ENDORSEMENT

This endorsement modifies insurance provided under the following:

PREMISES ENVIRONMENTAL LIABILITY INSURANCE POLICY

The INSURED and the Company agree to the following Policy change(s):

Name:	HPC Industrial Services, LLC
Address:	1980 Highway 146 N, LaPorte, TX 77571
Policy Number:	PRE E603235 04
Period of Coverage:	November 1, 2024 TO November 1, 2025
Name of Insurer :	Great American Insurance Company
Address of Insurer:	301 E. 4th Street Cincinnati, OH 45202
Name of Insured:	Clean Harbors, Inc.
Address of Insured:	42 Longwater Drive Norwell, MA 02016

ENDORSEMENT:

1. This endorsement certifies that the policy to which the endorsement is attached provides liability insurance covering the following underground storage tanks:

ADDRESS	NO OF TANKS	TCEQ NUMBER
1980 Highway 146 N, LaPorte, TX 77571	2	Facility No 42916

for taking corrective action and compensating third parties for bodily injury and property damage caused by accidental releases; in accordance with and subject to the limits of liability, exclusions, conditions, and other terms of the policy arising from operating the underground storage tank(s) identified above.

GREAT AMERICAN INSURANCE GROUP | Environmental

Administrative Offices
301 E. 4th Street
Cincinnati, OH 45202
Tel: 1-513-389-5000

The limits of liability are $1,000,000 each occurrence and $1,000,000 annual aggregate limits of the Insurer's liability, exclusive of legal defense costs which are subject to a separate limit under the policy. This coverage is provided under PRE E603235 04. The effective date of said policy is November 1, 2024.

2. The insurance afforded with respect to such occurrences is subject to all of the terms and conditions of the policy, provided, however, that any provisions inconsistent with subsections (a) to (e) inclusive, of this Paragraph 2 are hereby amended to conform with subsections (a) to (e), inclusive:

   a. Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy to which this endorsement is attached.

   b. The Insurer is liable for the payment of amounts within any deductible applicable to the policy to the provider of corrective action or a damaged third-party, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated under another mechanism or combination of mechanisms as specified in Title 30, TAC §37.0825 of this title (relating to Insurance and Risk Retention Group Coverage), §37.840 of this title (relating to Surety Bond), §37.845 of this title (relating to Letter of Credit) and §37.845 of this title (relating to Trust Fund).

   c. Whenever requested by the Executive Director of the TCEQ, the Insurer agrees to furnish to the State Director, a signed duplicate original of the policy and all endorsements

   d. Cancellation or any other termination of the insurance by the Insurer, except for nonpayment of premium or misrepresentation by the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the insured. Cancellation for nonpayment of premium or misrepresentation by the insured will be effective only upon written notice and only after expiration of a minimum of ten (10) days after a copy of such written notice is received by the insured.

   e. The insurance covers claims otherwise covered by the policy that are reported to the Insurer within six months of the effective date of cancellation or nonrenewal of the policy except where the new or renewal policy has the same retroactive date or a retroactive date earlier than that of the prior policy, and which arise out of any covered occurrence that commenced after the policy retroactive date if applicable and prior to such policy renewal or termination date. Claims reported during such extended reporting period are subject to the terms, conditions, limits, including limits of liability, and exclusions of the policy.

I hereby certify that the wording of this endorsement is identical to the wording in 30 TAC §37.835(b)(1) of this title (relating to Insurance and Risk Retention Group Coverage) and that the Insurer is licensed to transact the business of Insurance in Texas.

Heather A. Boyd
(Signature of Authorized Representative of Insurer)

Date: 11/1/2024

Name of Person Signing:	Heather A. Boyd
Title of Person Signing:	Divisional Vice President, Environmental Division
Authorized Representative of:	Great American Insurance Company
Address of Representative:	31 St James, Suite 830, Boston, MA 02116

All other terms and conditions remain the same.

Clean Harbors Environmental Services, Inc.
610 131st Place
Hammond, IN 46327
219-746-5050
800.282.0058
www.cleanharbors.com

VIA FEDERAL EXPRESS TRK #882071313047

June 16, 2025

Mr. Mark Stoebner
Revenue Section, Financial Assurance
Texas Commission on Environmental Quality
Building A/3, MC-184
12100 Park 35 Circle
Austin, TX 78753

RE: Financial Assurance Annual Inflation Increase – Bond K08846650
Clean Harbors San Leon, Inc.
2700 Avenue South
San Leon, TX 77539
TCEQ SWR No. 34814 / I&HW Permit No. 50355
EPA ID # TXD981053770

Dear Mr. Stoebner:

Clean Harbors San Leon Inc. maintains Surety Bond # K08846650, issued by Westchester Fire Insurance Company, to guarantee closure financial assurance for the facility referenced above. Please find enclosed an original signed Rider, effective July 15, 2025 reflecting the annual inflation increase as required in RULE §37.131 of the Texas Administrative Code.

The increase was calculated by multiplying the existing 2024 closure coverage amount by Inflation factor 1.024. This inflation factor was provided on the TCEQ website:
https://www.tceq.texas.gov/agency/financial/financial-assurance/annual_inflation_factors.html

Closure: $2,200,110 x 1.024 = $2,252,913

If you have any questions regarding this submittal, please feel free to contact me at 219-746-5050 or [redacted]

Sincerely,

Pamela K. Harvey

Pamela K. Harvey, CHMM
Sr. Manager Environmental Compliance

Enclosure

RIDER

TO BE ATTACHED TO AND FORM PART OF

CLOSURE **NO.** **K08846650**
(Bond Type) *(Bond Number)*

IN FAVOR OF **TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**
(Obligee)

ON BEHALF OF **CLEAN HARBORS SAN LEON, INC**
(Principal)

EFFECTIVE **July 15, 2013**
(Original Effective Date)

IT IS AGREED THAT, in consideration of the original premium charged for this bond, and any additional premium that may be properly chargeable as a result of this rider.

The Surety, WESTCHESTER FIRE INSURANCE COMPANY, **hereby gives its consent to change;**

Bond/Contract Amount

(of) the attached bond FROM: Old Bond Amount = $2,200,110.00

TO: New Bond Amount = $2,252,913.00

REASON: Increasing Bond effective 7-15-2025

EFFECTIVE: July 15, 2025

PROVIDED, however that the attached bond shall be subject to all its agreements, limitations, and conditions except as herein expressly modified, and that the liability of the Surety under the attached bond and under the attached bond as changed by this rider shall not be cumulative.

SIGNED, AND SEALED this 10th **day of** June, 2025.

CLEAN HARBORS SAN LEON, INC	WESTCHESTER FIRE INSURANCE COMPANY
Principal	*Surety*
Accepted By	*JOLINE L. BINETTE, ATTORNEY-IN-FACT*

CHUBB

Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company
Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, **PACIFIC INDEMNITY COMPANY**, a Wisconsin corporation, **WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint Joline L. Binette, Melanie A. Bonnevie, Samuel M. Goulet, Heidi Rodzen and Robert Shaw, Jr. of Auburn, Maine ----------

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said **FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** have each executed and attested these presents and affixed their corporate seals on this **12th** day of **April, 2024.**

Rupert HD Swindells, Assistant Secretary

Warren Eichhorn, Vice President

STATE OF NEW JERSEY
County of Hunterdon SS.

On this **12th** day of **April, 2024** before me, a Notary Public of New Jersey, personally came Rupert HD Swindells and Warren Eichhorn, to me known to be Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Rupert HD Swindells and Warren Eichhorn, being by me duly sworn, severally and each for himself did depose and say that they are Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and know the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that their signatures as such officers were duly affixed and subscribed by like authority.

Notarial Seal

Albert Contursi
NOTARY PUBLIC OF NEW JERSEY
No 50202369
Commission Expires August 22,2027

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY on August 30, 2016; WESTCHESTER FIRE INSURANCE COMPANY on December 11, 2006; and ACE AMERICAN INSURANCE COMPANY on March 20, 2009:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Rupert HD Swindells, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

(i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
(ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this June 10, 2025

Rupert HD Swindells, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

SECTION IX- Releases from Solid Waste Management Units

NO CHANGE

Appendix IX
Releases from Solid Waste Management Units

This application is for renewal of an existing RCRA permit. The facility's previous owner DuraTherm performed a RCRA Facility Assessment (RFA) and a RCRA Facility Investigation (RFI) is part of the existing permit. The RFI covered the previous location of tanks PV-1, ST-2, ST-3, ST-4, ST-5, ST-6, ST-7, ST-8, ST-9, ST-10, ST-11, PV-12, PV-13, PV-14, PV-15, and PV-16. See Figure 9-1 for locations.

DuraTherm completed work on the RFI in October of 2002 and the RFI Report was submitted to TCEQ Corrective Actions Section on October 24, 2002. On February 25, 2003, TCEQ issued a letter of approval for the RFI with a finding that no release had occurred from the RFI Units, that letter follows as Attachment IX-1. The Preliminary Review Unit information can be found as Attachment IX-2.

Since there have been no changes to this section of the permit, Clean Harbors San Leon, Inc is submitting the documentation for this section as was previously submitted in the 2003 and 2013 permit renewal applications.

RELEASES FROM SOLID WASTE MANAGEMENT UNITS (IX)

Introduction:

This application is for renewal of an existing RCRA permit. The facility previously performed a RCRA Facility Assessment (RFA) and a RCRA Facility Investigation (RFI) is part of the existing permit. The RFI covered the previous location of tanks PV-1, ST-2, ST-3, ST-4, ST-5, ST-6, ST-7, ST-8, ST-9, ST-10, ST-11, PV-12, PV-13, PV-14, PV-15, and PV-16. See Figure 9-1 for locations.

DuraTherm completed work on the RFI in October of 2002 and the RFI Report was submitted to TCEQ Corrective Actions Section on October 24, 2002. On February 25, 2003, TCEQ issued a letter of approval for the RFI with a finding that no release had occurred from the RFI Units. See Attachment IX-1.

Preliminary Review Unit Checklist:

See Attachment IX-A

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Margaret Hoffman, *Executive Director*

Attachment IX-1
Part B Application

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 25, 2003

Mr. Rick MacIntyre
Duratherm, Inc.
PO Box 58466
Houston, Texas 77258-8466

Re: Approval of *Supplemental Soil Sampling, (RCRA Facility Investigation)* dated October 24, 2002 and *Report of Site Soil Sampling* dated November 24, 1997
Tanks PV-1, ST-2, ST-3 and ST-4, ST-5 through ST-11, and PV-12 through PV-16
Duratherm, San Leon Facility
TNRCC SWR No. 34814
TNRCC Hazardous Waste Permit No. HW- 50355
EPA ID No. TXD981053770

Dear Mr. MacIntyre:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above reference reports and is approving the RCRA Facility Investigation (RFI) for Tanks PV-1, ST-2, ST-3 and ST-4, ST-5 through ST-11, and PV-12 through PV-16. The data submitted indicates that no release has occurred from these RFI units, as all concentrations detected were below background concentrations. Therefore, no further action is required for these units at this time.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by Title 30 Texas Administrative Code (TAC) §335.4.

Questions concerning this letter should be directed to me at (512) 239-5055. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective

Action Section at Mail Code MC-127 with an additional copy submitted to the TCEQ Region 12 Office in Houston. The TCEQ Solid Waste Registration Number and Permit Number should be referenced in all submittals.

Sincerely,

Gilbert P. Manning, Project Manager
Team III, Corrective Action Section
Remediation Division
Texas Commission on Environmental Quality

cc: Waste Program Manager, TNRCC Region 12 Office, Houston

PRELIMINARY REVIEW FACILITY CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Units:

1. RCRA Regulated Units:

NOR No.	Description	Status
004	Tank ST-5	Active
005	Tank ST-6	Active
006	Tank ST-7	Active
007	Tank ST-8	Active
008	Tank ST-9	Active
009	Tank ST-10	Active
010	Tank ST-11	Active
012	Tank PV-12	Active
013	Tank PV-13	Active
014	Tank PV-14	Active
015	Tank PV-15	Active
016	Tank PV-16	Active
044	Container storage area, CSA-2	Active
046	Container storage area, CSA-4	Active
051	Thermal process unit, Desorber-2	Active
059	Thermal process unit, Desorber-1	Active
060	Container storage area, CSA-7	Active
062	Tank Lab-1	Active
066	Misc. Storage container	Active
067	Filter press	Active
068	Container storage area, CSA-11	Active
069	Container storage area, CSA-12	Active

PRELIMINARY REVIEW FACILITY CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Units:

1. RCRA Regulated Units:

NOR No.	Description	Status
004	Tank ST-5	Active
005	Tank ST-6	Active
006	Tank ST-7	Active
007	Tank ST-8	Active
008	Tank ST-9	Active
009	Tank ST-10	Active
010	Tank ST-11	Active
012	Tank PV-12	Active
013	Tank PV-13	Active
014	Tank PV-14	Active
015	Tank PV-15	Active
016	Tank PV-16	Active
044	Container storage area, CSA-2	Active
046	Container storage area, CSA-4	Active
051	Thermal process unit, Desorber-2	Active
059	Thermal process unit, Desorber-1	Active
060	Container storage area, CSA-7	Active
062	Tank Lab-1	Active
066	Misc. Storage container	Active
067	Filter press	Active
068	Container storage area, CSA-11	Active
069	Container storage area, CSA-12	Active

002	Tank ST-1	Inactive
003	Tank ST-4	Inactive
011	Tank PV-17	Inactive
017	Tank ST-2	Inactive
018	Tank ST-3	Inactive
019	Tank PV-18	Inactive
020	Tank PV-19	Inactive
021	Tank PV-20	Inactive
022	Tank PV-21	Inactive
061	Misc. storage container	Inactive
063	Misc. storage container	Inactive
064	Misc. storage container	Inactive

2. Solid Waste Management Units:

NOR No.	Description	Status
001	Misc. container storage area, non-hazardous	Active
065	Misc. Storage container, non-hazardous	Active

II. Reviewed Documents:

1. RCRA: Part A X
   Part B X
   Permit X
2. CERCLA: Not a CERCLA facility
3. Inspection Reports: 1994-2003
4. Enforcement Actions: None
5. Exposure Information: None
6. Other Information: RFI Report

III. Summary:

IV. Recommended Action:

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 004

B. Description: Tank ST-5 (S02)

C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0005206 H	0050205 H	0006603 H
0003205 H	0002102 H	0004206 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 005

B. Description: Tank ST-6 (S02)

C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0005206 H	0050205 H	0006603 H
0003205 H	0002102 H	0004206 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 006
B. Description: Tank ST-7 (S02)
C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0005206 H	0050205 H	0006603 H
0003205 H	0002102 H	0004206 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 007

B. Description: Tank ST-8 (S02)

C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0005206 H	0050205 H	0006603 H
0003205 H	0002102 H	0004206 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 008

B. Description: Tank ST-9 (S02)

C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0055205 H 0050205 H 0051205 H 0002102 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 009

B. Description: Tank ST-10 (S02)

C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0055205 H 0050205 H 0051205 H 0002102 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 010
B. Description: Tank ST-11 (S02)
C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0055205 H 0050205 H 0051205 H 0002102 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 012
B. Description: Tank PV-12 (T01)
C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:
0004206 H 0006603 H 0909489 H 0058219 H 0003205 H

EPA Hazardous Waste Numbers:
D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 013
B. Description: Tank PV-13 (T01)
C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:
0004206 H 0006603 H 0909489 H 0058219 H 0003205 H

EPA Hazardous Waste Numbers:
D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 014

B. Description: Tank PV-14 (T01)

C. Dates of Operation: Interim Status 1993
Permitted-Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0004206 H 0006603 H 0909489 H 0058219 H 0003205 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 015
B. Description: Tank PV-15
C. Dates of Operation: Interim Status 1993
Permitted Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0004206 H 0006603 H 0909489 H 0058219 H 00051205 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 016

B. Description: Tank PV-16

C. Dates of Operation: Interim Status 1993
Permitted Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0004206 H 0006603 H 0909489 H 0058219 H 00051205 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D023, D024, D025, D026, D035 ,D039, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U051, U052, U165, U188, U220, U239

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Tank and containment integrity intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.
ISW Reg No: 34814
Permit No: HW-50355
EPA ID No: TXD981053770

City: San Leon, TX
Date: May 2003
Reviewer:

I. Waste Management Unit:

A. NOR No: 044
B. Description: Container storage area, CSA-2 (S99)
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0001304 H	0003205 H	0004206 H	0006603 H
0026489 H	0050205 H	0051205 H	0053301 H
0054609 H	0057301 H	0915393 H	

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U073, U074, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Storage area containment intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 046
B. Description: Container storage area, CSA-4
C. Dates of Operation: Active1994 to present

II. Wastes Managed:

Texas Waste Codes:
0001304 H 00453041 09133041

EPA Hazardous Waste Numbers:
F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Solids may float on run-off water to stormwater outfall and Dickinson Bayou. Wind could disperse solids to off-site locations.

V. Summary:

Containers and containment intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 051
B. Description: Thermal process unit, Desorber-2
C. Dates of Operation: Active 2001

II. Wastes Managed:

Texas Waste Codes:
0001304 H 0006603 H 0051205 H 0053301 H 0057301 H

EPA Hazardous Waste Numbers:
D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Process unit and containment intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 059

B. Description: Thermal process unit, Desorber-1

C. Dates of Operation: Interim status 1993
Permitted Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0001304 H 0006603 H 0053301 H 0057301 H 0051205 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Process unit and containment intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 060
B. Description: Container storage area, CSA-7
C. Dates of Operation: Active 1995 to present

II. Wastes Managed:

Texas Waste Codes:

0040001 H	0041002 H	0042003 H	0043004 H
0047204 H	0048104 H	0049105 H	

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Percolation into soil and shallow groundwater

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 062
B. Description: Tank Lab-1
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

00441021

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou
Percolation into soils and shallow groundwater

V. Summary:

No evidence of release, tank integrity intact.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 066
B. Description: Misc. storage container
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:
26489 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Solids may float on run-off water to stormwater outfall and Dickinson Bayou.

V. Summary:

Container intact and located on secondary containment.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 067
B. Description: Filter press
C. Dates of Operation: Active 1996 to present

II. Wastes Managed:

Texas Waste Codes:
0001304 H 0006603 H 0053301 H 0057301 H 0051205 H

EPA Hazardous Waste Numbers:
D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Located on secondary containment. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 068
B. Description: Container storage area, CSA-11
C. Dates of Operation: Active 1998 to present

II. Wastes Managed:

Texas Waste Codes:
0005206 H 0006603 H

EPA Hazardous Waste Numbers:
D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release

IV. Pollutant Dispersal Pathways:

V. Summary:

Container storage area for roll-off boxes. Secondary containment intact.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 069
B. Description: Container storage area, CSA-12
C. Dates of Operation: Active 2000 to present

II. Wastes Managed:

Texas Waste Codes:
0001304 H 00453041 09133041

EPA Hazardous Waste Numbers:
F001, F002, F003, F004, F005, F037, F038, F039, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Solids may float on run-off water to stormwater outfall and Dickinson Bayou. Wind could disperse solids to off-site locations.

V. Summary:

Container storage area for treated dry solids in DOT approved roll-off boxes. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 002
B. Description: Tank ST-1
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 003
B. Description: Tank ST-4
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 011
B. Description: Tank PV-17
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 017
B. Description: Tank ST-2
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 018
B. Description: Tank ST-3
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 019
B. Description: Tank PV-18
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 020
B. Description: Tank PV-19
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 021
B. Description: Tank PV-20
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 022
B. Description: Tank PV-21
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 061
B. Description: Misc. storage container
C. Dates of Operation: Inactive

II. Wastes Managed:

Texas Waste Codes:
0040001 H 00041002 H 0042003 H

EPA Hazardous Waste Numbers:
D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Container liquids leak to floor and could be tracked from lab on shoes.

V. Summary:

Miscellaneous small containers of lab waste charged to satellite accumulation area. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 063
B. Description: Misc. storage container
C. Dates of Operation: Inactive

II. Wastes Managed:

Texas Waste Codes:
0003205 H 0026489 H

EPA Hazardous Waste Numbers:
D001, D018, D023, D024, D025, D026, D035 ,D039, D040, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U220, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Soil contamination and percolation into shallow ground water.

V. Summary:

Small storage container for contaminated PPE charged to satellite accumulation area. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 064
B. Description: Misc. storage container
C. Dates of Operation: Inactive

II. Wastes Managed:

Texas Waste Codes:
0003205 H 0026489 H

EPA Hazardous Waste Numbers:
D001, D018, D023, D024, D025, D026, D035 ,D039, D040, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U220, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Soil contamination and percolation into shallow ground water.

V. Summary:

Small storage container for contaminated PPE charged to satellite accumulation area. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 001
B. Description: Misc. container storage area, non-hazardous
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

09119992

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Wind dispersed trash during container dumping.

V. Summary:

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 065
B. Description: Misc. storage container, non-hazardous
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

09119992 09123902

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Wind dispersed trash and debris to off-site.

V. Summary:

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 051
B. Description: Thermal process unit, Desorber-2
C. Dates of Operation: Active 2001

II. Wastes Managed:

Texas Waste Codes:

0001304 H 0006603 H 0051205 H 0053301 H 0057301 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Process unit and containment intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 059

B. Description: Thermal process unit, Desorber-1

C. Dates of Operation: Interim status 1993
Permitted Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:

0001304 H 0006603 H 0053301 H 0057301 H 0051205 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Process unit and containment intact. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 060
B. Description: Container storage area, CSA-7
C. Dates of Operation: Active 1995 to present

II. Wastes Managed:

Texas Waste Codes:

0040001 H	0041002 H	0042003 H	0043004 H
0047204 H	0048104 H	0049105 H	

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Percolation into soil and shallow groundwater

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 062
B. Description: Tank Lab-1
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

00441021

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou
Percolation into soils and shallow groundwater

V. Summary:

No evidence of release, tank integrity intact.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 066
B. Description: Misc. storage container
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

Texas Waste Codes:
26489 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Solids may float on run-off water to stormwater outfall and Dickinson Bayou.

V. Summary:

Container intact and located on secondary containment.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 067
B. Description: Filter press
C. Dates of Operation: Active 1996 to present

II. Wastes Managed:

Texas Waste Codes:
0001304 H 0006603 H 0053301 H 0057301 H 0051205 H

EPA Hazardous Waste Numbers:
D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, D043, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Run-off to stormwater outfall and Dickinson Bayou.
Percolation into soil and shallow groundwater.

V. Summary:

Located on secondary containment. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 068

B. Description: Container storage area, CSA-11

C. Dates of Operation: Active 1998 to present

II. Wastes Managed:

Texas Waste Codes:

0005206 H 0006603 H

EPA Hazardous Waste Numbers:

D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release

IV. Pollutant Dispersal Pathways:

V. Summary:

Container storage area for roll-off boxes. Secondary containment intact.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 069
B. Description: Container storage area, CSA-12
C. Dates of Operation: Active 2000 to present

II. Wastes Managed:

Texas Waste Codes:
0001304 H 00453041 09133041

EPA Hazardous Waste Numbers:
F001, F002, F003, F004, F005, F037, F038, F039, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K083, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U022, U028, U031, U037, U043, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U162, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Solids may float on run-off water to stormwater outfall and Dickinson Bayou. Wind could disperse solids to off-site locations.

V. Summary:

Container storage area for treated dry solids in DOT approved roll-off boxes. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 002
B. Description: Tank ST-1
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 003
B. Description: Tank ST-4
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 011
B. Description: Tank PV-17
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 017
B. Description: Tank ST-2
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 018
B. Description: Tank ST-3
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 019
B. Description: Tank PV-18
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc. City: San Leon, TX

ISW Reg No: 34814 Date: May 2003

Permit No: HW-50355 Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 020
B. Description: Tank PV-19
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 021
B. Description: Tank PV-20
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 022
B. Description: Tank PV-21
C. Dates of Operation: Inactive

II. Wastes Managed:

N/A

III. Evidence of Release:

RFI completed 2002. No evidence of release.

IV. Pollutant Dispersal Pathways:

N/A

V. Summary:

No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 061
B. Description: Misc. storage container
C. Dates of Operation: Inactive

II. Wastes Managed:

Texas Waste Codes:
0040001 H 00041002 H 0042003 H

EPA Hazardous Waste Numbers:
D001, D004, D005, D018, D019, D021, D022, D023, D024, D025, D026, D027, D029, D030, D032, D033, D034, D035 ,D036, D038, D039, D040, F001, F002, F003, F004, F005, F037, F038, K001, K022, K023, K024, K025, K035, K048, K049, K050, K051, K052, K085, K086, K087, K093, K094, K095, K096, K169, K170, K171, K172, U002, U003, U004, U012, U018, U019, U028, U031, U037, U044, U045, U050, U051, U052, U055, U056, U057, U063, U069, U070, U071, U072, U075, U076, U077, U078, U079, U080, U088, U101, U102, U107, U108, U112, U117, U118, U120, U121, U124, U125, U131, U137, U140, U154, U159, U161, U165, U169, U171, U180, U184, U188, U190, U196, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Container liquids leak to floor and could be tracked from lab on shoes.

V. Summary:

Miscellaneous small containers of lab waste charged to satellite accumulation area. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 063
B. Description: Misc. storage container
C. Dates of Operation: Inactive

II. Wastes Managed:

Texas Waste Codes:
0003205 H 0026489 H

EPA Hazardous Waste Numbers:
D001, D018, D023, D024, D025, D026, D035 ,D039, D040, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U220, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Soil contamination and percolation into shallow ground water.

V. Summary:

Small storage container for contaminated PPE charged to satellite accumulation area. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 064
B. Description: Misc. storage container
C. Dates of Operation: Inactive

II. Wastes Managed:

Texas Waste Codes:
0003205 H 0026489 H

EPA Hazardous Waste Numbers:
D001, D018, D023, D024, D025, D026, D035 ,D039, D040, F001, F002, F003, F004, F005, F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, K172, U019, U220, U239, U359

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Soil contamination and percolation into shallow ground water.

V. Summary:

Small storage container for contaminated PPE charged to satellite accumulation area. No evidence of release.

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 001
B. Description: Misc. container storage area, non-hazardous
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

09119992

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Wind dispersed trash during container dumping.

V. Summary:

VI. Recommended Action:

None

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: DuraTherm, Inc.

City: San Leon, TX

ISW Reg No: 34814

Date: May 2003

Permit No: HW-50355

Reviewer:

EPA ID No: TXD981053770

I. Waste Management Unit:

A. NOR No: 065
B. Description: Misc. storage container, non-hazardous
C. Dates of Operation: Active 1994 to present

II. Wastes Managed:

09119992 09123902

III. Evidence of Release:

No evidence of release.

IV. Pollutant Dispersal Pathways:

Wind dispersed trash and debris to off-site.

V. Summary:

VI. Recommended Action:

None

SECTION X- Air Emission Standards

This plan must be followed by Clean Harbors San Leon, Inc. to meet the requirements of Subpart CC of the RCRA Subtitle C Regulations as well as Section X Air Emission Standard requirements.

The facility does not have any process vents or "One-Stop" Permits so therefore, Section X.A and Section X.D do not apply.

Requirements pertaining to Section X.B Equipment Leaks and Section X.C Tanks and Containers subject to the rule are provided herein. Tables X.B and X.C are found in Attachment X Tables. All applicable certifications can be found in Attachment X Certifications.

Appendix A

Air Emission Standards Subpart AA Certification

NA

Air Emission Standards Subpart BB- Equipment Leaks

Equipment Leaks

Equipment utilized in the treatment, recycling and processing systems operated by Clean Harbors San Leon contacts hazardous waste that contains organic concentrations > 10% and is subject to the requirements of 40 CFR 264 Subpart BB and 30 TAC 335.72. The equipment utilized in these systems include pumps, valves, pressure relief devices, and open ended lines. The facility has established a leak detection and repair (LDAR) program that meets the technical standards of 40 CFR 264.1052 - .1063 and currently monitors BB and CC equipment components. Table X.B and X.C can be found in the Attachment X Tables.

All equipment subject to the requirements of Subpart BB will be marked with a tag containing a unique equipment identification number. For most of these items the tag will be a weatherproof bar-coded tag. These tags will also have the identification number in human readable form. Flanges that are covered by insulation must also be marked,

either by bar coded tags, or by permanently marking the outside of the flange cover. These markings must be plainly visible. New or replaced equipment will also be marked as described above.

For each piece of equipment to which subpart BB of part 264 applies, the facility maintains the following information as part of the operating record:

- Equipment identification number and hazardous waste management unit identification.
- Approximate locations within the facility (e.g., identify the hazardous waste management unit on a facility plot plan).
- Type of equipment (e.g., a pump or pipeline valve).
- Percent-by-weight total organics in the hazardous waste stream at the equipment.
- Hazardous waste state at the equipment (e.g., gas/vapor or liquid).
- Method of compliance with the standard (e.g., "monthly leak detection and repair" or "equipped with dual mechanical seals").

For the purposes of this section, monitoring means testing of an equipment component with a VOC analyzer in accordance with EPA Method 21. Inspection shall mean a visual inspection for leaks. Leaks shall be defined as (1) hydrocarbon vapor monitor (HVM) instrument readings greater than 10,000 ppm or 500ppm, (2) visual indications of liquids dripping from a pump seal, or (3) physical evidence of leaking (visual, auditory, olfactory, or otherwise).

The pumps at the facility will be visually inspected weekly and monitored monthly. There are no alternative schedules for pump monitoring. Pumps must always be monitored each month regardless of how infrequently leaks are found.

Valves will be monitored on a monthly or quarterly basis. Initially, all valves shall be monitored monthly. For each valve that is not found to be leaking for two consecutive months, the monitoring frequency can be reduced to quarterly monitoring. An alternate frequency may be implemented upon notification of the Executive Director as outlined below.

(1) If fewer than two percent of all the valves within a hazardous waste management unit have detectable leaks for at least two consecutive quarters, all of the valves in that hazardous waste management unit may be monitored on a semi-annual basis.

(2) If fewer than two percent of all the valves within a hazardous waste management unit have detectable leaks for at least five consecutive quarters, all of the valves in that hazardous waste management unit may be monitored on an annual basis.

If the percentage of valves for any hazardous waste management unit exceeds two percent after achieving any of these monitoring frequencies, then the monitoring frequency will revert back to monthly. If after reverting to monthly monitoring, the requirements are again met for the alternate frequencies, then Aragonite may again notify the Executive Director of the facility's intent to comply with the alternate frequency.

If a leak is detected in an equipment component subject to Part 264, Subpart BB, a weatherproof and readily visible identification tag, marked with the equipment identification number, the date evidence of a potential leak was found in accordance with §264.1058(a), and the date the leak was detected, will be attached to the leaking equipment. Once the leak has been repaired on equipment other than a valve, the identification tag will be removed. For valves, the identification tag will be removed after it has been monitored for 2 successive months as specified in §264.1057(c) and no leak has been detected during those 2 months.

Further, when a leak is detected in an applicable equipment component, the following information shall be recorded in an inspection log and shall be kept in the facility operating record:

- The instrument and operator identification numbers and the equipment identification number.
- The date evidence of a potential leak was found in accordance with §264.1058(a).
- The date the leak was detected and the dates of each attempt to repair the leak.
- Repair methods applied in each attempt to repair the leak.
- "Above 10,000" if the maximum instrument reading measured by the methods specified in §264.1063(b) after each repair attempt is equal to or greater than 10,000 ppm.
- "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
- Documentation supporting the delay of repair of a valve in compliance with §264.1059(c).

- The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a hazardous waste management unit shutdown.
- The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.
- The date of successful repair of the leak.

The inspection log may be kept in either electronic or hardcopy form. The facility will submit a semiannual report to the Executive Director of the Texas Council on Environmental Quality (TCEQ) by dates specified by the Executive Director, which includes the following information:

- The Environmental Protection Agency identification number, name, and address of the facility.
- For each month during the semiannual reporting period:
  - The equipment identification number of each valve for which a leak was not repaired as required in §264.1057(d).
  - The equipment identification number of each pump for which a leak was not repaired as required in §264.1052 (c) and (d)(6).
  - The equipment identification number of each compressor for which a leak was not repaired as required in §264.1053(g).
- Dates of hazardous waste management unit shutdowns that occurred within the semiannual reporting period.

If, during the semiannual reporting period, leaks from valves, pumps, and compressors are repaired as required in §§264.1057 (d), 264.1052 (c) and (d)(6), and 264.1053 (g), respectively, then a report to the Executive Director is not required as specified in 264.1065(b).

APPLICABILITY/WASTE DETERMINATION

The Clean Harbors San Leon facility receives waste streams that are varying in volatile organic (VO) concentrations, (both above and below the 500 PPMW action level, as defined in 264.1082(c)(1)) and due to the operational problems that would result if waste streams were segregated between the wastes exempt from or subject to the Subpart CC rules, all hazardous waste streams entering the facility will be managed as if they are potentially subject to Subpart CC requirements.

Customers who ship hazardous waste to the Clean Harbors San Leon facility complete a profile form that provides the facility with the information required to manage the waste in compliance with all RCRA regulations and its operating permit. The profile used by the facility requests information from the customer on whether the waste stream is subject to regulation under 40 CFR Subpart CC. Specifically, the customer must provide and certify to the accuracy of, information on whether the VOC content of the waste equals or exceeds 500 ppmw and whether the total concentration of the pure organic constituents in the waste having a vapor pressure greater than 0.3 kPa at 20 °C is equal to or greater than 20 percent by weight.

Where a customer is unable to supply the required information or the facility wishes to verify the information provided, the facility may conduct the initial determination of the average VO concentration of the waste stream. The facility will request new information from the customer or perform a new determination if there is a change to the process generating the waste is reasonably likely to cause the average VO concentration of the hazardous waste to increase to a level where additional or new controls are required to control emissions.

Air Emission Standards Subpart CC -Tanks, Surface Impoundments and Containers Section X.C

CONTAINERS

General Requirements for Containers

Containers received at the facility vary in size and DOT specification. Containers received by the facility greater than 26 gallons in capacity and less than or equal to 119 gallons in capacity are subject to Level 1 controls. Containers subject to Level 1 controls must meet one of the following requirements:

- A container that meets the applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation.
- A container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate

cover installed on the container (e.g., a lid on a drum or a suitably secured tarp on a roll-off box) or may be an integral part of the container structural design (e.g., a "portable tank" or bulk cargo container equipped with a screw-type cap).

- An open-top container in which an organic-vapor suppressing barrier is placed on or over the hazardous waste in the container such that no hazardous waste is exposed to the atmosphere. One example of such a barrier is application of suitable organic vapor suppressing foam.

Containers greater than 119 gallons in capacity and in "Light Material Service" are subject to Level 2 controls. Containers subject to Level 2 controls must meet one of the following requirements:

- A container that meets the applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation.
- A container that operates with no detectable organic emissions as defined in 40 CFR 265.1081 and determined in accordance with the procedure specified in 264.1086(g).
- A container that has been demonstrated within the preceding 12 months to be vapor-tight by using 40 CFR part 60, appendix A, Method 27.

Containers that are greater than 119 gallons in capacity and are not in "Light Material Service" are subject to Level 1 controls.

The Clean Harbors San Leon facility may receive catalyst and other solid hazardous waste in roll-offs and other containers that are not considered DOT specification containers. In general, all rolloff containers, including those with gasketed lids, are not considered DOT specification containers even though DOT has exemptions which allow their use for transporting certain types of hazardous waste.

The facility will use the information provided by the customer on the waste profile to determine whether a non-DOT specification container used by the customer to ship waste to the facility must be managed using Level 1 controls or Level 2 controls. This determination will be made when Clean Harbors San Leon first accepts possession of the waste and the facility will subsequently manage the container using the appropriate control level. If the facility obtains additional information that the waste requires more stringent control; for example additional analysis indicates that the waste contains organic constituents having a vapor pressure greater than 0.3 kPa at 20 °C equal to or greater than 20 percent by weight that were not identified by the customer on the waste profile, the facility will manage the container according to the requirements of the higher level of emission control until that point in the processing of the waste that the higher level of control is no longer required.

The facility will use the flowchart provided in Attachment X.C as a guide for managing non-DOT roll-off containers and bins that are used to hold catalyst and other RCRA waste having VOC content equal to, or greater than 500 ppmv. Monitoring shall comply with Reference Method 21 in 40 CFR Part 60 Appendix A. The facility will record on the Waste Receiving Report whether the container passes or fails the monitoring test. If the container fails, record all efforts to fix the leak and all retests that are conducted.

The facility will also receive certain wastes on tank trucks and will use tank trucks to ship recovered oil and HWDF to other facilities. Upon arriving at the plant, the tank trucks are inspected to ensure that they meet leak detection requirements of DOT and State regulations. Only tank trucks that have current leak detection inspections are used to ship liquids that contain VO > 500 ppm.

Site generated waste containing VO >500 ppm that is stored in containers will be managed using Level 1 or Level 2 controls depending upon the DOT designation of the container that is used for storage.

Operational Requirements for Containers

Containers subject to Subpart CC can be opened during the waste transfer for a reasonable amount of time. Safety devices venting directly to the atmosphere are required to remain in a closed position except when needed to prevent physical damage to the container or control equipment due to an emergency or unplanned event.

Closure devices (covers/closed vent systems leading to a control device) will be maintained in a closed position except when adding or removing waste or accessing equipment within a container. Container closure devices are designed to operate with no detectable organic emissions when the device is secured in the closed position. When hazardous waste subject to these rules is either added to or removed from a container, the following requirements will be met:

- Closure devices and covers must be secured in the closed position upon conclusion of filling operations. A container can be unsecured prior to treatment or processing for a reasonable amount of time.
- If waste is intermittently added or removed, then closure devices and covers must be secured and in the closed position if personnel performing filling/removal operations leaves the immediate vicinity of the container or if no additional material

will be added or removed from the container within 15 minutes, or if process generating the material is shutdown whichever occurs first.

Transfer of hazardous waste in or out of a container using Container Level 2 controls will be conducted in such a manner as to minimize exposure of hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, reactive, or other hazardous materials. Where appropriate, the facility will use a number of "best management practices" for the loading and unloading of containers, including: submerged-fill pipe or other submerged-fill method to load liquids into the container; a vapor-balancing system or a vapor-recovery system to collect and control the vapors displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous waste is filled and subsequently purging the transfer line before removing it from the container opening.

Clean Harbors San Leon allows the reuse of DOT containers for purposes such as satellite accumulation, storage of lab samples prior to disposal, spill cleanup and general storage of site-generated waste. A container will only be reused if it is not considered a "non-reusable container (NRC) or a "single trip container" (STC). Before a DOT container can be reused, even within the boundaries of a facility site, it must comply with the DOT reconditioning and reuse provisions of the hazardous materials regulations in 49 CFR 173.28. Reused containers will comply will all requirements of 40 CFR 264.1086.

Inspection and Monitoring Requirements for Containers

Clean Harbors San Leon will conduct a visual inspection of containers when they arrive on-site to ensure there are no leaks in the container or visible cracks, holes, gaps, or other open spaces in the covers. If a defect is found in the container or cover, the facility will either; repair the container, repair/replace the cover, transfer the contents of the container to a new container, or process the waste within the container. Corrective activities will occur within 24 hours of first detecting the defect in the container or cover and be completed as soon as possible, but no later than 5 days from the first attempt at repair.

While it is unlikely, if a container remains on-site for a period of 1 year or more, the facility will conduct a physical inspection of the container and its cover for visible cracks, holes, gaps or other open spaces into the interior of the container. Defects will be repaired no later than five days after detection of the defect with first attempts to repair a defect

conducted no later than 24 hours of initial detection, or waste is to be removed from a container.

Monitoring Containers

As discussed above, the Clean Harbors San Leon facility will receive and ship waste in containers > 119 gallons in capacity and in light material service that both meet and do not meet D.O.T. requirements. If a non-DOT container is used, it must operate with no detectable organic emissions as determined using Method 21 (leak detection) or the container must have demonstrated within the preceding 12 months to be a vapor leak tight using Method 27.

To determine compliance with the no detectable organic emissions requirement the procedure specified in Method 21 of 40 CFR part 60, appendix A will be followed. Each potential leak interface (i.e., a location where organic vapor leakage could occur) on the container, its cover, and associated closure devices, as applicable to the container, shall be checked. Potential leak interfaces that are associated with containers include but are not limited to: The interface of the cover rim and the container wall; the periphery of any opening on the container or container cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure-relief valve. The test shall be performed when the container is filled with a material having a volatile organic concentration representative of the range of volatile organic concentrations for the hazardous wastes expected to be managed in this type of container. During the test, the container cover and closure devices shall be secured in the closed position.

Recordkeeping Requirements for Containers

For container exempted under the hazardous waste organic concentration conditions specified in §264.1082(c)(1) or §§264.1082(c)(2)(i) through (c)(2)(vi), the facility will record the information used for each waste determination (e.g., test results, measurements, calculations, and other documentation) in the facility operating log. If analysis results for waste samples are used for the waste determination, then the facility will record the date, time, and location that each waste sample is collected in accordance with applicable requirements of §264.1083.

TANKS

Clean Harbors San Leon utilizes aboveground storage tanks (ASTs) for storage of hazardous liquid waste. In order to comply with the specific requirements for tanks in the Subpart CC Rule, the following plan has been prepared. Tanks are controlled using a fixed roof (Level 1) or using covers with a closed control device (Level 2).

Controls for Tanks

All tanks subject to the requirements at Clean Harbors San Leon are subject to Level 2 controls. It is impractical to segregate on the basis of the VO concentration, and it has been decided that all RCRA waste containing any organics and stored in the tanks will be managed using level 2 controls.

These tanks are either pressure tanks or tanks with covers venting to a control device. Pressure tanks operate as closed systems during normal operation and are designed not to vent headspace compression during filling to capacity. Each tank and its fittings have been designed to operate with no detectable organic emissions (as tested using Method 21).

Tanks containing organic waste are vented to a thermal oxidizer used for vapor control per 40 CFR 270.27.

Each closed-vent system and control device is installed in accordance with the requirements of 40 CFR 264.1087 that includes design and performance information as specified in §270.24 (c) and (d) of this part.

Operational Requirements for Tanks

Safety devices vented directly to the atmosphere must remain in the closed position except when needed to prevent physical damage to the container or control equipment due to an emergency or unplanned event. Safety devices will be designed to operate with no detectable organic emissions when the device is secured in the closed position. Closure devices (covers/closed vent systems leading to control devices) must be maintained in a normally closed position except when accessing waste or equipment within the tank.

Transfer of hazardous waste from a tank subject to the rule to another tank subject to the rule, is conducted using hard piping or another closed system that does not allow exposure of the waste to the atmosphere. Transfer of hazardous waste between tanks and containers is not required to be done in a closed system.

Inspection and Monitoring Requirements for Tanks

Each tank at Clean Harbors San Leon is tested for detection of organic emissions using Method 21, initially and annually thereafter. An initial visual inspection of fixed roof covers and enclosures will be conducted on tanks subject to Subpart CC. Covers are designed with no visible cracks, holes, gaps, or other open spaces in cover seams, foundation mountings, or cover closure devices (closed vent systems) when secured in a closed position. Defects also include broken, cracked or otherwise damaged seals or gaskets on closure devices and broken or missing hatches, access covers, caps or other closure devices. Subsequent inspections must be conducted annually. All defects must be repaired no later than forty-five days after detection with first attempts at repair conducted no later than five days following initial detection.

In addition, controls for tanks that are in a cover and enclosure are designed and operated in accordance with the criteria for Level 2 containers. The two feed hoppers for the thermal desorber units are required to have Level 2 controls.

Recordkeeping Requirements for Tanks

Each tank is marked with a unique identification number. In addition, records are kept of all inspections including date conducted. For each defect detected, records are kept of the location, description, and corrective actions (repairs) taken and when. (See section on recordkeeping for details).

For tanks using a fixed roof to comply with the Tank Level 1 controls, the facility will maintain records for each determination for the maximum organic vapor pressure of the hazardous waste in the tank performed in accordance with the requirements of §264.1084(c). The records shall include the date and time the samples were collected, the analysis method used, and the analysis results.

For tanks exempted under the hazardous waste organic concentration conditions specified in §264.1082(c)(1) or §§264.1082(c)(2)(i) through (c)(2)(vi), the facility will record the information used for each waste determination (e.g., test results, measurements,

calculations, and other documentation) in the facility operating log. If analysis results for waste samples are used for the waste determination, then the facility will record the date, time, and location that each waste sample is collected in accordance with applicable requirements of §264.1083.

PROPOSED PRE-TREATMENT BUILDING

The Pre-Treatment Building is used in the handling of bulk and containerized spent catalyst and petroleum derived wastes that are to be prepared for treatment in the two thermal desorbers. Bulk or containerized solids or sludges are received from customers in roll-off, or sludge boxes, flobins or other bulk containers. Prior to acceptance, all containers are sampled according to the Waste Analysis Plan.

Tanks 64A, 64B, 64C, and 64D are situated within the Pre-treatment Building. Secondary containment is provided by a steel shell within a concrete vault. Although the tanks are not used for the storage of liquids, the secondary containment is designed to hold the entire contents of all four tanks, and to detect the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours.

Procedure T - Enclosure

The Pre-treatment Building will serve as the enclosure that is vented to the carbon adsorption system in order for pre-treatment tanks 64A - 64D to comply with Tank Level 2 controls specified in 40 CFR 264.1084(d)(5). The Pre-treatment Building shall be operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR §52.741, Appendix B. Testing to demonstrate that the solids management building meets the criteria will be done initially, and annually thereafter. Appendix A drawing numbers 501, 502, 503 show the layout and design of the enclosure

During normal operations, a minimum ventilation flow sufficient to maintain a safe operating environment in the Pre-treatment Building will be provided using an induced draft fan exhausting the building through a dust collector and discharging into a carbon system. The carbon system is designed and operated to recover the organic vapors vented to it with an efficiency of 95 weight percent or greater. The carbon system is sized to handle peak vapor flow rate from the building.

The initial design for makeup air flow for ventilation of the Pre-treatment Building is designed to maintain safe operating conditions. Makeup air will be introduced to the

Pre-treatment Building through Natural Draft Openings (NDOs) which will be arranged to provide a flow distributed throughout the building and an average facial velocity through the NDOs will be at least 200 feet per minute as required by "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR §52.741, Appendix B.

The total area of all NDOs will not exceed 5% of the total surface area of the enclosure's walls, ceiling, and floor as required by "Procedure T. Any NDO will be at least 4 equivalent opening diameters from the VOC emitting point.

During the initial start-up the inward flow of through the NDOs will be verified and if necessary the number and/or size of the NDOs will be reduced to ensure that an in-flow of air through the NDOs is occurring. The final square footage of NDO's will be calculated and placed in the operating record for review.

The doors to the Pre-treatment Building will remain closed except when unloading waste into the tanks, managing waste with external equipment, emergencies, and maintenance activities. Doors must be closed as soon as possible (at least within 15 minutes) after unloading a truck or performing other activities for which the doors must be opened.

During normal operations, a minimum flow will be vented from the building at all times to maintain the required minimum flow velocity through the NDOs. This flow will be determined and recorded on the plant PLC and data historian system based on the flow meter. Should there be a malfunction with this meter four hours will be allowed for repair. This flow will be monitored and recorded at all times when the fumes are directed to the carbon system. The atmospheric air vent will be closed during normal operations.

Recordkeeping Requirements for Enclosures

The facility will prepare and maintain records on the most recent set of calculations and measurements performed by the owner or operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in "Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, Appendix B.

PROPOSED FILTER PRESS

The proposed Filter Press will be used primarily to remove solids from water generated by the desorber scrubbing system as well as from various sumps and general plant water.

Solids generated by the filter press are collected in a roll-off container and are shipped off-site for disposal. Filtrate is sent to ST-9 or ST-211, then to final Wastewater Storage (ST-17) for shipment off-site for disposal.

Wastewater treated by the filter press may contain VOC's either > or < 500 ppm depending upon the waste being treated by the desorbers and other processing equipment. During operation of the filter press, the pressure provided by the hydraulic ram keeps the unit closed and prevents exposure of the waste to the atmosphere. When the chambers of the press are full, the unit is opened, and the compacted solids drop into the roll-off container stationed beneath the filter press. The filter press is kept open for only the minimum amount of time needed to dump the filter cake at which time the press is closed, and a new filtration cycle is started.

The roll-off container used to hold the filter cake generated by the press is equipped with a cover that will be kept closed except when the filter press is opened to release the filter cake. Once the filter press completes the "dump" cycle, the container will be re-covered. The cover qualifies as a Level 2 control device for the roll-off container.

CONTROL VENT SYSTEMS AND CONTROL DEVICES

Emissions from tanks are controlled through the use of a closed vent system and thermal oxidizer control device (OX-1). The closed vent system and control device are also used to control emissions from specific process units including: the Thermal Desorbers, Solids Handling System, and DAF. The Pre-treatment Building and the Centrifuges have a separate vent system and control device separate from the primary control device (OX-1).

General Process Description

The facility recovers oil from a number of different petroleum derived wastes including spent catalyst, oil emulsions, tank bottoms, oily water, and slop oil. Processed spent catalyst can be further refined to recover valuable metals that can be used to produce new catalyst. Outside vendors typically do this. The facility is also capable of processing hazardous waste derived from fuel materials (HWDF) generated as a by-product of the oil recovery processes, or from other generators. Appendix A drawing numbers 302, 304, 305, 307 and 312.

Oil emulsions are generally characterized as a mixture of organic materials (diesel oil), water, and solids with concentrations ranging from 15% for oil emulsions to 95% for purchased oil feedstocks.

The hazardous waste derived fuel materials (HWDF) are generally characterized as a mixture of organics (paint wastes, solvents, off-specification chemical products, etc.), water, and solids with the concentration of organics ranging from 35% to 50% annually. The HWDF stream can contain any combination of approximately 400 volatile organic compounds (VOC's).

The solids/oil emulsion sludges are generally characterized as a mixture of solids (2g% to 50%), water (25% to 35%), and organics (15% to 50%). These slurried solids can consist of either oil emulsion or HWDF materials.

Tanker trucks containing liquid oil emulsions and HWDF materials are generally unloaded to the fixed roof storage/processing tanks prior to processing. Some fixed roof storage tanks in oil emulsion service may be heated to 180 F by the process heaters. Vapors displaced from storage and processing tanks are collected by a closed-vent system and sent to the thermal oxidizer. The closed-vent system serves as a vapor balance system during loading and unloading of storage tanks and process tanks as well as during transfers between tanks.

After processing, materials are sent back to storage before loading onto tanker trucks. Vapors displaced during these processes are vented to the thermal oxidizer OX-1. Heat for processing is provided by the process heaters. Any residual water produced from the recovery or treatment processes are separated from the oil/organic components and stored prior to shipment off-site.

Oily solids and emulsion sludges arrive in roll-off boxes, vacuum boxes or tanker trucks. Materials are transferred to; the Solids Handling System, the Pre-treatment Container, and the Pre-treatment Building or directly to one of the two thermal desorption systems.

PROPOSED -Solids Handling System

The purpose of the Solids Handling System is to receive the oily solids/sludge, remove any metal debris, and emulsify the sludge in preparation for product recovery and treatment by the solids distillation system. Emissions are associated with the loading of materials into the primary emulsifying vessel. The types of organics associated

with oily solids/sludge material are oil emulsions (diesel oil) and chemical waste solvents (HWDF).

The treatment processes used in the Pre-treatment Container and Building condition petroleum derived waste and spent catalyst prior to treatment in the thermal desorbers. Lime, absorbents and other chemicals are added to the waste and mixed with a backhoe or clamshell. The Pre-treatment Container is not used to treat wastes with a VOC concentration greater than 500 ppmw.

The desorbers separate solids and liquids. Separated liquids are sent to oil, oil emulsion or HWDF storage tanks depending on the material being processed and the need to further process the recovered liquid. Treated solids are collected in a roll-off container. Separated liquids can be further processed in the centrifuge or loaded onto tank trucks for shipment off-site. Vapors displaced during the Solids Handling System, , and the thermal desorption systems are vented to the thermal oxidizer. The Pre-treatment container does not treat materials with a VOC concentration greater than 500 ppmw. The Pre-treatment Building utilizes a carbon system to vent vapors.

Spent catalysts arrive in roll-off boxes or flobins and are stored in one of the container storage areas (CSA) prior to processing in the thermal desorber units. Depending upon the physical state of the catalyst, it may be treated in the Pre-treatment Building or the Pre-treatment container prior to processing. The desorbers recover oil from the spent catalyst as well as a solid byproduct material that can be sent offsite for further metal recovery. Vapors from the desorbers are vented on the thermal oxidizer. The Pre-treatment container does not treat materials with a VOC concentration greater than 500 ppmw.

Emission Control System

The vapor recovery and emission control systems incorporate state of the art equipment and a "contingent systems" design philosophy for safe and effective emissions control. The primary system for control of emissions from the process and storage tanks uses a segregated stream, low pressure gas blanketing system to seal the tanks and to suppress the tendency of vapors to leave the liquid. The thermal oxidizer, OX-1, is used as the primary control system for vapors displaced from tank breathing and loading operations, any emergency release from the storage tank vapor recovery system, normal loading operations, and emissions from process equipment. As an alternative, a carbon absorber backup system receives vapors displaced from tank breathing and

loading operations when the thermal oxidizer is off-line. Drawings of the emission control system are included in Appendix A Drawing number 321.

All emission control systems have automatic safety devices. These devices monitor the operation of the systems to assure safety and emissions control efficiency. If an unsafe condition occurs or system integrity is violated, the safety devices trigger alarms so that plant personnel can take the appropriate action(s) to correct the situation. This may include stopping the waste feed to the systems. Both the closed vent system and the thermal oxidizer are proven emission control technologies that are commonly used for VOC control.

Closed Vent Systems

The closed vent systems consists of ducts, pipes, connectors, and blowers that transport vapors or gases from the equipment of hazardous waste units and to the control device. The closed vent systems is designed to operate with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background as determined by the procedure in §264.1034(b). The facility conducts routine visual inspections of all connections on the vent system and monitors non-permanently sealed connections (flanges) and joints of the system on an annual basis. Any time a component is repaired or replaced (e.g., a section of damaged hard piping is replaced with new hard piping), or the connection is unsealed (e.g., a flange is unbolted) the new connection will be monitored.

Centrifuge Carbon Absorption System

A carbon absorption system is used as the primary emission control device for the centrifuges. This system consists of a water scrubber followed by dual carbon beds in series that are used to recover the organic vapors vented to it with an efficiency of 95 weight percent or greater. The system is sized to handle peak vapor flow rate from the centrifuges. Each carbon adsorber will be filled with 1000 pounds of activated carbon. Each has a bed depth of 4.5 feet and a volume of 39 cubic feet. The type of carbon to be used will meet or exceed the requirements of the following specifications:

For reactivated carbon -- Calgon vapor phase react carbon (VPR 4x6 - 4x10) or equivalent will be used. For virgin carbon -- Calgon vapor phase BPL 4x6 - 4x10 carbon or equivalent will be used.

When vapors are directed to the carbon system, visual inspection and monitoring of the system will be conducted using a PID or equivalent on a daily basis. Readings are taken before and after the carbon system and between the two carbon beds to detect breakthrough of the system and are recorded on a logsheet. If breakthrough is detected in either of the carbon canisters, it is noted on the inspection log and the carbon is replaced within 24 hours when spent or the centrifuge systems are shutdown until carbon is replaced. (i.e., spent means detection of 500 ppm or greater above background in either of the canisters or if the entire system is not achieving 95% removal).

The carbon adsorption system is visually inspected at least once per year to check for defects that could result in emissions. After each repair, the unit will be monitored using Method 21 procedures to ensure that it is still operating with no detectable emissions.

The carbon adsorption systems are inspected in accordance with the following procedures:

- Initial inspection of each tank and associated emission control equipment (carbon canister) was conducted by a certified professional engineer prior to the effective date of this rule. Tanks were inspected for any visible cracks, holes, gaps, broken walls, missing latches, etc.
- Inspections will be conducted once per year. All hazardous waste storage tanks are inspected annually in accordance with RCRA regulations and Subpart CC requirements.
- Any defects detected during inspection will be repaired in accordance with 40 CFR 264.1084(k).

Records of inspections will be maintained in accordance with 40 CFR 264.1089.

Thermal Oxidizer (OX-1)

Emissions from the waste process systems at the facility (except for the centrifuges and pre-treatment building) are controlled by venting through a closed-vent system to the emission control device, thermal oxidizer, OX-1. The thermal oxidizer is an enclosed combustion device that is designed and operated to reduce the organic emissions vented to it by 95 weight percent or greater. The thermal oxidizer provides a minimum residence time of 1.0 seconds at a minimum temperature of 1400 deg F.

The Thermal Desorbers can operate a maximum of 85% annually or 310 days/yr. The thermal oxidizer processes vapor from all of the recovery processes and the associated

tanks. The thermal oxidizer operates a maximum of 350 days/yr. at conditions above the minimum firing rate required to process the tank vapors.

The automatic control/safety system for the thermal oxidizer monitors the following:

PARAMETER	ACTION
Flame Safety Fuel	Alarm/System Shutdown
Pressure Combustion Air Flow	Alarm/System Shutdown
High Chamber Temperature	Alarm/System Shutdown
Low Chamber Temperature	Alarm
Liquid Seal Water Level	Alarm/System Shutdown

The automatic control system on the thermal oxidizer controls the vapor temperature in the combustion chamber by regulating the flow of auxiliary fuel and cooling media (water and air). This system automatically adjusts for changes in feed stream composition and flow. The thermal oxidizer operating temperature is 1400°F with 25% to 50% excess air.

Backup Carbon Absorption

A carbon absorber system is used as a backup emission control system for the storage/processing tanks for those times that the thermal oxidizer control system is not operating due to planned routine maintenance, emergency or unplanned maintenance. The carbon system is designed and operated to recover the organic vapors vented to it with an efficiency of 95 weight percent or greater. The carbon system is sized to handle peak vapor flow rate from the tanks.

The carbon adsorber will be filled with 6,900 pounds of activated carbon. The absorber has a bed depth of 8 feet and a volume of 780cubic feet. The type of carbon to be used will meet or exceed the requirements of the following specifications:

For reactivated carbon -- Calgon vapor phase react carbon (VPR 4x6 - 4x10) or equivalent.
For virgin carbon -- Calgon vapor phase BPL 4x6 - 4x10 carbon or equivalent

When vapors are directed to the carbon system, monitoring of the system will be conducted using a PID or equivalent every three hours. Readings are taken before and after the carbon system to detect breakthrough of the system and are recorded on a logsheet at preset three hour intervals. If the readings indicate that the carbon system is

not achieving 95% or greater removal efficiency, the facility will replace the carbon in the system within 3 hours. The spent carbon will be managed as a hazardous waste. Records of the dates the carbon is removed, placed into permitted storage, and treated will be maintained in the operating record.

The carbon adsorption system is visually inspected at least once per year to check for defects that could result in emissions. After each repair, the unit will be monitored using Method 21 procedures to ensure that it is still operating with no detectable emissions.

The carbon adsorption systems are inspected in accordance with the following procedures:

- Initial inspection of each tank and associated emission control equipment (carbon canister) was conducted by a certified professional engineer prior to the effective date of this rule. Tanks were inspected for any visible cracks, holes, gaps, broken walls, missing latches, etc.
- Inspections will be conducted once per year. All hazardous waste storage tanks are inspected annually in accordance with RCRA regulations and Subpart CC requirements.
- Any defects detected during inspection will be repaired in accordance with 40 CFR 264.1084(k).

Records of inspections will be maintained in accordance with 40 CFR 264.1089.

Operations and Maintenance Requirements

Control devices must be operated and maintained properly, and continuous monitoring of appropriate operating parameters must be inspected daily. If corrective actions are necessary, they must be immediately implemented.

Control device performance requirements do not apply during periods of planned routine maintenance which must not exceed 240 hours per year. Exemptions are also provided during system malfunction; however, occurrence and duration of each malfunction must be documented along with corrective actions taken.

The control device will be inspected and monitored by the owner or operator in accordance with the procedures specified in 40 CFR 264.1033(f)(2) and 40 CFR 264.1033 (I)

Recordkeeping Requirements for Closed Vent Systems and Control Devices

40 CFR 264.1089 (e) requires a facility using a closed-vent system and control device in accordance with the requirements of §264.1087 to prepare and maintain records that include a certification that is signed and dated by the owner or operator stating that the control device is designed to operate at the performance level documented by a design analysis as specified in paragraph (e)(1)(ii) of 264.1089 or by performance tests as specified in paragraph (e)(1)(iii) when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.

- If a design analysis is used, then design documentation as specified in 40 CFR 264.1035(b)(4). The documentation shall include information prepared by the owner or operator or provided by the control device manufacturer or vendor that describes the control device design in accordance with 40 CFR 264.1035(b)(4)(iii) and certification by the owner or operator that the control equipment meets the applicable specifications.
- If performance tests are used, then a performance test plan as specified in 40 CFR 264.1035(b)(3) and all test results.

The Clean Harbors San Leon facility utilized a design analysis to demonstrate compliance with the required standards, and the required certification is provided in Attachment X Certifications.

The facility will also record, on a semiannual basis, the following information for those planned routine maintenance operations that would require the control device not to meet the requirements of §264.1087(c)(1)(i), (c)(1)(ii), or (c)(1)(iii), as applicable.

- A description of the planned routine maintenance that is anticipated to be performed for the control device during the next 6-month period. This description will include the type of maintenance necessary, planned frequency of maintenance, and lengths of maintenance periods.
- A description of the planned routine maintenance that was performed for the control device during the previous 6-month period. This description will include the type of maintenance performed and the total number of hours during those 6 months that the control device did not meet the requirements of §264.1087 (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this subpart, as applicable, due to planned routine maintenance.

The facility will also record the following information for those unexpected control device system malfunctions that would require the control device not to meet the requirements of §264.1087 (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) as applicable.

- The occurrence and duration of each malfunction of the control device system.
- The duration of each period during a malfunction when gases, vapors, or fumes are vented from the waste management unit through the closed-vent system to the control device while the control device is not properly functioning.
- Actions taken during periods of malfunction to restore a malfunctioning control device to its normal or usual manner of operation.

Reporting Requirements

If the facility manages hazardous waste in a tank, or container exempted from using air emission controls under the provisions of §264.1082(c) will report to the Executive Director each occurrence when hazardous waste is placed in the waste management unit in noncompliance with the applicable conditions specified in §264.1082 (c)(1) or (c)(2). The facility will submit a written report within 15 calendar days of the time that it becomes aware of the occurrence. The written report shall contain the EPA identification number, facility name and address, a description of the noncompliance event and the cause, the dates of the noncompliance, and the actions taken to correct the noncompliance and prevent recurrence of the noncompliance. The report shall be signed and dated by an authorized representative of the facility.

If the facility uses air emission controls on a tank in accordance with the requirements §264.1084(c), it will report to the Executive Director each occurrence when hazardous waste is managed in the tank in noncompliance with the conditions specified in §264.1084(b) of this subpart. The facility will submit a written report within 15 calendar days of the time that it becomes aware of the occurrence. The written report shall contain the EPA identification number, facility name and address, a description of the noncompliance event and the cause, the dates of the noncompliance, and the actions taken to correct the noncompliance and prevent recurrence of the noncompliance. The report shall be signed and dated by an authorized representative of the facility.

The facility will submit a semiannual written report to the Executive Director describing each occurrence during the previous 6-month period when a control device is operated continuously for 24 hours or longer in noncompliance with the applicable operating values defined in §264.1035(c)(4). The written report shall include the EPA identification number, facility name and address, and an explanation why the control device could not

be returned to compliance within 24 hours, and actions taken to correct the noncompliance. The report shall be signed and dated by an authorized representative of the facility. A report to the Executive Director is not required for a 6-month period during which all control devices are operated such that during no period of 24 hours or longer did a control device operate continuously in noncompliance with the applicable operating values defined in §264.1035(c)(4).

Air Emission Standards -"One- Stop" Permit

NA

ATTACHMENT X CERTIFICATIONS

Certification X.B Equipment Leaks

Certification X.C Tanks and Containers

SECTION X.B – EQUIPMENT LEAKS
PROCESS CERTIFICATION

I, David Cummings, certify that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. I further certify that the control device is designed to operate at an efficiency of 95 weight percent or greater.

Signature

9-12-25
Date

SECTION X.C – TANKS AND CONTAINERS
PROCESS CERTIFICATION

I, David Cummings, certify that the control device is designed to operate at the performance level documented by a design analysis as specified in 40 CFR 264.1089 (e)(1)(ii) or by performance tests as specified in 40 CFR§264.1089(e)(1)(iii) when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.

Signature

9-12-25

Date

ATTACHMENT X TABLES

Attachment X.B Equipment Leaks

Attachment X.C Tanks, Surface Impoundments & Containers Subject to Air

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
UNIT: BTANK - Tanks ST-17 & PV18-PV21						
803	FLG	022 / 021	P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
803.1	FLG	022 / 021	P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
804	FLG	022 / 021	P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
805	FLG	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
812	FLG	020 / 019	3FT E P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
812.1	FLG	020 / 019	3FT E P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
840	FLG	021 / 020	P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
840.1	FLG	021 / 020	P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
848	FLG	020 / 019	E SIDE OH BTWN PV-19/18	VARIES ~ 50%	L	21
853	FLG	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
853.1	FLG	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
853.2	FLG	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
857	FLG	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
857.1	FLG	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
857.2	CON	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
878	FLG	021 / 020	OH BTWN PV-20/19	VARIES ~ 50%	L	21
9851	VLV	011	15FT E SIDE TNK ST-17 ON CARBON CONTAINER	VARIES ~ 50%	L	21
9852	VLV	011	15FT E SIDE TNK ST-17 ON CARBON CONTAINER	VARIES ~ 50%	L	21
16200	VLV	022 / 021	W SIDE OF P-318C OH BTWN PV-21/20	VARIES ~ 50%	L	21
16200.1	FLG	022 / 021	W SIDE OF P-318C OH BTWN PV-21/20	VARIES ~ 50%	L	21
16200.2	CON	022 / 021	W SIDE OF P-318C OH BTWN PV-21/20	VARIES ~ 50%	L	21
16200.3	CON	022 / 021	W SIDE OF P-318C OH BTWN PV-21/20	VARIES ~ 50%	L	21
16201	VLV	022 / 021	W SIDE OF P-318C OH BTWN PV-21/20	VARIES ~ 50%	L	21
16201.1	FLG	022 / 021	W SIDE OF P-318C OH BTWN PV-21/20	VARIES ~ 50%	L	21
16201.2	CON	022 / 021	W SIDE OF P-318C OH BTWN PV-21/20	VARIES ~ 50%	L	21
16201.3	CON	022 / 021	W SIDE OF P-318C OH BTWN PV-21/20	VARIES ~ 50%	L	21
16202	VLV	021	2FT SE SIDE PV-20 OH	VARIES ~ 50%	L	21
16202.1	FLG	021	2FT SE SIDE PV-20 OH	VARIES ~ 50%	L	21
16202.2	FLG	021	2FT SE SIDE PV-20 OH	VARIES ~ 50%	L	21
16203	VLV	021	2FT SE SIDE PV-20 OH	VARIES ~ 50%	L	21
16203.1	FLG	021	2FT SE SIDE PV-20 OH	VARIES ~ 50%	L	21
16203.2	FLG	021	2FT SE SIDE PV-20 OH	VARIES ~ 50%	L	21
16204	VLV	021 / 020	2FT E OH BTWN PV-20/19	VARIES ~ 50%	L	21
16204.1	FLG	021 / 020	2FT E OH BTWN PV-20/19	VARIES ~ 50%	L	21
16204.2	FLG	021 / 020	2FT E OH BTWN PV-20/19	VARIES ~ 50%	L	21
16205	VLV	021 / 020	12FT E OH BTWN PV-20/19	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16205.1	FLG	021 / 020	12FT E OH BTWN PV-20/19	VARIES ~ 50%	L	21
16205.2	CON	021 / 020	12FT E OH BTWN PV-20/19	VARIES ~ 50%	L	21
16205.3	CON	021 / 020	12FT E OH BTWN PV-20/19	VARIES ~ 50%	L	21
16206	VLV	020 / 019	4FT W SIDE P-318A OH BTWN PV-19/18	VARIES ~ 50%	L	21
16206.1	FLG	020 / 019	4FT W SIDE P-318A OH BTWN PV-19/18	VARIES ~ 50%	L	21
16206.2	CON	020 / 019	4FT W SIDE P-318A OH BTWN PV-19/18	VARIES ~ 50%	L	21
16206.3	CON	020 / 019	4FT W SIDE P-318A OH BTWN PV-19/18	VARIES ~ 50%	L	21
16207	VLV	020 / 019	4FT W SIDE P-318A OH BTWN PV-19/18	VARIES ~ 50%	L	21
16207.1	FLG	020 / 019	4FT W SIDE P-318A OH BTWN PV-19/18	VARIES ~ 50%	L	21
16207.2	CON	020 / 019	4FT W SIDE P-318A OH BTWN PV-19/18	VARIES ~ 50%	L	21
16207.3	CON	020 / 019	4FT W SIDE P-318A OH BTWN PV-19/18	VARIES ~ 50%	L	21
16208	VLV	019	2FT SE OF TNK PV-18 OH	VARIES ~ 50%	L	21
16208.1	FLG	019	2FT SE OF TNK PV-18 OH	VARIES ~ 50%	L	21
16208.2	FLG	019	2FT SE OF TNK PV-18 OH	VARIES ~ 50%	L	21
16209	VLV	019	2FT SE OF TNK PV-18 OH	VARIES ~ 50%	L	21
16209.1	FLG	019	2FT SE OF TNK PV-18 OH	VARIES ~ 50%	L	21
16209.2	FLG	019	2FT SE OF TNK PV-18 OH	VARIES ~ 50%	L	21
16210	VLV	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16210.1	FLG	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16210.2	FLG	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16211	VLV	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16211.1	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16211.2	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16211.3	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16212	VLV	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16212.2	FLG	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16212.3	FLG	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16212.4	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16213	VLV	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16213.1	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16213.2	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16213.3	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16214	VLV	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16214.1	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16214.2	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16214.3	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
16214.4	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16215	VLV	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16215.1	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16215.2	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16215.3	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16215.4	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16215.5	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16216	VLV	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16216.1	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16216.2	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16217	VLV	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16217.1	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16217.2	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
16218	VLV	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
16218.1	FLG	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
16218.2	FLG	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
16219	VLV	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
16219.1	FLG	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
16219.2	FLG	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
16220	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16220.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16220.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16221	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16221.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16221.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16222	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16222.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16222.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16223	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16223.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16223.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16224	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16224.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16224.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16225	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16225.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16225.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16226	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16226.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16226.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16227	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16227.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
16227.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
17000	VLV	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17000.1	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17000.2	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17000.3	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17000.4	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17000.5	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17002	VLV	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17002.1	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17002.2	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17002.3	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17002.4	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17003	VLV	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17003.1	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17003.2	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17003.3	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17005	VLV	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17005.1	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17005.2	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17005.3	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17005.4	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17006	VLV	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17006.1	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17006.2	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17006.3	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17006.4	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17007	VLV	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17007.1	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17007.2	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17007.3	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17007.4	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
17009	VLV	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17009.1	FLG	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17009.2	FLG	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17009.3	CON	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17009.4	CON	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17010	VLV	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17010.1	FLG	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17010.2	FLG	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17011	VLV	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17011.1	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17011.2	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17012	VLV	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17012.1	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17012.2	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17013	VLV	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17013.1	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17013.2	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17013.3	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17014	VLV	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17014.1	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17014.2	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17014.3	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17014.4	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17015	VLV	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17015.1	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17015.2	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17015.3	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17016	VLV	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17016.1	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17016.2	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17016.3	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17016.4	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17016.5	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17017	VLV	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17017.1	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17017.2	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17017.3	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17017.4	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17018	VLV	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17018.1	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17019	VLV	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17019.1	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17019.2	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17020	VLV	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17020.1	CON	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17020.2	CON	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17020.3	CON	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17021	PRV	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
17022	VLV	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
17022.1	FLG	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
17022.2	FLG	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
17023	VLV	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
17023.1	FLG	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
17023.2	FLG	021 / 020	3FT E P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
17024	VLV	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17024.1	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17024.2	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17024.3	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17025	VLV	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17025.1	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17025.2	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17025.3	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17025.4	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17026	VLV	020 / 019	3FT E P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17026.1	FLG	020 / 019	3FT E P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17026.2	FLG	020 / 019	3FT E P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17027	VLV	020 / 019	3FT E P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17027.1	FLG	020 / 019	3FT E P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17027.2	FLG	020 / 019	3FT E P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17028	VLV	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17028.1	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17028.2	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17028.3	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17028.4	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17029	VLV	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17029.1	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17029.2	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17029.3	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17030	VLV	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17030.1	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17030.2	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17030.3	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17031	VLV	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17031.1	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17031.2	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17031.3	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17032	VLV	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17032.1	FLG	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17032.2	FLG	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17034	VLV	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17034.1	CON	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17034.2	CON	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17034.3	CON	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17036	VLV	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17036.1	CON	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17036.2	CON	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17037	VLV	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	V	21
17037.1	FLG	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	V	21
17037.2	FLG	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	V	21
17038	VLV	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17038.1	FLG	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17038.2	FLG	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17039	VLV	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17039.1	CON	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17039.2	CON	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17039.3	CON	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17041	VLV	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17041.1	CON	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17041.2	CON	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17043	VLV	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	V	21
17043.1	FLG	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	V	21
17043.2	FLG	021	TOP W SIDE PV-20 CATWLK	VARIES ~ 50%	V	21
17044	VLV	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17044.1	FLG	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17044.2	FLG	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17045	VLV	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17045.1	CON	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17045.2	CON	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17045.3	CON	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17046	VLV	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17046.1	CON	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17046.2	CON	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17049	VLV	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	V	21
17049.1	FLG	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	V	21
17049.2	FLG	020	TOP W SIDE PV-19 CATWLK	VARIES ~ 50%	V	21
17050	VLV	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17050.1	FLG	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17050.2	FLG	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17051	VLV	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17051.1	CON	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17051.2	CON	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17051.3	CON	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17055	VLV	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	V	21
17055.1	FLG	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	V	21
17055.3	FLG	019	TOP W SIDE PV-18 CATWLK	VARIES ~ 50%	V	21
17056	VLV	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17056.1	FLG	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17056.2	FLG	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
17058	VLV	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17058.1	FLG	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17058.2	FLG	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17059	VLV	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17059.1	FLG	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17059.2	FLG	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17060	VLV	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17060.1	CON	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17060.2	CON	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17061	PRV	011	TOP W SIDE ST-17 CATWLK	VARIES ~ 50%	V	21
17062	VLV	011	TOP E SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17062.1	CON	011	TOP E SIDE ST-17 CATWLK	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17062.2	CON	011	TOP E SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
17064	VLV	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17064.1	FLG	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17064.3	FLG	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
17065	VLV	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17065.1	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17065.2	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17065.3	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17066	VLV	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17066.1	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17066.2	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17066.3	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
17067	VLV	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17067.1	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17067.2	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17067.3	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17068	VLV	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17068.1	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17068.2	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17068.3	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
17100	VLV	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17100.1	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17100.2	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17101	VLV	021	PV-20 BTMN SE SIDE	VARIES ~ 50%	L	21
17101.1	FLG	021	PV-20 BTMN SE SIDE	VARIES ~ 50%	L	21
17101.2	FLG	021	PV-20 BTMN SE SIDE	VARIES ~ 50%	L	21
17102	VLV	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17102.1	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17102.2	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17103	VLV	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17103.1	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17103.2	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17104	VLV	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17104.1	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17104.2	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17105	VLV	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17105.1	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17105.2	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17106	VLV	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17106.1	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17106.2	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17107	VLV	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17107.1	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17107.2	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17107.3	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17108	VLV	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17108.1	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17108.2	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17108.3	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17109	PMP	020 / 019	P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17110	VLV	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17110.1	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17110.2	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17111	VLV	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17111.1	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17111.2	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17112	VLV	020 / 019	3FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17112.1	FLG	020 / 019	3FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17112.2	FLG	020 / 019	3FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17113	VLV	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17113.1	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17113.2	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17113.3	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17114	VLV	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17114.1	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17114.2	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17114.3	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17114.4	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17115	VLV	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17115.1	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17115.2	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17115.3	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17116	VLV	019	W END PV-18 BTM	VARIES ~ 50%	L	21
17116.1	CON	019	W END PV-18 BTM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17116.2	CON	019	W END PV-18 BTM	VARIES ~ 50%	L	21
17117	FLG	021	PV-20 BTMN SE SIDE	VARIES ~ 50%	L	21
17118	VLV	020	W END PV-19 BTM	VARIES ~ 50%	L	21
17118.1	CON	020	W END PV-19 BTM	VARIES ~ 50%	L	21
17118.2	CON	020	W END PV-19 BTM	VARIES ~ 50%	L	21
17119	VLV	021	W END PV-20 BTM	VARIES ~ 50%	L	21
17119.1	CON	021	W END PV-20 BTM	VARIES ~ 50%	L	21
17119.2	CON	021	W END PV-20 BTM	VARIES ~ 50%	L	21
17120	VLV	022	W END PV-21 BTM	VARIES ~ 50%	L	21
17120.1	CON	022	W END PV-21 BTM	VARIES ~ 50%	L	21
17120.2	CON	022	W END PV-21 BTM	VARIES ~ 50%	L	21
17121	VLV	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17121.1	FLG	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17121.2	FLG	022	PV-21 BTM E SIDE OF TNK	VARIES ~ 50%	L	21
17122	PMP	022 / 021	P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17123	VLV	020 / 019	3FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17123.1	FLG	020 / 019	3FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17123.2	FLG	020 / 019	3FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17124	VLV	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17124.1	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17124.2	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17125	VLV	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17125.1	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17125.2	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17126	VLV	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17126.1	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17126.2	CON	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17127	VLV	021 / 020	3FT W P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17127.1	FLG	021 / 020	3FT W P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17127.2	FLG	021 / 020	3FT W P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17128	VLV	021 / 020	3FT W P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17128.1	FLG	021 / 020	3FT W P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17128.2	FLG	021 / 020	3FT W P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17129	VLV	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17129.1	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17129.2	CON	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
17130	PMP	021 / 020	P-318B BTWN PV-20/19	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17131	VLV	021	PV-20 BTMN E SIDE OF TNK	VARIES ~ 50%	L	21
17131.1	FLG	021	PV-20 BTMN E SIDE OF TNK	VARIES ~ 50%	L	21
17131.2	FLG	021	PV-20 BTMN E SIDE OF TNK	VARIES ~ 50%	L	21
17132	VLV	021	PV-20 BTMN E SIDE OF TNK	VARIES ~ 50%	L	21
17132.1	FLG	021	PV-20 BTMN E SIDE OF TNK	VARIES ~ 50%	L	21
17132.2	FLG	021	PV-20 BTMN E SIDE OF TNK	VARIES ~ 50%	L	21
17133	PRV	021 / 020	OH BTWN PV-20/19	VARIES ~ 50%	L	21
17134	VLV	020	PV-19 BTM OF E END	VARIES ~ 50%	L	21
17134.1	FLG	020	PV-19 BTM OF E END	VARIES ~ 50%	L	21
17134.2	FLG	020	PV-19 BTM OF E END	VARIES ~ 50%	L	21
17135	VLV	020	PV-19 BTM OF E END	VARIES ~ 50%	L	21
17135.1	FLG	020	PV-19 BTM OF E END	VARIES ~ 50%	L	21
17135.2	FLG	020	PV-19 BTM OF E END	VARIES ~ 50%	L	21
17136	VLV	020	PV-19 BTM OF NE END	VARIES ~ 50%	L	21
17136.1	FLG	020	PV-19 BTM OF NE END	VARIES ~ 50%	L	21
17136.2	FLG	020	PV-19 BTM OF NE END	VARIES ~ 50%	L	21
17137	PRV	020 / 019	E SIDE OH BTWN PV-19/18	VARIES ~ 50%	L	21
17138	VLV	019	E SIDE BTM OF TNK PV-18	VARIES ~ 50%	L	21
17138.1	FLG	019	E SIDE BTM OF TNK PV-18	VARIES ~ 50%	L	21
17138.2	FLG	019	E SIDE BTM OF TNK PV-18	VARIES ~ 50%	L	21
17139	FLG	019	TNK PV-18 MID S SIDE OH	VARIES ~ 50%	L	21
17140	FLG	021	PV-20 TNK MID S SIDE	VARIES ~ 50%	L	21
17141	FLG	021	TNK PV-19 MID S SIDE OH	VARIES ~ 50%	L	21
17142	VLV	019	SE SIDE OF TNK PV-18 OH	VARIES ~ 50%	L	21
17142.1	FLG	019	SE SIDE OF TNK PV-18 OH	VARIES ~ 50%	L	21
17142.2	FLG	019	SE SIDE OF TNK PV-18 OH	VARIES ~ 50%	L	21
17143	VLV	019	E SIDE BTM OF TNK PV-18	VARIES ~ 50%	L	21
17143.1	FLG	019	E SIDE BTM OF TNK PV-18	VARIES ~ 50%	L	21
17143.2	FLG	019	E SIDE BTM OF TNK PV-18	VARIES ~ 50%	L	21
17144	FLG	022	PV-21TNK MID S SIDE	VARIES ~ 50%	L	21
17145	VLV	011	6FT S OF ST-17 IN PIPERACK	VARIES ~ 50%	L	21
17145.1	FLG	011	6FT S OF ST-17 IN PIPERACK	VARIES ~ 50%	L	21
17145.2	FLG	011	6FT S OF ST-17 IN PIPERACK	VARIES ~ 50%	L	21
17145.3	FLG	011	6FT S OF ST-17 IN PIPERACK	VARIES ~ 50%	L	21
17147	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
17147.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
17147.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17148	VLV	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
17148.1	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
17148.2	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
17148.3	CON	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
17181	VLV	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
17181.1	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
17181.2	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
17184	VLV	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17184.1	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17184.2	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17185	VLV	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
17185.1	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
17185.2	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
17185.3	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
17185.4	CON	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
17225	VLV	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
17225.1	FLG	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
17225.2	FLG	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
17225.3	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
17225.4	CON	011	E SIDE TNK ST-17 AT WALL	VARIES ~ 50%	L	21
17226	VLV	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17226.1	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17226.2	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17228	VLV	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17228.1	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17228.2	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17229	VLV	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17229.1	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17229.2	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17230	VLV	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17230.1	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17230.2	CON	011	NE SIDE TNK ST-17 NXT TO SUPPORT	VARIES ~ 50%	L	21
17297	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17297.1	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17297.2	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17297.3	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17298	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17298.1	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17298.2	CON	022 / 021	E SIDE P-318C SUCTION BTWN PV-21/20	VARIES ~ 50%	L	21
17299	VLV	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17299.1	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17299.2	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17299.3	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17299.4	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17353	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17353.1	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17353.2	CON	020 / 019	W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
17354	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17354.1	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17354.2	CON	020 / 019	E SIDE P-318A SUC BTWN PV-19/18	VARIES ~ 50%	L	21
17400	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17400.1	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17400.2	CON	021 / 020	W SIDE P-318B DISCHRG BTWN PV-20/19	VARIES ~ 50%	L	21
17401	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17401.1	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17401.2	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17401.3	CON	021 / 020	E SIDE P-318B SUC BTWN PV-20/19	VARIES ~ 50%	L	21
17413	VLV	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17413.1	FLG	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17413.2	FLG	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17413.3	CON	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17413.4	CON	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17425	VLV	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17425.1	CON	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17425.2	CON	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17425.3	CON	BTANK	100FT E OF LAB AT TRK LDNG S SIDE OF PLANT WALL	VARIES ~ 50%	L	21
17825	FLG	021	W END PV-20 BTM	VARIES ~ 50%	L	21
53559	VLV	011	BTM W END OH ST-17 TNK	VARIES ~ 50%	L	21
53559.1	FLG	011	BTM W END OH ST-17 TNK	VARIES ~ 50%	L	21
53559.2	FLG	011	BTM W END OH ST-17 TNK	VARIES ~ 50%	L	21
61195	FLG	021 / 020	OH BTWN PV-20/19	VARIES ~ 50%	L	21
61195.1	FLG	021 / 020	OH BTWN PV-20/19	VARIES ~ 50%	L	21
63564	VLV	011	15FT NE SIDE TNK ST-17 OUTSDE WALL	VARIES ~ 50%	L	21
63564.1	FLG	011	15FT NE SIDE TNK ST-17 OUTSDE WALL	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
63564.2	FLG	011	15FT NE SIDE TNK ST-17 OUTSDE WALL	VARIES ~ 50%	L	21
63565	FLG	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
63565.1	FLG	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
63565.2	CON	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
63566	FLG	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
63567	FLG	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
63568	FLG	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
63569	FLG	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
63569.1	FLG	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
63570	FLG	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
63571	FLG	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
63572	FLG	011	TOP W SIDE ST-17 CATWLK BEHIND PRV	VARIES ~ 50%	L	21
63573	FLG	011	TOP W SIDE ST-17 CATWLK UNDER PRV	VARIES ~ 50%	L	21
63574	FLG	011	TOP NW SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
63575	FLG	011	TOP NW SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
63576	FLG	011	TOP NW SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
63577	FLG	011	TOP N SIDE ST-17 CATWLK BY LADDER	VARIES ~ 50%	L	21
63578	FLG	011	TOP NE SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
63579	FLG	011	TOP E SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
63579.1	FLG	011	TOP E SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
63580	FLG	011	TOP E SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
63581	FLG	011	TOP E SIDE ST-17 CATWLK	VARIES ~ 50%	L	21
63582	FLG	011	TOP E SIDE ST-17 CATWLK	VARIES ~ 50%	V	21
63584	FLG	011	N SIDE ST-17 OFF LADDER	VARIES ~ 50%	L	21
63586	FLG	011	SE SIDE OF TNK ST-17 IN PIPERACK	VARIES ~ 50%	L	21
63587	FLG	011	BTM W END OH ST-17 TNK	VARIES ~ 50%	L	21
63588	FLG	011	BTM W END OH ST-17 TNK	VARIES ~ 50%	L	21
63589	FLG	011	BTM W END OH ST-17 TNK	VARIES ~ 50%	L	21
63590	FLG	011	SW OF TANK ST-17 IN PIPERACK	VARIES ~ 50%	L	21
65216	FLG	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
67001	FLG	020 / 019	P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
67001.1	FLG	020 / 019	P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
67002	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
67002.1	FLG	022 / 021	E SIDE BTWN PV-21/20 TNKS	VARIES ~ 50%	L	21
67003	VLV	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67003.1	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67003.2	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
67003.3	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67004	FLG	011	UNDER MID SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
67005	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
67028	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
67029	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
67030	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
67066	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67067	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67068	PRV	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	V	21
67069	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67069.1	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67070	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
67071	FLG	020	TOP E SIDE PV-19 CATWLK	VARIES ~ 50%	L	21
67075	FLG	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
67076	VLV	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67076.1	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67076.2	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67080	FLG	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
67297	FLG	020 / 019	E SIDE OH BTWN PV-19/18	VARIES ~ 50%	L	21
67297.1	FLG	020 / 019	E SIDE OH BTWN PV-19/18	VARIES ~ 50%	L	21
67299	FLG	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
67300	FLG	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
67474	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67475	FLG	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
67477	FLG	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
67479	FLG	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
67480	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67481	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67482	FLG	011	5FT E SIDE TNK ST-17 OH ABV PIPE RACK	VARIES ~ 50%	L	21
67483	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67484	FLG	011	UNDER MID SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
67485	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	V	21
67485.1	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	V	21
67486	FLG	011	E SIDE TNK ST-17 OH	VARIES ~ 50%	L	21
67488	VLV	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67488.1	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21
67488.2	FLG	011	E SIDE TNK ST-17 OH OUTSDE WALL	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
67489	FLG	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
67490	FLG	020 / 019	4FT W SIDE P-318A BTWN PV-19/18	VARIES ~ 50%	L	21
67491	VLV	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67491.1	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67491.2	CON	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67492	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67494	FLG	021 / 020	P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
67494.1	FLG	021 / 020	P-318B BTWN PV-20/19	VARIES ~ 50%	L	21
67495	FLG	022 / 021	W SIDE OF P-318C BTWN PV-21/20	VARIES ~ 50%	L	21
67496	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
67497	FLG	019	2FT SE OF TNK PV-18 OH	VARIES ~ 50%	L	21
67498	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
67499	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
67499.1	FLG	022	TOP E SIDE PV-21 CATWLK	VARIES ~ 50%	L	21
67500	FLG	021	TOP E SIDE PV-20 CATWLK	VARIES ~ 50%	L	21
67801	FLG	022	20FT SE OF PV-21 AT CONTAINMENT WALL	VARIES ~ 50%	L	21
455763	VLV	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
455763.1	CON	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
455763.2	CON	019	TOP E SIDE PV-18 CATWLK	VARIES ~ 50%	L	21
455771	FLG	022	TOP W SIDE PV-21 CATWLK	VARIES ~ 50%	V	21
UNIT: CTANK - Tanks FPV30-FPV37						
253	VLV	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
253.1	CON	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
253.2	CON	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
324	VLV	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
324.1	FLG	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
324.2	FLG	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
325	VLV	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
325.1	FLG	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
325.2	FLG	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
326	VLV	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
326.1	FLG	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
327	VLV	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
327.1	FLG	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
327.2	FLG	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
328	VLV	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
328.1	FLG	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
328.2	FLG	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
329	VLV	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
329.1	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
329.2	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
330	VLV	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
330.1	CON	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
330.2	CON	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
331	VLV	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
331.1	CON	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
332	VLV	028	2FT SW SIDE FPV-31 OH	VARIES ~ 50%	L	21
332.1	FLG	028	2FT SW SIDE FPV-31 OH	VARIES ~ 50%	L	21
332.2	FLG	028	2FT SW SIDE FPV-31 OH	VARIES ~ 50%	L	21
333	VLV	028	2FT SW SIDE FPV-31 OH	VARIES ~ 50%	L	21
333.1	FLG	028	2FT SW SIDE FPV-31 OH	VARIES ~ 50%	L	21
333.2	FLG	028	2FT SW SIDE FPV-31 OH	VARIES ~ 50%	L	21
334	VLV	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
334.1	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
334.2	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
335	VLV	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
335.1	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
335.2	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
336	VLV	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
336.1	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
336.2	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
337	VLV	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
337.1	CON	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
337.2	CON	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
338	VLV	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
338.1	CON	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
338.2	CON	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
339	VLV	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
339.1	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
339.2	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
341	VLV	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
341.1	CON	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
341.2	CON	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
343	VLV	029	SW SIDE FPV-32 OH	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
343.1	FLG	029	SW SIDE FPV-32 OH	VARIES ~ 50%	L	21
343.2	FLG	029	SW SIDE FPV-32 OH	VARIES ~ 50%	L	21
344	VLV	029	SW SIDE FPV-32 OH	VARIES ~ 50%	L	21
344.1	FLG	029	SW SIDE FPV-32 OH	VARIES ~ 50%	L	21
344.2	FLG	029	SW SIDE FPV-32 OH	VARIES ~ 50%	L	21
345	VLV	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
345.1	FLG	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
345.2	FLG	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
346	VLV	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
346.1	FLG	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
346.2	FLG	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
347	VLV	029	NW SIDE OF FPV-32 OH	VARIES ~ 50%	L	21
347.1	CON	029	NW SIDE OF FPV-32 OH	VARIES ~ 50%	L	21
347.2	CON	029	NW SIDE OF FPV-32 OH	VARIES ~ 50%	L	21
348	VLV	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
348.1	CON	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
348.2	CON	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
349	VLV	029	NW SIDE OF FPV-32 OH	VARIES ~ 50%	L	21
349.1	FLG	029	NW SIDE OF FPV-32 OH	VARIES ~ 50%	L	21
349.2	FLG	029	NW SIDE OF FPV-32 OH	VARIES ~ 50%	L	21
351	VLV	030	NW SIDE FPV-33 OH	VARIES ~ 50%	L	21
351.1	CON	030	NW SIDE FPV-33 OH	VARIES ~ 50%	L	21
351.2	CON	030	NW SIDE FPV-33 OH	VARIES ~ 50%	L	21
352	VLV	030	NW SIDE FPV-33 OH	VARIES ~ 50%	L	21
352.1	FLG	030	NW SIDE FPV-33 OH	VARIES ~ 50%	L	21
352.2	FLG	030	NW SIDE FPV-33 OH	VARIES ~ 50%	L	21
503	FLG	031	2FT S OF FPV-34	VARIES ~ 50%	L	21
504	FLG	031	2FT S OF FPV-34	VARIES ~ 50%	L	21
505	FLG	034	5FT NW OF FPV-37 IN PIPE RK	VARIES ~ 50%	L	21
506	FLG	034	2FT NW OF FPV-37	VARIES ~ 50%	L	21
507	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
811	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
815	FLG	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
818	FLG	027	4FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
820	FLG	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
826	FLG	027	4FT S OF TNK FPV-30	VARIES ~ 50%	L	21
827	FLG	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
838	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
838.1	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
865	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
865.1	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
866	FLG	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
870	FLG	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
884	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
886	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
897	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
2147	FLG	031	TOP S SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
2148	FLG	031	TOP MIDDLE SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
2149	FLG	031	TOP MIDDLE SIDE OF TNK FPV-34 UNDER PRV	VARIES ~ 50%	V	21
2149.1	FLG	031	TOP MIDDLE SIDE OF TNK FPV-34 UNDER PRV	VARIES ~ 50%	V	21
2150	FLG	032	TOP S SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
2151	FLG	032	TOP MIDDLE SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
2154	FLG	032	TOP MIDDLE SIDE OF TNK FPV-35 UNDER PRV	VARIES ~ 50%	V	21
2154.1	FLG	032	TOP MIDDLE SIDE OF TNK FPV-35 UNDER PRV	VARIES ~ 50%	V	21
2156	FLG	033	TOP S SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
2160	FLG	033	TOP MIDDLE SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
2162	FLG	033	TOP MIDDLE SIDE OF TNK FPV-36 UNDER PRV	VARIES ~ 50%	V	21
2162.1	FLG	033	TOP MIDDLE SIDE OF TNK FPV-36 UNDER PRV	VARIES ~ 50%	V	21
2172	FLG	034	TOP S SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
2179	FLG	034	TOP MIDDLE SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
2182	FLG	034	TOP MIDDLE SIDE OF TNK FPV-37 UNDER PRV	VARIES ~ 50%	V	21
2182.1	FLG	034	TOP MIDDLE SIDE OF TNK FPV-37 UNDER PRV	VARIES ~ 50%	V	21
2183	FLG	034	TOP N SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
4230	FLG	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
9853	CON	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9854	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9855	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9856	FLG	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9856.1	FLG	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9857	FLG	031	4FT SW OF FPV-34	VARIES ~ 50%	L	21
9858	FLG	032	6FT W SIDE FPV-35	VARIES ~ 50%	L	21
9859	FLG	034	6FT NW OF FPV-37 DIS PRV	VARIES ~ 50%	L	21
9859.1	FLG	034	6FT NW OF FPV-37 DIS PRV	VARIES ~ 50%	L	21
9859.2	CON	034	6FT NW OF FPV-37 DIS PRV	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
9859.3	CON	034	6FT NW OF FPV-37 DIS PRV	VARIES ~ 50%	L	21
9860	FLG	034	6FT NW OF FPV-37 BELOW PRV	VARIES ~ 50%	L	21
9860.1	CON	034	6FT NW OF FPV-37 BELOW PRV	VARIES ~ 50%	L	21
9861	PRV	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
9862	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
9862.1	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
9863	FLG	031	14FT SW SIDE FPV-34 IN PIPE RK	VARIES ~ 50%	L	21
9864	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9865	FLG	034	8FT NW OF FPV-37	VARIES ~ 50%	L	21
9866	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
9867	FLG	032	6FT NW OF FPV-35	VARIES ~ 50%	L	21
9868	FLG	034	6FT W OF FPV-37	VARIES ~ 50%	L	21
9869	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
9870	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
9871	FLG	030	15FT NW SIDE FPV-33 IN PIPE RK BY WALL	VARIES ~ 50%	L	21
9872	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9873	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9874	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
9875	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
14006	VLV	030	16FT NE SIDE FPV-33 E OF PMPS	VARIES ~ 50%	L	21
14006.1	FLG	030	16FT NE SIDE FPV-33 E OF PMPS	VARIES ~ 50%	L	21
14006.2	FLG	030	16FT NE SIDE FPV-33 E OF PMPS	VARIES ~ 50%	L	21
14006.3	FLG	030	16FT NE SIDE FPV-33 E OF PMPS	VARIES ~ 50%	L	21
14007	VLV	030	16FT NE SIDE FPV-33 E OF PMPS	VARIES ~ 50%	L	21
14007.1	FLG	030	16FT NE SIDE FPV-33 E OF PMPS	VARIES ~ 50%	L	21
14007.2	FLG	030	16FT NE SIDE FPV-33 E OF PMPS	VARIES ~ 50%	L	21
14007.3	FLG	030	16FT NE SIDE FPV-33 E OF PMPS	VARIES ~ 50%	L	21
14144	FLG	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14145	FLG	027	TOP NW SIDE OF FPV-30	VARIES ~ 50%	L	21
14146	FLG	027	TOP NW SIDE OF FPV-30	VARIES ~ 50%	L	21
14147	FLG	028	TOP NW SIDE OF FPV-31	VARIES ~ 50%	L	21
14148	FLG	028	TOP NW SIDE OF FPV-31	VARIES ~ 50%	L	21
14149	FLG	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21
14150	FLG	028	TOP S SIDE OF FPV-31	VARIES ~ 50%	L	21
14151	FLG	029	TOP NW SIDE OF FPV-32	VARIES ~ 50%	L	21
14152	FLG	029	TOP NW SIDE OF FPV-32	VARIES ~ 50%	L	21
14153	FLG	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14154	FLG	030	TOP NW SIDE OF FPV-33	VARIES ~ 50%	L	21
14155	FLG	030	TOP NW SIDE OF FPV-33	VARIES ~ 50%	L	21
14156	FLG	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14157	FLG	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
14158	FLG	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
14159	FLG	031	TOP NW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
14160	FLG	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
14161	FLG	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
14162	FLG	032	TOP NW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
14163	FLG	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
14164	FLG	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
14165	FLG	033	TOP NW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
14166	FLG	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
14167	FLG	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
14168	FLG	034	TOP NW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
14300	VLV	027	TOP S SIDE OF FPV-30	VARIES ~ 50%	V	21
14300.1	FLG	027	TOP S SIDE OF FPV-30	VARIES ~ 50%	V	21
14300.2	FLG	027	TOP S SIDE OF FPV-30	VARIES ~ 50%	V	21
14301	VLV	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14301.1	FLG	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14301.2	FLG	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14302	VLV	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14302.1	CON	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14302.2	CON	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14302.3	CON	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14302.4	CON	027	TOP SW SIDE OF FPV-30	VARIES ~ 50%	L	21
14303	AG	027	TOP SIDE OF FPV-30	VARIES ~ 50%	L	21
14304	VLV	027	TOP N SIDE OF FPV-30	VARIES ~ 50%	L	21
14304.1	FLG	027	TOP N SIDE OF FPV-30	VARIES ~ 50%	L	21
14304.2	FLG	027	TOP N SIDE OF FPV-30	VARIES ~ 50%	L	21
14304.3	FLG	027	TOP N SIDE OF FPV-30	VARIES ~ 50%	L	21
14305	VLV	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	V	21
14305.1	FLG	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	V	21
14305.2	FLG	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	V	21
14306	VLV	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21
14306.1	FLG	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21
14306.2	FLG	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14307	VLV	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21
14307.1	CON	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21
14307.2	CON	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21
14307.3	CON	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21
14307.4	CON	028	TOP SW SIDE OF FPV-31	VARIES ~ 50%	L	21
14308	AG	028	TOP SIDE OF FPV-31	VARIES ~ 50%	L	21
14309	VLV	028	TOP N SIDE OF FPV-31	VARIES ~ 50%	L	21
14309.1	FLG	028	TOP N SIDE OF FPV-31	VARIES ~ 50%	L	21
14309.2	FLG	028	TOP N SIDE OF FPV-31	VARIES ~ 50%	L	21
14309.3	FLG	028	TOP N SIDE OF FPV-31	VARIES ~ 50%	L	21
14310	VLV	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	V	21
14310.1	FLG	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	V	21
14310.2	FLG	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	V	21
14311	VLV	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21
14311.1	FLG	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21
14311.2	FLG	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21
14312	VLV	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21
14312.1	CON	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21
14312.2	CON	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21
14312.3	CON	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21
14312.4	CON	029	TOP SW SIDE OF FPV-32	VARIES ~ 50%	L	21
14313	VLV	029	TOP N SIDE OF FPV-32	VARIES ~ 50%	L	21
14313.1	FLG	029	TOP N SIDE OF FPV-32	VARIES ~ 50%	L	21
14313.2	FLG	029	TOP N SIDE OF FPV-32	VARIES ~ 50%	L	21
14313.3	FLG	029	TOP N SIDE OF FPV-32	VARIES ~ 50%	L	21
14314	VLV	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	V	21
14314.1	FLG	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	V	21
14314.2	FLG	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	V	21
14315	VLV	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14315.1	FLG	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14315.2	FLG	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14316	VLV	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14316.1	CON	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14316.2	CON	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14316.3	CON	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14316.4	CON	030	TOP SW SIDE OF FPV-33	VARIES ~ 50%	L	21
14317	VLV	030	TOP N SIDE OF FPV-33	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14317.1	FLG	030	TOP N SIDE OF FPV-33	VARIES ~ 50%	L	21
14317.2	FLG	030	TOP N SIDE OF FPV-33	VARIES ~ 50%	L	21
14317.3	FLG	030	TOP N SIDE OF FPV-33	VARIES ~ 50%	L	21
16230	VLV	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
16230.1	CON	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
16230.2	CON	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
16230.3	CON	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
16250	VLV	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
16250.1	FLG	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
16250.2	FLG	029	2FT W OF FPV-32 OH	VARIES ~ 50%	L	21
16255	VLV	030	SW SIDE FPV-33 OH	VARIES ~ 50%	L	21
16255.1	FLG	030	SW SIDE FPV-33 OH	VARIES ~ 50%	L	21
16255.2	FLG	030	SW SIDE FPV-33 OH	VARIES ~ 50%	L	21
16256	VLV	030	SW SIDE FPV-33 OH	VARIES ~ 50%	L	21
16256.1	FLG	030	SW SIDE FPV-33 OH	VARIES ~ 50%	L	21
16256.2	FLG	030	SW SIDE FPV-33 OH	VARIES ~ 50%	L	21
16258	VLV	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16258.1	FLG	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16258.2	FLG	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16259	VLV	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16259.1	FLG	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16259.2	FLG	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16260	VLV	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16260.1	FLG	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16260.2	FLG	030	W SIDE FPV-33 OH	VARIES ~ 50%	L	21
16263	VLV	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
16263.1	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
16263.2	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
16264	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
16264.1	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
16265	CON	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
16265.1	CON	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
16268	VLV	030	16FT NW SIDE FPV-33 OH IN PIPE RK	VARIES ~ 50%	L	21
16268.1	FLG	030	16FT NW SIDE FPV-33 OH IN PIPE RK	VARIES ~ 50%	L	21
16268.2	FLG	030	16FT NW SIDE FPV-33 OH IN PIPE RK	VARIES ~ 50%	L	21
16269	VLV	031	2FT SW OF FPV-34 OH	VARIES ~ 50%	L	21
16269.1	FLG	031	2FT SW OF FPV-34 OH	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16269.2	FLG	031	2FT SW OF FPV-34 OH	VARIES ~ 50%	L	21
16270	VLV	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16270.1	CON	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16270.2	CON	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16271	VLV	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16271.1	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16271.2	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16272	VLV	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16272.1	CON	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16272.2	CON	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16273	VLV	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16273.1	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16273.2	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16274	VLV	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16274.1	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16274.2	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16275	VLV	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16275.1	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16275.2	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16276	VLV	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16276.1	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16276.2	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
16277	VLV	031	2FT NW OF FPV-34 OH	VARIES ~ 50%	L	21
16277.1	FLG	031	2FT NW OF FPV-34 OH	VARIES ~ 50%	L	21
16277.2	FLG	031	2FT NW OF FPV-34 OH	VARIES ~ 50%	L	21
16278	VLV	032	SW SIDE FPV-35 OH	VARIES ~ 50%	L	21
16278.1	FLG	032	SW SIDE FPV-35 OH	VARIES ~ 50%	L	21
16278.2	FLG	032	SW SIDE FPV-35 OH	VARIES ~ 50%	L	21
16279	VLV	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16279.1	CON	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16279.2	CON	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16280	VLV	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16280.1	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16280.2	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16281	VLV	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16281.1	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16281.2	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16282	VLV	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16282.1	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16282.2	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16283	VLV	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16283.1	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16283.2	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16284	VLV	032	2FT NW OF FPV-35 OH	VARIES ~ 50%	L	21
16284.1	FLG	032	2FT NW OF FPV-35 OH	VARIES ~ 50%	L	21
16284.2	FLG	032	2FT NW OF FPV-35 OH	VARIES ~ 50%	L	21
16285	VLV	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16285.1	CON	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16285.2	CON	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16286	VLV	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16286.1	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16286.2	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
16287	VLV	033	2FT SW OF FPV-36 OH	VARIES ~ 50%	L	21
16287.1	FLG	033	2FT SW OF FPV-36 OH	VARIES ~ 50%	L	21
16287.2	FLG	033	2FT SW OF FPV-36 OH	VARIES ~ 50%	L	21
16288	VLV	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16288.1	CON	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16288.2	CON	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16289	VLV	033	2FT NW OF FPV-36 OH	VARIES ~ 50%	L	21
16289.1	FLG	033	2FT NW OF FPV-36 OH	VARIES ~ 50%	L	21
16289.2	FLG	033	2FT NW OF FPV-36 OH	VARIES ~ 50%	L	21
16290	VLV	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16290.1	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16290.2	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16291	VLV	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16291.1	CON	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16291.2	CON	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16292	VLV	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16292.1	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16292.2	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16293	VLV	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16293.1	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16293.2	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16294	VLV	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16294.1	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16294.2	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16295	VLV	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16295.1	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16295.2	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
16296	VLV	034	2FT SW OF FPV-37 OH	VARIES ~ 50%	L	21
16296.1	FLG	034	2FT SW OF FPV-37 OH	VARIES ~ 50%	L	21
16296.2	FLG	034	2FT SW OF FPV-37 OH	VARIES ~ 50%	L	21
16297	VLV	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
16297.1	CON	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
16297.2	CON	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
16298	VLV	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
16298.1	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
16298.2	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
17053	VLV	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
17053.1	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
17053.2	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
17069	VLV	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17069.1	FLG	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17069.2	FLG	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17069.3	CON	027	2FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17070	VLV	027	3FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17070.1	FLG	027	3FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17070.2	FLG	027	3FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17070.3	CON	027	3FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17071	VLV	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17071.1	CON	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17071.2	CON	027	2FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17072	VLV	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17072.1	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17072.2	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17072.3	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17073	VLV	028	2FT SW SIDE FPV-31	VARIES ~ 50%	L	21
17073.1	FLG	028	2FT SW SIDE FPV-31	VARIES ~ 50%	L	21
17073.2	FLG	028	2FT SW SIDE FPV-31	VARIES ~ 50%	L	21
17074	VLV	028	3FT NW SIDE FPV-31 OH	VARIES ~ 50%	L	21
17074.1	FLG	028	3FT NW SIDE FPV-31 OH	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17074.2	FLG	028	3FT NW SIDE FPV-31 OH	VARIES ~ 50%	L	21
17074.3	FLG	028	3FT NW SIDE FPV-31 OH	VARIES ~ 50%	L	21
17075	VLV	029	SW SIDE FPV-32	VARIES ~ 50%	L	21
17075.1	FLG	029	SW SIDE FPV-32	VARIES ~ 50%	L	21
17075.2	FLG	029	SW SIDE FPV-32	VARIES ~ 50%	L	21
17076	VLV	029	2FT NW SIDE OF FPV-32	VARIES ~ 50%	L	21
17076.1	FLG	029	2FT NW SIDE OF FPV-32	VARIES ~ 50%	L	21
17076.2	FLG	029	2FT NW SIDE OF FPV-32	VARIES ~ 50%	L	21
17076.3	FLG	029	2FT NW SIDE OF FPV-32	VARIES ~ 50%	L	21
17077	VLV	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17077.1	CON	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17077.2	CON	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17078	VLV	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17078.1	CON	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17078.2	CON	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17079	VLV	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17079.1	CON	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17079.2	CON	029	6FT NW OF FPV-32	VARIES ~ 50%	L	21
17080	VLV	030	SW SIDE FPV-33	VARIES ~ 50%	L	21
17080.1	FLG	030	SW SIDE FPV-33	VARIES ~ 50%	L	21
17080.2	FLG	030	SW SIDE FPV-33	VARIES ~ 50%	L	21
17081	VLV	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
17081.1	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
17081.2	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
17081.3	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
17081.4	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
17082	VLV	030	2FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17082.1	FLG	030	2FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17082.2	FLG	030	2FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17083	VLV	030	2FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17083.1	FLG	030	2FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17083.2	FLG	030	2FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17084	VLV	030	4FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17084.1	FLG	030	4FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17084.2	FLG	030	4FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17085	VLV	030	4FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17085.1	FLG	030	4FT NW SIDE FPV-33	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17085.2	FLG	030	4FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17086	VLV	030	5FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17086.1	FLG	030	5FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17086.2	FLG	030	5FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17086.3	CON	030	5FT NW SIDE FPV-33	VARIES ~ 50%	L	21
17087	VLV	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17087.1	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17087.2	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17087.3	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17088	VLV	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17088.1	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17088.2	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17088.3	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17089	VLV	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17089.1	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17089.2	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17089.3	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17089.4	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17090	VLV	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17090.1	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17091	VLV	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17091.1	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17092	VLV	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17092.1	FLG	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17092.2	FLG	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17093	VLV	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17093.1	FLG	030	12FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17094	VLV	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17094.1	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17094.2	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17095	VLV	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17095.1	CON	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17095.2	CON	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17096	VLV	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17096.1	CON	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17096.2	CON	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17097	VLV	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17097.1	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17097.2	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17097.3	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17097.4	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17098	VLV	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17098.1	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17098.2	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17098.3	FLG	030	12FT N SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17099	VLV	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17099.1	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17099.2	FLG	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17146	VLV	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
17146.1	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
17146.2	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
17149	VLV	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17149.1	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17149.2	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17149.3	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17149.4	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17149.5	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17150	VLV	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17150.1	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17150.2	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17150.3	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17151	VLV	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17151.1	FLG	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17151.2	FLG	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17152	PRV	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	V	21
17153	PMP	027	PMP 6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17154	VLV	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17154.1	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17154.2	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17154.3	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17155	VLV	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17155.1	FLG	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17155.2	FLG	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17155.3	FLG	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17156	VLV	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17156.1	FLG	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17156.2	FLG	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17156.3	FLG	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17157	VLV	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17157.1	CON	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17157.2	CON	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17158	PMP	030	PMP 14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17159	VLV	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17159.1	FLG	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17159.2	CON	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17159.3	CON	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17159.4	CON	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17160	VLV	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17160.1	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17160.2	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17160.3	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17161	VLV	027	4FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17161.1	FLG	027	4FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17161.2	FLG	027	4FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17161.3	CON	027	4FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17162	VLV	027	3FT SW SIDE FPV-31	VARIES ~ 50%	L	21
17162.1	FLG	027	3FT SW SIDE FPV-31	VARIES ~ 50%	L	21
17162.2	FLG	027	3FT SW SIDE FPV-31	VARIES ~ 50%	L	21
17163	VLV	030	3FT SW SIDE FPV-33	VARIES ~ 50%	L	21
17163.1	FLG	030	3FT SW SIDE FPV-33	VARIES ~ 50%	L	21
17163.2	FLG	030	3FT SW SIDE FPV-33	VARIES ~ 50%	L	21
17164	VLV	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17164.1	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17164.2	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17164.3	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17165	VLV	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17165.1	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17165.2	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17165.3	CON	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17166	VLV	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17166.1	CON	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17166.2	CON	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17167	VLV	027	12FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17168	VLV	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17168.1	CON	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17168.2	CON	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17169	VLV	030	3FT SW SIDE FPV-32	VARIES ~ 50%	L	21
17169.1	FLG	030	3FT SW SIDE FPV-32	VARIES ~ 50%	L	21
17169.2	FLG	030	3FT SW SIDE FPV-32	VARIES ~ 50%	L	21
17170	VLV	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17170.1	FLG	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17170.2	FLG	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17170.3	FLG	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17170.4	FLG	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17171	VLV	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17171.1	FLG	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17171.2	FLG	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17171.3	FLG	030	14FT N SIDE FPV-33	VARIES ~ 50%	L	21
17172	PMP	030	PMP 12FT N SIDE FPV-33	VARIES ~ 50%	L	21
17173	VLV	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17173.1	CON	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17173.2	CON	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17174	VLV	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17174.1	CON	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17174.2	CON	031	4FT S OF FPV-34	VARIES ~ 50%	L	21
17175	PRV	030	12FT N SIDE FPV-33	VARIES ~ 50%	V	21
17176	VLV	032	2FT SW OF FPV-35	VARIES ~ 50%	L	21
17176.1	FLG	032	2FT SW OF FPV-35	VARIES ~ 50%	L	21
17176.2	FLG	032	2FT SW OF FPV-35	VARIES ~ 50%	L	21
17177	VLV	031	2FT S OF FPV-34	VARIES ~ 50%	L	21
17177.1	FLG	031	2FT S OF FPV-34	VARIES ~ 50%	L	21
17177.2	FLG	031	2FT S OF FPV-34	VARIES ~ 50%	L	21
17178	VLV	032	2FT SW OF FPV-35	VARIES ~ 50%	L	21
17178.1	CON	032	2FT SW OF FPV-35	VARIES ~ 50%	L	21
17178.2	CON	032	2FT SW OF FPV-35	VARIES ~ 50%	L	21
17179	VLV	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
17179.1	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
17179.2	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17180	VLV	031	2FT S OF FPV-34	VARIES ~ 50%	L	21
17180.1	FLG	031	2FT S OF FPV-34	VARIES ~ 50%	L	21
17180.2	FLG	031	2FT S OF FPV-34	VARIES ~ 50%	L	21
17182	VLV	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17182.1	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17182.2	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17183	VLV	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17183.1	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17183.2	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17183.3	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17186	VLV	032	2FT SW OF FPV-35	VARIES ~ 50%	L	21
17186.1	FLG	032	2FT SW OF FPV-35	VARIES ~ 50%	L	21
17187	VLV	032	2FT W OF FPV-35	VARIES ~ 50%	L	21
17187.1	CON	032	2FT W OF FPV-35	VARIES ~ 50%	L	21
17187.2	CON	032	2FT W OF FPV-35	VARIES ~ 50%	L	21
17188	VLV	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17188.1	FLG	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17189	VLV	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17189.2	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17189.3	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17189.4	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17189.5	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17190	VLV	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17190.1	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17190.2	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17190.3	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17191	VLV	034	2FT NW OF FPV-37	VARIES ~ 50%	L	21
17191.1	FLG	034	2FT NW OF FPV-37	VARIES ~ 50%	L	21
17191.2	FLG	034	2FT NW OF FPV-37	VARIES ~ 50%	L	21
17191.3	FLG	034	2FT NW OF FPV-37	VARIES ~ 50%	L	21
17192	VLV	034	5FT NW OF FPV-37 IN PIPE RK	VARIES ~ 50%	L	21
17192.1	FLG	034	5FT NW OF FPV-37 IN PIPE RK	VARIES ~ 50%	L	21
17192.2	FLG	034	5FT NW OF FPV-37 IN PIPE RK	VARIES ~ 50%	L	21
17193	VLV	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17193.1	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17193.2	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17193.3	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17193.4	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17194	VLV	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17194.1	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17194.2	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17194.3	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17194.4	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17194.5	CON	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17195	VLV	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17195.1	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17195.2	FLG	034	6FT NW OF FPV-37	VARIES ~ 50%	L	21
17196	PMP	034	PMP 6FT NW OF FPV-37	VARIES ~ 50%	L	21
17197	VLV	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17197.1	CON	030	14FT NW SIDE FPV-33 IN PIPE RK	VARIES ~ 50%	L	21
17198	VLV	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17198.1	FLG	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17198.2	FLG	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17199	VLV	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
17199.1	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
17199.2	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
17199.3	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
17199.4	FLG	030	12FT N SIDE FPV-33	VARIES ~ 50%	L	21
17200	VLV	031	4FT SW OF FPV-34	VARIES ~ 50%	L	21
17200.1	FLG	031	4FT SW OF FPV-34	VARIES ~ 50%	L	21
17200.2	FLG	031	4FT SW OF FPV-34	VARIES ~ 50%	L	21
17201	VLV	031	2FT SW OF FPV-34	VARIES ~ 50%	L	21
17201.1	FLG	031	2FT SW OF FPV-34	VARIES ~ 50%	L	21
17201.2	FLG	031	2FT SW OF FPV-34	VARIES ~ 50%	L	21
17201.3	FLG	031	2FT SW OF FPV-34	VARIES ~ 50%	L	21
17202	VLV	031	2FT W OF FPV-34	VARIES ~ 50%	L	21
17202.1	CON	031	2FT W OF FPV-34	VARIES ~ 50%	L	21
17202.2	CON	031	2FT W OF FPV-34	VARIES ~ 50%	L	21
17203	VLV	031	3FT SW OF FPV-34	VARIES ~ 50%	L	21
17203.1	FLG	031	3FT SW OF FPV-34	VARIES ~ 50%	L	21
17204	VLV	031	3FT SW OF FPV-34	VARIES ~ 50%	L	21
17204.1	FLG	031	3FT SW OF FPV-34	VARIES ~ 50%	L	21
17204.2	FLG	031	3FT SW OF FPV-34	VARIES ~ 50%	L	21
17205	VLV	031	3FT W OF FPV-34	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17205.1	FLG	031	3FT W OF FPV-34	VARIES ~ 50%	L	21
17205.2	FLG	031	3FT W OF FPV-34	VARIES ~ 50%	L	21
17206	VLV	031	3FT W OF FPV-34	VARIES ~ 50%	L	21
17206.1	FLG	031	3FT W OF FPV-34	VARIES ~ 50%	L	21
17207	VLV	032	SW SIDE FPV-35	VARIES ~ 50%	L	21
17207.1	FLG	032	SW SIDE FPV-35	VARIES ~ 50%	L	21
17207.2	FLG	032	SW SIDE FPV-35	VARIES ~ 50%	L	21
17207.3	FLG	032	SW SIDE FPV-35	VARIES ~ 50%	L	21
17208	VLV	032	3FT NW OF FPV-35	VARIES ~ 50%	L	21
17208.1	FLG	032	3FT NW OF FPV-35	VARIES ~ 50%	L	21
17209	VLV	032	3FT NW OF FPV-35	VARIES ~ 50%	L	21
17209.1	FLG	032	3FT NW OF FPV-35	VARIES ~ 50%	L	21
17209.2	FLG	032	3FT NW OF FPV-35	VARIES ~ 50%	L	21
17210	VLV	033	5FT SW OF FPV-36	VARIES ~ 50%	L	21
17210.1	FLG	033	5FT SW OF FPV-36	VARIES ~ 50%	L	21
17210.2	FLG	033	5FT SW OF FPV-36	VARIES ~ 50%	L	21
17211	VLV	033	5FT SW OF FPV-36	VARIES ~ 50%	L	21
17211.1	FLG	033	5FT SW OF FPV-36	VARIES ~ 50%	L	21
17211.2	FLG	033	5FT SW OF FPV-36	VARIES ~ 50%	L	21
17212	VLV	033	2FT SW OF FPV-36	VARIES ~ 50%	L	21
17212.1	FLG	033	2FT SW OF FPV-36	VARIES ~ 50%	L	21
17212.2	FLG	033	2FT SW OF FPV-36	VARIES ~ 50%	L	21
17212.3	FLG	033	2FT SW OF FPV-36	VARIES ~ 50%	L	21
17213	VLV	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17213.1	FLG	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17214	VLV	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17214.1	FLG	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17214.2	FLG	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17215	VLV	033	2FT NW OF FPV-36	VARIES ~ 50%	L	21
17215.1	FLG	033	2FT NW OF FPV-36	VARIES ~ 50%	L	21
17215.2	FLG	033	2FT NW OF FPV-36	VARIES ~ 50%	L	21
17215.3	FLG	033	2FT NW OF FPV-36	VARIES ~ 50%	L	21
17216	VLV	034	3FT SW OF FPV-37	VARIES ~ 50%	L	21
17216.1	FLG	034	3FT SW OF FPV-37	VARIES ~ 50%	L	21
17216.2	FLG	034	3FT SW OF FPV-37	VARIES ~ 50%	L	21
17217	VLV	034	3FT SW OF FPV-37	VARIES ~ 50%	L	21
17217.1	FLG	034	3FT SW OF FPV-37	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17217.2	FLG	034	3FT SW OF FPV-37	VARIES ~ 50%	L	21
17218	VLV	034	2FT SW OF FPV-37	VARIES ~ 50%	L	21
17218.1	FLG	034	2FT SW OF FPV-37	VARIES ~ 50%	L	21
17218.2	FLG	034	2FT SW OF FPV-37	VARIES ~ 50%	L	21
17218.3	FLG	034	2FT SW OF FPV-37	VARIES ~ 50%	L	21
17219	VLV	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17219.1	FLG	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17220	VLV	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17220.1	FLG	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17220.2	FLG	034	3FT W OF FPV-37	VARIES ~ 50%	L	21
17221	VLV	034	2FT W OF FPV-37	VARIES ~ 50%	L	21
17221.1	CON	034	2FT W OF FPV-37	VARIES ~ 50%	L	21
17221.2	CON	034	2FT W OF FPV-37	VARIES ~ 50%	L	21
17222	VLV	033	2FT W OF FPV-36	VARIES ~ 50%	L	21
17222.1	CON	033	2FT W OF FPV-36	VARIES ~ 50%	L	21
17222.2	CON	033	2FT W OF FPV-36	VARIES ~ 50%	L	21
17223	VLV	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17223.1	FLG	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17223.2	FLG	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17224	VLV	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17224.1	FLG	033	3FT W OF FPV-36	VARIES ~ 50%	L	21
17365	CON	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17365.1	CON	027	8FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17366	VLV	027	5FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17366.1	FLG	027	5FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17366.2	FLG	027	5FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17371	VLV	027	5FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17371.1	FLG	027	5FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17371.2	FLG	027	5FT SW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17372	CON	027	6FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
17373	VLV	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17373.1	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17373.2	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
17374	VLV	027 / 028	OH BTWN TNK FPV-30/31	VARIES ~ 50%	L	21
17374.1	FLG	027 / 028	OH BTWN TNK FPV-30/31	VARIES ~ 50%	L	21
17374.2	FLG	027 / 028	OH BTWN TNK FPV-30/31	VARIES ~ 50%	L	21
17375	VLV	027 / 028	OH BTWN TNK FPV-30/31	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17375.1	FLG	027 / 028	OH BTWN TNK FPV-30/31	VARIES ~ 50%	L	21
17375.2	FLG	027 / 028	OH BTWN TNK FPV-30/31	VARIES ~ 50%	L	21
17376	VLV	028	3FT NW SIDE FPV-31 OH	VARIES ~ 50%	L	21
17376.1	FLG	028	3FT NW SIDE FPV-31 OH	VARIES ~ 50%	L	21
17376.2	FLG	028	3FT NW SIDE FPV-31 OH	VARIES ~ 50%	L	21
17377	VLV	028 / 029	OH BTWN FPV-31/32	VARIES ~ 50%	L	21
17377.1	FLG	028 / 029	OH BTWN FPV-31/32	VARIES ~ 50%	L	21
17377.2	FLG	028 / 029	OH BTWN FPV-31/32	VARIES ~ 50%	L	21
17380	VLV	029 / 030	OH BTWN FPV-32/33	VARIES ~ 50%	L	21
17380.1	FLG	029 / 030	OH BTWN FPV-32/33	VARIES ~ 50%	L	21
17380.2	FLG	029 / 030	OH BTWN FPV-32/33	VARIES ~ 50%	L	21
17380.3	FLG	029 / 030	OH BTWN FPV-32/33	VARIES ~ 50%	L	21
17381	VLV	029 / 030	OH BTWN FPV-32/33	VARIES ~ 50%	L	21
17381.1	FLG	029 / 030	OH BTWN FPV-32/33	VARIES ~ 50%	L	21
17381.2	FLG	029 / 030	OH BTWN FPV-32/33	VARIES ~ 50%	L	21
17381.3	FLG	029 / 030	OH BTWN FPV-32/33	VARIES ~ 50%	L	21
17382	VLV	028 / 029	OH BTWN FPV-31/32	VARIES ~ 50%	L	21
17382.1	FLG	028 / 029	OH BTWN FPV-31/32	VARIES ~ 50%	L	21
17382.2	FLG	028 / 029	OH BTWN FPV-31/32	VARIES ~ 50%	L	21
17383	VLV	029	3FT NW SIDE OF FPV-32	VARIES ~ 50%	L	21
17383.1	FLG	029	3FT NW SIDE OF FPV-32	VARIES ~ 50%	L	21
17383.2	FLG	029	3FT NW SIDE OF FPV-32	VARIES ~ 50%	L	21
17384	VLV	029	2FT W OF FPV-32	VARIES ~ 50%	L	21
17384.1	CON	029	2FT W OF FPV-32	VARIES ~ 50%	L	21
17384.2	CON	029	2FT W OF FPV-32	VARIES ~ 50%	L	21
17385	VLV	028	2FT W SIDE FPV-31	VARIES ~ 50%	L	21
17385.1	CON	028	2FT W SIDE FPV-31	VARIES ~ 50%	L	21
17385.2	CON	028	2FT W SIDE FPV-31	VARIES ~ 50%	L	21
17388	VLV	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
17388.1	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
17388.2	FLG	030	NW SIDE FPV-33	VARIES ~ 50%	L	21
17389	VLV	030	W SIDE FPV-33	VARIES ~ 50%	L	21
17389.1	CON	030	W SIDE FPV-33	VARIES ~ 50%	L	21
17389.2	CON	030	W SIDE FPV-33	VARIES ~ 50%	L	21
17405	VLV	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17405.1	CON	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17405.2	CON	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17405.3	CON	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17405.4	CON	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17406	VLV	034	TOP S SIDE OF TNK FPV-37	VARIES ~ 50%	V	21
17406.1	FLG	034	TOP S SIDE OF TNK FPV-37	VARIES ~ 50%	V	21
17406.2	FLG	034	TOP S SIDE OF TNK FPV-37	VARIES ~ 50%	V	21
17407	VLV	034	TOP S SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17407.1	FLG	034	TOP S SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17407.2	FLG	034	TOP S SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17407.3	FLG	034	TOP S SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17409	PRV	034	TOP E SIDE OF TNK FPV-37	VARIES ~ 50%	V	21
17410	PRV	033	TOP E SIDE OF TNK FPV-36	VARIES ~ 50%	V	21
17411	VLV	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17411.1	FLG	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17411.2	FLG	034	TOP SW SIDE OF TNK FPV-37	VARIES ~ 50%	L	21
17414	VLV	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17414.1	CON	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17414.2	CON	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17414.3	CON	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17414.4	CON	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17415	VLV	033	TOP S SIDE OF TNK FPV-36	VARIES ~ 50%	V	21
17415.1	FLG	033	TOP S SIDE OF TNK FPV-36	VARIES ~ 50%	V	21
17415.2	FLG	033	TOP S SIDE OF TNK FPV-36	VARIES ~ 50%	V	21
17416	VLV	033	TOP S SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17416.1	FLG	033	TOP S SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17416.2	FLG	033	TOP S SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17416.3	FLG	033	TOP S SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17417	VLV	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17417.1	FLG	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17417.2	FLG	033	TOP SW SIDE OF TNK FPV-36	VARIES ~ 50%	L	21
17418	VLV	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17418.1	FLG	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17418.2	FLG	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17420	VLV	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17420.1	CON	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17420.2	CON	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17420.3	CON	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17420.4	CON	032	TOP SW SIDE OF TNK FPV-35	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17421	VLV	032	TOP S SIDE OF TNK FPV-35	VARIES ~ 50%	V	21
17421.1	FLG	032	TOP S SIDE OF TNK FPV-35	VARIES ~ 50%	V	21
17421.2	FLG	032	TOP S SIDE OF TNK FPV-35	VARIES ~ 50%	V	21
17422	VLV	032	TOP S SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17422.1	FLG	032	TOP S SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17422.2	FLG	032	TOP S SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17422.3	FLG	032	TOP S SIDE OF TNK FPV-35	VARIES ~ 50%	L	21
17423	PRV	032	TOP E SIDE OF TNK FPV-35	VARIES ~ 50%	V	21
17424	VLV	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17424.1	FLG	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17424.2	FLG	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17427	VLV	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17427.1	CON	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17427.2	CON	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17427.3	CON	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17427.4	CON	031	TOP SW SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17428	VLV	031	TOP S SIDE OF TNK FPV-34	VARIES ~ 50%	V	21
17428.1	FLG	031	TOP S SIDE OF TNK FPV-34	VARIES ~ 50%	V	21
17428.2	FLG	031	TOP S SIDE OF TNK FPV-34	VARIES ~ 50%	V	21
17429	VLV	031	TOP S SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17429.1	FLG	031	TOP S SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17429.2	FLG	031	TOP S SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17429.3	FLG	031	TOP S SIDE OF TNK FPV-34	VARIES ~ 50%	L	21
17430	PRV	031	TOP E SIDE OF TNK FPV-34	VARIES ~ 50%	V	21
19302	FLG	029	NW SIDE OF FPV-32 OH	VARIES ~ 50%	L	21
19900	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
19901	FLG	027	2FT NW OF TNK FPV-30 OH	VARIES ~ 50%	L	21
19902	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
19903	FLG	028	2FT W SIDE FPV-31 OH	VARIES ~ 50%	L	21
19904	FLG	030	NW SIDE FPV-33 OH	VARIES ~ 50%	L	21
19905	FLG	030	NW SIDE FPV-33 OH	VARIES ~ 50%	L	21
19906	FLG	031	2FT SW OF FPV-34 OH	VARIES ~ 50%	L	21
19907	FLG	031	2FT NW OF FPV-34 OH	VARIES ~ 50%	L	21
19908	FLG	031	2FT NW OF FPV-34 OH	VARIES ~ 50%	L	21
19909	FLG	032	SW SIDE FPV-35 OH	VARIES ~ 50%	L	21
19910	FLG	032	2FT NW OF FPV-35 OH	VARIES ~ 50%	L	21
19911	FLG	032	2FT NW OF FPV-35 OH	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
19912	FLG	032	NW OF FPV-35 OH	VARIES ~ 50%	L	21
19913	FLG	033	S OF FPV-36 OH	VARIES ~ 50%	L	21
19914	FLG	033	S OF FPV-36 OH	VARIES ~ 50%	L	21
19915	FLG	033	W OF FPV-36 OH	VARIES ~ 50%	L	21
19916	FLG	031	2FT NW OF FPV-34 OH	VARIES ~ 50%	L	21
19917	FLG	033	2FT NW OF FPV-36 OH	VARIES ~ 50%	L	21
19918	FLG	033	2FT NW OF FPV-36 OH	VARIES ~ 50%	L	21
19919	FLG	034	2FT SW OF FPV-37 OH	VARIES ~ 50%	L	21
19920	FLG	034	2FT NW OF FPV-37 OH	VARIES ~ 50%	L	21
19921	FLG	034	2FT NW OF FPV-37 OH	VARIES ~ 50%	L	21
25270	VLV	033	CONFINED SPACE UNDER TNK FPV-36	VARIES ~ 50%	L	21
25270.1	CON	033	CONFINED SPACE UNDER TNK FPV-36	VARIES ~ 50%	L	21
25270.2	CON	033	CONFINED SPACE UNDER TNK FPV-36	VARIES ~ 50%	L	21
25270.3	CON	033	CONFINED SPACE UNDER TNK FPV-36	VARIES ~ 50%	L	21
53524	FLG	031	2FT W OF FPV-34 OH	VARIES ~ 50%	L	21
53525	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
53526	VLV	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
53526.1	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
53526.2	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
53527	VLV	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
53527.1	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
53527.2	FLG	034	2FT W OF FPV-37 OH	VARIES ~ 50%	L	21
53528	VLV	034	2FT NW OF FPV-37 OH	VARIES ~ 50%	L	21
53528.1	FLG	034	2FT NW OF FPV-37 OH	VARIES ~ 50%	L	21
53528.2	FLG	034	2FT NW OF FPV-37 OH	VARIES ~ 50%	L	21
53531	FLG	033	2FT W OF FPV-36 OH	VARIES ~ 50%	L	21
53532	FLG	032	2FT W OF FPV-35 OH	VARIES ~ 50%	L	21
63585	FLG	027	TOP MIDDLE SIDE OF FPV-30 UNDER AGITATOR	VARIES ~ 50%	L	21
63591	FLG	027	TOP MIDDLE SIDE OF FPV-30 UNDER PRV	VARIES ~ 50%	L	21
63591.1	FLG	027	TOP MIDDLE SIDE OF FPV-30 UNDER PRV	VARIES ~ 50%	L	21
63592	FLG	027	TOP NE SIDE OF FPV-30	VARIES ~ 50%	L	21
63593	FLG	028	TOP MIDDLE SIDE OF FPV-31 UNDER AGITATOR	VARIES ~ 50%	L	21
63594	FLG	028	TOP MIDDLE SIDE OF FPV-31 UNDER PRV	VARIES ~ 50%	L	21
63594.1	FLG	028	TOP MIDDLE SIDE OF FPV-31 UNDER PRV	VARIES ~ 50%	L	21
63595	FLG	028	TOP NE SIDE OF FPV-31	VARIES ~ 50%	L	21
63596	FLG	029	TOP MIDDLE SIDE OF FPV-32	VARIES ~ 50%	L	21
63597	FLG	029	TOP MIDDLE SIDE OF FPV-32 UNDER PRV	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
63597.1	FLG	029	TOP MIDDLE SIDE OF FPV-32 UNDER PRV	VARIES ~ 50%	L	21
63598	FLG	029	TOP NE SIDE OF FPV-32	VARIES ~ 50%	L	21
63599	FLG	030	TOP MIDDLE SIDE OF FPV-33 UNDER PRV	VARIES ~ 50%	L	21
63599.1	FLG	030	TOP MIDDLE SIDE OF FPV-33 UNDER PRV	VARIES ~ 50%	L	21
63600	FLG	030	TOP NE SIDE OF FPV-33	VARIES ~ 50%	L	21
67459	FLG	030	TOP S SIDE OF FPV-33	VARIES ~ 50%	L	21
67462	FLG	029	TOP S SIDE OF FPV-32	VARIES ~ 50%	L	21
67463	FLG	028	TOP S SIDE OF FPV-31	VARIES ~ 50%	L	21
67464	FLG	030	TOP MIDDLE SIDE OF FPV-33	VARIES ~ 50%	L	21
67465	FLG	027	TOP S SIDE OF FPV-30	VARIES ~ 50%	L	21
94774	FLG	034	CONFINED SPACE UNDER TNK FPV-37	VARIES ~ 50%	L	21
351559	VLV	029	CONFINED SPACE UNDER TNK FPV-32	VARIES ~ 50%	L	21
351559.1	CON	029	CONFINED SPACE UNDER TNK FPV-32	VARIES ~ 50%	L	21
351559.2	CON	029	CONFINED SPACE UNDER TNK FPV-32	VARIES ~ 50%	L	21
351559.3	CON	029	CONFINED SPACE UNDER TNK FPV-32	VARIES ~ 50%	L	21
351560	FLG	031	CONFINED SPACE UNDER TNK FPV-34	VARIES ~ 50%	L	21
445620	VLV	031	4FT S OF FPV-34 OH	VARIES ~ 50%	L	21
445620.1	FLG	031	4FT S OF FPV-34 OH	VARIES ~ 50%	L	21
445620.2	FLG	031	4FT S OF FPV-34 OH	VARIES ~ 50%	L	21
445658	VLV	031	4FT S OF FPV-34 OH	VARIES ~ 50%	L	21
445658.1	FLG	031	4FT S OF FPV-34 OH	VARIES ~ 50%	L	21
445658.2	FLG	031	4FT S OF FPV-34 OH	VARIES ~ 50%	L	21
445658.3	CON	031	4FT S OF FPV-34 OH	VARIES ~ 50%	L	21
445911	FLG	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
449900	FLG	027	10FT SW OF TNK FPV-30	VARIES ~ 50%	L	21
454194	FLG	027	3FT W OF TNK FPV-30 OH	VARIES ~ 50%	L	21
455755	FLG	027	TOP S SIDE OF FPV-30	VARIES ~ 50%	V	21
455760	FLG	034	TOP N SIDE OF TNK FPV-37	VARIES ~ 50%	V	21
654709	FLG	033	CONFINED SPACE UNDER TNK FPV-36	VARIES ~ 50%	L	21
654712	VLV	030	CONFINED SPACE UNDER TNK FPV-33	VARIES ~ 50%	L	21
654712.1	CON	030	CONFINED SPACE UNDER TNK FPV-33	VARIES ~ 50%	L	21
654712.2	CON	030	CONFINED SPACE UNDER TNK FPV-33	VARIES ~ 50%	L	21
654712.3	CON	030	CONFINED SPACE UNDER TNK FPV-33	VARIES ~ 50%	L	21
654714	FLG	032	CONFINED SPACE UNDER TNK FPV-35	VARIES ~ 50%	L	21
654720	VLV	031	CONFINED SPACE UNDER TNK FPV-34	VARIES ~ 50%	L	21
654720.1	CON	031	CONFINED SPACE UNDER TNK FPV-34	VARIES ~ 50%	L	21
654720.2	CON	031	CONFINED SPACE UNDER TNK FPV-34	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
654720.3	CON	031	CONFINED SPACE UNDER TNK FPV-34	VARIES ~ 50%	L	21
654728	FLG	030	CONFINED SPACE UNDER TNK FPV-33	VARIES ~ 50%	L	21
738442	VLV	034	CONFINED SPACE UNDER TNK FPV-37	VARIES ~ 50%	L	21
738442.1	CON	034	CONFINED SPACE UNDER TNK FPV-37	VARIES ~ 50%	L	21
738442.2	CON	034	CONFINED SPACE UNDER TNK FPV-37	VARIES ~ 50%	L	21
738442.3	CON	034	CONFINED SPACE UNDER TNK FPV-37	VARIES ~ 50%	L	21
738514	PRV	027	TOP E SIDE OF FPV-30	VARIES ~ 50%	V	21
738515	PRV	028	TOP E SIDE OF FPV-31	VARIES ~ 50%	V	21
738516	PRV	029	TOP E SIDE OF FPV-32	VARIES ~ 50%	V	21
738517	PRV	030	TOP E SIDE OF FPV-33	VARIES ~ 50%	V	21
738673	FLG	027	CONFINED SPACE UNDER TNK FPV-30	VARIES ~ 50%	L	21
738685	VLV	032	CONFINED SPACE UNDER TNK FPV-35	VARIES ~ 50%	L	21
740051	FLG	028	CONFINED SPACE UNDER TNK FPV-31	VARIES ~ 50%	L	21
740068	FLG	029	CONFINED SPACE UNDER TNK FPV-32	VARIES ~ 50%	L	21
740071	VLV	028	CONFINED SPACE UNDER TNK FPV-31	VARIES ~ 50%	L	21
740071.1	CON	028	CONFINED SPACE UNDER TNK FPV-31	VARIES ~ 50%	L	21
740071.2	CON	028	CONFINED SPACE UNDER TNK FPV-31	VARIES ~ 50%	L	21
740071.3	CON	028	CONFINED SPACE UNDER TNK FPV-31	VARIES ~ 50%	L	21
740093	VLV	027	CONFINED SPACE UNDER TNK FPV-30	VARIES ~ 50%	L	21
740093.1	CON	027	CONFINED SPACE UNDER TNK FPV-30	VARIES ~ 50%	L	21
740093.2	CON	027	CONFINED SPACE UNDER TNK FPV-30	VARIES ~ 50%	L	21
740093.3	CON	027	CONFINED SPACE UNDER TNK FPV-30	VARIES ~ 50%	L	21
UNIT: CFUG3 - Centrifuge 3						
14001	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14018	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14022	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14025	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14090	VLV	048	SW OF CENTRIFUGE BUILDING ON EXCHANGER	VARIES ~ 50%	L	21
14091	VLV	048	SW OF CENTRIFUGE BUILDING ON EXCHANGER	VARIES ~ 50%	L	21
14092	VLV	048	SW OF CENTRIFUGE BUILDING ON EXCHANGER	VARIES ~ 50%	L	21
14093	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14094	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14095	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14096	FLG	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14097	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14098	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14099	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14110	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14111	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14112	FLG	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
14113	FLG	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
16080	PMP	048	CNTRFG-892 S OF CNTRFG BUILDING	VARIES ~ 50%	L	21
16081	VLV	048	4FT W OF CNTRFG-892 S OF CNTRFG BUILDING	VARIES ~ 50%	L	21
16082	VLV	048	4FT W OF CNTRFG-892 S OF CNTRFG BUILDING	VARIES ~ 50%	L	21
16084	FLG	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
16085	FLG	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
16086	FLG	048	SW OF CENTRIFUGE BUILDING ON TOP OF FILTER POT	VARIES ~ 50%	L	21
16087	FLG	048	SW OF CENTRIFUGE BUILDING ON TOP OF FILTER POT	VARIES ~ 50%	L	21
16088	FLG	048	S OF CENTRIFUGE BUILDING 6FT E OF OIL TNK	VARIES ~ 50%	L	21
16089	FLG	048	SE CORNER OF CENTRIFUGE BUILDING	VARIES ~ 50%	L	21
16090	FLG	048	SE CORNER OF CENTRIFUGE BUILDING	VARIES ~ 50%	L	21
16113	VLV	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16114	VLV	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16115	VLV	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16127	VLV	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16128	VLV	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16129	VLV	048	S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16130	VLV	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16131	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
16132	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
16139	VLV	048	S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16140	VLV	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16141	VLV	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16142	VLV	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16143	VLV	048	S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16144	VLV	048	S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16146	VLV	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16147	PMP	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16148	VLV	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16149	VLV	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16150	PMP	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16151	VLV	048	PMP S SIDE OF CNTRFG BLDG 2FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16152	VLV	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21
16153	VLV	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17474	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
17479	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
17481	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
17488	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
17490	FLG	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
17492	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
53565	VLV	048	4FT W OF CNTRFG-892 S OF CNTRFG BUILDING	VARIES ~ 50%	L	21
445872	VLV	048	S SIDE OF CNTRFG BLDG 4FT E OF FILTERS POTS	VARIES ~ 50%	L	21
445881	VLV	048	SW OF CENTRIFUGE BUILDING ON FILTER POTS	VARIES ~ 50%	L	21
UNIT: CFUG1 - Centrifuge 1						
417	VLV	046	4FT NE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
417.1	CON	046	4FT NE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
417.2	CON	046	4FT NE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
418	VLV	046	3FT NE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
418.1	CON	046	3FT NE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
419	VLV	046	3FT NE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
428	VLV	046	8FT E OF CNTRFG-890 NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
428.1	FLG	046	8FT E OF CNTRFG-890 NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
428.2	FLG	046	8FT E OF CNTRFG-890 NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
9876	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
9876.1	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
9876.2	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
9877	VLV	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
9877.1	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
9877.2	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
9877.3	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
9877.4	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
9882	VLV	046	6FT SE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
9882.1	FLG	046	6FT SE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
9882.2	FLG	046	6FT SE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
9883	FLG	046	PMP-691 SUC LN MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
9883.1	FLG	046	PMP-691 SUC LN MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14002	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14010	VLV	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14010.1	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14010.2	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14012	VLV	046	4FT NE OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21

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EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14012.1	FLG	046	4FT NE OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14012.2	FLG	046	4FT NE OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14020	VLV	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14020.1	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14020.2	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14020.3	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14024	VLV	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14024.1	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14024.2	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14026	VLV	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14026.1	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14026.2	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14026.3	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14027	VLV	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14027.1	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14027.2	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14027.3	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14028	PMP	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14056	VLV	046	PMP-691 D/C LN MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14056.1	CON	046	PMP-691 D/C LN MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14056.2	CON	046	PMP-691 D/C LN MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14056.3	CON	046	PMP-691 D/C LN MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14058	VLV	046	PMP-691 SUC LN N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14058.1	FLG	046	PMP-691 SUC LN N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14058.2	CON	046	PMP-691 SUC LN N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14058.3	CON	046	PMP-691 SUC LN N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14058.4	CON	046	PMP-691 SUC LN N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
14060	VLV	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14060.1	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14060.2	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14060.3	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14061	VLV	046	E SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14061.1	FLG	046	E SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14061.2	CON	046	E SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14061.3	FLG	046	E SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14061.4	FLG	046	E SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14061.5	FLG	046	E SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14061.6	FLG	046	E SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14062	VLV	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14062.1	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14062.2	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14062.3	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14062.4	CON	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14063	VLV	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14063.1	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14063.2	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14064	VLV	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14064.1	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14064.2	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14065	VLV	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14065.1	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14065.2	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14066	VLV	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14066.1	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14066.2	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14066.3	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14067	VLV	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14067.1	FLG	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14067.2	FLG	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14067.3	FLG	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14068	VLV	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14068.1	FLG	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14068.2	FLG	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14068.3	FLG	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14069	FLG	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14069.1	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14069.2	CON	046	6FT NE OF TK-890 3FT NW OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
14072	VLV	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
14072.1	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
14072.2	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
14072.3	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
14073	FLG	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
14073.1	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
14073.2	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14074	VLV	046	PMP MID CNTRFG BLDG SUC LN 2FT N OF PMP	VARIES ~ 50%	L	21
14074.1	CON	046	PMP MID CNTRFG BLDG SUC LN 2FT N OF PMP	VARIES ~ 50%	L	21
14074.2	CON	046	PMP MID CNTRFG BLDG SUC LN 2FT N OF PMP	VARIES ~ 50%	L	21
14074.3	CON	046	PMP MID CNTRFG BLDG SUC LN 2FT N OF PMP	VARIES ~ 50%	L	21
14075	VLV	046	PMP MID CNTRFG BLDG SUC LN 2FT NE OF PMP	VARIES ~ 50%	L	21
14075.1	FLG	046	PMP MID CNTRFG BLDG SUC LN 2FT NE OF PMP	VARIES ~ 50%	L	21
14075.2	FLG	046	PMP MID CNTRFG BLDG SUC LN 2FT NE OF PMP	VARIES ~ 50%	L	21
14075.3	CON	046	PMP MID CNTRFG BLDG SUC LN 2FT NE OF PMP	VARIES ~ 50%	L	21
14076	VLV	046	NW OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14076.1	FLG	046	NW OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14076.2	FLG	046	NW OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14077	VLV	046	PMP MID CNTRFG BLDG D/C LN 1FT E OF PMP	VARIES ~ 50%	L	21
14077.1	FLG	046	PMP MID CNTRFG BLDG D/C LN 1FT E OF PMP	VARIES ~ 50%	L	21
14077.2	CON	046	PMP MID CNTRFG BLDG D/C LN 1FT E OF PMP	VARIES ~ 50%	L	21
14077.3	CON	046	PMP MID CNTRFG BLDG D/C LN 1FT E OF PMP	VARIES ~ 50%	L	21
14078	PRV	046	PMP MID CNTRFG BLDG DIS LN 1FT E OF PMP	VARIES ~ 50%	L	21
14078.1	CON	046	PMP MID CNTRFG BLDG DIS LN 1FT E OF PMP	VARIES ~ 50%	L	21
14078.2	CON	046	PMP MID CNTRFG BLDG DIS LN 1FT E OF PMP	VARIES ~ 50%	L	21
14078.3	CON	046	PMP MID CNTRFG BLDG DIS LN 1FT E OF PMP	VARIES ~ 50%	L	21
14079	PMP	046	PMP MID CNTRFG BLDG 10FT E OF TK-890	VARIES ~ 50%	L	21
14080	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14080.1	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14080.2	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14081	VLV	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14081.1	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14081.2	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14081.3	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14081.4	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14082	VLV	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14082.1	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14082.2	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14082.3	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14082.4	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14083	VLV	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14083.1	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14083.2	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
14083.4	CON	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14084	VLV	046	NE SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14084.1	FLG	046	NE SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14084.2	FLG	046	NE SIDE OF OIL TNK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14085	VLV	046	4FT E OF CNTRFG-890 NE OF CNTRFG BLG	VARIES ~ 50%	L	21
14085.1	FLG	046	4FT E OF CNTRFG-890 NE OF CNTRFG BLG	VARIES ~ 50%	L	21
14085.2	CON	046	4FT E OF CNTRFG-890 NE OF CNTRFG BLG	VARIES ~ 50%	L	21
14085.3	CON	046	4FT E OF CNTRFG-890 NE OF CNTRFG BLG	VARIES ~ 50%	L	21
14086	VLV	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14086.1	FLG	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14086.2	FLG	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14087	VLV	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14087.1	CON	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14087.2	CON	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14088	VLV	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14088.1	CON	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14088.2	CON	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14089	VLV	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14089.1	CON	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14089.2	CON	046	10FT W CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
14101	VLV	046	S OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14101.1	FLG	046	S OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14101.2	FLG	046	S OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14102	VLV	046	S OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14102.1	FLG	046	S OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14102.2	FLG	046	S OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
14104	AG	046	AG ON TOP OF OIL TK NE CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
14478	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
16075	PMP	046	CNTRFG-890 NE OF CNTRFG BUILDING	VARIES ~ 50%	L	21
16118	VLV	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16118.1	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16118.2	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16119	PMP	046	CANNED PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16120	VLV	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16120.1	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16120.2	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16120.3	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16121	VLV	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16121.1	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16121.2	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16122	VLV	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16122.1	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16122.2	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16134	VLV	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
16134.1	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
16134.2	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
16134.3	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
16135	VLV	046	PMP MID CNTRFG BLDG SUC LN 1FT N OF PMP	VARIES ~ 50%	L	21
16135.1	CON	046	PMP MID CNTRFG BLDG SUC LN 1FT N OF PMP	VARIES ~ 50%	L	21
16135.2	CON	046	PMP MID CNTRFG BLDG SUC LN 1FT N OF PMP	VARIES ~ 50%	L	21
16135.3	CON	046	PMP MID CNTRFG BLDG SUC LN 1FT N OF PMP	VARIES ~ 50%	L	21
16136	PMP	046	BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16137	VLV	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16137.1	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16137.2	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16138	VLV	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16138.1	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
16138.2	CON	046	PMP P-694 NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
17485	VLV	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
17485.1	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
17485.2	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
53520	VLV	046	1FT NE OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
53520.1	CON	046	1FT NE OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
53520.2	CON	046	1FT NE OF PMP MID CNTRFG BLDG	VARIES ~ 50%	L	21
53522	VLV	046	PMP-691 D/C LN MID N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
53522.1	FLG	046	PMP-691 D/C LN MID N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
53522.2	FLG	046	PMP-691 D/C LN MID N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
53522.3	FLG	046	PMP-691 D/C LN MID N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
65636	FLG	046	S OF OIL TK MIDDLE OF CNTRFG BLDG	VARIES ~ 50%	L	21
65639	FLG	046	W OF OIL TK NE OF CNTRFG BLDG	VARIES ~ 50%	L	21
65641	FLG	046	PMP-691 SUC LN MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
65642	FLG	046	PMP-691 DIS LN MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
65644	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
65644.1	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21
65644.2	FLG	046	NW CORNER OF CNTRFG BLDG	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
65649	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65650	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65650.1	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65650.2	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65650.3	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65650.4	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65650.5	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65650.6	CON	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65651	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65652	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG ON TK 890	VARIES ~ 50%	L	21
65661	FLG	046	BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
65662	FLG	046	BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
65663	FLG	046	BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
65664	FLG	046	BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
65665	FLG	046	BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
65666	FLG	046	BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
65667	FLG	046	BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
445656	VLV	046	PMP MID CNTRFG BLDG D/C LN 3FT N OF PMP	VARIES ~ 50%	L	21
445656.1	FLG	046	PMP MID CNTRFG BLDG D/C LN 3FT N OF PMP	VARIES ~ 50%	L	21
445656.2	FLG	046	PMP MID CNTRFG BLDG D/C LN 3FT N OF PMP	VARIES ~ 50%	L	21
445776	VLV	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
445776.1	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
445776.2	FLG	046	PMP-692 W SIDE OF CNTRFG BLDG S OF TK 890	VARIES ~ 50%	L	21
445875	VLV	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
445875.1	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
445875.2	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
445875.3	CON	046	PMP MID CNTRFG BLDG D/C LN 2FT N OF PMP	VARIES ~ 50%	L	21
445929	PMP	046	PMP-691 MID OF N WALL OF CNTRFG BLDG	VARIES ~ 50%	L	21
455936	VLV	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455936.1	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455936.2	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455936.3	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455937	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455937.1	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455938	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455938.1	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455939	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
455939.1	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455940	FLG	046	5FT W OF CNTRFG-890 N OF CNTRFG BLDG	VARIES ~ 50%	L	21
455941	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455941.1	CON	046	10FT W OF CNTRFG-890 N OF CNTRFG BLDG OFF RAIL	VARIES ~ 50%	L	21
455955	FLG	046	CRBN BED #1 TOP 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455956	VLV	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455956.1	CON	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455956.2	CON	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455957	VLV	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455957.1	CON	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455957.2	CON	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455957.3	CON	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455958	VLV	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455958.1	CON	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455958.2	CON	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455958.3	CON	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455961	FLG	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455962	FLG	046	CRBN BED #2 HOSE OUT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455963	VLV	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455963.1	CON	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455963.2	CON	046	CRBN BED #1 SMPLE PORT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455965	VLV	046	ABOVE BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455965.1	CON	046	ABOVE BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455965.2	CON	046	ABOVE BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455965.3	CON	046	ABOVE BLOWER NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455966	VLV	046	CRBN BED #1 BTM 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455966.1	FLG	046	CRBN BED #1 BTM 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455966.2	CON	046	CRBN BED #1 BTM 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455966.3	CON	046	CRBN BED #1 BTM 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455967	VLV	046	CRBN BED #1 BTM 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455967.1	CON	046	CRBN BED #1 BTM 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455967.2	CON	046	CRBN BED #1 BTM 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455967.3	CON	046	CRBN BED #1 BTM 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455971	FLG	046	CRBN BED #1 HOSE OUT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455972	VLV	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455972.1	CON	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455972.2	CON	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
455974	FLG	046	CRBN BED #2 VPR INLT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455977	VLV	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455978	VLV	046	CRBN BED #2 BTM 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455978.1	FLG	046	CRBN BED #2 BTM 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455978.2	CON	046	CRBN BED #2 BTM 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455978.3	CON	046	CRBN BED #2 BTM 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455986	FLG	046	CRBN BED #1 TOP 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455988	FLG	046	CARBON BED #1 VPR INLT 15FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455989	VLV	046	CRBN BED #2 BTM 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455989.1	CON	046	CRBN BED #2 BTM 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455989.2	CON	046	CRBN BED #2 BTM 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455989.3	CON	046	CRBN BED #2 BTM 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	L	21
455995	FLG	046	CRBN BED #2 TOP 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455996	FLG	046	CRBN BED #2 TOP 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
455998	FLG	046	CRBN BED #2 SMPL PORT 20FT NW OF CNTRFG BLDG	VARIES ~ 50%	V	21
UNIT: DESB1 - Thermal Desorber 1						
171	VLV	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
171.1	CON	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
172	VLV	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
172.1	FLG	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
172.2	FLG	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
172.3	FLG	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
172.4	FLG	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
177	VLV	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
177.1	CON	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
177.2	CON	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
178	VLV	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
178.1	FLG	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
178.2	FLG	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
180	VLV	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
180.1	CON	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
180.2	CON	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
181	PMP	053	PURGE GAS SCRBR PMP P-625 6FT N V-125	VARIES ~ 50%	L	21
183	VLV	053	N BTM OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
183.1	FLG	053	N BTM OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
183.2	FLG	053	N BTM OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
186	VLV	053	PMP-625 SUC LN 6FT N V-125	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
186.1	CON	053	PMP-625 SUC LN 6FT N V-125	VARIES ~ 50%	L	21
186.2	CON	053	PMP-625 SUC LN 6FT N V-125	VARIES ~ 50%	L	21
189	VLV	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
189.1	FLG	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
189.2	FLG	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
190	VLV	053	S BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
190.1	FLG	053	S BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
190.2	FLG	053	S BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
193	VLV	053	3FT SE OF PMP-625	VARIES ~ 50%	L	21
193.1	CON	053	3FT SE OF PMP-625	VARIES ~ 50%	L	21
193.2	CON	053	3FT SE OF PMP-625	VARIES ~ 50%	L	21
198	VLV	053	3 N OF V-121	VARIES ~ 50%	L	21
198.1	CON	053	3 N OF V-121	VARIES ~ 50%	L	21
198.2	CON	053	3 N OF V-121	VARIES ~ 50%	L	21
203	VLV	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
203.1	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
203.2	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
203.3	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
204	VLV	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
204.1	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
204.2	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
205	PMP	053	PRIMARY SCRBR PMP P-621A 10FT E OF V-121	VARIES ~ 50%	L	21
206	VLV	053	PMP-621A DIS LN 2FT E OF V-121	VARIES ~ 50%	L	21
206.1	CON	053	PMP-621A DIS LN 2FT E OF V-121	VARIES ~ 50%	L	21
206.2	CON	053	PMP-621A DIS LN 2FT E OF V-121	VARIES ~ 50%	L	21
207	VLV	053	PMP-621A DIS LN 2FT E OF V-121	VARIES ~ 50%	L	21
207.1	CON	053	PMP-621A DIS LN 2FT E OF V-121	VARIES ~ 50%	L	21
207.2	CON	053	PMP-621A DIS LN 2FT E OF V-121	VARIES ~ 50%	L	21
208	VLV	053	PMP-621A DIS LN 5FT E OF V-121	VARIES ~ 50%	L	21
221	PMP	053	PRIMARY SCRBR PMP P-621B 10FT SE OF V-121	VARIES ~ 50%	L	21
222	VLV	053	PMP-621B DIS LN 5FT SE OF V-121	VARIES ~ 50%	L	21
222.1	CON	053	PMP-621B DIS LN 5FT SE OF V-121	VARIES ~ 50%	L	21
222.2	CON	053	PMP-621B DIS LN 5FT SE OF V-121	VARIES ~ 50%	L	21
222.3	CON	053	PMP-621B DIS LN 5FT SE OF V-121	VARIES ~ 50%	L	21
223	VLV	053	N OF V-125 N RAILING	VARIES ~ 50%	L	21
223.1	CON	053	N OF V-125 N RAILING	VARIES ~ 50%	L	21
223.2	CON	053	N OF V-125 N RAILING	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
225	VLV	053	6FT E OF PMP-621B IN PIPE RACK	VARIES ~ 50%	L	21
225.1	FLG	053	6FT E OF PMP-621B IN PIPE RACK	VARIES ~ 50%	L	21
225.2	FLG	053	6FT E OF PMP-621B IN PIPE RACK	VARIES ~ 50%	L	21
228	VLV	053	2FT SE OF PMP-621B 12FT N LAB	VARIES ~ 50%	L	21
228.1	FLG	053	2FT SE OF PMP-621B 12FT N LAB	VARIES ~ 50%	L	21
228.2	FLG	053	2FT SE OF PMP-621B 12FT N LAB	VARIES ~ 50%	L	21
229	VLV	053	BTM SE SIDE OF V-121 6FT W PMP-621AB	VARIES ~ 50%	L	21
229.1	FLG	053	BTM SE SIDE OF V-121 6FT W PMP-621AB	VARIES ~ 50%	L	21
229.2	FLG	053	BTM SE SIDE OF V-121 6FT W PMP-621AB	VARIES ~ 50%	L	21
234	VLV	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
234.1	CON	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
234.2	CON	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
234.3	CON	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
239	VLV	053	1FT W OF PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
239.1	CON	053	1FT W OF PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
239.2	CON	053	1FT W OF PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
241	VLV	053	3FT S OF PMP-625 12FT SE OF V-123	VARIES ~ 50%	L	21
241.1	FLG	053	3FT S OF PMP-625 12FT SE OF V-123	VARIES ~ 50%	L	21
241.2	FLG	053	3FT S OF PMP-625 12FT SE OF V-123	VARIES ~ 50%	L	21
243	VLV	053	3FT S OF PMP-625 12FT E OF V-123	VARIES ~ 50%	L	21
243.1	FLG	053	3FT S OF PMP-625 12FT E OF V-123	VARIES ~ 50%	L	21
243.2	FLG	053	3FT S OF PMP-625 12FT E OF V-123	VARIES ~ 50%	L	21
244	VLV	053	8FT W OF V-123	VARIES ~ 50%	L	21
244.1	CON	053	8FT W OF V-123	VARIES ~ 50%	L	21
245	VLV	053	6FT NW OF V-123	VARIES ~ 50%	L	21
245.1	FLG	053	6FT NW OF V-123	VARIES ~ 50%	L	21
245.2	FLG	053	6FT NW OF V-123	VARIES ~ 50%	L	21
252	PMP	053	OH PMP-P624 3FT N V-123	VARIES ~ 50%	L	21
253	VLV	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
253.1	CON	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
256	VLV	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
256.1	FLG	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
256.2	FLG	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
257	VLV	053	PMP-624 SUC LN 3FT N V-123	VARIES ~ 50%	L	21
257.1	CON	053	PMP-624 SUC LN 3FT N V-123	VARIES ~ 50%	L	21
257.2	CON	053	PMP-624 SUC LN 3FT N V-123	VARIES ~ 50%	L	21
259	VLV	053	NW SDE OF V-125	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
259.1	FLG	053	NW SDE OF V-125	VARIES ~ 50%	L	21
259.2	FLG	053	NW SDE OF V-125	VARIES ~ 50%	L	21
263	VLV	053	E SDE OF V-122 AND W SDE OF V-123	VARIES ~ 50%	L	21
263.1	FLG	053	E SDE OF V-122 AND W SDE OF V-123	VARIES ~ 50%	L	21
263.2	FLG	053	E SDE OF V-122 AND W SDE OF V-123	VARIES ~ 50%	L	21
263.3	CON	053	E SDE OF V-122 AND W SDE OF V-123	VARIES ~ 50%	L	21
264	VLV	053	N SDE OF V-122	VARIES ~ 50%	L	21
264.1	FLG	053	N SDE OF V-122	VARIES ~ 50%	L	21
264.2	FLG	053	N SDE OF V-122	VARIES ~ 50%	L	21
265	VLV	053	MID OF V-122	VARIES ~ 50%	L	21
265.1	FLG	053	MID OF V-122	VARIES ~ 50%	L	21
265.2	FLG	053	MID OF V-122	VARIES ~ 50%	L	21
266	VLV	053	15FT FROM NW SDE OF V-122	VARIES ~ 50%	L	21
266.1	FLG	053	15FT FROM NW SDE OF V-122	VARIES ~ 50%	L	21
266.2	FLG	053	15FT FROM NW SDE OF V-122	VARIES ~ 50%	L	21
267	VLV	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
267.1	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
267.2	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
268	VLV	053	15FT FROM NW SDE OF V-122	VARIES ~ 50%	L	21
268.1	FLG	053	15FT FROM NW SDE OF V-122	VARIES ~ 50%	L	21
268.2	FLG	053	15FT FROM NW SDE OF V-122	VARIES ~ 50%	L	21
269	VLV	053	S SDE OF V-122	VARIES ~ 50%	L	21
269.1	FLG	053	S SDE OF V-122	VARIES ~ 50%	L	21
269.2	FLG	053	S SDE OF V-122	VARIES ~ 50%	L	21
270	VLV	053	W SDE TOP OF V-123	VARIES ~ 50%	L	21
270.1	CON	053	W SDE TOP OF V-123	VARIES ~ 50%	L	21
270.2	CON	053	W SDE TOP OF V-123	VARIES ~ 50%	L	21
281	VLV	053	BTM OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
281.1	FLG	053	BTM OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
281.2	FLG	053	BTM OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
282	VLV	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
282.1	FLG	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
282.2	FLG	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
282.3	FLG	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
282.4	FLG	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
282.5	CON	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
437	VLV	053	SE OF E-423	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
437.1	FLG	053	SE OF E-423	VARIES ~ 50%	L	21
437.2	FLG	053	SE OF E-423	VARIES ~ 50%	L	21
437.3	FLG	053	SE OF E-423	VARIES ~ 50%	L	21
438	VLV	053	E OF E-423	VARIES ~ 50%	L	21
438.1	FLG	053	E OF E-423	VARIES ~ 50%	L	21
438.2	FLG	053	E OF E-423	VARIES ~ 50%	L	21
439	VLV	053	NE OF E-423	VARIES ~ 50%	L	21
439.1	FLG	053	NE OF E-423	VARIES ~ 50%	L	21
439.2	FLG	053	NE OF E-423	VARIES ~ 50%	L	21
440	VLV	053	NE OF E-423	VARIES ~ 50%	L	21
440.1	FLG	053	NE OF E-423	VARIES ~ 50%	L	21
440.2	FLG	053	NE OF E-423	VARIES ~ 50%	L	21
442	VLV	053	SE OF E-423	VARIES ~ 50%	L	21
442.1	CON	053	SE OF E-423	VARIES ~ 50%	L	21
442.2	CON	053	SE OF E-423	VARIES ~ 50%	L	21
442.3	CON	053	SE OF E-423	VARIES ~ 50%	L	21
447	VLV	053	NW TOP OF E-423	VARIES ~ 50%	L	21
447.1	CON	053	NW TOP OF E-423	VARIES ~ 50%	L	21
447.2	CON	053	NW TOP OF E-423	VARIES ~ 50%	L	21
448	VLV	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
448.1	CON	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
448.2	CON	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
449	VLV	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
449.1	CON	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
449.2	CON	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
450	VLV	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
450.1	FLG	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
450.2	FLG	053	20FT W OF V-123 6FT NW OF E-423	VARIES ~ 50%	L	21
575	VLV	053	NW CORNER OF DESORBER FAN	VARIES ~ 50%	L	21
9891	VLV	053	SUC LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
9891.1	CON	053	SUC LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
9891.2	CON	053	SUC LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
9891.3	CON	053	SUC LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
9891.4	CON	053	SUC LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14013	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14013.1	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14013.2	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14016	VLV	053	3 N OF V-121	VARIES ~ 50%	L	21
14016.1	FLG	053	3 N OF V-121	VARIES ~ 50%	L	21
14016.2	FLG	053	3 N OF V-121	VARIES ~ 50%	L	21
14017	VLV	053	2FT E OF PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
14017.1	FLG	053	2FT E OF PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
14017.2	FLG	053	2FT E OF PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
14029	VLV	053	PMP-621B DIS LN 10FT SE OF V-121	VARIES ~ 50%	L	21
14029.1	FLG	053	PMP-621B DIS LN 10FT SE OF V-121	VARIES ~ 50%	L	21
14029.2	FLG	053	PMP-621B DIS LN 10FT SE OF V-121	VARIES ~ 50%	L	21
14030	VLV	053	3 N OF V-121	VARIES ~ 50%	L	21
14030.1	CON	053	3 N OF V-121	VARIES ~ 50%	L	21
14030.2	CON	053	3 N OF V-121	VARIES ~ 50%	L	21
14030.3	CON	053	3 N OF V-121	VARIES ~ 50%	L	21
14031	VLV	053	3 N OF V-121	VARIES ~ 50%	L	21
14031.1	FLG	053	3 N OF V-121	VARIES ~ 50%	L	21
14031.2	FLG	053	3 N OF V-121	VARIES ~ 50%	L	21
14032	VLV	053	PMP-623 SUC LN 5FT NE OF V-121	VARIES ~ 50%	L	21
14032.1	FLG	053	PMP-623 SUC LN 5FT NE OF V-121	VARIES ~ 50%	L	21
14032.2	FLG	053	PMP-623 SUC LN 5FT NE OF V-121	VARIES ~ 50%	L	21
14100	VLV	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14100.1	CON	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14100.2	CON	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14103	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14103.1	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14103.2	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14105	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14105.1	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14105.2	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14106	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14106.1	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14106.2	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14107	VLV	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14107.1	FLG	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14107.2	FLG	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14109	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14109.1	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14109.2	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14114	VLV	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
14114.1	FLG	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
14114.2	FLG	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
14118	VLV	053	BTM OF V-121	VARIES ~ 50%	L	21
14118.1	FLG	053	BTM OF V-121	VARIES ~ 50%	L	21
14118.2	FLG	053	BTM OF V-121	VARIES ~ 50%	L	21
14118.3	CON	053	BTM OF V-121	VARIES ~ 50%	L	21
14119	VLV	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14119.1	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14119.2	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14119.3	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14120	VLV	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14120.1	CON	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14120.2	CON	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14120.3	CON	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14121	VLV	053	2FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14121.1	CON	053	2FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14121.2	CON	053	2FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14124	VLV	053	2FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14124.1	FLG	053	2FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14124.2	FLG	053	2FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14125	VLV	053	E OF OIL BOX IN PIPE RACK	VARIES ~ 50%	L	21
14125.1	FLG	053	E OF OIL BOX IN PIPE RACK	VARIES ~ 50%	L	21
14129	VLV	053	MID BTM OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
14130	VLV	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14130.1	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14130.2	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14130.3	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14142	VLV	053	3FT SE OF OIL BOX IN PIPE RACK	VARIES ~ 50%	L	21
14169	VLV	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14169.1	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14169.2	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14170	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14171	VLV	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14171.1	CON	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14171.2	CON	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14172	VLV	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14172.1	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14172.2	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14173	VLV	053	W OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
14173.1	FLG	053	W OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
14173.2	FLG	053	W OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
14173.3	FLG	053	W OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
14174	VLV	053	W OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
14174.1	FLG	053	W OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
14174.2	FLG	053	W OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
14174.3	FLG	053	W OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
14175	VLV	053	S BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
14175.1	FLG	053	S BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
14175.2	FLG	053	S BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
14176	VLV	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14176.1	CON	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14176.2	CON	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14176.3	CON	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14176.4	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14177	VLV	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14178	VLV	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14178.1	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14178.2	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14183	VLV	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14183.1	FLG	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14183.2	FLG	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14184	VLV	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14184.1	FLG	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14184.2	FLG	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14185	VLV	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14185.1	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14185.2	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14186	VLV	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14186.1	FLG	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14186.2	FLG	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14186.3	FLG	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14187	VLV	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14187.1	CON	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14187.2	CON	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14188	FLG	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14189	VLV	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14189.1	CON	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14189.2	CON	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14190	VLV	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14190.1	FLG	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14190.2	FLG	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14191	VLV	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14191.1	FLG	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14191.2	FLG	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14192	VLV	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14192.1	CON	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14192.2	CON	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14193	VLV	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14193.1	FLG	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14193.2	FLG	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14193.3	FLG	053	TOP W OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14194	VLV	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14194.1	CON	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14194.2	CON	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14195	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14196	VLV	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14196.1	CON	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14196.2	CON	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14197	VLV	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14197.1	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14197.2	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14198	VLV	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14198.1	CON	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14198.2	CON	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14199	VLV	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14199.1	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14199.2	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14228	VLV	053	3FT SE OF OIL BOX IN PIPE RACK	VARIES ~ 50%	L	21
14228.1	FLG	053	3FT SE OF OIL BOX IN PIPE RACK	VARIES ~ 50%	L	21
14228.2	FLG	053	3FT SE OF OIL BOX IN PIPE RACK	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14273	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14273.1	FLG	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14273.2	FLG	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14274	VLV	053	PMP-622 DIS LN SW OF V-121	VARIES ~ 50%	L	21
14274.1	FLG	053	PMP-622 DIS LN SW OF V-121	VARIES ~ 50%	L	21
14274.2	FLG	053	PMP-622 DIS LN SW OF V-121	VARIES ~ 50%	L	21
14274.3	CON	053	PMP-622 DIS LN SW OF V-121	VARIES ~ 50%	L	21
14275	PMP	053	PMP-622A 5FT S OF V-121	VARIES ~ 50%	L	21
14276	VLV	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14276.1	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14276.2	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14278	VLV	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14278.1	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14278.2	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14279	VLV	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14279.1	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14279.2	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14280	VLV	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14280.1	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14280.2	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14281	VLV	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14281.1	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14281.2	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14282	VLV	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14282.1	CON	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14282.2	CON	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14286	VLV	053	5FT SE OF V-121 10FT N CTRL RM	VARIES ~ 50%	L	21
14286.1	CON	053	5FT SE OF V-121 10FT N CTRL RM	VARIES ~ 50%	L	21
14286.2	CON	053	5FT SE OF V-121 10FT N CTRL RM	VARIES ~ 50%	L	21
14287	VLV	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14287.1	FLG	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14287.2	FLG	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14288	VLV	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14288.1	FLG	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14288.2	FLG	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14288.3	CON	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14289	VLV	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14289.1	FLG	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14289.2	FLG	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
14290	VLV	053	5FT SE OF V-121 10FT N CTRL RM	VARIES ~ 50%	L	21
14290.1	CON	053	5FT SE OF V-121 10FT N CTRL RM	VARIES ~ 50%	L	21
14290.2	CON	053	5FT SE OF V-121 10FT N CTRL RM	VARIES ~ 50%	L	21
14292	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
14293	FLG	053	PRIMARY SCRBR PMP P-621B SUC LN 5FT SE OF V-121	VARIES ~ 50%	L	21
14294	FLG	053	PRIMARY SCRBR PMP P-621B DIS LN 5FT SE OF V-121	VARIES ~ 50%	L	21
14295	FLG	053	PRIMARY SCRBR PMP P-621A DIS LN 2FT E OF V-121	VARIES ~ 50%	L	21
14296	FLG	053	PRIMARY SCRBR PMP P-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
14297	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14298	FLG	053	PMP-623 DIS LN 6FT NE OF V-121	VARIES ~ 50%	L	21
14299	FLG	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
14347	VLV	053	E SDE OF DESORBER FAN E-421	VARIES ~ 50%	L	21
14347.1	FLG	053	E SDE OF DESORBER FAN E-421	VARIES ~ 50%	L	21
14348	VLV	053	SE SDE OF DESORBER FAN E-421	VARIES ~ 50%	L	21
14348.1	FLG	053	SE SDE OF DESORBER FAN E-421	VARIES ~ 50%	L	21
14362	VLV	053	SW SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14362.1	FLG	053	SW SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14362.2	FLG	053	SW SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14362.3	FLG	053	SW SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14363	VLV	053	W SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14363.1	FLG	053	W SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14363.2	FLG	053	W SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14364	VLV	053	4FT W OF DESORBER FAN E-422	VARIES ~ 50%	L	21
14365	VLV	053	NW SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14365.1	FLG	053	NW SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14365.2	FLG	053	NW SDE DESORBER FAN E-422	VARIES ~ 50%	L	21
14366	FLG	053	N SDE OF V-122	VARIES ~ 50%	L	21
14367	VLV	053	6FT SW SDE TOP OF V-181 OFF W RAIL	VARIES ~ 50%	L	21
14368	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
14369	VLV	053	N SDE OF V-123	VARIES ~ 50%	L	21
14369.1	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
14369.2	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
14370	VLV	053	E SDE OF V-123	VARIES ~ 50%	L	21
14370.1	FLG	053	E SDE OF V-123	VARIES ~ 50%	L	21
14370.2	FLG	053	E SDE OF V-123	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14371	VLV	053	NW SDE OF V-125	VARIES ~ 50%	L	21
14371.1	FLG	053	NW SDE OF V-125	VARIES ~ 50%	L	21
14371.2	FLG	053	NW SDE OF V-125	VARIES ~ 50%	L	21
14372	FLG	053	N SDE OF V-125	VARIES ~ 50%	L	21
14373	VLV	053	NE SDE OF V-125	VARIES ~ 50%	L	21
14373.1	CON	053	NE SDE OF V-125	VARIES ~ 50%	L	21
14373.2	CON	053	NE SDE OF V-125	VARIES ~ 50%	L	21
14374	VLV	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14374.1	FLG	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14374.2	FLG	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14375	VLV	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14375.1	FLG	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14375.2	FLG	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14376	VLV	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14376.1	FLG	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14376.2	FLG	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14377	VLV	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14377.1	FLG	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14377.2	FLG	053	N OF V-124 N RAILING	VARIES ~ 50%	L	21
14378	VLV	053	SUC LN 3FT S OF BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14378.1	CON	053	SUC LN 3FT S OF BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14380	VLV	053	SUC LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14380.1	FLG	053	SUC LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14380.2	FLG	053	SUC LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14382	VLV	053	DRAIN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14382.1	CON	053	DRAIN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14382.2	CON	053	DRAIN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14383	PMP	053	DESORBER VAC BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14384	VLV	053	DIS LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14384.1	FLG	053	DIS LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14384.2	FLG	053	DIS LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14385	VLV	053	DIS LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14385.1	CON	053	DIS LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14385.2	CON	053	DIS LN BLOWER B-326 3FT E OF SCRBR V126	VARIES ~ 50%	L	21
14400	FLG	053	BTM N OF V-121	VARIES ~ 50%	L	21
14402	VLV	053	2FT SW OF V-121	VARIES ~ 50%	L	21
14402.1	FLG	053	2FT SW OF V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14402.2	FLG	053	2FT SW OF V-121	VARIES ~ 50%	L	21
14403	VLV	053	SW OF V-121 N OF PMP-622	VARIES ~ 50%	L	21
14403.1	FLG	053	SW OF V-121 N OF PMP-622	VARIES ~ 50%	L	21
14403.2	FLG	053	SW OF V-121 N OF PMP-622	VARIES ~ 50%	L	21
14404	FLG	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
14405	VLV	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
14405.1	FLG	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
14405.2	FLG	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
14406	VLV	053	N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
14406.1	FLG	053	N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
14406.2	FLG	053	N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
14407	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14408	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14409	VLV	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14409.1	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14409.2	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14410	VLV	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14410.1	CON	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14410.2	CON	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14411	VLV	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14411.1	CON	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14411.2	CON	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14412	VLV	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14412.1	CON	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14412.2	CON	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14413	VLV	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14413.1	CON	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14413.2	CON	053	1FT SW OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
14414	FLG	053	TOP S OF V-121 4FT E OF PLATFORM	VARIES ~ 50%	L	21
14415	FLG	053	TOP SW OF V-121 4FT E OF PLATFORM	VARIES ~ 50%	L	21
14416	VLV	053	TOP S OF V-121 4FT E OF PLATFORM	VARIES ~ 50%	L	21
14416.1	FLG	053	TOP S OF V-121 4FT E OF PLATFORM	VARIES ~ 50%	L	21
14416.2	CON	053	TOP S OF V-121 4FT E OF PLATFORM	VARIES ~ 50%	L	21
14416.3	CON	053	TOP S OF V-121 4FT E OF PLATFORM	VARIES ~ 50%	L	21
14417	VLV	053	TOP S OF V-121 5FT E OF PLATFORM	VARIES ~ 50%	L	21
14417.1	FLG	053	TOP S OF V-121 5FT E OF PLATFORM	VARIES ~ 50%	L	21
14417.2	CON	053	TOP S OF V-121 5FT E OF PLATFORM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14417.3	CON	053	TOP S OF V-121 5FT E OF PLATFORM	VARIES ~ 50%	L	21
14418	VLV	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14418.1	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14418.2	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14418.3	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14419	VLV	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14419.1	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14419.2	FLG	053	TOP NW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
14420	FLG	053	TOP NW OF V-121 4FT E OF PLATFORM	VARIES ~ 50%	L	21
14421	FLG	053	3FT E OF V-121 6FT W OF OIL BOX	VARIES ~ 50%	L	21
14471	VLV	053	NE OF V-123	VARIES ~ 50%	L	21
14471.1	FLG	053	NE OF V-123	VARIES ~ 50%	L	21
14471.2	FLG	053	NE OF V-123	VARIES ~ 50%	L	21
14482	PMP	053	ER PROCESS BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14483	VLV	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14483.1	CON	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14483.2	CON	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14483.3	CON	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14484	VLV	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14484.1	CON	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14484.2	CON	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14484.3	CON	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14486	VLV	053	6FT S OF BLOWER B-381 8FT E OF CTRL RM	VARIES ~ 50%	L	21
14488	PMP	053	V-181 BTMS PMP P-681 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14489	FLG	053	N OF V-181 4FT SE OF CTRL RM	VARIES ~ 50%	L	21
14490	VLV	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14490.1	FLG	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14490.2	FLG	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14491	VLV	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14491.1	FLG	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14492	VLV	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14492.1	CON	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14492.2	CON	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14492.3	CON	053	1FT E OF V-181 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
14493	VLV	053	TOP OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14493.1	FLG	053	TOP OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
14493.2	FLG	053	TOP OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16000	VLV	053	3FT S OF PMP-625 12FT E OF V-123	VARIES ~ 50%	L	21
16000.1	FLG	053	3FT S OF PMP-625 12FT E OF V-123	VARIES ~ 50%	L	21
16000.2	FLG	053	3FT S OF PMP-625 12FT E OF V-123	VARIES ~ 50%	L	21
16005	VLV	053	10FT S OF PMP-625 12FT SE OF V-123	VARIES ~ 50%	L	21
16005.1	CON	053	10FT S OF PMP-625 12FT SE OF V-123	VARIES ~ 50%	L	21
16005.2	CON	053	10FT S OF PMP-625 12FT SE OF V-123	VARIES ~ 50%	L	21
16006	VLV	053	6FT SE OF V-123	VARIES ~ 50%	L	21
16006.1	FLG	053	6FT SE OF V-123	VARIES ~ 50%	L	21
16006.2	FLG	053	6FT SE OF V-123	VARIES ~ 50%	L	21
16007	VLV	053	6FT SE OF V-123	VARIES ~ 50%	L	21
16007.1	CON	053	6FT SE OF V-123	VARIES ~ 50%	L	21
16007.2	CON	053	6FT SE OF V-123	VARIES ~ 50%	L	21
16007.3	CON	053	6FT SE OF V-123	VARIES ~ 50%	L	21
16008	VLV	053	SE OF V-123	VARIES ~ 50%	L	21
16008.1	FLG	053	SE OF V-123	VARIES ~ 50%	L	21
16008.2	FLG	053	SE OF V-123	VARIES ~ 50%	L	21
16009	VLV	053	MID OF V-123	VARIES ~ 50%	L	21
16009.1	FLG	053	MID OF V-123	VARIES ~ 50%	L	21
16009.2	FLG	053	MID OF V-123	VARIES ~ 50%	L	21
16010	VLV	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16010.1	CON	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16010.2	CON	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16011	VLV	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16011.1	CON	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16011.2	CON	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16012	VLV	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16013	VLV	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16013.1	FLG	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16013.2	FLG	053	PMP-624 DIS LN 3FT N V-123	VARIES ~ 50%	L	21
16014	VLV	053	PMP-624 SUC LN 3FT N V-123	VARIES ~ 50%	L	21
16014.1	FLG	053	PMP-624 SUC LN 3FT N V-123	VARIES ~ 50%	L	21
16014.2	FLG	053	PMP-624 SUC LN 3FT N V-123	VARIES ~ 50%	L	21
16015	VLV	053	PMP-625 DIS LN 3FT NE V-123	VARIES ~ 50%	L	21
16015.1	FLG	053	PMP-625 DIS LN 3FT NE V-123	VARIES ~ 50%	L	21
16015.2	FLG	053	PMP-625 DIS LN 3FT NE V-123	VARIES ~ 50%	L	21
16016	VLV	053	PMP-625 DIS LN 3FT NE V-123	VARIES ~ 50%	L	21
16016.1	FLG	053	PMP-625 DIS LN 3FT NE V-123	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16016.2	FLG	053	PMP-625 DIS LN 3FT NE V-123	VARIES ~ 50%	L	21
16017	VLV	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16017.1	FLG	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16018	VLV	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16018.1	FLG	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16018.2	FLG	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16019	VLV	053	PMP-625 SUC LN 6FT N V-125	VARIES ~ 50%	L	21
16019.1	FLG	053	PMP-625 SUC LN 6FT N V-125	VARIES ~ 50%	L	21
16019.2	FLG	053	PMP-625 SUC LN 6FT N V-125	VARIES ~ 50%	L	21
16020	VLV	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16020.1	FLG	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16020.2	FLG	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16021	VLV	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16021.1	FLG	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16021.2	FLG	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16022	VLV	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16022.1	FLG	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16022.2	FLG	053	3FT N OF PMP-625	VARIES ~ 50%	L	21
16023	VLV	053	2FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16023.1	FLG	053	2FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16023.2	FLG	053	2FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16023.3	CON	053	2FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16025	VLV	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16025.1	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16025.2	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16025.3	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16025.4	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16026	VLV	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16026.1	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16026.2	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16026.3	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16027	VLV	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16027.1	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16027.2	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16028	VLV	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16029	VLV	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16029.1	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16029.2	CON	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16029.3	CON	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
16053	VLV	053	NE OF E-423	VARIES ~ 50%	L	21
16053.1	FLG	053	NE OF E-423	VARIES ~ 50%	L	21
16053.2	FLG	053	NE OF E-423	VARIES ~ 50%	L	21
16054	VLV	053	NE OF E-423	VARIES ~ 50%	L	21
16054.1	FLG	053	NE OF E-423	VARIES ~ 50%	L	21
16054.2	FLG	053	NE OF E-423	VARIES ~ 50%	L	21
16055	VLV	053	SE OF E-423	VARIES ~ 50%	L	21
16055.1	FLG	053	SE OF E-423	VARIES ~ 50%	L	21
16055.2	FLG	053	SE OF E-423	VARIES ~ 50%	L	21
16056	VLV	053	SE OF E-423	VARIES ~ 50%	L	21
16056.1	CON	053	SE OF E-423	VARIES ~ 50%	L	21
16056.2	CON	053	SE OF E-423	VARIES ~ 50%	L	21
16057	VLV	053	NW OF E-423	VARIES ~ 50%	L	21
16057.1	FLG	053	NW OF E-423	VARIES ~ 50%	L	21
16057.2	FLG	053	NW OF E-423	VARIES ~ 50%	L	21
16058	VLV	053	NW OF E-423	VARIES ~ 50%	L	21
16058.1	FLG	053	NW OF E-423	VARIES ~ 50%	L	21
16058.2	FLG	053	NW OF E-423	VARIES ~ 50%	L	21
16059	VLV	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16059.1	CON	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16059.2	CON	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16060	VLV	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16060.1	CON	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16060.2	CON	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16061	VLV	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16061.1	CON	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16061.2	CON	053	PMP-625 DIS LN 6FT N V-125	VARIES ~ 50%	L	21
16062	VLV	053	PMP-625 DIS LN 3FT NE V-125	VARIES ~ 50%	L	21
16062.1	CON	053	PMP-625 DIS LN 3FT NE V-125	VARIES ~ 50%	L	21
16062.2	CON	053	PMP-625 DIS LN 3FT NE V-125	VARIES ~ 50%	L	21
16063	VLV	053	NW SDE OF V-125	VARIES ~ 50%	L	21
16063.1	FLG	053	NW SDE OF V-125	VARIES ~ 50%	L	21
16063.2	FLG	053	NW SDE OF V-125	VARIES ~ 50%	L	21
16064	VLV	053	PMP-621B DIS LN 5FT SE OF V-121	VARIES ~ 50%	L	21
16064.1	CON	053	PMP-621B DIS LN 5FT SE OF V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16064.2	CON	053	PMP-621B DIS LN 5FT SE OF V-121	VARIES ~ 50%	L	21
16065	VLV	053	PMP-621B SUC LN 5FT SE OF V-121	VARIES ~ 50%	L	21
16066	VLV	053	PMP-621B SUC LN 5FT SE OF V-121	VARIES ~ 50%	L	21
16067	VLV	053	PMP-621B SUC LN 5FT SE OF V-121	VARIES ~ 50%	L	21
16068	VLV	053	PMP-621B DIS LN 6FT SE OF V-121	VARIES ~ 50%	L	21
16068.1	FLG	053	PMP-621B DIS LN 6FT SE OF V-121	VARIES ~ 50%	L	21
16068.2	FLG	053	PMP-621B DIS LN 6FT SE OF V-121	VARIES ~ 50%	L	21
16070	VLV	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16070.1	CON	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16070.2	CON	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16071	VLV	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16071.1	CON	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16071.2	CON	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16073	VLV	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16073.1	CON	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16073.2	CON	053	PMP-621A SUC LN 2FT E OF V-121	VARIES ~ 50%	L	21
16091	VLV	053	BTM SE SIDE OF V-121 6FT W PMP-621AB	VARIES ~ 50%	L	21
16091.1	FLG	053	BTM SE SIDE OF V-121 6FT W PMP-621AB	VARIES ~ 50%	L	21
16091.2	FLG	053	BTM SE SIDE OF V-121 6FT W PMP-621AB	VARIES ~ 50%	L	21
16092	VLV	053	PMP-621A SUC LN 1FT E OF V-121	VARIES ~ 50%	L	21
16092.1	FLG	053	PMP-621A SUC LN 1FT E OF V-121	VARIES ~ 50%	L	21
16092.2	FLG	053	PMP-621A SUC LN 1FT E OF V-121	VARIES ~ 50%	L	21
16093	VLV	053	PMP-623 SUC LN NE OF V-121	VARIES ~ 50%	L	21
16093.1	FLG	053	PMP-623 SUC LN NE OF V-121	VARIES ~ 50%	L	21
16093.2	FLG	053	PMP-623 SUC LN NE OF V-121	VARIES ~ 50%	L	21
16094	PMP	053	PMP-623 12 NE OF V-121 UNDER STAIRS	VARIES ~ 50%	L	21
16095	VLV	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16095.1	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16095.2	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16097	VLV	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16097.1	CON	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16097.2	CON	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16098	VLV	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16098.1	CON	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16098.2	CON	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16099	VLV	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16099.1	CON	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16099.2	CON	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
16154	VLV	053	N BTM OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16154.1	FLG	053	N BTM OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16154.2	FLG	053	N BTM OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16154.3	FLG	053	N BTM OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16370	VLV	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
16370.1	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
16370.2	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
16371	VLV	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
16371.1	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
16371.2	CON	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
16372	VLV	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16372.1	CON	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16372.2	CON	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16373	VLV	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16373.1	FLG	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16373.2	FLG	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16374	VLV	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16374.1	FLG	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16374.2	FLG	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16375	VLV	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16375.1	FLG	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16375.2	FLG	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16375.3	CON	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16375.4	CON	053	UP STAIRS 12FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
16376	CON	053	UP STAIRS 12FT NE OF V-121 OFF RAIL	VARIES ~ 50%	L	21
16377	VLV	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16377.1	CON	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16377.2	CON	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16378	VLV	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16378.1	CON	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16378.2	CON	053	3FT NE OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16379	VLV	053	OFF W SIDE OF V-121 UNDER PTFRM ON CAT WALK	VARIES ~ 50%	L	21
16379.1	CON	053	OFF W SIDE OF V-121 UNDER PTFRM ON CAT WALK	VARIES ~ 50%	L	21
16379.2	CON	053	OFF W SIDE OF V-121 UNDER PTFRM ON CAT WALK	VARIES ~ 50%	L	21
16380	VLV	053	OFF W SIDE OF V-121 UNDER PTFRM ON CAT WALK	VARIES ~ 50%	L	21
16381	VLV	053	ON PLATFORM ABOVE OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16382	VLV	053	NW OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16382.1	CON	053	NW OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16382.2	CON	053	NW OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16383	VLV	053	NW OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16383.1	CON	053	NW OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16383.2	CON	053	NW OF OIL BOX 10FT E OF V-121	VARIES ~ 50%	L	21
16384	VLV	053	ON TOP OF OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16384.1	FLG	053	ON TOP OF OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16384.2	FLG	053	ON TOP OF OF V-121 BY N RAIL	VARIES ~ 50%	L	21
16385	VLV	053	BTM OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
16385.1	FLG	053	BTM OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
16385.2	FLG	053	BTM OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
16386	VLV	053	3FT W OF V-126 8FT W OF B-326 ON CNT LOOP	VARIES ~ 50%	L	21
16387	VLV	053	3FT NW OF V-126 8FT W OF B-326 ON CNT LOOP	VARIES ~ 50%	L	21
16387.1	FLG	053	3FT NW OF V-126 8FT W OF B-326 ON CNT LOOP	VARIES ~ 50%	L	21
16388	FLG	053	N SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
16389	FLG	053	N SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
16390	FLG	053	W SIDE OF V-126 6FT W OF B-326 ON CNT LOOP	VARIES ~ 50%	L	21
16405	FLG	053	W SDE TOP OF V-123 TOP OF SG	VARIES ~ 50%	L	21
16406	FLG	053	W SDE TOP OF V-123 SG	VARIES ~ 50%	L	21
16423	VLV	053	8FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
16423.1	FLG	053	8FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
16423.2	FLG	053	8FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
16424	FLG	053	7FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
16425	VLV	053	5FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
16425.1	FLG	053	5FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
16425.2	FLG	053	5FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
16426	FLG	053	3FT S SDE TOP OF V-181 MID OVRHD	VARIES ~ 50%	L	21
16427	FLG	053	3FT S SDE TOP OF V-181 MID OVRHD	VARIES ~ 50%	L	21
16428	FLG	053	3FT S SDE TOP OF V-181 MID OVRHD	VARIES ~ 50%	L	21
16429	FLG	053	S SDE TOP OF V-181 FLOOR	VARIES ~ 50%	L	21
16430	FLG	053	6FT W SDE TOP OF V-181 OFF W RAIL	VARIES ~ 50%	L	21
16431	FLG	053	3FT W SDE TOP OF V-181	VARIES ~ 50%	L	21
16433	VLV	053	NW SDE TOP OF V-181	VARIES ~ 50%	L	21
16433.1	CON	053	NW SDE TOP OF V-181	VARIES ~ 50%	L	21
16433.2	CON	053	NW SDE TOP OF V-181	VARIES ~ 50%	L	21
16434	VLV	053	10FT E SDE TOP OF V-181 OFF V-182 EXT PROBE	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16434.1	CON	053	10FT E SDE TOP OF V-181 OFF V-182 EXT PROBE	VARIES ~ 50%	L	21
16434.2	CON	053	10FT E SDE TOP OF V-181 OFF V-182 EXT PROBE	VARIES ~ 50%	L	21
16435	VLV	053	10FT E SDE TOP OF V-181 OFF V-182 EXT PROBE	VARIES ~ 50%	L	21
16435.1	CON	053	10FT E SDE TOP OF V-181 OFF V-182 EXT PROBE	VARIES ~ 50%	L	21
16435.2	CON	053	10FT E SDE TOP OF V-181 OFF V-182 EXT PROBE	VARIES ~ 50%	L	21
17491	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
17491.1	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
17491.2	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
19200	VLV	053	2FT SE OF PMP-621B 12FT N LAB	VARIES ~ 50%	L	21
19200.1	FLG	053	2FT SE OF PMP-621B 12FT N LAB	VARIES ~ 50%	L	21
19200.2	FLG	053	2FT SE OF PMP-621B 12FT N LAB	VARIES ~ 50%	L	21
19201	VLV	053	ABOVE PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
19201.1	FLG	053	ABOVE PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
19201.2	FLG	053	ABOVE PMP-621B 15FT N LAB	VARIES ~ 50%	L	21
19203	CON	053	1FT W OF PRMRY SCRBR PMP P-621B 15FT N LAB	VARIES ~ 50%	L	21
19205	VLV	053	8FT S OF BLOWER B-381 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
19205.1	FLG	053	8FT S OF BLOWER B-381 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
19205.2	FLG	053	8FT S OF BLOWER B-381 8FT SE OF CTRL RM	VARIES ~ 50%	L	21
19206	VLV	053	12FT S OF BLOWER B-381 10FT SE OF CTRL RM	VARIES ~ 50%	L	21
19207	VLV	053	12FT S OF BLOWER B-381 10FT SE OF CTRL RM	VARIES ~ 50%	L	21
19208	VLV	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
53551	VLV	053	PMP-621A DIS LN 10FT E OF V-121	VARIES ~ 50%	L	21
65622	FLG	053	7FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
65623	FLG	053	7FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
65624	FLG	053	7FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
65625	FLG	053	7FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
65626	FLG	053	7FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
65627	FLG	053	7FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
65628	FLG	053	7FT SE SDE TOP OF V-181 OFF E RAIL	VARIES ~ 50%	L	21
65629	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
65630	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
65631	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
65632	FLG	053	NE SDE OF V-125	VARIES ~ 50%	L	21
65633	FLG	053	3FT W OF V-126 8FT W OF B-326 ON CNT LOOP	VARIES ~ 50%	L	21
65634	FLG	053	3FT W OF V-126 8FT W OF B-326 ON CNT LOOP	VARIES ~ 50%	L	21
65635	FLG	053	3FT W OF V-126 8FT W OF B-326 ON CNT LOOP	VARIES ~ 50%	L	21
65653	FLG	053	NE SDE OF V-125	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
65654	FLG	053	NE SDE OF V-125	VARIES ~ 50%	L	21
65655	FLG	053	NE SDE OF V-125	VARIES ~ 50%	L	21
65656	VLV	053	NW SDE OF V-125	VARIES ~ 50%	L	21
65658	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
65659	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
65660	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
65673	VLV	053	BTM NW OF V-121	VARIES ~ 50%	L	21
65673.1	FLG	053	BTM NW OF V-121	VARIES ~ 50%	L	21
65673.2	FLG	053	BTM NW OF V-121	VARIES ~ 50%	L	21
65673.3	CON	053	BTM NW OF V-121	VARIES ~ 50%	L	21
65673.4	CON	053	BTM NW OF V-121	VARIES ~ 50%	L	21
65674	VLV	053	BTM OF V-121	VARIES ~ 50%	L	21
65674.1	FLG	053	BTM OF V-121	VARIES ~ 50%	L	21
65674.2	FLG	053	BTM OF V-121	VARIES ~ 50%	L	21
445609	VLV	053	BTM OF V-121	VARIES ~ 50%	L	21
445609.1	FLG	053	BTM OF V-121	VARIES ~ 50%	L	21
445609.2	FLG	053	BTM OF V-121	VARIES ~ 50%	L	21
445617	VLV	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
445617.1	FLG	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
445617.2	FLG	053	3 N OF V-121 BY STAIRWAY	VARIES ~ 50%	L	21
445622	VLV	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
445622.1	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
445622.2	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
445623	VLV	053	BTM OF V-121	VARIES ~ 50%	L	21
445623.1	FLG	053	BTM OF V-121	VARIES ~ 50%	L	21
445623.2	FLG	053	BTM OF V-121	VARIES ~ 50%	L	21
445654	VLV	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
445654.1	FLG	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
445654.2	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
445654.3	CON	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
445666	VLV	053	3 N OF V-121	VARIES ~ 50%	L	21
445666.1	FLG	053	3 N OF V-121	VARIES ~ 50%	L	21
445666.2	FLG	053	3 N OF V-121	VARIES ~ 50%	L	21
445667	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445667.1	FLG	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445667.2	FLG	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445668	VLV	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
445668.1	FLG	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21
445668.2	FLG	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21
445668.3	FLG	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21
445669	VLV	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445669.1	FLG	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445669.2	FLG	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445669.3	CON	053	6FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445670	VLV	053	PMP-621B DIS LN 7FT SE OF V-121	VARIES ~ 50%	L	21
445670.1	FLG	053	PMP-621B DIS LN 7FT SE OF V-121	VARIES ~ 50%	L	21
445670.2	FLG	053	PMP-621B DIS LN 7FT SE OF V-121	VARIES ~ 50%	L	21
445671	VLV	053	PMP-621A DIS LN 3FT E OF V-121	VARIES ~ 50%	L	21
445673	VLV	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445673.1	FLG	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445673.2	FLG	053	4FT E OF PMP-623 12FT NE OF V-121	VARIES ~ 50%	L	21
445674	VLV	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445674.1	FLG	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445674.2	FLG	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445675	VLV	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445675.1	FLG	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445675.2	FLG	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445676	VLV	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445676.1	FLG	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445676.2	FLG	053	12FT E OF PMP-623 UNDER PIPE RACK	VARIES ~ 50%	L	21
445679	VLV	053	SW BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
445679.1	FLG	053	SW BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
445679.2	FLG	053	SW BTM OF OIL BOX 10FT SE OF V-121	VARIES ~ 50%	L	21
445751	VLV	053	6FT S OF BLOWER B-381 8FT E OF CTRL RM	VARIES ~ 50%	L	21
445757	VLV	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
445757.1	CON	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
445757.2	CON	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
445772	VLV	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21
445772.1	FLG	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21
445772.2	FLG	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21
445774	VLV	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
445774.1	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
445774.2	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
654734	VLV	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
654734.1	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
654734.2	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
739241	FLG	053	5FT SE OF V-121 8FT N CTRL RM	VARIES ~ 50%	L	21
739242	FLG	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21
739242.1	FLG	053	5FT SE OF V-121 12FT N CTRL RM	VARIES ~ 50%	L	21
739243	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
739243.1	FLG	053	PMP-622 DIS LN 5FT S OF V-121	VARIES ~ 50%	L	21
739246	FLG	053	PMP-621B SUC LN 5FT SE OF V-121	VARIES ~ 50%	L	21
739246.1	FLG	053	PMP-621B SUC LN 5FT SE OF V-121	VARIES ~ 50%	L	21
739247	FLG	053	PRIMARY SCRBR PMP P-621B 10FT SE OF V-121	VARIES ~ 50%	L	21
739248	FLG	053	PRIMARY SCRBR PMP P-621B 10FT SE OF V-121	VARIES ~ 50%	L	21
739249	FLG	053	PRIMARY SCRBR PMP P-621A 10FT E OF V-121	VARIES ~ 50%	L	21
739250	FLG	053	PRIMARY SCRBR PMP P-621A 10FT E OF V-121	VARIES ~ 50%	L	21
739252	FLG	053	PMP-623 12 NE OF V-121 UNDER STAIRS	VARIES ~ 50%	L	21
739253	FLG	053	PMP-623 12 NE OF V-121 UNDER STAIRS	VARIES ~ 50%	L	21
739254	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
739254.1	FLG	053	PMP-623 SUC LN 6FT NE OF V-121	VARIES ~ 50%	L	21
739255	FLG	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
739256	FLG	053	2FT NE OF V-121 BY RAIL	VARIES ~ 50%	L	21
739257	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
739258	FLG	053	1FT S OF V-121 1FT N OF CAT WALK	VARIES ~ 50%	L	21
739259	FLG	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
739260	FLG	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
739260.1	FLG	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
739261	FLG	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
739261.1	FLG	053	S OF BLOWER B-381 10FT E OF CTRL RM	VARIES ~ 50%	L	21
739264	FLG	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
739265	FLG	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
739266	FLG	053	S SIDE OF V-126 5FT W OF B-326	VARIES ~ 50%	L	21
739267	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
739268	FLG	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
739268.1	FLG	053	1FT W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
739269	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
739270	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
739270.1	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
739271	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21
739272	FLG	053	W OF V-181 8FT S OF CTRL RM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
739273	FLG	053	8FT W OF V-123	VARIES ~ 50%	L	21
739274	FLG	053	8FT W OF V-123	VARIES ~ 50%	L	21
739275	FLG	053	8FT W OF V-123	VARIES ~ 50%	L	21
739276	FLG	053	N SDE OF V-122	VARIES ~ 50%	L	21
739277	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
739278	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
739279	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
739280	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
739281	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
739282	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
739284	FLG	053	N SDE OF V-123	VARIES ~ 50%	L	21
739815	VLV	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
739815.1	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
739815.2	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
739854	FLG	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
739854.1	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
739854.2	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
740066	VLV	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
740066.1	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
740066.2	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
740066.3	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
740066.4	CON	053	TOP SW OF V-121 E OF PLATFORM	VARIES ~ 50%	L	21
UNIT: DESB2 - Thermal Desorber 2						
516	VLV	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
516.1	CON	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
516.2	CON	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
518	VLV	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
518.1	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
518.2	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
14494	VLV	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
14494.1	CON	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
14494.2	CON	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
14495	VLV	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
14495.1	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
14495.2	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
14495.3	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
14496	VLV	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14496.1	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14496.2	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14496.3	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14497	VLV	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14497.1	CON	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14497.2	CON	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14498	VLV	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14498.1	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14498.2	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14498.3	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14499	VLV	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14499.1	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14499.2	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
14499.3	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
16300	FLG	054	TOP SW OF 2V-121	VARIES ~ 50%	L	21
16301	VLV	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
16301.1	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
16301.2	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
16302	VLV	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
16302.1	CON	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
16302.2	CON	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
16303	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
16305	VLV	054	INSIDE PANEL BOX1 15FT W SIDE OF 2V-121	VARIES ~ 50%	L	21
16306	VLV	054	INSIDE PANEL BOX1 15FT W SIDE OF 2V-121	VARIES ~ 50%	L	21
16307	VLV	054	INSIDE PANEL BOX1 15FT W SIDE OF 2V-121	VARIES ~ 50%	L	21
16310	PMP	054	B-382 20FT N OF 2V-182 10 E OF B-181	VARIES ~ 50%	L	21
16312	VLV	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16312.1	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16312.2	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16312.3	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16312.4	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16312.5	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16313	VLV	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16313.1	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16313.2	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16313.3	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16313.4	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16314	VLV	054	6FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16314.1	CON	054	6FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16314.2	CON	054	6FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16314.3	CON	054	6FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16314.4	CON	054	6FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16315	VLV	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16315.1	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16315.2	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16316	VLV	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16316.1	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16316.2	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16316.3	CON	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
16318	VLV	054	8FT S OF B-382 7FT N OF 2V-182	VARIES ~ 50%	L	21
16318.1	CON	054	8FT S OF B-382 7FT N OF 2V-182	VARIES ~ 50%	L	21
16318.2	CON	054	8FT S OF B-382 7FT N OF 2V-182	VARIES ~ 50%	L	21
16318.3	CON	054	8FT S OF B-382 7FT N OF 2V-182	VARIES ~ 50%	L	21
16319	PMP	054	PMP-683 6FT NW OF 2V-182 4FT SE OF B-381	VARIES ~ 50%	L	21
16320	VLV	054	PMP-683 SUC LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16320.1	CON	054	PMP-683 SUC LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16320.2	CON	054	PMP-683 SUC LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16321	FLG	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16321.1	CON	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16321.2	CON	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16321.3	CON	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16322	VLV	054	PMP-683 SUC LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16322.1	CON	054	PMP-683 SUC LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16322.2	CON	054	PMP-683 SUC LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16322.3	CON	054	PMP-683 SUC LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16323	VLV	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16323.1	FLG	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16323.2	FLG	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16324	VLV	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16324.1	FLG	054	PMP-683 DIS LN 3FT NW OF 2V-182	VARIES ~ 50%	L	21
16325	VLV	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16325.1	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16325.2	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16325.3	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16325.4	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16325.5	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16326	VLV	054	PMP-683 SUC LN 2FT NW OF 2V-182	VARIES ~ 50%	L	21
16326.1	CON	054	PMP-683 SUC LN 2FT NW OF 2V-182	VARIES ~ 50%	L	21
16326.2	CON	054	PMP-683 SUC LN 2FT NW OF 2V-182	VARIES ~ 50%	L	21
16328	VLV	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16328.1	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16328.2	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16328.3	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16328.4	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16328.5	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16329	FLG	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16330	VLV	054	NW OF 2V-182 6FT SE OF P-683	VARIES ~ 50%	L	21
16330.1	FLG	054	NW OF 2V-182 6FT SE OF P-683	VARIES ~ 50%	L	21
16333	PMP	054	PMP-682 SW OF 2V-182 2FT N OF V-126	VARIES ~ 50%	L	21
16335	VLV	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
16336	VLV	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
16336.1	FLG	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
16336.2	FLG	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
16337	FLG	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
16337.1	CON	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
16337.2	CON	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
16337.3	CON	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
16340	VLV	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
16341	VLV	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
16341.1	FLG	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
16341.2	FLG	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
16342	FLG	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
16343	VLV	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16343.1	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16343.2	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16343.3	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16343.4	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16343.5	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16344	VLV	054	15FT S OF B-382 3FT N OF 2V-182	VARIES ~ 50%	L	21
16345	VLV	054	15FT S OF B-382 3FT N OF 2V-182	VARIES ~ 50%	L	21
16346	VLV	054	15FT S OF B-382 3FT N OF 2V-182	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16347	VLV	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16347.1	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16347.2	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16347.3	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16348	VLV	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16348.1	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16348.2	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16348.3	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16349	VLV	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16349.1	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16349.2	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16349.3	CON	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16350	VLV	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16350.1	FLG	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16350.2	FLG	054	10FT S OF B-382 5FT N OF 2V-182	VARIES ~ 50%	L	21
16351	VLV	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16351.1	FLG	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16351.2	FLG	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16352	VLV	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16352.1	CON	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16352.2	CON	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16352.3	CON	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16353	VLV	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16353.1	FLG	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16353.2	FLG	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16353.3	CON	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16353.4	CON	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16354	FLG	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16354.1	CON	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16354.2	CON	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16354.3	CON	054	2FT NE OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16355	VLV	054	E OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16355.1	FLG	054	E OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16355.2	FLG	054	E OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16355.3	FLG	054	E OF 2V-182 BY WALK WAY	VARIES ~ 50%	L	21
16356	VLV	054	SE OF 2V-182 BY NE OF BLOWER B-326	VARIES ~ 50%	L	21
16356.1	FLG	054	SE OF 2V-182 BY NE OF BLOWER B-326	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16356.2	FLG	054	SE OF 2V-182 BY NE OF BLOWER B-326	VARIES ~ 50%	L	21
16356.3	CON	054	SE OF 2V-182 BY NE OF BLOWER B-326	VARIES ~ 50%	L	21
16357	FLG	054	S OF 2V-182 N OF BLOWER B-326	VARIES ~ 50%	L	21
16358	VLV	054	SE OF 2V-121	VARIES ~ 50%	L	21
16358.1	FLG	054	SE OF 2V-121	VARIES ~ 50%	L	21
16358.2	FLG	054	SE OF 2V-121	VARIES ~ 50%	L	21
16359	VLV	054	S OF 2V-121	VARIES ~ 50%	L	21
16359.1	FLG	054	S OF 2V-121	VARIES ~ 50%	L	21
16359.2	FLG	054	S OF 2V-121	VARIES ~ 50%	L	21
16360	VLV	054	S OF 2V-121	VARIES ~ 50%	L	21
16360.1	FLG	054	S OF 2V-121	VARIES ~ 50%	L	21
16360.2	FLG	054	S OF 2V-121	VARIES ~ 50%	L	21
16361	VLV	054	SW OF 2V-121	VARIES ~ 50%	L	21
16361.1	FLG	054	SW OF 2V-121	VARIES ~ 50%	L	21
16361.2	FLG	054	SW OF 2V-121	VARIES ~ 50%	L	21
16362	VLV	054	W OF 2V-121	VARIES ~ 50%	L	21
16362.1	FLG	054	W OF 2V-121	VARIES ~ 50%	L	21
16362.2	FLG	054	W OF 2V-121	VARIES ~ 50%	L	21
16362.3	FLG	054	W OF 2V-121	VARIES ~ 50%	L	21
16363	VLV	054	NW OF 2V-121	VARIES ~ 50%	L	21
16363.1	FLG	054	NW OF 2V-121	VARIES ~ 50%	L	21
16363.2	FLG	054	NW OF 2V-121	VARIES ~ 50%	L	21
16364	VLV	054	4FT NW OF 2V-121	VARIES ~ 50%	L	21
16364.1	FLG	054	4FT NW OF 2V-121	VARIES ~ 50%	L	21
16365	VLV	054	5FT NW OF 2V-121	VARIES ~ 50%	L	21
16365.1	FLG	054	5FT NW OF 2V-121	VARIES ~ 50%	L	21
16365.2	FLG	054	5FT NW OF 2V-121	VARIES ~ 50%	L	21
16366	VLV	054	6FT NW OF 2V-121	VARIES ~ 50%	L	21
16366.1	FLG	054	6FT NW OF 2V-121	VARIES ~ 50%	L	21
16366.2	FLG	054	6FT NW OF 2V-121	VARIES ~ 50%	L	21
16367	VLV	054	15FT W OF 2V-121	VARIES ~ 50%	L	21
16367.1	FLG	054	15FT W OF 2V-121	VARIES ~ 50%	L	21
16367.2	FLG	054	15FT W OF 2V-121	VARIES ~ 50%	L	21
16368	VLV	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
16368.1	CON	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
16368.2	CON	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
16391	VLV	054	15FT S OF B-382 3FT N OF 2V-182	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16392	VLV	054	15FT S OF B-382 3FT N OF 2V-182	VARIES ~ 50%	L	21
16393	VLV	054	15FT S OF B-382 3FT N OF 2V-182 ON PANEL	VARIES ~ 50%	L	21
16394	VLV	054	15FT S OF B-382 3FT N OF 2V-182 ON PANEL	VARIES ~ 50%	L	21
16395	VLV	054	15FT S OF B-382 3FT N OF 2V-182 ON PANEL	VARIES ~ 50%	L	21
16396	VLV	054	2FT NW OF 2V-182 4FT SE OF P- 683 TOP OF SG	VARIES ~ 50%	L	21
16396.1	FLG	054	2FT NW OF 2V-182 4FT SE OF P- 683 TOP OF SG	VARIES ~ 50%	L	21
16396.2	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683 TOP OF SG	VARIES ~ 50%	L	21
16396.3	CON	054	2FT NW OF 2V-182 4FT SE OF P- 683 TOP OF SG	VARIES ~ 50%	L	21
16397	VLV	054	2FT NW OF 2V-182 4FT SE OF P- 683 TOP OF SG	VARIES ~ 50%	L	21
16397.1	FLG	054	2FT NW OF 2V-182 4FT SE OF P- 683 TOP OF SG	VARIES ~ 50%	L	21
16397.2	FLG	054	2FT NW OF 2V-182 4FT SE OF P- 683 TOP OF SG	VARIES ~ 50%	L	21
16398	VLV	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16399	VLV	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16399.1	FLG	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16399.2	FLG	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16400	VLV	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16400.1	FLG	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16400.2	FLG	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16401	VLV	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16401.1	FLG	054	5FT NW OF 2V-182 4FT SE OF P- 683	VARIES ~ 50%	L	21
16402	VLV	054	10FT S OF B-382 5FT NE OF 2V-182	VARIES ~ 50%	L	21
16402.1	FLG	054	10FT S OF B-382 5FT NE OF 2V-182	VARIES ~ 50%	L	21
16402.2	FLG	054	10FT S OF B-382 5FT NE OF 2V-182	VARIES ~ 50%	L	21
16403	FLG	054	10FT S OF B-382 5FT NE OF 2V-182	VARIES ~ 50%	L	21
16403.1	FLG	054	10FT S OF B-382 5FT NE OF 2V-182	VARIES ~ 50%	L	21
16403.2	FLG	054	10FT S OF B-382 5FT NE OF 2V-182	VARIES ~ 50%	L	21
16407	FLG	054	10FT NW OF 2V-121 ABOVE OIL BOX	VARIES ~ 50%	L	21
16408	FLG	054	15FT NW OF 2V-121 ABOVE OIL BOX	VARIES ~ 50%	L	21
16409	FLG	054	15FT NW OF 2V-121 ABOVE OIL BOX	VARIES ~ 50%	L	21
16410	VLV	054	1FT N OF 2V-121 ON PLATFORM ON TRANSMITTER	VARIES ~ 50%	L	21
16410.1	CON	054	1FT N OF 2V-121 ON PLATFORM ON TRANSMITTER	VARIES ~ 50%	L	21
16410.2	CON	054	1FT N OF 2V-121 ON PLATFORM ON TRANSMITTER	VARIES ~ 50%	L	21
16411	VLV	054	1FT N OF 2V-121 ON PLATFORM ON TRANSMITTER	VARIES ~ 50%	L	21
16411.1	CON	054	1FT N OF 2V-121 ON PLATFORM ON TRANSMITTER	VARIES ~ 50%	L	21
16411.2	CON	054	1FT N OF 2V-121 ON PLATFORM ON TRANSMITTER	VARIES ~ 50%	L	21
16412	VLV	054	1FT N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
16412.1	FLG	054	1FT N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16412.2	CON	054	1FT N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
16412.3	CON	054	1FT N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
16412.4	CON	054	1FT N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
16412.5	CON	054	1FT N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
16413	FLG	054	1FT N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
16414	FLG	054	3FT SE OF OF 2V-121	VARIES ~ 50%	L	21
16415	FLG	054	S OF 2V-121	VARIES ~ 50%	L	21
16416	FLG	054	S OF 2V-121	VARIES ~ 50%	L	21
16417	FLG	054	4FT S OF OF 2V-121	VARIES ~ 50%	L	21
16418	FLG	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
16419	FLG	054	8FT W OF 2V-121	VARIES ~ 50%	L	21
16420	FLG	054	W OF 2V-121	VARIES ~ 50%	L	21
16421	FLG	054	8FT SW OF 2V-121	VARIES ~ 50%	L	21
16422	FLG	054	2FT NE OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
19209	VLV	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19209.1	CON	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19209.2	CON	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19210	VLV	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19210.1	CON	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19210.2	CON	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19211	VLV	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19211.1	FLG	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19211.2	FLG	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19213	VLV	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19213.1	CON	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19213.2	CON	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19214	FLG	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19214.1	FLG	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19214.2	CON	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19214.3	CON	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
19215	VLV	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
19215.1	CON	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
19215.2	CON	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
19216	FLG	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
19217	FLG	054	W SIDE OF 2V-121	VARIES ~ 50%	L	21
19218	FLG	054	W SIDE OF 2V-121	VARIES ~ 50%	L	21
19219	VLV	054	ANALYZER POT 10FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
19219.1	CON	054	ANALYZER POT 10FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19219.2	CON	054	ANALYZER POT 10FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19220	VLV	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19220.1	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19220.2	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19221	VLV	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19221.1	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19221.2	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19222	VLV	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19222.1	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19222.2	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19225	VLV	054	N OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19225.1	CON	054	N OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19225.2	CON	054	N OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19226	VLV	054	N OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19226.1	CON	054	N OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19226.2	CON	054	N OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19227	VLV	054	NE OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19227.1	CON	054	NE OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19227.2	CON	054	NE OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19228	VLV	054	NE OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19228.1	CON	054	NE OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19228.2	CON	054	NE OF ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
19229	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
19229.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
19229.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
19230	VLV	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19230.1	CON	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19230.2	CON	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19231	FLG	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19231.1	CON	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19231.2	CON	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19232	VLV	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19232.1	CON	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19232.2	CON	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19232.3	CON	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19232.4	CON	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
19234	VLV	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19234.1	CON	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19234.2	CON	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19235	VLV	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19235.1	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19236	VLV	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19236.1	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
19237	VLV	054	4FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19238	VLV	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19239	VLV	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19239.1	CON	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19239.2	CON	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19240	VLV	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19240.1	CON	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19240.2	CON	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19242	VLV	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19242.1	CON	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19242.2	CON	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19243	VLV	054	4FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
19245	VLV	054	PMP-2P-621B SUC LN 10FT W OF 2V-121	VARIES ~ 50%	L	21
19245.1	FLG	054	PMP-2P-621B SUC LN 10FT W OF 2V-121	VARIES ~ 50%	L	21
19245.2	FLG	054	PMP-2P-621B SUC LN 10FT W OF 2V-121	VARIES ~ 50%	L	21
19246	VLV	054	PMP-2P-621B SUC LN 12FT W OF 2V-121	VARIES ~ 50%	L	21
19246.1	CON	054	PMP-2P-621B SUC LN 12FT W OF 2V-121	VARIES ~ 50%	L	21
19246.2	CON	054	PMP-2P-621B SUC LN 12FT W OF 2V-121	VARIES ~ 50%	L	21
19247	VLV	054	PMP-2P-621B SUC LN 12FT W OF 2V-121	VARIES ~ 50%	L	21
19247.1	CON	054	PMP-2P-621B SUC LN 12FT W OF 2V-121	VARIES ~ 50%	L	21
19247.2	CON	054	PMP-2P-621B SUC LN 12FT W OF 2V-121	VARIES ~ 50%	L	21
19249	VLV	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19249.1	CON	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19249.2	CON	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19251	VLV	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19251.1	CON	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19251.2	CON	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19252	VLV	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19252.1	FLG	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19253	VLV	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
19253.1	FLG	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19253.2	FLG	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19254	VLV	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19254.1	FLG	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19254.2	FLG	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19254.3	FLG	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
19255	VLV	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19255.1	FLG	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19255.2	FLG	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19256	VLV	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19256.1	CON	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19256.2	CON	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19257	VLV	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19257.1	CON	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19257.2	CON	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19258	FLG	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
19260	VLV	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19260.1	CON	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19260.2	CON	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19261	FLG	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19262	VLV	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19262.1	FLG	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19263	VLV	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19263.1	CON	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19263.2	CON	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19264	FLG	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
19265	VLV	054	4FT SW OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
19265.1	FLG	054	4FT SW OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
19265.2	FLG	054	4FT SW OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
19266	VLV	054	W OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
19266.1	FLG	054	W OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
19266.2	FLG	054	W OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
19268	VLV	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19268.1	CON	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19268.2	CON	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19269	FLG	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19270	VLV	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
19270.1	FLG	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19270.2	FLG	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19271	VLV	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19271.1	FLG	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19271.2	FLG	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19272	VLV	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19272.1	FLG	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19272.2	FLG	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19273	VLV	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19273.1	FLG	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19273.2	FLG	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19274	VLV	054	SE BTM OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19274.1	FLG	054	SE BTM OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19274.2	FLG	054	SE BTM OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
19275	VLV	054	8FT S OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19275.1	CON	054	8FT S OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19275.2	CON	054	8FT S OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19276	VLV	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19276.1	CON	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19276.2	CON	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19277	VLV	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19277.1	CON	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19277.2	CON	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19279	VLV	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19279.1	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19279.2	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
19280	VLV	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
19280.1	CON	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
19280.2	CON	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
19282	VLV	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19282.1	FLG	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19282.2	FLG	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19283	VLV	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19283.1	FLG	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19283.2	FLG	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19284	VLV	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19284.1	FLG	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
19284.2	FLG	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19284.3	FLG	054	10FT SE OF 2V-121 25FT E OF PMP	VARIES ~ 50%	L	21
19286	VLV	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
19286.1	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
19286.2	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
19287	VLV	054	NE OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
19288	VLV	054	N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
19288.1	FLG	054	N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
19288.2	FLG	054	N OF 2V-121 ON PLATFORM	VARIES ~ 50%	L	21
19289	VLV	054	15FT NW OF 2V-121	VARIES ~ 50%	L	21
19289.1	FLG	054	15FT NW OF 2V-121	VARIES ~ 50%	L	21
19289.2	FLG	054	15FT NW OF 2V-121	VARIES ~ 50%	L	21
19290	VLV	054	10FT NW OF 2V-121	VARIES ~ 50%	L	21
19290.1	CON	054	10FT NW OF 2V-121	VARIES ~ 50%	L	21
19290.2	CON	054	10FT NW OF 2V-121	VARIES ~ 50%	L	21
19291	VLV	054	8FT NW OF 2V-121	VARIES ~ 50%	L	21
19291.1	CON	054	8FT NW OF 2V-121	VARIES ~ 50%	L	21
19291.2	CON	054	8FT NW OF 2V-121	VARIES ~ 50%	L	21
19292	VLV	054	6FT NW OF 2V-121	VARIES ~ 50%	L	21
19292.1	CON	054	6FT NW OF 2V-121	VARIES ~ 50%	L	21
19292.2	CON	054	6FT NW OF 2V-121	VARIES ~ 50%	L	21
19293	VLV	054	5FT NW OF 2V-121	VARIES ~ 50%	L	21
19293.1	CON	054	5FT NW OF 2V-121	VARIES ~ 50%	L	21
19293.2	CON	054	5FT NW OF 2V-121	VARIES ~ 50%	L	21
19294	VLV	054	10FT NW OF 2V-121	VARIES ~ 50%	L	21
19295	FLG	054	8FT NW OF 2V-121	VARIES ~ 50%	L	21
19296	VLV	054	6FT NW OF 2V-121	VARIES ~ 50%	L	21
19297	VLV	054	4FT NW OF 2V-121	VARIES ~ 50%	L	21
19297.1	CON	054	4FT NW OF 2V-121	VARIES ~ 50%	L	21
19297.2	CON	054	4FT NW OF 2V-121	VARIES ~ 50%	L	21
19298	FLG	054	TOP N OF 2V-121	VARIES ~ 50%	L	21
45100	PMP	054	PMP-2P-623 20FT SW OF 2V-121 12FT E OF STAIRS	VARIES ~ 50%	L	21
45200	VLV	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45200.1	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45200.2	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45500	VLV	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45500.1	CON	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
45500.2	CON	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45600	VLV	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45600.1	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45600.2	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45600.3	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45600.4	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
45800	VLV	054	4FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
46000	VLV	054	4FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
46200	VLV	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
46500	VLV	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
46500.1	FLG	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
46500.2	FLG	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
46600	PMP	054	PMP-2P-621A 20FT NW OF 2V-121	VARIES ~ 50%	L	21
46600.1	CON	054	PMP-2P-621A 20FT NW OF 2V-121	VARIES ~ 50%	L	21
46600.2	CON	054	PMP-2P-621A 20FT NW OF 2V-121	VARIES ~ 50%	L	21
47200	VLV	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
47200.1	CON	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
47200.2	CON	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
47700	VLV	054	S OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
47700.1	FLG	054	S OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
47700.2	FLG	054	S OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
47800	VLV	054	S OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
47800.1	FLG	054	S OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
47800.2	FLG	054	S OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
47800.3	FLG	054	S OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
48100	VLV	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
48100.1	FLG	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
48100.2	FLG	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
48200	VLV	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
48200.1	FLG	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
48200.2	FLG	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
49300	VLV	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
49300.1	CON	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
49300.2	CON	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
51500	VLV	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
51500.1	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
51500.2	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
51700	VLV	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
51700.1	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
51700.2	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
52000	VLV	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
52000.1	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
52000.2	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
52900	VLV	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
52900.1	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
52900.2	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
52900.3	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
53000	VLV	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
53000.1	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
53000.2	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
53100	VLV	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
53100.1	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
53100.2	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
53300	VLV	054	FT 6FT N OF 2V-121 BY RAIL	VARIES ~ 50%	L	21
53300.1	CON	054	FT 6FT N OF 2V-121 BY RAIL	VARIES ~ 50%	L	21
53300.2	CON	054	FT 6FT N OF 2V-121 BY RAIL	VARIES ~ 50%	L	21
53400	VLV	054	FT 6FT N OF 2V-121 BY RAIL	VARIES ~ 50%	L	21
53400.1	CON	054	FT 6FT N OF 2V-121 BY RAIL	VARIES ~ 50%	L	21
53400.2	CON	054	FT 6FT N OF 2V-121 BY RAIL	VARIES ~ 50%	L	21
53518	VLV	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
53518.1	FLG	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
53518.2	FLG	054	PMP-682 DIS LN SW OF 2V-182	VARIES ~ 50%	L	21
53546	VLV	054	PMP-2P-621A SUC LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
53546.1	CON	054	PMP-2P-621A SUC LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
53546.2	CON	054	PMP-2P-621A SUC LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
53547	VLV	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
53547.1	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
53547.2	FLG	054	15FT SE OF 2V-121 SE CORNER OF DES 2	VARIES ~ 50%	L	21
53550	PMP	054	PMP-2P-621B 20FT W OF 2V-121	VARIES ~ 50%	L	21
53800	VLV	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
53800.1	CON	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
53800.2	CON	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
53912	VLV	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
53912.1	FLG	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
53912.2	FLG	054	PMP-2P-621A DIS LN 16FT NW OF 2V-121	VARIES ~ 50%	L	21
53917	VLV	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
53917.1	CON	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
53917.2	CON	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
53918	VLV	054	PMP-682 DIS LN W OF 2V-182	VARIES ~ 50%	L	21
53918.1	FLG	054	PMP-682 DIS LN W OF 2V-182	VARIES ~ 50%	L	21
53918.2	FLG	054	PMP-682 DIS LN W OF 2V-182	VARIES ~ 50%	L	21
53978	VLV	054	S OF B-382 15FT N OF 2V-182	VARIES ~ 50%	L	21
53978.1	CON	054	S OF B-382 15FT N OF 2V-182	VARIES ~ 50%	L	21
53978.2	CON	054	S OF B-382 15FT N OF 2V-182	VARIES ~ 50%	L	21
54000	VLV	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
54100	VLV	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
54100.1	FLG	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
54200	VLV	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
54200.1	CON	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
54200.2	CON	054	SE SIDE OF 2V-121	VARIES ~ 50%	L	21
54400	VLV	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
54400.1	CON	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
54400.2	CON	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
54500	VLV	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
54500.1	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
54500.2	FLG	054	N SIDE OF 2V-121	VARIES ~ 50%	L	21
54600	VLV	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54600.1	FLG	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54600.2	FLG	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54700	VLV	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54700.1	FLG	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54700.2	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54700.3	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54800	VLV	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54800.1	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54800.2	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54800.3	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54900	VLV	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54900.1	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54900.2	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
54900.3	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
55000	VLV	054	TOP OF 2V-121	VARIES ~ 50%	L	21
55000.1	FLG	054	TOP OF 2V-121	VARIES ~ 50%	L	21
55000.2	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
55000.3	CON	054	TOP OF 2V-121	VARIES ~ 50%	L	21
55100	VLV	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55100.1	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55100.2	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55300	VLV	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55300.1	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55300.2	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55400	VLV	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55400.1	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55400.2	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
55600	VLV	054	ANALYZER POT 10FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
56200	VLV	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
56200.1	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
56200.2	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
56300	VLV	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
56300.1	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
56300.2	CON	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
56500	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56500.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56500.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56600	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56600.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56600.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56700	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56700.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56700.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56800	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56800.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56800.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56900	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56900.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
56900.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
57000	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BTWN PANELS	VARIES ~ 50%	L	21
57000.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BTWN PANELS	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
57000.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BTWN PANELS	VARIES ~ 50%	L	21
57100	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
57100.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
57100.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
57200	VLV	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
57200.1	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
57200.2	CON	054	SAMPLE LN 15FT W SIDE OF 2V-121 BY STAIRS	VARIES ~ 50%	L	21
65672	VLV	054	ANALYZER POT 10FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
192731	VLV	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
192731.1	FLG	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
192731.2	FLG	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
445629	VLV	054	PMP-2P-621B SUC LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
445629.1	CON	054	PMP-2P-621B SUC LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
445629.2	CON	054	PMP-2P-621B SUC LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
445642	VLV	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
445642.1	FLG	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
445642.2	FLG	054	S SIDE OF 2V-121	VARIES ~ 50%	L	21
445771	VLV	054	BTM OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
445771.1	FLG	054	BTM OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
445771.2	FLG	054	BTM OF OIL BOX 20FT NW OF 2V-121	VARIES ~ 50%	L	21
445780	VLV	054	PMP-683 SUC LN 2FT NW OF 2V-182	VARIES ~ 50%	L	21
445780.1	CON	054	PMP-683 SUC LN 2FT NW OF 2V-182	VARIES ~ 50%	L	21
445780.2	CON	054	PMP-683 SUC LN 2FT NW OF 2V-182	VARIES ~ 50%	L	21
445782	VLV	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
445782.1	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
445782.2	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
445782.3	FLG	054	S OF 2V-121 20FT E OF PMP	VARIES ~ 50%	L	21
445783	VLV	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
445783.1	CON	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
445783.2	CON	054	S OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
455770	FLG	054	TOP OF 2V-121	VARIES ~ 50%	L	21
455773	FLG	054	PMP-2P-623 DIS LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
455774	FLG	054	2FT S OF PMP-2P-623 25FT SW OF 2V-121	VARIES ~ 50%	L	21
455775	FLG	054	PMP-2P-621B DIS LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
455777	FLG	054	E OF B-382 BY WALK WAY	VARIES ~ 50%	L	21
455778	VLV	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
455778.1	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
455778.2	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
455778.3	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
455778.4	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
739201	FLG	054	PMP-2P-621A 20FT NW OF 2V-121	VARIES ~ 50%	L	21
739202	FLG	054	PMP-2P-621A 20FT NW OF 2V-121	VARIES ~ 50%	L	21
739203	FLG	054	PMP-2P-621A 20FT NW OF 2V-121	VARIES ~ 50%	L	21
739204	FLG	054	PMP-2P-621B SUC LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
739205	FLG	054	PMP-2P-621A SUC LN 6FT NW OF 2V-121	VARIES ~ 50%	L	21
739206	FLG	054	PMP-2P-621B SUC LN 16FT W OF 2V-121	VARIES ~ 50%	L	21
739207	FLG	054	PMP-2P-621B 20FT W OF 2V-121	VARIES ~ 50%	L	21
739208	FLG	054	PMP-2P-621A 20FT NW OF 2V-121	VARIES ~ 50%	L	21
739210	VLV	054	SE OF OIL BOX 15FT NW OF 2V-121	VARIES ~ 50%	L	21
739211	FLG	054	PMP-2P-621B 20FT W OF 2V-121	VARIES ~ 50%	L	21
739213	FLG	054	PMP-2P-623 20FT SW OF 2V-121 12FT E OF STAIRS	VARIES ~ 50%	L	21
739214	FLG	054	PMP-2P-623 20FT SW OF 2V-121 12FT E OF STAIRS	VARIES ~ 50%	L	21
739215	FLG	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
739216	FLG	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
739217	FLG	054	PMP-2P-623 SUC LN 20FT SW OF 2V-121	VARIES ~ 50%	L	21
739218	FLG	054	ANALYZER POT2 12FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
739219	FLG	054	ANALYZER POT 10FT NW SIDE OF 2V-121	VARIES ~ 50%	L	21
739223	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
739224	FLG	054	BTM OF 2V-121 8FT SE OF OIL BOX	VARIES ~ 50%	L	21
739226	FLG	054	S OF B-382 15FT N OF 2V-182	VARIES ~ 50%	L	21
739227	FLG	054	S OF B-382 15FT N OF 2V-182	VARIES ~ 50%	L	21
739228	FLG	054	S OF B-382 15FT N OF 2V-182	VARIES ~ 50%	L	21
739229	FLG	054	8FT S OF B-382 7FT N OF 2V-182	VARIES ~ 50%	L	21
739230	FLG	054	8FT S OF B-382 7FT N OF 2V-182	VARIES ~ 50%	L	21
739232	FLG	054	PMP-683 6FT NW OF 2V-182 4FT SE OF B-381	VARIES ~ 50%	L	21
739233	FLG	054	PMP-683 6FT NW OF 2V-182 4FT SE OF B-381	VARIES ~ 50%	L	21
739235	FLG	054	PMP-682 SW OF 2V-182 2FT N OF V-126	VARIES ~ 50%	L	21
739236	VLV	054	PMP-682 SUC LN W OF 2V-182	VARIES ~ 50%	L	21
739237	FLG	054	PMP-682 SW OF 2V-182 2FT N OF V-126	VARIES ~ 50%	L	21
UNIT: PVTNK - PV12 - PV16 Tank Area						
1	PMP	013	P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
2	VLV	013	SUC LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
2.1	CON	013	SUC LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
2.2	CON	013	SUC LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
5	VLV	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
11	VLV	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
11.1	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
11.2	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
12	PMP	014	P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
14	VLV	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
14.1	FLG	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
14.2	FLG	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
15	VLV	014	SUC LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
15.1	CON	014	SUC LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
15.2	CON	014	SUC LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
18	VLV	015	BOTTOM W SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
18.1	FLG	015	BOTTOM W SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
18.2	FLG	015	BOTTOM W SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
22	VLV	015	SUC LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
22.1	CON	015	SUC LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
22.2	CON	015	SUC LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
23	VLV	015	DIS LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
26	VLV	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
26.1	FLG	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
26.2	FLG	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
27	VLV	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
27.1	CON	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
27.2	CON	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
29	VLV	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
29.1	FLG	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
29.2	FLG	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
30	VLV	016	SUC LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
30.1	CON	016	SUC LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
30.2	CON	016	SUC LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
31	VLV	016	SUC LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
37	VLV	016	SUC LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
37.1	CON	016	SUC LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
37.2	CON	016	SUC LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
39	VLV	016	BOTTOM W SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
42	VLV	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
42.1	FLG	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
42.2	FLG	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
43	VLV	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
43.1	FLG	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
43.2	FLG	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
44	VLV	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
44.1	FLG	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
44.2	FLG	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
46	VLV	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
46.1	CON	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
46.2	CON	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
48	VLV	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
50	PMP	017	MM-811 MUFFIN MONSTER PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
53	VLV	017	BOTTOM W SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
53.1	CON	017	BOTTOM W SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
53.2	CON	017	BOTTOM W SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
56	VLV	017	W OF TK PV-16 IN DIKE	VARIES ~ 50%	L	21
57	VLV	017	BOTTOM S SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
57.1	FLG	017	BOTTOM S SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
58	VLV	017	BOTTOM S SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
58.1	FLG	017	BOTTOM S SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
58.2	FLG	017	BOTTOM S SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
65	VLV	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
69	VLV	014	BOTTOM W SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
70	VLV	013	BOTTOM NW SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
73	VLV	013	BOTTOM NW SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
73.1	CON	013	BOTTOM NW SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
73.2	CON	013	BOTTOM NW SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
75	VLV	015	BOTTOM NW SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
75.1	CON	015	BOTTOM NW SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
75.2	CON	015	BOTTOM NW SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
85	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
85.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
85.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
86	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
86.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
86.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
87	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
87.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
87.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
88	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
88.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
88.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
89	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
89.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
89.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
90	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
90.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
90.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
91	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
91.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
91.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
92	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
92.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
92.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
93	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
93.1	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
93.2	CON	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
94	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
94.1	FLG	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
94.2	FLG	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
95	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
95.1	FLG	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
95.2	FLG	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
104	AG	017	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
109	AG	016	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
112	AG	015	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-14	VARIES ~ 50%	L	21
117	AG	014	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-13	VARIES ~ 50%	L	21
144	VLV	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
144.1	CON	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
144.2	CON	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
145	VLV	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
145.1	CON	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
145.2	CON	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
146	VLV	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
146.1	FLG	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
147	VLV	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
147.1	FLG	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
147.2	FLG	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
148	VLV	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
148.1	FLG	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
148.2	FLG	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
150	VLV	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
150.1	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
150.2	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
151	VLV	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
151.1	FLG	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
151.2	FLG	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
153	VLV	017	SUC HOSE P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
153.1	CON	017	SUC HOSE P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
153.2	CON	017	SUC HOSE P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
156	VLV	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
156.1	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
156.2	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
157	VLV	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
157.1	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
158	VLV	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
158.1	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
158.2	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
159	VLV	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
159.1	FLG	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
159.2	FLG	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
322	VLV	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
322.1	FLG	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
322.2	FLG	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
14037	VLV	017	15FT N SIDE OF SLURRY BLND TK PV-16 N OF GRN TK	VARIES ~ 50%	L	21
14037.1	FLG	017	15FT N SIDE OF SLURRY BLND TK PV-16 N OF GRN TK	VARIES ~ 50%	L	21
14037.2	FLG	017	15FT N SIDE OF SLURRY BLND TK PV-16 N OF GRN TK	VARIES ~ 50%	L	21
14037.3	CON	017	15FT N SIDE OF SLURRY BLND TK PV-16 N OF GRN TK	VARIES ~ 50%	L	21
14038	FLG	017	15FT N SIDE OF SLURRY BLND TK PV-16 W OF GRN TK	VARIES ~ 50%	L	21
14039	VLV	017	15FT N SIDE OF SLURRY BLND TK PV-16 W OF GRN TK	VARIES ~ 50%	L	21
14040	VLV	017	10FT N SIDE OF SLURRY BLND TK PV-16 S OF GRN TK	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14040.1	FLG	017	10FT N SIDE OF SLURRY BLND TK PV-16 S OF GRN TK	VARIES ~ 50%	L	21
14040.2	FLG	017	10FT N SIDE OF SLURRY BLND TK PV-16 S OF GRN TK	VARIES ~ 50%	L	21
14041	VLV	017	10FT N SIDE OF SLURRY BLND TK PV-16 S OF GRN TK	VARIES ~ 50%	L	21
14041.1	FLG	017	10FT N SIDE OF SLURRY BLND TK PV-16 S OF GRN TK	VARIES ~ 50%	L	21
14041.2	FLG	017	10FT N SIDE OF SLURRY BLND TK PV-16 S OF GRN TK	VARIES ~ 50%	L	21
14257	VLV	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
14257.1	FLG	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
14257.2	FLG	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
14258	PRV	013	TOP W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21
14259	FLG	013	E SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	L	21
14260	VLV	013	TOP W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	L	21
14261	VLV	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	L	21
14261.1	CON	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	L	21
14261.2	CON	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	L	21
14261.3	FLG	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	L	21
14262	PRV	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	V	21
14263	FLG	014	E SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	L	21
14264	VLV	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	L	21
14264.1	CON	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	L	21
14264.2	CON	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	L	21
14264.3	FLG	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	L	21
14265	PRV	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	V	21
14266	FLG	015	E SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	L	21
14267	VLV	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	L	21
14267.1	CON	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	L	21
14267.2	CON	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	L	21
14267.3	FLG	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	L	21
14268	PRV	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	V	21
14269	FLG	016	E SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	L	21
14270	VLV	017	TOP W SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	L	21
14270.1	CON	017	TOP W SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	L	21
14270.2	CON	017	TOP W SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	L	21
14271	PRV	017	TOP W SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	V	21
14272	FLG	017	E SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	L	21
14326	VLV	017	15FT N OF SLURRY BLND TK PV-16 TOP OF GRN TANK	VARIES ~ 50%	L	21
14326.1	FLG	017	15FT N OF SLURRY BLND TK PV-16 TOP OF GRN TANK	VARIES ~ 50%	L	21
14326.2	FLG	017	15FT N OF SLURRY BLND TK PV-16 TOP OF GRN TANK	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14327	AG	017	15FT N OF SLURRY BLND TK PV-16 TOP OF GRN TANK	VARIES ~ 50%	L	21
14386	VLV	015	BOTTOM W SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
14387	VLV	017	SUC LN P-811 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
14387.1	CON	017	SUC LN P-811 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
14387.2	CON	017	SUC LN P-811 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
14388	VLV	013	SE SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
14388.1	CON	013	SE SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
14388.2	CON	013	SE SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
14389	VLV	014	BOTTOM W SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
14389.1	FLG	014	BOTTOM W SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
14389.2	FLG	014	BOTTOM W SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
14390	VLV	014	BOTTOM NW SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
14390.1	CON	014	BOTTOM NW SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
14390.2	CON	014	BOTTOM NW SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
14391	VLV	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
14391.1	FLG	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
14391.2	FLG	017	20FT NW SLURRY BLND TK PV-16 TRCK LDNG AREA	VARIES ~ 50%	L	21
14392	VLV	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14392.1	FLG	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14392.2	FLG	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14393	VLV	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14393.1	FLG	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14393.2	FLG	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14394	VLV	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14394.1	FLG	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14394.2	FLG	017	30FT NW OF SLURRY BLND TK PV-16 TRUCK LDNG PLT	VARIES ~ 50%	L	21
14395	VLV	017	W OF TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14395.1	CON	017	W OF TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14395.2	CON	017	W OF TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14396	VLV	017	W OF TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14396.1	CON	017	W OF TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14396.2	CON	017	W OF TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14397	VLV	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14397.1	CON	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14397.2	CON	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14398	VLV	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14398.1	FLG	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14398.2	FLG	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14399	VLV	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14399.1	CON	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
14399.2	CON	017	BOTTOM SW SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
15103	VLV	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15103.1	CON	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15103.2	CON	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15202	VLV	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15202.1	CON	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15202.2	CON	017	SUC LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15413	VLV	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15413.1	CON	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15413.2	CON	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15418	VLV	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15418.1	FLG	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15418.2	FLG	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15421	VLV	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15421.1	FLG	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15421.2	FLG	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15504	VLV	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15504.1	CON	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
15504.2	CON	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16002	VLV	017	6FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16002.1	FLG	017	6FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16002.2	FLG	017	6FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16006	VLV	017	4FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16006.1	FLG	017	4FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16006.2	FLG	017	4FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16008	VLV	017	5FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16008.1	FLG	017	5FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16008.2	FLG	017	5FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16013	VLV	017	8FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16022	VLV	017	8FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16022.1	CON	017	8FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16022.2	CON	017	8FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16028	VLV	017	5FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16028.1	CON	017	5FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16028.2	CON	017	5FT NW OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
16104	VLV	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
16105	VLV	016	P-616 15FT SW OF SLURRY BLND TK PV-15 OVHD	VARIES ~ 50%	L	21
16105.1	CON	016	P-616 15FT SW OF SLURRY BLND TK PV-15 OVHD	VARIES ~ 50%	L	21
16105.2	CON	016	P-616 15FT SW OF SLURRY BLND TK PV-15 OVHD	VARIES ~ 50%	L	21
16106	VLV	016	P-616 15FT SW OF SLURRY BLND TK PV-15 OVHD	VARIES ~ 50%	L	21
16106.1	FLG	016	P-616 15FT SW OF SLURRY BLND TK PV-15 OVHD	VARIES ~ 50%	L	21
16106.2	FLG	016	P-616 15FT SW OF SLURRY BLND TK PV-15 OVHD	VARIES ~ 50%	L	21
16107	VLV	013	PMP SUC S SIDE SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
16107.1	CON	013	PMP SUC S SIDE SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
16107.2	CON	013	PMP SUC S SIDE SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
17244	VLV	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17244.1	CON	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17244.2	CON	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17245	VLV	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17245.1	CON	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17245.2	CON	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17246	VLV	013	SUC LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17246.1	CON	013	SUC LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17246.2	CON	013	SUC LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17247	VLV	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17247.1	CON	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17247.2	CON	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17248	VLV	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17248.1	CON	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17248.2	CON	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17249	VLV	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17249.1	CON	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17249.2	CON	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17250	VLV	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17250.1	CON	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17250.2	CON	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17251	VLV	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17251.1	FLG	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17251.2	FLG	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17252	VLV	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17252.1	FLG	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17252.2	FLG	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17253	VLV	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17253.1	CON	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17253.2	CON	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17254	VLV	013	BOTTOM SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
17255	VLV	013	BOTTOM SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
17255.1	FLG	013	BOTTOM SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
17255.2	FLG	013	BOTTOM SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
17256	VLV	014	BOTTOM SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17256.1	FLG	014	BOTTOM SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17256.2	FLG	014	BOTTOM SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17257	VLV	014	BOTTOM SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17257.1	FLG	014	BOTTOM SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17257.2	FLG	014	BOTTOM SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17257.3	CON	014	BOTTOM SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17258	VLV	014	BOTTOM W SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17259	VLV	015	BOTTOM SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17259.1	CON	015	BOTTOM SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17259.2	CON	015	BOTTOM SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17260	VLV	015	BOTTOM SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17260.1	CON	015	BOTTOM SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17260.2	CON	015	BOTTOM SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17261	VLV	015	BOTTOM W SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17262	VLV	016	BOTTOM SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17263	VLV	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17263.1	FLG	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17263.2	FLG	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17264	VLV	016	BOTTOM W SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17264.1	CON	016	BOTTOM W SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17264.2	CON	016	BOTTOM W SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17265	VLV	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17265.1	FLG	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17265.2	FLG	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17266	VLV	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17266.1	FLG	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17267	VLV	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17267.1	FLG	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17267.2	FLG	016	BOTTOM E SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17268	VLV	017	BOTTOM E SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17268.1	FLG	017	BOTTOM E SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17269	FLG	017	TOP E SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	L	21
17270	PMP	013	DIAPHRAGM PMP S OF SLURY TK PV-12 BY LADDER	VARIES ~ 50%	L	21
17271	VLV	013	PMP DIS S SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
17271.1	CON	013	PMP DIS S SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
17271.2	CON	013	PMP DIS S SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
17272	VLV	013	PMP SUC S SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
17272.1	CON	013	PMP SUC S SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
17272.2	CON	013	PMP SUC S SIDE OF SLURRY BLND TK PV-12 BY LADDR	VARIES ~ 50%	L	21
17273	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17273.1	CON	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17273.2	CON	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17274	FLG	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17274.1	CON	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17274.2	CON	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17275	VLV	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
17276	CON	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17276.1	CON	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17276.2	CON	017	DIS LN P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17277	VLV	017	LDNG HOSE E OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17277.1	CON	017	LDNG HOSE E OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17277.2	CON	017	LDNG HOSE E OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17278	VLV	017	LDNG HOSE E OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17278.1	CON	017	LDNG HOSE E OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17278.2	CON	017	LDNG HOSE E OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17279	VLV	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17279.1	CON	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17279.2	CON	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17280	VLV	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17280.1	CON	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17280.2	CON	017	10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17281	VLV	017	HOSE 10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17281.1	CON	017	HOSE 10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17281.2	CON	017	HOSE 10FT NE OF P-671 PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17283	VLV	017	10FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17283.1	CON	017	10FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17283.2	CON	017	10FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17285	VLV	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17285.1	CON	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17285.2	CON	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17286	VLV	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17286.1	CON	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17286.2	CON	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17316	VLV	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17316.1	CON	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17316.2	CON	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17317	VLV	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17317.1	CON	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17317.2	CON	014	DIS LN P-614 15FT W OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
17318	VLV	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17318.1	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17318.2	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17319	VLV	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17319.1	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17319.2	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17320	VLV	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17320.1	CON	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17320.2	CON	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17322	VLV	015	DIS LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
17322.1	CON	015	DIS LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
17322.2	CON	015	DIS LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
17323	VLV	015	DIS LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
17323.1	CON	015	DIS LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
17323.2	CON	015	DIS LN P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
17324	VLV	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17324.1	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17324.2	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17325	VLV	013	BOTTOM SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
17326	VLV	016	BOTTOM SW SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17326.1	FLG	016	BOTTOM SW SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17326.2	FLG	016	BOTTOM SW SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17327	VLV	016	BOTTOM SW SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17327.1	FLG	016	BOTTOM SW SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17327.2	FLG	016	BOTTOM SW SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
17329	VLV	017	BOTTOM E SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17329.1	FLG	017	BOTTOM E SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17329.2	FLG	017	BOTTOM E SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17330	VLV	017	BOTTOM SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17331	VLV	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
17331.1	CON	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
17331.2	CON	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
17332	VLV	017	BOTTOM SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17332.1	CON	017	BOTTOM SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17332.2	CON	017	BOTTOM SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17333	VLV	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17334	FLG	016	TOP E SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	L	21
17335	VLV	014	BOTTOM NW SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17336	VLV	013	BOTTOM NW SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
17336.1	FLG	013	BOTTOM NW SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
17336.2	FLG	013	BOTTOM NW SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
17337	VLV	014	BOTTOM NW SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17337.1	CON	014	BOTTOM NW SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17337.2	CON	014	BOTTOM NW SIDE OF SLURRY BLND TK PV-13 IN DIKE	VARIES ~ 50%	L	21
17338	VLV	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17338.1	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17338.2	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17339	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17339.1	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17339.2	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17340	CON	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17340.1	CON	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17340.2	CON	016	DIS LN P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17341	CON	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17341.1	CON	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17341.2	CON	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
17342	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17342.1	CON	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17342.2	CON	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
17343	VLV	015	BOTTOM NW SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17344	VLV	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
17344.1	CON	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
17344.2	CON	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
17345	VLV	017	10FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17345.1	FLG	017	10FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17345.2	FLG	017	10FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17346	VLV	017	BOTTOM E SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17346.1	FLG	017	BOTTOM E SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17346.2	FLG	017	BOTTOM E SIDE OF SLURRY BLND TK PV-16 IN DIKE	VARIES ~ 50%	L	21
17347	VLV	015	BOTTOM NW SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17347.1	CON	015	BOTTOM NW SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17347.2	CON	015	BOTTOM NW SIDE OF SLURRY BLND TK PV-14 IN DIKE	VARIES ~ 50%	L	21
17349	VLV	017	8FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17361	VLV	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17361.1	CON	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17361.2	CON	017	3FT W OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17362	VLV	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17362.1	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17362.2	CON	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17363	VLV	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17363.1	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17363.2	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17364	VLV	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17364.1	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
17364.2	FLG	017	DIS LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
65669	VLV	013	SUC LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65901	FLG	015	SW SIDE OF SLURRY BLND TANK PV-14	VARIES ~ 50%	L	21
65902	FLG	015	SW SIDE OF SLURRY BLND TANK PV-14	VARIES ~ 50%	L	21
65903	FLG	015	NW SIDE OF SLURRY BLND TANK PV-14	VARIES ~ 50%	L	21
65904	FLG	015	NW SIDE OF SLURRY BLND TANK PV-14	VARIES ~ 50%	L	21
65905	FLG	014	SW SIDE OF SLURRY BLND TANK PV-13	VARIES ~ 50%	V	21
65906	FLG	014	NW SIDE OF SLURRY BLND TANK PV-13	VARIES ~ 50%	L	21
65907	FLG	014	NW SIDE OF SLURRY BLND TANK PV-13	VARIES ~ 50%	L	21
65908	FLG	014	SW SIDE OF SLURRY BLND TANK PV-13	VARIES ~ 50%	V	21
65909	FLG	013	S SIDE OF SLURRY BLND TANK PV-12 BY LADDER	VARIES ~ 50%	L	21
65910	FLG	013	TOP W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21
65911	FLG	013	TOP W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
65912	FLG	013	TOP N W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21
65913	FLG	013	TOP N W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21
65917	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
65918	FLG	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
65919	FLG	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
65920	FLG	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
65921	FLG	017	SUC LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
65922	FLG	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
65924	FLG	016	SUC LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
65926	FLG	016	SUC SDE P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
65927	FLG	016	DIS LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
65928	FLG	016	SUC SDE P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
65929	FLG	016	DIS SDE P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
65930	FLG	015	SUC SDE N P-613 15FT SW OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
65931	FLG	014	DIS SDE N P-613 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65934	FLG	014	DIS SDE N P-613 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65935	FLG	014	DIS SDE N P-613 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65936	FLG	014	DIS SDE N P-613 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65937	FLG	014	DIS SDE N P-613 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65938	FLG	014	SUC SDE P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65939	FLG	014	DIS SDE P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65940	FLG	014	DIS SDE N P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65941	FLG	014	DIS SDE N P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65942	FLG	014	DIS SDE P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65943	FLG	014	DIS SDE P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65944	FLG	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65945	FLG	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65946	FLG	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
65947	FLG	013	SUC LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65948	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65949	VLV	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65949.1	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65950	FLG	013	DIS LN N P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65951	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65952	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65953	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
65954	FLG	013	TOP W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
65959	FLG	013	N SIDE OF SLURRY BLND TANK PV-12	VARIES ~ 50%	V	21
65960	FLG	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	V	21
65961	FLG	014	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-13	VARIES ~ 50%	L	21
65962	FLG	014	N SIDE OF SLURRY BLND TANK PV-13	VARIES ~ 50%	L	21
65963	FLG	015	S SIDE OF SLURRY BLND TANK PV-14	VARIES ~ 50%	L	21
65964	FLG	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	V	21
65965	FLG	015	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-14	VARIES ~ 50%	L	21
65966	FLG	015	N SIDE OF SLURRY BLND TANK PV-14	VARIES ~ 50%	L	21
65967	FLG	016	S SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
65968	FLG	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	V	21
65969	FLG	016	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
65970	FLG	016	N SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
65971	FLG	017	S SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
65972	FLG	016	SUC LN P-612 15FT W OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
65984	FLG	017	TOP W SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	V	21
65985	FLG	017	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
65986	FLG	017	TOP NW SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
65987	FLG	017	TOP NW SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
70788	PMP	015	P-613 15FT W OF SLURRY BLND TK PV-14	VARIES ~ 50%	L	21
73558	PMP	017	P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
73603	PMP	017	P-671 OIL RECELVING PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
73722	PMP	016	P-616 15FT SW OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
78257	PMP	017	P-672 OIL RECELVING PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
78287	PMP	016	P-612 15FT W SIDE OF SLURRY BLND TK PV-15	VARIES ~ 50%	L	21
445628	VLV	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
445628.1	FLG	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
445628.2	FLG	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
445630	VLV	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
445630.1	CON	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
445630.2	CON	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
445682	VLV	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
445682.1	CON	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
445682.2	CON	017	DIS LN P-611 PMP 15FT W OF TK PV-16	VARIES ~ 50%	L	21
445773	VLV	017	SUC LN P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
445778	VLV	017	10FT N OF P-672 OIL REC PMP 40FT NW OF TK PV-16	VARIES ~ 50%	L	21
445877	VLV	016	BOTTOM NW SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21
445882	VLV	016	BOTTOM NW SIDE OF SLURRY BLND TK PV-15 IN DIKE	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
445884	VLV	013	BOTTOM SIDE OF SLURRY BLND TK PV-12 IN DIKE	VARIES ~ 50%	L	21
449519	VLV	017	W OF TK PV-16 IN DIKE	VARIES ~ 50%	L	21
449560	VLV	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
449560.1	CON	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
449560.2	CON	014	S OF P-614 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
455885	FLG	014	DIS SDE N P-613 15FT SW OF SLURRY BLND TK PV-13	VARIES ~ 50%	L	21
455886	VLV	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
455886.1	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
455886.2	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
455888	FLG	013	DIS LN P-615 15FT W OF SLURRY BLND TK PV-12	VARIES ~ 50%	L	21
455889	FLG	016	SW SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
455890	FLG	016	SW SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
455891	FLG	016	TOP W SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
455892	FLG	016	TOP W SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
455893	FLG	016	TOP NW SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
455894	FLG	016	TOP NW SIDE OF SLURRY BLND TANK PV-15	VARIES ~ 50%	L	21
455895	FLG	017	S SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
455896	FLG	017	S SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
455898	FLG	017	TOP NW SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
455899	FLG	017	TOP NW SIDE OF SLURRY BLND TANK PV-16	VARIES ~ 50%	L	21
455942	VLV	017	TOP W SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	V	21
455942.1	FLG	017	TOP W SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	V	21
455942.2	FLG	017	TOP W SIDE OF SLURRY BLND TANK PV-16 OFF RAIL	VARIES ~ 50%	V	21
455943	VLV	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	V	21
455943.1	FLG	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	V	21
455943.2	FLG	016	TOP W SIDE OF SLURRY BLND TANK PV-15 OFF RAIL	VARIES ~ 50%	V	21
455944	VLV	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	V	21
455944.1	FLG	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	V	21
455944.2	FLG	015	TOP W SIDE OF SLURRY BLND TANK PV-14 OFF RAIL	VARIES ~ 50%	V	21
455945	VLV	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	V	21
455945.1	FLG	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	V	21
455945.2	FLG	014	TOP W SIDE OF SLURRY BLND TANK PV-13 OFF RAIL	VARIES ~ 50%	V	21
455946	VLV	013	TOP W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21
455946.1	FLG	013	TOP W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21
455946.2	FLG	013	TOP W SIDE OF SLURRY BLND TANK PV-12 OFF RAIL	VARIES ~ 50%	V	21
659958	FLG	013	N SIDE OF SLURRY BLND TANK PV-12	VARIES ~ 50%	V	21
714296	AG	013	TOP MIDDLE SIDE OF SLURRY BLND TANK PV-12	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
UNIT: STTNK - TANKS ST-5, ST-06, ST207, ST-208, ST209 & ST211						
250	PMP	073	P-636 WW LDNG PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
9884.1	CON	072	ABOVE P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
9884	CON	072	ABOVE P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
9881	FLG	072	SUC LN 10FT S OF P-632 15FT E OF TK ST-208	VARIES ~ 50%	L	21
9880	FLG	071	3FT SE OF TNK ST-207	VARIES ~ 50%	L	21
9879	FLG	007	3FT FROM BTM OF TNK ST-06 SW	VARIES ~ 50%	L	21
9878.2	CON	007	SW OF TNK ST-06	VARIES ~ 50%	L	21
9878.1	CON	007	SW OF TNK ST-06	VARIES ~ 50%	L	21
9878	VLV	007	SW OF TNK ST-06	VARIES ~ 50%	L	21
78286	TK	071	BOTTOM CIRCUMFERENCE OF TNK ST-207	VARIES ~ 50%	L	21
765980	FLG	072	5FT S P-632 OIL XFR PMP 10FT E OF TANK ST-208	VARIES ~ 50%	L	21
73623.2	FLG	071	1FT SE OF TNK ST-207	VARIES ~ 50%	L	21
73623.1	FLG	071	1FT SE OF TNK ST-207	VARIES ~ 50%	L	21
73623	VLV	071	1FT SE OF TNK ST-207	VARIES ~ 50%	L	21
73575	TK	072	BOTTOM CIRCUMFERENCE OF TNK ST-208	VARIES ~ 50%	L	21
71021	TK	061	BOTTOM CIRCUMFERENCE OF TNK ST-211	VARIES ~ 50%	L	21
70791	TK	073	BOTTOM CIRCUMFERENCE OF TNK ST-209	VARIES ~ 50%	L	21
65998	FLG	071	SE OF TNK ST-207	VARIES ~ 50%	L	21
65997	FLG	072	BTM OF TNK ST-208 SE	VARIES ~ 50%	L	21
65996	FLG	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
65995	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
65994	FLG	073	1FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
65983	FLG	073	1FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
65982	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
65981	FLG	073	DIS LINE P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
65979	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
65978	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
65977	FLG	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
65976	FLG	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
65975	FLG	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
65974	FLG	072	3FT SW P-632 OIL XFR PMP 10FT E OF TANK ST-208	VARIES ~ 50%	L	21
65973	FLG	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
65715	FLG	072	TOP E OF TK ST-208	VARIES ~ 50%	L	21
65714	FLG	072	TOP E OF TK ST-208	VARIES ~ 50%	L	21
65712	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
65711	FLG	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
65710	FLG	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
65708	FLG	006	TOP SW OF TK ST-05	VARIES ~ 50%	V	21
65707	FLG	006	TOP SE OF TK ST-05	VARIES ~ 50%	V	21
65705	FLG	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
65704	FLG	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
65703	FLG	071	TOP E OF TK ST-207	VARIES ~ 50%	L	21
65702	FLG	071	TOP E OF TK ST-207	VARIES ~ 50%	L	21
65701	FLG	071	TOP E OF TK ST-207	VARIES ~ 50%	L	21
65643	PMP	072	2P-630 COLD OIL FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
654703	PMP	073	P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
445627.4	CON	071	BTM OF TNK ST-207 NE	VARIES ~ 50%	L	21
445627.3	CON	071	BTM OF TNK ST-207 NE	VARIES ~ 50%	L	21
445627.2	FLG	071	BTM OF TNK ST-207 NE	VARIES ~ 50%	L	21
445627.1	FLG	071	BTM OF TNK ST-207 NE	VARIES ~ 50%	L	21
445627	VLV	071	BTM OF TNK ST-207 NE	VARIES ~ 50%	L	21
445624.2	FLG	072	W SIDE OF TNK ST-208	VARIES ~ 50%	L	21
445624.1	FLG	072	W SIDE OF TNK ST-208	VARIES ~ 50%	L	21
445624	VLV	072	W SIDE OF TNK ST-208	VARIES ~ 50%	L	21
445621.2	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
445621.1	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
445621	VLV	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
402.2	FLG	007	IN PIPERACK 12FT NE OF TNK ST-05	VARIES ~ 50%	L	21
402.1	FLG	007	IN PIPERACK 12FT NE OF TNK ST-05	VARIES ~ 50%	L	21
402	VLV	007	IN PIPERACK 12FT NE OF TNK ST-05	VARIES ~ 50%	L	21
399.2	FLG	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
399.1	FLG	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
399	VLV	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
398.2	FLG	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
398.1	FLG	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
398	VLV	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
397.2	FLG	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
397.1	FLG	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
397	VLV	007	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
395	AG	007	TOP MIDDLE OF TK ST-05	VARIES ~ 50%	L	21
393.2	FLG	007	TOP SE OF TK ST-05	VARIES ~ 50%	V	21
393.1	FLG	007	TOP SE OF TK ST-05	VARIES ~ 50%	V	21
393	VLV	007	TOP SE OF TK ST-05	VARIES ~ 50%	V	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
391.2	FLG	006	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
391.1	FLG	006	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
391	VLV	006	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
388.2	CON	006	TOP MIDDLE OF TK ST-06	VARIES ~ 50%	L	21
388.1	CON	006	TOP MIDDLE OF TK ST-06	VARIES ~ 50%	L	21
388	AG	006	TOP MIDDLE OF TK ST-06	VARIES ~ 50%	L	21
386.2	FLG	006	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
386.1	FLG	006	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
386	VLV	006	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
385.2	FLG	006	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
385.1	FLG	006	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
385	VLV	006	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
383.2	FLG	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
383.1	FLG	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
383	VLV	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
382.2	FLG	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
382.1	FLG	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
382	VLV	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
379.2	FLG	071	TOP SE OF TK ST-207	VARIES ~ 50%	L	21
379.1	FLG	071	TOP SE OF TK ST-207	VARIES ~ 50%	L	21
379	VLV	071	TOP SE OF TK ST-207	VARIES ~ 50%	L	21
378	VLV	071	TOP SE OF TK ST-207	VARIES ~ 50%	V	21
375.2	FLG	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
375.1	FLG	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
375	VLV	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
374	VLV	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
371.2	FLG	072	TOP SE OF TK ST-208	VARIES ~ 50%	L	21
371.1	FLG	072	TOP SE OF TK ST-208	VARIES ~ 50%	L	21
371	VLV	072	TOP SE OF TK ST-208	VARIES ~ 50%	L	21
370.2	FLG	072	TOP SE OF TK ST-208	VARIES ~ 50%	V	21
370.1	FLG	072	TOP SE OF TK ST-208	VARIES ~ 50%	V	21
370	VLV	072	TOP SE OF TK ST-208	VARIES ~ 50%	V	21
366.2	FLG	072	25FT NE OFTNK ST-208 15FT N OF PMP 2P-630	VARIES ~ 50%	L	21
366.1	FLG	072	25FT NE OFTNK ST-208 15FT N OF PMP 2P-630	VARIES ~ 50%	L	21
366	VLV	072	25FT NE OFTNK ST-208 15FT N OF PMP 2P-630	VARIES ~ 50%	L	21
365.2	CON	072	18FT NE OFTNK ST-208 15FT N OF PMP P-632	VARIES ~ 50%	L	21
365.1	CON	072	18FT NE OFTNK ST-208 15FT N OF PMP P-632	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
365	VLV	072	18FT NE OFTNK ST-208 15FT N OF PMP P-632	VARIES ~ 50%	L	21
362.2	FLG	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
362.1	FLG	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
362	VLV	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
361.2	FLG	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
361	VLV	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
358.2	CON	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
358.1	CON	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
358	VLV	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
357.2	FLG	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
357.1	FLG	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
357	VLV	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
356.2	FLG	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
356.1	FLG	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
356	VLV	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
355.7	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
355.6	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
355.5	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
355.4	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
355.3	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
355.2	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
355.1	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
355	VLV	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
354	PMP	072	P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
353.2	CON	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
353.1	CON	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
353	VLV	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
352.2	CON	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
352.1	CON	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
352	VLV	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
350.2	FLG	072	ABOVE P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
350.1	FLG	072	ABOVE P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
350	VLV	072	ABOVE P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
349.1	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
349	VLV	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
348.2	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
348.1	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
348	VLV	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
345.2	FLG	072	ABOVE 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
345.1	FLG	072	ABOVE 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
345	VLV	072	ABOVE 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
344.2	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
344.1	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
344	VLV	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
342.2	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
342.1	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
342	VLV	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
341.1	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
341	VLV	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
339	PMP	072	P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
338.3	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
338.2	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
338.1	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
338	VLV	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
336.5	FLG	072	SUC LN 10FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
336.4	CON	072	SUC LN 10FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
336.3	FLG	072	SUC LN 10FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
336.2	FLG	072	SUC LN 10FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
336.1	FLG	072	SUC LN 10FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
336	VLV	072	SUC LN 10FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
33505.3	FLG	072	SUC LN 10FT S OF P-632 15FT E OF TK ST-208	VARIES ~ 50%	L	21
33505.2	FLG	072	SUC LN 10FT S OF P-632 15FT E OF TK ST-208	VARIES ~ 50%	L	21
33505.1	FLG	072	SUC LN 10FT S OF P-632 15FT E OF TK ST-208	VARIES ~ 50%	L	21
33505	VLV	072	SUC LN 10FT S OF P-632 15FT E OF TK ST-208	VARIES ~ 50%	L	21
335.2	CON	072	SUC LN 10FT S OF P-632 15FT E OF TK ST-208	VARIES ~ 50%	L	21
335.1	CON	072	SUC LN 10FT S OF P-632 15FT E OF TK ST-208	VARIES ~ 50%	L	21
335	VLV	072	SUC LN 10FT S OF P-632 15FT E OF TK ST-208	VARIES ~ 50%	L	21
334.2	FLG	072	BTM OF TNK ST-208 SE	VARIES ~ 50%	L	21
334.1	FLG	072	BTM OF TNK ST-208 SE	VARIES ~ 50%	L	21
334	VLV	072	BTM OF TNK ST-208 SE	VARIES ~ 50%	L	21
331.3	CON	072	W SIDE OF TNK ST-208	VARIES ~ 50%	L	21
331.2	CON	072	W SIDE OF TNK ST-208	VARIES ~ 50%	L	21
331.1	FLG	072	W SIDE OF TNK ST-208	VARIES ~ 50%	L	21
331	VLV	072	W SIDE OF TNK ST-208	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
329.2	FLG	071	3FT SE OF TNK ST-207	VARIES ~ 50%	L	21
329.1	FLG	071	3FT SE OF TNK ST-207	VARIES ~ 50%	L	21
329	VLV	071	3FT SE OF TNK ST-207	VARIES ~ 50%	L	21
324.2	FLG	071	1FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21
324.1	FLG	071	1FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21
324	VLV	071	1FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21
321.3	CON	007	BTM OF TNK ST-06 NE	VARIES ~ 50%	L	21
321.2	FLG	007	BTM OF TNK ST-06 NE	VARIES ~ 50%	L	21
321.1	FLG	007	BTM OF TNK ST-06 NE	VARIES ~ 50%	L	21
321	VLV	007	BTM OF TNK ST-06 NE	VARIES ~ 50%	L	21
319.3	CON	007	BTM OF TNK ST-06 W	VARIES ~ 50%	L	21
319.2	CON	007	BTM OF TNK ST-06 W	VARIES ~ 50%	L	21
319.1	FLG	007	BTM OF TNK ST-06 W	VARIES ~ 50%	L	21
319	VLV	007	BTM OF TNK ST-06 W	VARIES ~ 50%	L	21
316.4	CON	006	BTM OF TNK ST-05 NE	VARIES ~ 50%	L	21
316.3	CON	006	BTM OF TNK ST-05 NE	VARIES ~ 50%	L	21
316.2	FLG	006	BTM OF TNK ST-05 NE	VARIES ~ 50%	L	21
316.1	FLG	006	BTM OF TNK ST-05 NE	VARIES ~ 50%	L	21
316	VLV	006	BTM OF TNK ST-05 NE	VARIES ~ 50%	L	21
315.3	CON	006	BTM OF TNK ST-05 W	VARIES ~ 50%	L	21
315.2	CON	006	BTM OF TNK ST-05 W	VARIES ~ 50%	L	21
315.1	FLG	006	BTM OF TNK ST-05 W	VARIES ~ 50%	L	21
315	VLV	006	BTM OF TNK ST-05 W	VARIES ~ 50%	L	21
314.2	FLG	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
314.1	FLG	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
314	VLV	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
312.2	CON	061	TOP OF TNK ST-211 E ON SIDE WALL OF TNK ST-211	VARIES ~ 50%	L	21
312.1	CON	061	TOP OF TNK ST-211 E ON SIDE WALL OF TNK ST-211	VARIES ~ 50%	L	21
312	VLV	061	TOP OF TNK ST-211 E ON SIDE WALL OF TNK ST-211	VARIES ~ 50%	L	21
299.2	CON	073	TOP OF TNK ST-209 W ON SIDE WALL OF TNK ST-209	VARIES ~ 50%	L	21
299.1	CON	073	TOP OF TNK ST-209 W ON SIDE WALL OF TNK ST-209	VARIES ~ 50%	L	21
299	VLV	073	TOP OF TNK ST-209 W ON SIDE WALL OF TNK ST-209	VARIES ~ 50%	L	21
297.2	FLG	073	TOP OF TNK ST-209 W	VARIES ~ 50%	L	21
297.1	FLG	073	TOP OF TNK ST-209 W	VARIES ~ 50%	L	21
297	VLV	073	TOP OF TNK ST-209 W	VARIES ~ 50%	L	21
296.2	FLG	073	TOP OF TNK ST-209 W	VARIES ~ 50%	L	21
296.1	FLG	073	TOP OF TNK ST-209 W	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
296	VLV	073	TOP OF TNK ST-209 W	VARIES ~ 50%	L	21
293.2	FLG	073	TOP OF TNK ST-209 E	VARIES ~ 50%	V	21
293.1	FLG	073	TOP OF TNK ST-209 E	VARIES ~ 50%	V	21
293	VLV	073	TOP OF TNK ST-209 E	VARIES ~ 50%	V	21
261.2	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
261.1	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
261	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
260.2	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
260.1	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
260	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
259.2	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
259.1	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
259	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
258.1	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
258	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
257.4	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
257.3	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
257.2	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
257.1	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
257	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
255.3	FLG	073	4FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
255.2	FLG	073	4FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
255.1	FLG	073	4FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
255	VLV	073	4FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
253.2	FLG	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
253.1	FLG	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
253	VLV	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
252.2	FLG	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
252.1	FLG	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
252	VLV	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17403.1	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17403	VLV	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17402.2	CON	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
17402.1	CON	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
17402	VLV	071	TOP SW OF TK ST-207	VARIES ~ 50%	L	21
17359.2	FLG	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
17359.1	FLG	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17359	VLV	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
17358.2	FLG	073	TOP OF TNK ST-209 E	VARIES ~ 50%	L	21
17358.1	FLG	073	TOP OF TNK ST-209 E	VARIES ~ 50%	L	21
17358	VLV	073	TOP OF TNK ST-209 E	VARIES ~ 50%	L	21
17357.2	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17357.1	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17357	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17356.2	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17356.1	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17356	FLG	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17315.4	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17315.3	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17315.2	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17315.1	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17315	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17314.2	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17314.1	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17314	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17313.2	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17313.1	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17313	VLV	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17312.4	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17312.3	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17312.2	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17312.1	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17312	VLV	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17311.4	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17311.3	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17311.2	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17311.1	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17311	VLV	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17310.2	FLG	072	ABOVE P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17310.1	FLG	072	ABOVE P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17310	VLV	072	ABOVE P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17309.4	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17309.3	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17309.2	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17309.1	CON	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17309	VLV	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17308.2	FLG	073	3FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17308.1	FLG	073	3FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17308	VLV	073	3FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17307.3	FLG	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17307.1	FLG	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17307	VLV	073	DIS LN P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17306.2	CON	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17306.1	CON	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17306	VLV	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17305.2	CON	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17305.1	CON	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17305	VLV	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17304.2	FLG	072	ABOVE P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17304.1	FLG	072	ABOVE P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17304	VLV	072	ABOVE P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17303.2	CON	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17303.1	CON	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17303	VLV	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17302.4	CON	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17302.3	CON	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17302.2	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17302.1	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17302	VLV	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17301.2	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17301.1	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17301	VLV	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17300.5	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17300.4	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17300.3	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17300.2	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17300.1	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17300	VLV	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17296.3	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17296.2	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17296.1	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17296	FLG	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17295.2	CON	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17295.1	CON	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17295	FLG	072	DIS LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17294.2	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17294.1	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17294	FLG	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17293.2	CON	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17293.1	CON	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17293	FLG	072	SUC LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17292.2	CON	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17292.1	CON	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17292	FLG	072	DIS LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17291.2	CON	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17291.1	CON	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17291	CON	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17243.4	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17243.3	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17243.2	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17243.1	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17243	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17242.2	FLG	073	6FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17242.1	FLG	073	6FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17242	VLV	073	6FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17241.2	FLG	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17241.1	FLG	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17241	VLV	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17240.2	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17240.1	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17240	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17239.2	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17239.1	FLG	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17239	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17238.2	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17238.1	CON	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17238	VLV	073	DIS LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
17237.6	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
17237.5	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17237.4	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17237.3	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17237.2	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17237.1	CON	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17237	VLV	072	SUC LN P-632 OIL XFR PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17236.2	CON	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17236.1	CON	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17236	VLV	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17235.2	CON	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17235.1	CON	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17235	VLV	072	DIS LN P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17233.2	FLG	072	SUC LN 12FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
17233.1	FLG	072	SUC LN 12FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
17233	VLV	072	SUC LN 12FT S OF 2P-630 15FT E OF TNK ST-208	VARIES ~ 50%	L	21
17232.2	FLG	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17232.1	FLG	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17232	VLV	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17231.3	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17231.2	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17231.1	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17231	VLV	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17008.3	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17008.2	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17008.1	CON	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
17008	VLV	072	SUC LN 2P-630 FEED PMP 15FT E OF TANK ST-208	VARIES ~ 50%	L	21
16117.2	CON	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
16117.1	CON	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
16117	VLV	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
16116.2	CON	073	25FT SE OFTNK ST-209 5FT S OF PMP P-636	VARIES ~ 50%	L	21
16116.1	CON	073	25FT SE OFTNK ST-209 5FT S OF PMP P-636	VARIES ~ 50%	L	21
16116	VLV	073	25FT SE OFTNK ST-209 5FT S OF PMP P-636	VARIES ~ 50%	L	21
16112.2	CON	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
16112.1	CON	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
16112	VLV	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
16111.2	FLG	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
16111.1	FLG	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
16111	VLV	072	TOP SW OF TK ST-208	VARIES ~ 50%	L	21
16110.2	FLG	007	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
16110.1	FLG	007	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
16110	VLV	007	TOP SE OF TK ST-06	VARIES ~ 50%	V	21
16109.2	FLG	073	10FT SW OFTNK ST-209	VARIES ~ 50%	L	21
16109.1	FLG	073	10FT SW OFTNK ST-209	VARIES ~ 50%	L	21
16109	VLV	073	10FT SW OFTNK ST-209	VARIES ~ 50%	L	21
16108.4	CON	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
16108.3	CON	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
16108.2	CON	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
16108.1	CON	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
16108	VLV	073	SUC LN P-635 WW PMP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
16102.2	FLG	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
16102.1	FLG	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
16102	VLV	007	TOP SW OF TK ST-06	VARIES ~ 50%	L	21
14351	VLV	071	2FT FROM BTM OF TNK ST-207 NW	VARIES ~ 50%	L	21
14350.2	FLG	071	1FT FROM BTM OF TNK ST-207 W	VARIES ~ 50%	L	21
14350.1	FLG	071	1FT FROM BTM OF TNK ST-207 W	VARIES ~ 50%	L	21
14350	VLV	071	1FT FROM BTM OF TNK ST-207 W	VARIES ~ 50%	L	21
14345.3	CON	071	1FT FROM BTM OF TNK ST-207 W	VARIES ~ 50%	L	21
14345.2	CON	071	1FT FROM BTM OF TNK ST-207 W	VARIES ~ 50%	L	21
14345.1	FLG	071	1FT FROM BTM OF TNK ST-207 W	VARIES ~ 50%	L	21
14345	VLV	071	1FT FROM BTM OF TNK ST-207 W	VARIES ~ 50%	L	21
14342.2	FLG	072	BTM OF TNK ST-208 NE	VARIES ~ 50%	L	21
14342.1	FLG	072	BTM OF TNK ST-208 NE	VARIES ~ 50%	L	21
14342	VLV	072	BTM OF TNK ST-208 NE	VARIES ~ 50%	L	21
14340.2	FLG	073	BTM OF TNK ST-209 SE	VARIES ~ 50%	L	21
14340.1	FLG	073	BTM OF TNK ST-209 SE	VARIES ~ 50%	L	21
14340	VLV	073	BTM OF TNK ST-209 SE	VARIES ~ 50%	L	21
14339.3	CON	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21
14339.2	CON	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21
14339.1	FLG	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21
14339	VLV	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21
14338.2	CON	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21
14338.1	CON	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21
14338	VLV	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21
14336	VLV	073	BTM OF TNK ST-209 W	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14325.2	CON	073	18FT SE OFTNK ST-209 10FT S OF PMP P-635	VARIES ~ 50%	L	21
14325.1	CON	073	18FT SE OFTNK ST-209 10FT S OF PMP P-635	VARIES ~ 50%	L	21
14325	VLV	073	18FT SE OFTNK ST-209 10FT S OF PMP P-635	VARIES ~ 50%	L	21
14324.2	FLG	006	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
14324.1	FLG	006	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
14324	VLV	006	TOP SW OF TK ST-05	VARIES ~ 50%	L	21
14323.3	CON	073	1FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
14323.2	CON	073	1FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
14323.1	CON	073	1FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
14323	VLV	073	1FT N OF P-636 WW PP 15FT E OF TNK ST-209	VARIES ~ 50%	L	21
14322.2	CON	073	15FT SE OFTNK ST-209 5FT S OF PMP P-635	VARIES ~ 50%	L	21
14322.1	CON	073	15FT SE OFTNK ST-209 5FT S OF PMP P-635	VARIES ~ 50%	L	21
14322	VLV	073	15FT SE OFTNK ST-209 5FT S OF PMP P-635	VARIES ~ 50%	L	21
14256	FLG	061	TOP OF TNK ST-211 W	VARIES ~ 50%	L	21
14255	PRV	061	TOP OF TNK ST-211 N	VARIES ~ 50%	V	21
14253	FLG	061	TOP OF TNK ST-211 E	VARIES ~ 50%	L	21
14248	FLG	073	TOP OF TNK ST-209 W	VARIES ~ 50%	L	21
14247	PRV	073	TOP OF TNK ST-209 N	VARIES ~ 50%	V	21
14246.3	CON	073	TOP OF TNK ST-209 MID	VARIES ~ 50%	L	21
14246.2	FLG	073	TOP OF TNK ST-209 MID	VARIES ~ 50%	L	21
14246.1	FLG	073	TOP OF TNK ST-209 MID	VARIES ~ 50%	L	21
14246	VLV	073	TOP OF TNK ST-209 MID	VARIES ~ 50%	L	21
14245	FLG	073	TOP OF TNK ST-209 E	VARIES ~ 50%	L	21
14244.2	CON	006	TOP MID OF TK ST-05	VARIES ~ 50%	L	21
14244.1	CON	006	TOP MID OF TK ST-05	VARIES ~ 50%	L	21
14244	VLV	006	TOP MID OF TK ST-05	VARIES ~ 50%	L	21
14243.3	CON	006	TOP MID OF TK ST-05	VARIES ~ 50%	L	21
14243.2	CON	006	TOP MID OF TK ST-05	VARIES ~ 50%	L	21
14243.1	FLG	006	TOP MID OF TK ST-05	VARIES ~ 50%	L	21
14243	VLV	006	TOP MID OF TK ST-05	VARIES ~ 50%	L	21
14242	PRV	006	TOP S OF TK ST-05	VARIES ~ 50%	V	21
14241	FLG	006	TOP E OF TK ST-05	VARIES ~ 50%	L	21
14240	FLG	007	TOP W OF TK ST-06	VARIES ~ 50%	L	21
14239	VLV	007	TOP MID OF TK ST-06	VARIES ~ 50%	L	21
14238	PRV	007	TOP S OF TK ST-06	VARIES ~ 50%	V	21
14237	FLG	007	TOP E OF TK ST-06	VARIES ~ 50%	L	21
14236	FLG	071	TOP W OF TK ST-207	VARIES ~ 50%	L	21

TABLE X.B. - EQUIPMENT LEAKS

LIST ALL PROCESS VENTS COVERED BY THIS APPLICATION

EQUIPMENT ID NUMBER	EQUIPMENT TYPE	WASTE MGMT UNIT NOR NO.	WASTE MANAGEMENT UNIT NAME	% BY WT TOTAL ORGANIC IN HAZ WASTE STREAM	WASTE STATE (GAS/VAPOR/LIQ)	METHOD OF COMPLIANCE
14235	PRV	071	TOP S OF TK ST-207	VARIES ~ 50%	V	21
14234.3	FLG	071	TOP E OF TK ST-207	VARIES ~ 50%	L	21
14234.2	CON	071	TOP E OF TK ST-207	VARIES ~ 50%	L	21
14234.1	CON	071	TOP E OF TK ST-207	VARIES ~ 50%	L	21
14234	VLV	071	TOP E OF TK ST-207	VARIES ~ 50%	L	21
14233	FLG	071	TOP E OF TK ST-207	VARIES ~ 50%	L	21
14232	FLG	072	TOP W OF TK ST-208	VARIES ~ 50%	L	21
14231	PRV	072	TOP S OF TK ST-208	VARIES ~ 50%	V	21
14230.3	FLG	072	TOP E OF TK ST-208	VARIES ~ 50%	L	21
14230.2	CON	072	TOP E OF TK ST-208	VARIES ~ 50%	L	21
14230.1	CON	072	TOP E OF TK ST-208	VARIES ~ 50%	L	21
14230	VLV	072	TOP E OF TK ST-208	VARIES ~ 50%	L	21
14229	FLG	072	TOP E OF TK ST-208	VARIES ~ 50%	L	21
14204	PMP	071	PMP 15FT S TNK ST 10 AND 5FT N TNK ST-207	VARIES ~ 50%	L	21
14055	VLV	071	3FT SE OF TNK ST-207	VARIES ~ 50%	L	21
14054.2	FLG	071	2FT SE OF TNK ST-207	VARIES ~ 50%	L	21
14054.1	FLG	071	2FT SE OF TNK ST-207	VARIES ~ 50%	L	21
14054	VLV	071	2FT SE OF TNK ST-207	VARIES ~ 50%	L	21
14053.2	FLG	071	5FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21
14053.1	FLG	071	5FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21
14053	VLV	071	5FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21
14052.2	FLG	071	3FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21
14052.1	FLG	071	3FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21
14052	VLV	071	3FT FROM BTM OF TNK ST-207 SW	VARIES ~ 50%	L	21

Table X.C. - Tanks, Surface Impoundments, and Containers Subject to Air Emission Controls

List all units covered by this application

Permit Unit No.	Tanks	Design Capacity (Gallons)	Hazardous Waste Maximum Organic Vapor Pressure[1] (Kilopascals)	Tank Used in Waste Stabilization Process (Y, N)	Tank Level Control (1, 2)[2]	Identify Tank Level 2 Control Tank Type and Control Device Type[3]
6	ST-5	23,100	NA	N	2	40 CFR 264.1084.d.3
7	ST-6	18,900	NA	N	2	40 CFR 264.1084.d.3
8	ST-7	12,600	NA	N	2	40 CFR 264.1084.d.3
9	ST-8	12,600	NA	N	2	40 CFR 264.1084.d.3
10	ST-9	12,600	NA	N	2	40 CFR 264.1084.d.3
11	ST-10	12,600	NA	N	2	40 CFR 264.1084.d.3
13	PV-12	9,786	NA	N	2	40 CFR 264.1084.d.3
14	PV-13	9,786	NA	N	2	40 CFR 264.1084.d.3
15	PV-14	9,786	NA	N	2	40 CFR 264.1084.d.3
16	PV-15	9,786	NA	N	2	40 CFR 264.1084.d.3
17	PV-16	9,786	NA	N	2	40 CFR 264.1084.d.3
18	ST-17	63,000	NA	N	2	40 CFR 264.1084.d.3
19	PV-18	25,200	NA	N	2	40 CFR 264.1084.d.3
20	PV-19	25,200	NA	N	2	40 CFR 264.1084.d.3
21	PV-20	25,200	NA	N	2	40 CFR 264.1084.d.3
22	PV-21	25,200	NA	N	2	40 CFR 264.1084.d.3
27	FPV-30	30,870	NA	N	2	40 CFR 264.1084.d.3
28	FPV-31	30,870	NA	N	2	40 CFR 264.1084.d.3

Permit Unit No.	Tanks	Design Capacity (Gallons)	Hazardous Waste Maximum Organic Vapor Pressure[1] (Kilopascals)	Tank Used in Waste Stabilization Process (Y, N)	Tank Level Control (1, 2)[2]	Identify Tank Level 2 Control Tank Type and Control Device Type[3]
29	FPV-32	30,870	NA	N	2	40 CFR 264.1084.d.3
30	FPV-33	30,870	NA	N	2	40 CFR 264.1084.d.3
31	FPV-34	30,870	NA	N	2	40 CFR 264.1084.d.3
32	FPV-35	30,870	NA	N	2	40 CFR 264.1084.d.3
33	FPV-36	30,870	NA	N	2	40 CFR 264.1084.d.3
34	FPV-37	30,870	NA	N	2	40 CFR 264.1084.d.3
61	ST-211	12,600	NA	N	2	40 CFR 264.1084.d.3
65	T-0256	1,147	NA	N	2	40 CFR 264.1084.d.3
66	T-200	5,499	NA	N	2	40 CFR 264.1084.d.3
67	T-64A	17,503	NA	N	2	40 CFR 264.1084.d.3
68	T-64B	26,790	NA	N	2	40 CFR 264.1084.d.3
69	T-64C	23,629	NA	N	2	40 CFR 264.1084.d.3
70	T-64D	3,501	NA	N	2	40 CFR 264.1084.d.3
71	ST-207	21,940	NA	N	2	40 CFR 264.1084.d.3
72	ST-208	17,550 gallons	NA	N	2	40 CFR 264.1084.d.3
72	ST-209	12,600 gallons	NA	N	2	40 CFR 264.1084.d.3
4	ST-2	255,948 gallons	NA	N	2	40 CFR 264.1084.d.3

Permit Unit No.	Surface Impoundments	Control Type (Floating Membrane/ Cover Vented through Closed Vent System to Control Device)[3]

Permit Unit No.	Container Storage Areas	Container Design Capacity (gallons)	In Light Material Service? (Y/N)	Container Level Standard[2](1,2,3)	Container Level Standard 3 Control Types (Closed-Vent System/ Enclosure, Control Device Type)[3]
1	CSA-2	36,720	Y and N	1 and 2	NA
55	CSA-8	10,800	Y and N	1 and 2	NA
56	CSA-9	3,375	Y and N	1 and 2	NA
57	CSA-10	20,793	Y and N	1 and 2	NA
58	CSA-12	48,600	Y and N	1 and 2	NA
59	CSA-13	53,325	Y and N	1 and 2	NA
60	CSA-14	8,700	Y and N	1 and 2	NA

1. Applicable to Tank Level 1 controls determined using procedures in 40 CFR 264.1083(c). If the tank is heated, see 40 CFR 264.1084(b)(ii).
2. See 40 CFR 264.1084(c) and (d) for tanks and 40 CFR 264.1086(b) for containers.
3. See 40 CFR 264.1084(d)(1)-(5) for tanks, 40 CFR 264.1087(c)(1) for control devices, 40 CFR 264.1085(b) for surface impoundments, and 40 CFR 264.1086(c), (d), and (e) for containers.

SECTION XI- Compliance Plan

This section of the application is not applicable; therefore, the specific Tables for this section are not included.

Appendix XI

Compliance Plan

The Clean Harbors San Leon, Inc. does not have any groundwater monitoring or compliance plan.

SECTION XII - Hazardous Waste Permit Application Fee

Table XII.A

Not applicable

Table XII.B. - Hazardous Waste Permit Application Fee Worksheet

Name of Facility: CLEAN HARBORS SAN LEON, INC

Solid Waste Registration Number: 50355

1. Process Analysis - $1,000..... $ 1,000
2. Facility Management Analysis - $500..... $ 500
3. Unit Analysis - 34 units @ $500 per unit..... $ 17,000
4. Site Evaluation - 26 acres @ $100 per acre..... $ 2,600
   (Maximum of 300 acres)
5. Minor amendment, Class 1, or Class 1[1] modification - $100..... $ 0
6. Cost of Providing Notice - $50 (+ $15 for a renewal)..... $ 65

Pay This Amount x **Total** $ 21,165

Make Checks Payable To:

Texas Commission on Environmental Quality - Fund 549
(your canceled check will be your receipt)

Complete And Return With Payment To:

Texas Commission on Environmental Quality
Financial Administration Division - MC 214
P.O. BOX 13088
Austin, Texas 78711-3088

The applicant's fees are subject to evaluation by the technical staff of the Texas Commission on Environmental Quality (TCEQ). However, the TCEQ reserves the right to assess further fees as may be necessitated.

Please do not submit a photocopy of the check (or equivalent transaction submittal) with your application packet but provide only the following account information:

Check No.	Date of Check	Check Amount

APPENDIX A

DRAWINGS

PIPING SYMBOLS

- GATE VALVE
- GLOBE VALVE
- BALL VALVE
- PLUG VALVE
- CHECK VALVE
- 3-WAY VALVE
- PRESSURE RELIEF VALVE
- FLAME ARRESTOR (F/A)
- DETONATION ARRESTOR (D/A)
- SPECTACLE BLIND
- PROCESS LINE
- ELECTRICAL LINE
- PNEUMATIC LINE

INSTRUMENT SYMBOLS

DA XXX	DETONATION ARRESTOR	LI XXX	LEVEL INDICATOR
DP XXX	DIFFERENTIAL PRESSURE	LT XXX	LEVEL TRANSMITTER
FA XXX	FLOW ALARM	LV XXX	LEVEL VALVE
FCV XXX	FLOW CONTROL VALVE	PAH XXX	PRESSURE ALARM HIGH
HLAH XXX	HIGH LEVEL ALARM HIGH	PAL XXX	PRESSURE ALARM LOW
HLS XXX	HIGH LEVEL SHUTDOWN	PCV XXX	PRESSURE CONTROL VALVE
FSV XXX	FLOW SWITCH VALVE	PI XXX	PRESSURE INDICATOR
LAH XXX	LEVEL ALARM HIGH	PRV XXX	PRESSURE RELIEF VALVE
LLAL XXX	LOW LEVEL ALARM LOW	PSH XXX	PRESSURE SWITCH HIGH
LAL XXX	LEVEL ALARM LOW	PSL XXX	PRESSURE SWITCH LOW
LC XXX	LEVEL CONTROLLER	PT XXX	PRESSURE TRANSMITTER
LCV XXX	LEVEL CONTROL VALVE	PVRV XXX	PRESSURE/VACUUM RELIEF VALVE
HLS XXX	LEVEL FLOW SHUTDOWN	TI XXX	TEMPERATURE INDICATOR
LG XXX	LEVEL GAGE	TT XXX	TEMPERATURE TRANSMITTER

PIPING PROCESS LEGEND

NAME	DESCRIPTION	NAME	DESCRIPTION
A	INSTRUMENT AIR	N	NITROGEN
CH	PROCESS CHEMICALS	NAP	NAPHTHA
CWS	COOLING WATER SUPPLY	NG	NATURAL GAS
CWR	COOLING WATER RETURN	OE	DESORBER OIL
FO	FUEL OIL	OEV	DESORBER OIL VAPOR
FOA	FOAM	PW	POTABLE WATER
FW	FIRE WATER	S	SOLIDS
HOV	HAZARDOUS VAPOR	STM	STEAM
HOEV	HAZARDOUS VAPOR	TW	TREATED WATER
HUW	HAZARDOUS UNTREATED WATER	UW	UNTREATED WATER
HOE	HAZARDOUS WASTE DERIVED FUELS	VPR	VAPOR
HW	HAZARDOUS WASTE DERIVED FUELS		
HWF	HAZARDOUS WASTE DERIVED FUELS		
HWDF	HAZARDOUS WASTE DERIVED FUELS		

PLOT PLANS

DRAWING NUMBER	NAME
100	TOPOGRAPHIC MAP
102	FIREWATER & FOAM SYSTEM LOCATION PLAN
102-A	SAFETY EQUIPMENT LOCATION PLAN
103	SITE PLAN - PROPERTY BOUNDRY
104-A	PROPOSED FACILITY PLAN - WASTE PRETREATMENT BUILDING
105	EVACUATION ROUTES AND ASSEMBLY AREAS
107	FACILITY PLOT PLAN

FOUNDATION PLANS

DRAWING NUMBER	NAME
500	CONCRETE/STRUCTURAL GENERAL NOTES
504	FOUNDATION PLAN AREA "A"
504-A	FOUNDATION SECTIONS & DETAILS AREA "A"
505	FOUNDATION PLAN AREA "B"
505-A	STRUCTURAL PLAN & DETAILS AREA "B"
506	FOUNDATION PLAN AREA "C"
506-A	FOUNDATION SECTION & DETAIL AREA "D"
506-B	STRUCTURAL PLAN & DETAILS AREA "C"
507	FOUNDATION PLAN SECTION & DETAIL AREA "D"

P & ID'S

DRAWING NUMBER	NAME
300	WEST TRUCK UNLOADING STATION P&ID
301	ST-17 P&ID
302	ST-5, 6, 7, 8 DESORBER OIL TANKS P&ID
303	PV-18,19,20,21 USED OIL TANKS P&ID
304	DESORBER OIL CENTRIFUGE & FILTER PRESS P&ID
305	FPV-34, 35, 36 & 37 HWDF TANKS P&ID
306	ST-9, 10 & 211 WASTEWATER RECEIVING AND TRANSFER P&ID
307	FPV-30, 31, 32 & 33 EMULSION MIX TANKS P&ID
308	OIL EMULSION CENTRIFUGE SYSTEM P&ID
312	PV-12, 13, 14, 15 & 16 BLEND TANKS P&ID
313	DISSOLVED AIR FLOTATION UNIT P&ID
314	FEED SYSTEM THERMAL DESORBER UNIT 1
315	THERMAL DESORPTION SYSTEM UNIT 1
316	THERMAL DESORPTION SYSTEM UNIT 2
317	OVERHEAD LIQUIDS VESSELS P&ID
320	THERMAL OXIDIZER P&ID
321	EMISSIONS RECOVERY LINE

CONTAINER STORAGE AREA PLANS

DRAWING NUMBER	NAME
T-001-CC-106-D	CONTAINER STORAGE AREAS CSA-8 & CSA-12
T-001-CC-107-D	CONTAINER STORAGE AREAS CSA-13 & CSA-14
T-001-CC-108-D	CONTAINER STORAGE AREAS CSA-10
T-001-CC-109-D	CONTAINER STORAGE AREAS CSA-2 & CSA-9

SECONDARY CONTAINMENT

DRAWING NUMBER	NAME
400	SECONDARY CONTAINMENT AREA "A"
401	SECONDARY CONTAINMENT AREA "B"
402	SECONDARY CONTAINMENT AREA "C"
403	SECONDARY CONTAINMENT AREA "D"
404	SECONDARY CONTAINMENT AREA "G"
405	SECONDARY CONTAINMENT AREA "H"
406	SECONDARY CONTAINMENT AREA "E"
407	SECONDARY CONTAINMENT AREA "F"

PROPOSED DETAIL PLANS

DRAWING NUMBER	NAME
501	PROPOSED PLAN WASTE PRETREATMENT BUILDING
502	PROPOSED SECTIONS WASTE PRETREATMENT BUILDING
503	PROPOSED STRUCTURAL DETAILS WASTE PRETREATMENT BUILDING

REFERENCE DRAWINGS

NO.	DATE	REVISIONS	BY	APP.
4	1/23/25	2025 PERMIT RENEWAL APPLICATION	WS	KS
3	1/7/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAQL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	SW	SC
0	6/24/92	1992 PERMIT APPLICATION	SW	SC

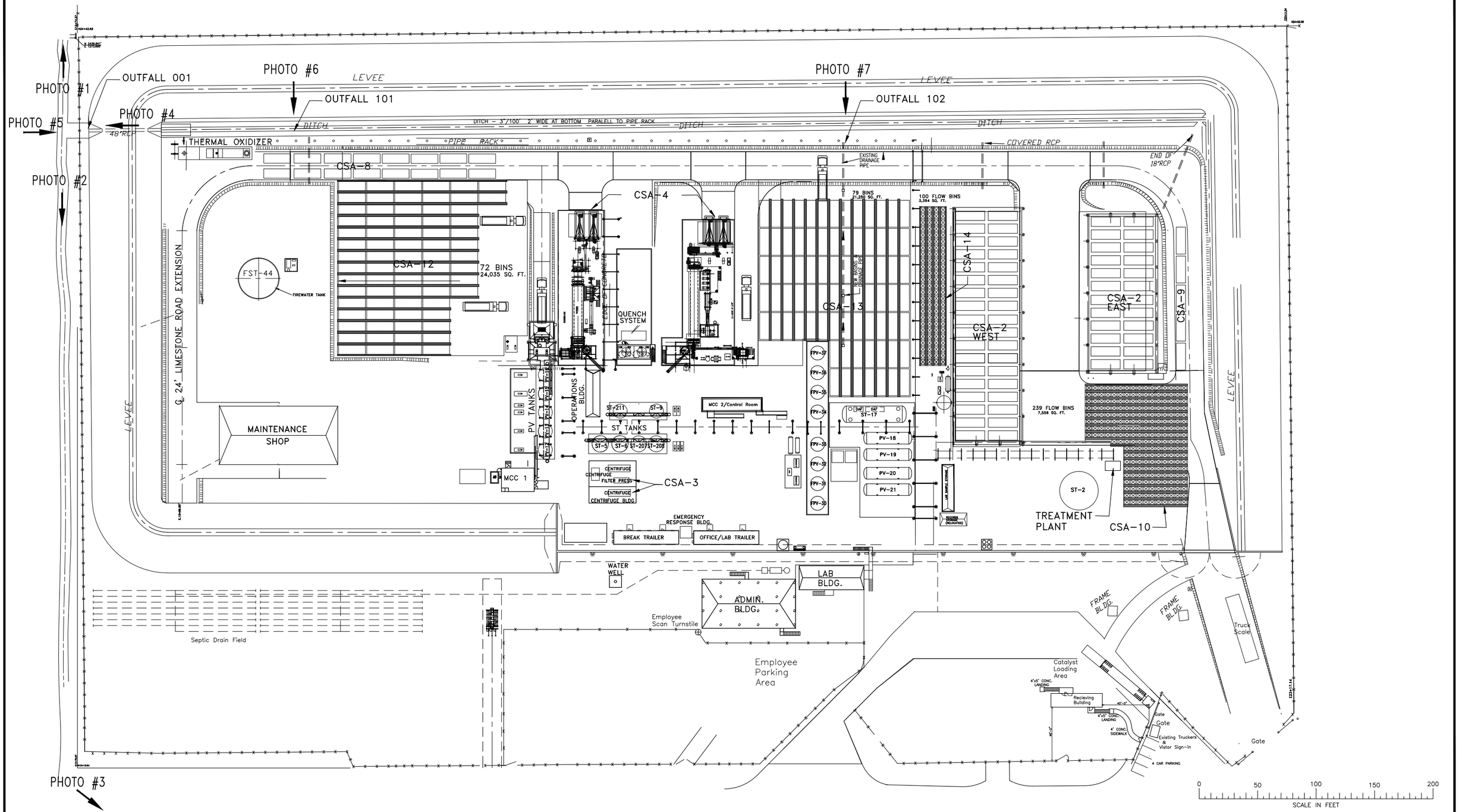
ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/4/92
CHECKED	SID	6/4/92
APPROVED	BH	6/4/92

CleanHarbors® SAN LEON, INC.

SCALE: N.T.S.

LEGEND SHEET

DRAWING NUMBER 001 REV. 4



REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	6	6/9/21	ISSUED FOR TPDES PERMIT	WDS	REL
	5	2/22/18	ISSUED FOR TPDES PERMIT	WDS	REL
	4	5/24/17	REVISED FOR ST TANK REPLACEMENT	WDS	REL
	3	2/17/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	SC
	0	9/8/93	1992 PERMIT APPLICATION	CR	SC

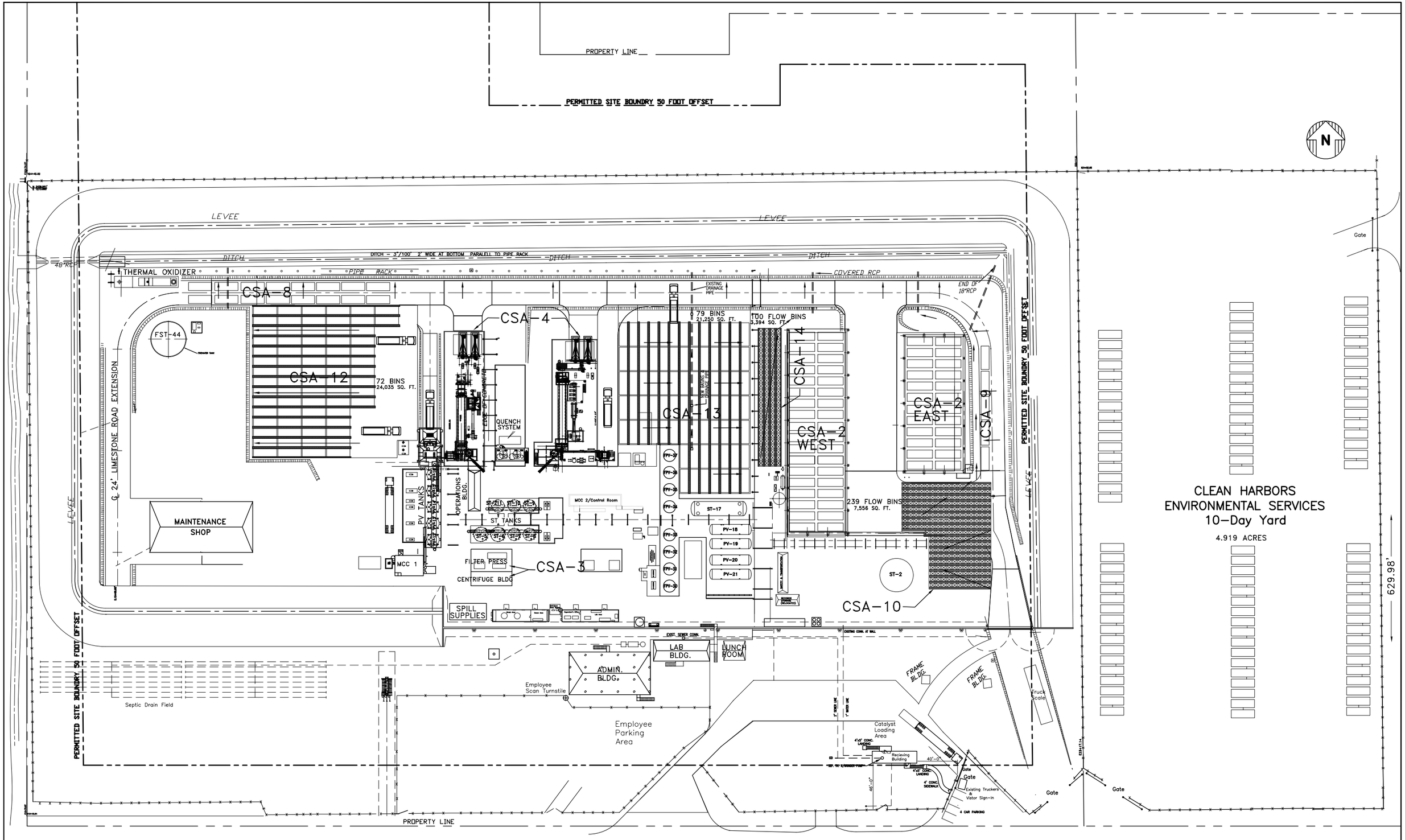
ENGINEERS RECORDS		DATE
DRAWN BY:	RT	9/8/93
CHECKED	SID	9/8/93
APPROVED	BH	9/8/93

CleanHarbors®
SAN LEON, INC.

SCALE: 1"=50'

FACILITY PLOT PLAN

DRAWING NUMBER 107 REV. 6



0 50 100 150 100

SCALE IN FEET

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
12	2014 PERMIT RENEWAL APPLICATION	WDS	3/26/14	REL
11	REVISED TANK NO. ST-111 TO ST-211	WDS	8/27/13	REL
10	REPLACED ST-11 WITH ST-111	WDS	6/18/13	REL
9	REVISED TANK NUMBERS	WDS	5/7/13	REL
8	REVISED DRAINAGE SLOPES & ADDED 50' OFFSET	WDS	3/19/13	REL
7	ADDED SECOND BIN STORAGE AREA & FLOW BINS	WDS	1/24/13	REL

CleanHarbors®
SAN LEON, INC.

DRAWN	CHECKED	SCALE	DATE
WDS	REL	1"=40'	9/29/11

TITLE: SITE PLAN

001CC001

DRAWING NO.: T-001-CC-001-D

REV.: 12

THERMAL OXIDIZER

PIPE RACK

CSA-8

.01% SLOPE

.01% SLOPE

.01% SLOPE

VARIES

VARIES

20'-0"

145'-0"

.01% SLOPE

FST-44

FIREWATER TANK

150'-0"

80'-0"

CSA-12

72 BINS

.01% SLOPE

121'-0"

50'-0"

.01% SLOPE

2'-0" TYP.

8'-0" TYP.

25 CY BIN

25 CY BIN

25 CY BIN

25 CY BIN

1'-0"

23'-0"

1'-0"

1'-0"

1'-0"

97'-0"

N

DESORBER PAD

DESORBER

0 50 100

SCALE IN FEET

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
C	2014 PERMIT RENEWAL APPLICATION	WDS	3/27/14	REL
B	ADDED % SLOPE & REVISED TITLE	WDS	3/19/13	REL
A	FOR APPROVAL	WDS	12/11/12	REL

CleanHarbors®

SAN LEON, INC.

DRAWN	CHECKED	SCALE	DATE
WDS	REL	1"=10'	12/11/12

TITLE 001CC106

PLAN
CONTAINER STORAGE AREAS
CSA-8 & CSA-12

DRAWING NO. T-001-CC-106-D

REV. C

Control Room

2T-221

169'-0"

48'-0"

121'-0"

16'-7"

54'-4½"

131'-0"

76'-7½"

71'-0"

FPV-32

FPV-33

FPV-34

FPV-35

FPV-36

FPV-37

ST-17

PV-20

PV-19

PV-18

CSA-13

79 BINS

21,250 SQ. FT.

.0086% SLOPE

.0086% SLOPE

.018% SLOPE

.026% SLOPE

NEW BASINS & DRAINAGE PIPE

EXISTING DRAINAGE PIPE

DITCH

LEVEE

N

1'-0"

1'-0" TYP.

23'-0"

2'-0" TYP.

8'-0" TYP.

25 CY BIN

25 CY BIN

25 CY BIN

25 CY BIN

136'-5"

2'-2½"

45" x 53" FLOW BIN

CSA-14

100 FLOW BINS

3,394 SQ. FT.

.005% SLOPE

3'-9"

2'-0" TYP.

1'-0" TYP.

0 50 100

SCALE IN FEET

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
C	2014 PERMIT RENEWAL APPLICATION	WDS	3/27/14	REL
B	ADDED % SLOPE, REVISED DIRECTION & TITLE	WDS	3/19/13	REL
A	FOR APPROVAL	WDS	1/17/13	REL

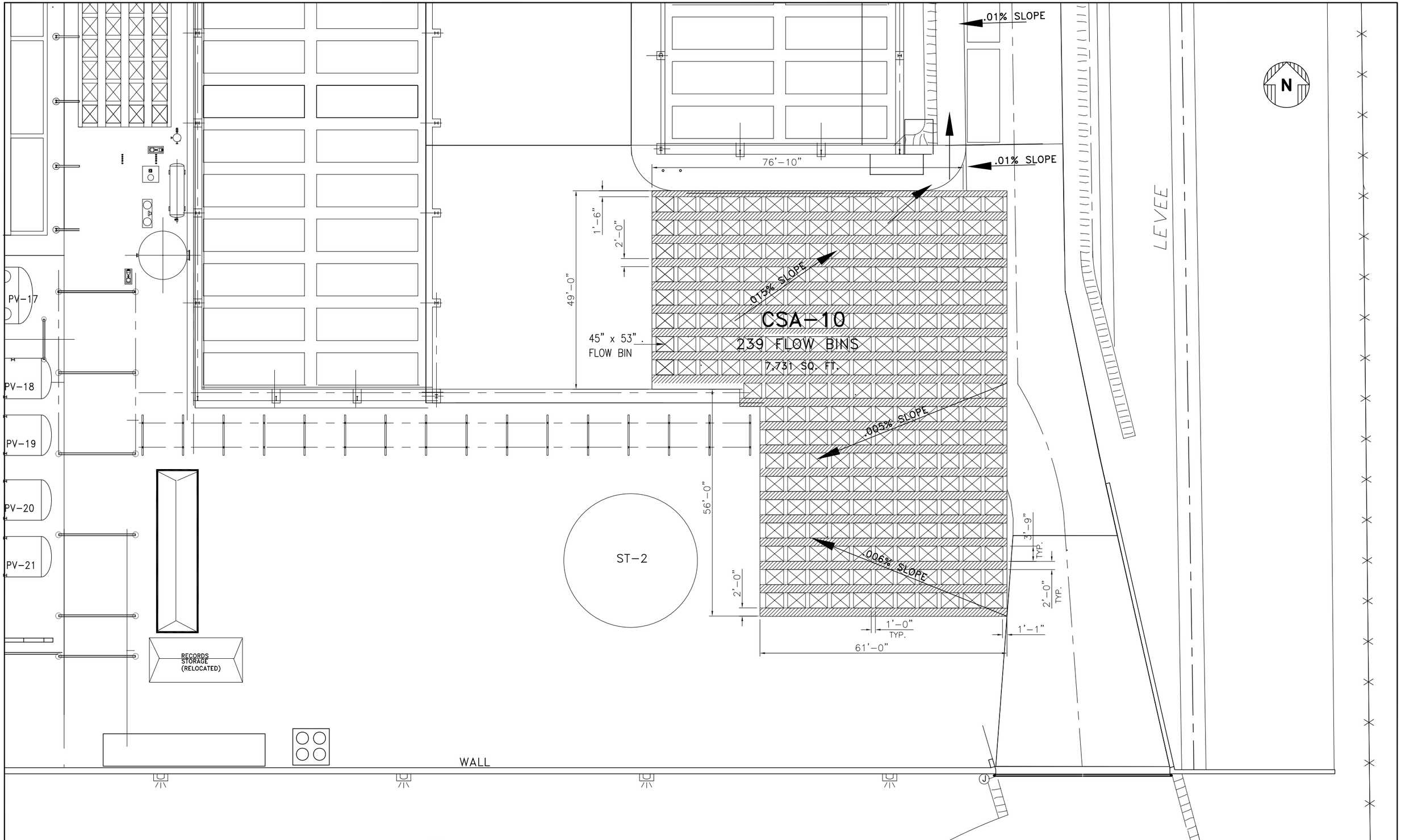
CleanHarbors®
SAN LEON, INC.

TITLE 001CC107

PLAN
CONTAINER STORAGE AREAS
CSA-13 & CSA-14

DRAWN	CHECKED	SCALE	DATE
WDS	REL	1"=10'	1/17/13

DRAWING NO. T-001-CC-107-D REV. C



REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
C	2014 PERMIT RENEWAL APPLICATION	WDS	3/27/14	REL
B	ADDED % SLOPE, REVISED ARRANGEMENT & TITLE	WDS	3/20/13	REL
A	FOR APPROVAL	WDS	1/23/13	REL

CleanHarbors®
SAN LEON, INC.

DRAWN	CHECKED	SCALE	DATE
WDS	REL	1"=10'	1/23/13

TITLE 001CC108

PLAN
CONTAINER STORAGE AREA
CSA-10

DRAWING NO. T-001-CC-108-D REV. C

CSA-2
WEST

DITCH

COVERED RCP

N

ST-2

CSA-10

131'-9"

3'-0"

CSA-2
EAST
7,510 SQ. FT.

3'-0"

57'-0"

.01% SLOPE

CSA-9

.01% SLOPE

.01% SLOPE

0 50

SCALE IN FEET

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
C	2014 PERMIT RENEWAL APPLICATION	WDS	3/27/14	REL
B	ADDED % SLOPE & REVISED TITLE	WDS	3/20/13	REL
A	FOR APPROVAL	WDS	12/11/12	REL

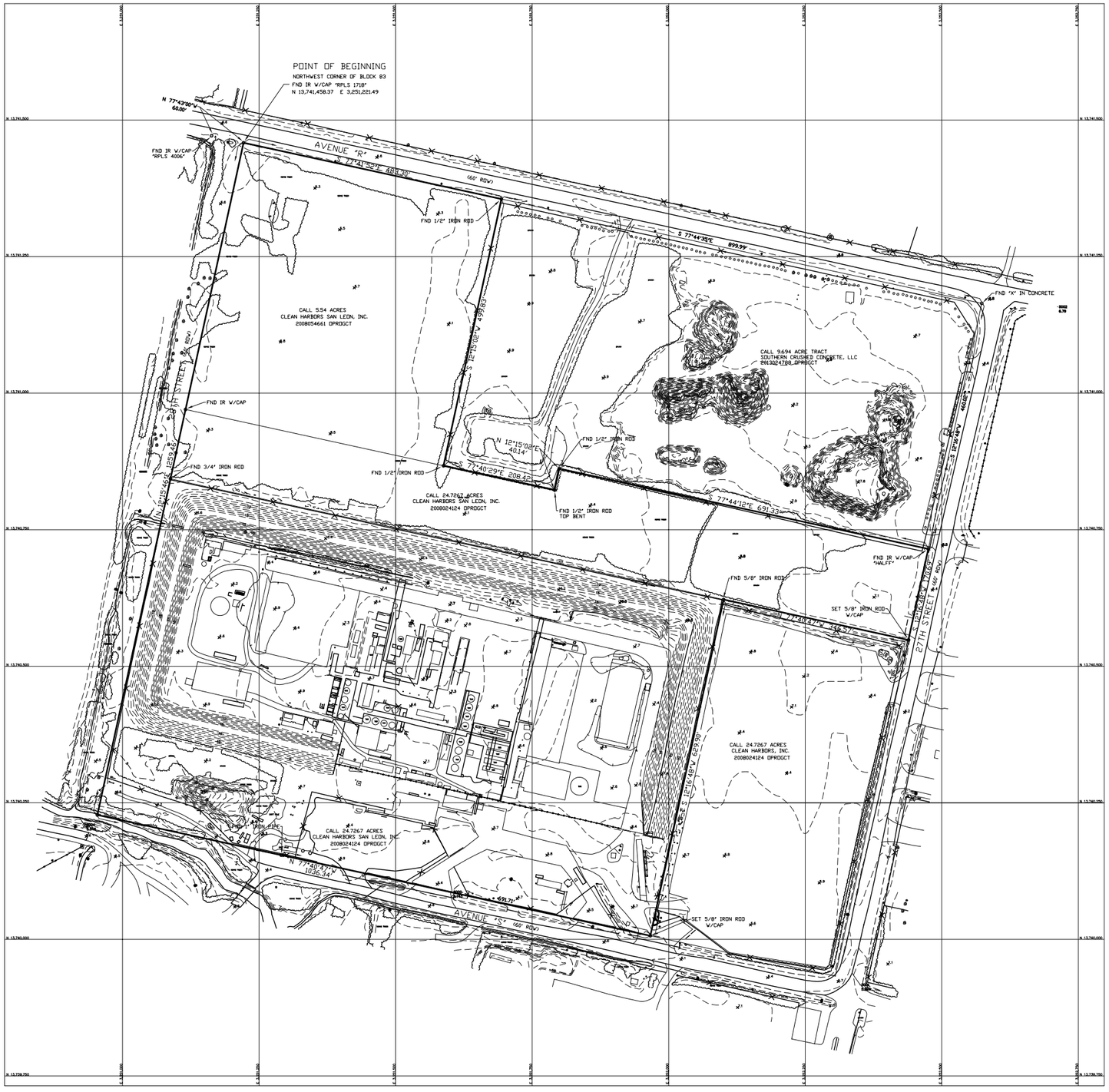
CleanHarbors®
SAN LEON, INC.

DRAWN	CHECKED	SCALE	DATE
WDS	REL	1"=10'	12/11/12

TITLE 001CC106

PLAN
CONTAINER STORAGE AREAS
CSA-2 EAST &
CSA-9

DRAWING NO. H-001-CC-109-D REV. C



100 0 100 200 300

GRAPHIC SCALE – FEET

N

BEARINGS AND COORDINATES BASED ON TEXAS COORDINATE SYSTEM
SOUTH CENTRAL ZONE NAD83 (2011)(EPOCH:2010.0000)
ELEVATIONS BASED ON NAVD88 (GEOID12A)

OPRDGCT DENOTES OFFICIAL PUBLIC RECORDS OF GALVESTON COUNTY, TEXAS

BOUNDARY OVERLAYED OVER DALLAS AERIAL SURVEYS, INC. MAP (JOB NO. 14104)
PHOTO DATE: 2-13-2014

AERIAL TARGETS SET BY MARTIN SURVEY ASSOCIATES, INC.

BOUNDARY SURVEYED ON THE GROUND: FEB. 07 THRU MARCH 20TH, 2014.

NAMES	DATE
DRAWN BY: KAD	03/2014
DESIGN:	
CHECKED:	
R. L. S.:	
APP'D:	
APP'D:	
APP'D:	

25.30 ACRE TRACT
BEING PART OF
BLOCK 83
SAN LEON FARM HOME TRACTS
VOL. 5, PG. 51, GALVESTON COUNTY MAP RECORDS
AMOS EDWARDS SURVEY, A-10
GALVESTON COUNTY, TEXAS

MARTIN SURVEY ASSOCIATES, INC.
PROFESSIONAL SURVEYORS, BOUNDARY CONSTRUCTION & TOPOGRAPHIC SURVEYS
8810 WILL CLAYTON PARKWAY SUITE "F"
HUMBLE, TEXAS 77338
(281) 446-8899

MARTIN FILE: DURATHERM FACILITY_TOPO_MSABDRY.DWG

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.
0	3/27/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/27/14
CHECKED	REL	3/27/14
APPROVED	REL	3/27/14

CleanHarbors®
SAN LEON, INC.

SCALE: AS NOTED

TOPOGRAPHIC MAP
CLEAN HARBORS SAN LEON, INC.

DRAWING NUMBER 100-A REV. 0

SEE DWG. 103

PROPERTY LINE

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

N

LEVEE

LEVEE

DITCH

DITCH - 3'/100' 2' WIDE AT BOTTOM PARALELL TO PIPE RACK

DITCH

DITCH

48"RC

THERMAL OXIDIZER

PIPE RACK

COVERED RCP

END OF 18"RCP

EXISTING DRAINAGE PIPE

CSA-8

CSA-4

CSA-12

CSA-13

CSA-14

CSA-2 EAST

CSA-2 WEST

CSA-9

STORM WATER PUMP

FST-44

FIREWATER TANK

QUENCH SYSTEM

ZONE OF CONTROL

OPERATIONS BLDG.

MCC 2/Control Room

ST TANKS

PV TANKS

MAINTENANCE SHOP

MCC 1

FILTER PRESS

CENTRIFUGE BLDG

CSA-3

EMERGENCY RESPONSE BLDG.

BREAK TRAILER

OFFICE/LAB TRAILER

ST-2

CSA-10

EXIST. SEWER CONN.

EXISTING CONN. AT WALL

LAB BLDG.

ADMIN. BLDG.

Employee Scan Turnstile

Septic Drain Field

Employee Parking Area

FRAME BLDG.

FRAME BLDG.

Truck Scale

Catalyst Loading Area

Receiving Building

40'-0"

46'-0"

Existing Truckers & Visitor Sign-in

4 CAR PARKING

Gate

Gate

Gate

Gate

Gate

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

LEVEE

24' LIMESTONE ROAD EXTENSION

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

PROPERTY LINE

CLEAN HARBORS
ENVIRONMENTAL SERVICES
10-Day Yard
4.919 ACRES

LEGEND

- MONITOR ON HYDRANT W/FOAM ATTACHMENT
- HOSE REEL
- 12" FIREWATER LOOP
- DELUGE SYSTEM

0 50 100 150 200
SCALE IN FEET

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	3	1/4/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	WC
	0	9/8/93	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	RT	9/8/93
CHECKED	SID	9/8/93
APPROVED	BH	9/8/93

CleanHarbors
SAN LEON, INC.

SCALE: AS NOTED

SITE PLAN
FIREWATER AND FOAM SYSTEM

DRAWING NUMBER 102 REV. 3

SEE DWG. 103

PROPERTY LINE

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

N

LEVEE

LEVEE

DITCH

DITCH = 3"/100' 2' WIDE AT BOTTOM PARALELL TO PIPE RACK

DITCH

48"RCP

THERMAL OXIDIZER

PIPE RACK

COVERED RCP

EXISTING DRAINAGE PIPE

END OF 18"RCP

STORM WATER PUMP

CSA-8

CSA-4

CSA-12

CSA-13

CSA-14

CSA-2 WEST

CSA-2 EAST

CSA-9

FST-44

QUENCH SYSTEM

PV-13

PV-14

PV-15

PV-16

PV-17

PV-18

PV-19

PV-20

PV-21

OPERATIONS BLDG.

MCC 2/Control Room

DAF ST-17

ST-5 ST-6 ST-7 ST-8

ST-2

CSA-10

MAINTENANCE SHOP

MCC 1

CENTRIFUGE

FILTER PRESS

CENTRIFUGE

CENTRIFUGE BLDG.

CSA-3

EMERGENCY RESPONSE BLDG.

BREAK TRAILER

BREAK TRAILER

EXIST. SEWER CONN.

EXISTING CONN. AT WALL

LAB BLDG.

ADMIN. BLDG.

Employee Scan Turnstile

Employee Parking Area

Septic Drain Field

FRAME BLDG.

SCALE HOUSE

Truck Scale

Catalyst Loading Area

4"x5' CONC. LANDING

SEP. TK. W/GRINDER PUMP

Warehouse Building

4"x5' CONC. LANDING

4" CONC. SIDEWALK

4 CAR PARKING

Gate

Gate

Gate

Gate

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

PROPERTY LINE

CLEAN HARBORS
ENVIRONMENTAL SERVICES
10-Day Yard
4.919 ACRES

LEGEND

- FIRST AID
- PHONE
- EYEWASH & SAFETY SHOWER
- FIRE EXTINGUISHER
- B – BREATHING AIR
- S – SPILL RESPONSE CABINET
- FIRE EXTINGUISHER CART

0 50 100 150 200
SCALE IN FEET

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	3	1/4/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	WC
	0	9/8/93	1992 PERMIT APPLICATION	CR	SC

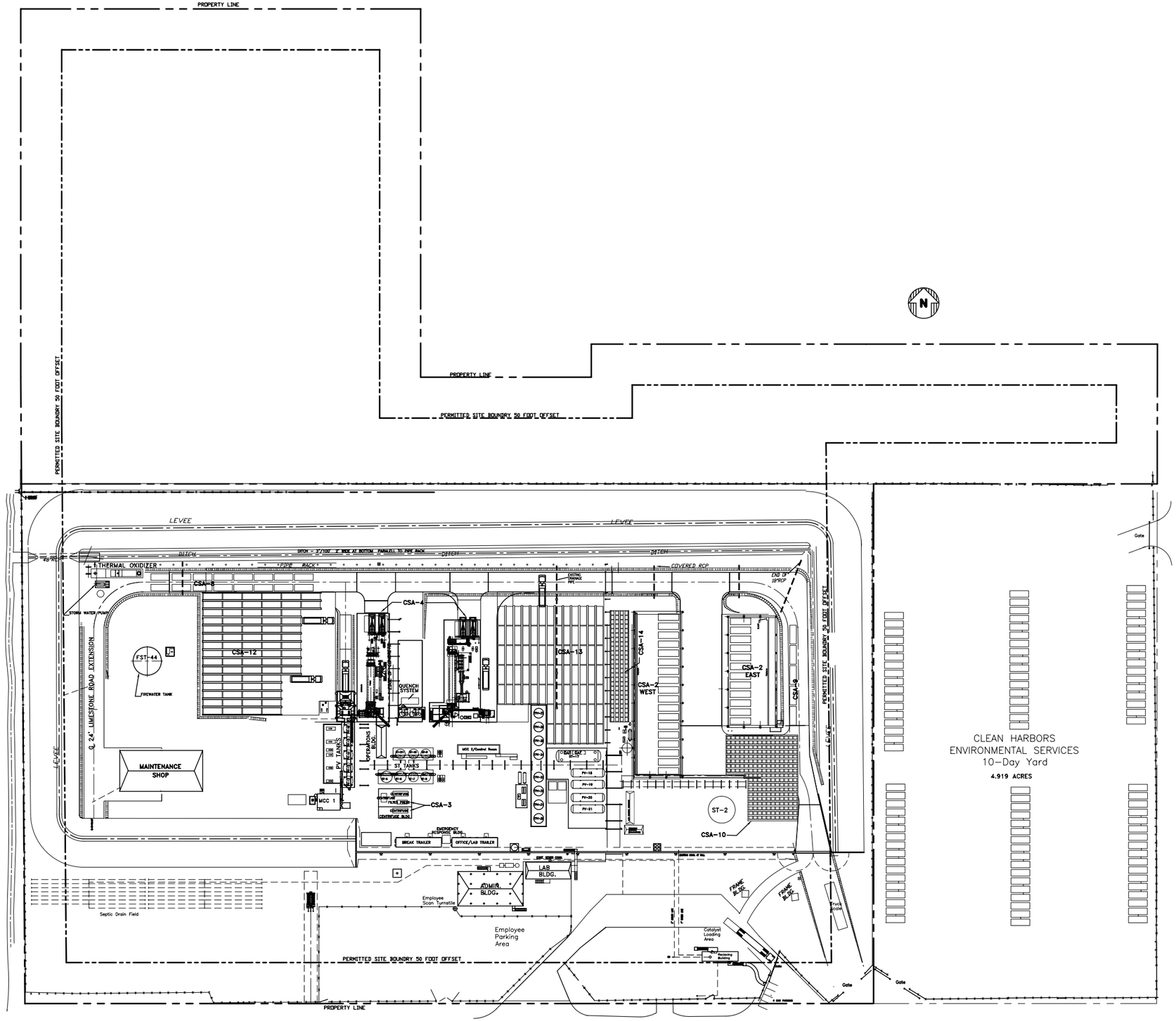
ENGINEERS RECORDS		DATE
DRAWN BY:	RT	9/8/93
CHECKED	SID	9/8/93
APPROVED	BH	9/8/93

CleanHarbors®
SAN LEON, INC.

SCALE: AS NOTED

SITE PLAN
SAFETY EQUIPMENT

DRAWING NUMBER 102-A REV. 3



REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	0	3/14/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

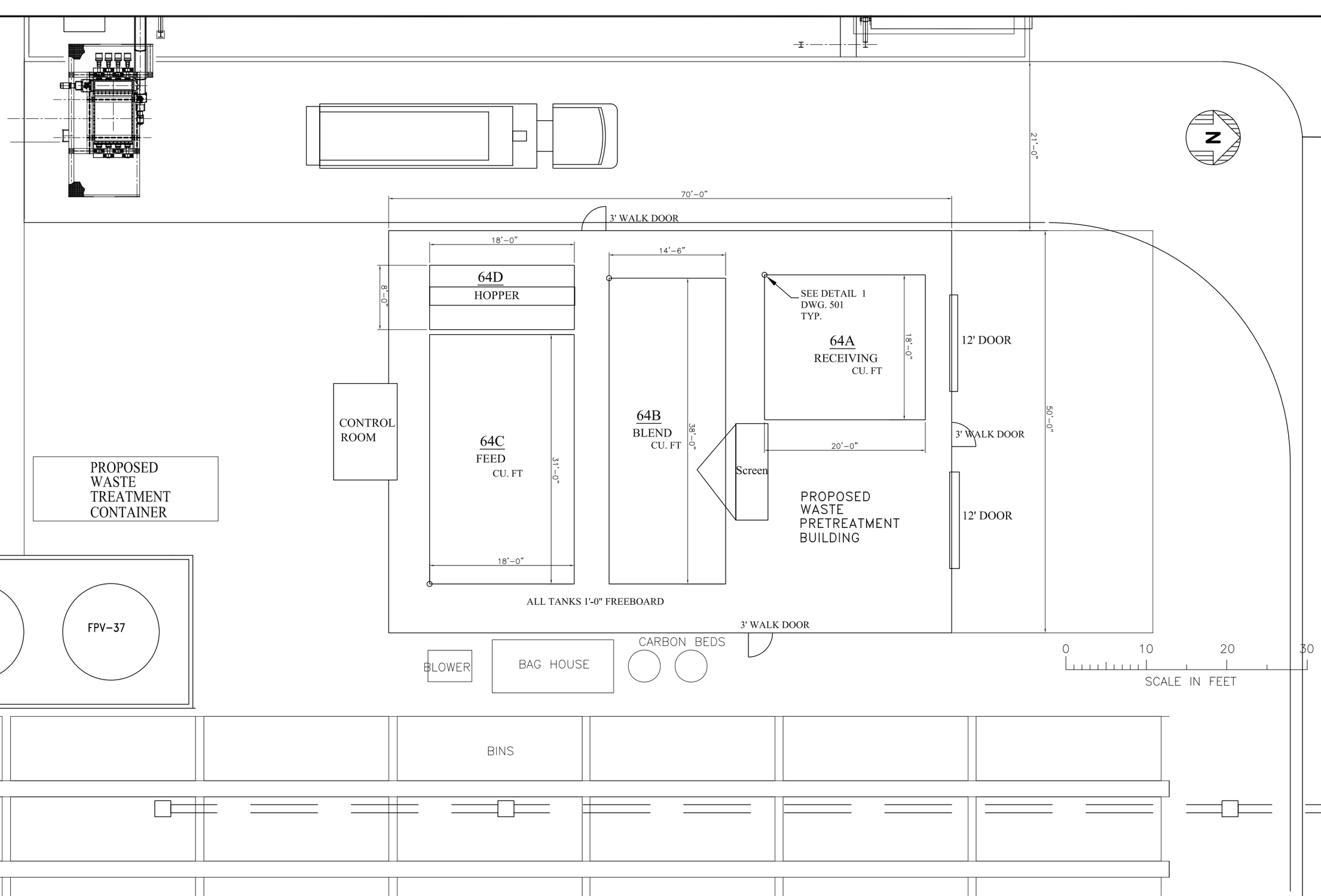
ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/10/14
CHECKED	REL	3/14/14
APPROVED	REL	3/14/14

CleanHarbors®
SAN LEON, INC.

SCALE: AS NOTED

SITE PLAN
PROPERTY LINE
WITH 50 FT. OFFSET

DRAWING NUMBER 103 REV. 0



REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	0	3/10/14	2014 PERMIT RENEWAL APPLICATION	WDS	AW

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/10/14
CHECKED	REL	3/10/14
APPROVED	REL	3/10/14

CleanHarbors®
SAN LEON, INC.

SCALE: AS NOTED

PROPOSED FACILITY PLAN
WASTE PRETREATMENT BUILDING

DRAWING NUMBER: 104-A

REV. 0

SEE DWG. 103

PROPERTY LINE

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

N

LEVEE

LEVEE

DITCH – 3"/100' 2' WIDE AT BOTTOM PARALELL TO PIPE RACK

DITCH

DITCH

DITCH

48"RCP

THERMAL OXIDIZER

PIPE RACK

COVERED RCP

EXISTING DRAINAGE PIPE

END OF 18"RCP

CSA-8

CSA-4

STORM WATER PUMP

CSA-12

CSA-13

CSA-14

CSA-2 WEST

CSA-2 EAST

CSA-9

FST-44

FIREWATER TANK

EDGE OF CONCRETE

QUENCH SYSTEM

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

Gate

CLEAN HARBORS
ENVIRONMENTAL SERVICES
10-Day Yard
4.919 ACRES

LEVEE

C 24' LIMESTONE ROAD EXTENSION

MAINTENANCE SHOP

PV TANKS

OPERATIONS BLDG.

MCC 2/Control Room

ST TANKS

ST-211 ST-10 ST-9 ST-5 ST-6 ST-7 ST-8

ST-17

PV-18 PV-19 PV-20 PV-21

PV-30 PV-31 PV-32 PV-33 PV-34 PV-35 PV-36

MCC 1

CENTRIFUGE
CENTRIFUGE FILTER PRESS
CENTRIFUGE
CENTRIFUGE BLDG.

CSA-3

ST-2

CSA-10

EMERGENCY RESPONSE BLDG.

BREAK TRAILER

OFFICE/LAB TRAILER

EXIST. SEWER CONN.

EXISTING CONN. AT WALL

LAB BLDG.

ADMIN. BLDG.

Employee Scan Turnstile

Septic Drain Field

PERMITTED SITE BOUNDRY 50 FOOT OFFSET

PRIMARY ASSEMBLY AREA

Employee Parking Area

FRAME BLDG.

FRAME BLDG.

Truck Scale

Catalyst Loading Area

8" WATER LINE

6" WATER LINE

Wastewater Building

Gate

Gate

Gate

SECONDARY ASSEMBLY AREA

0 50 100 150 200

SCALE IN FEET

PROPERTY LINE

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	0	3/12/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/11/14
CHECKED	REL	3/12/14
APPROVED	REL	3/12/14

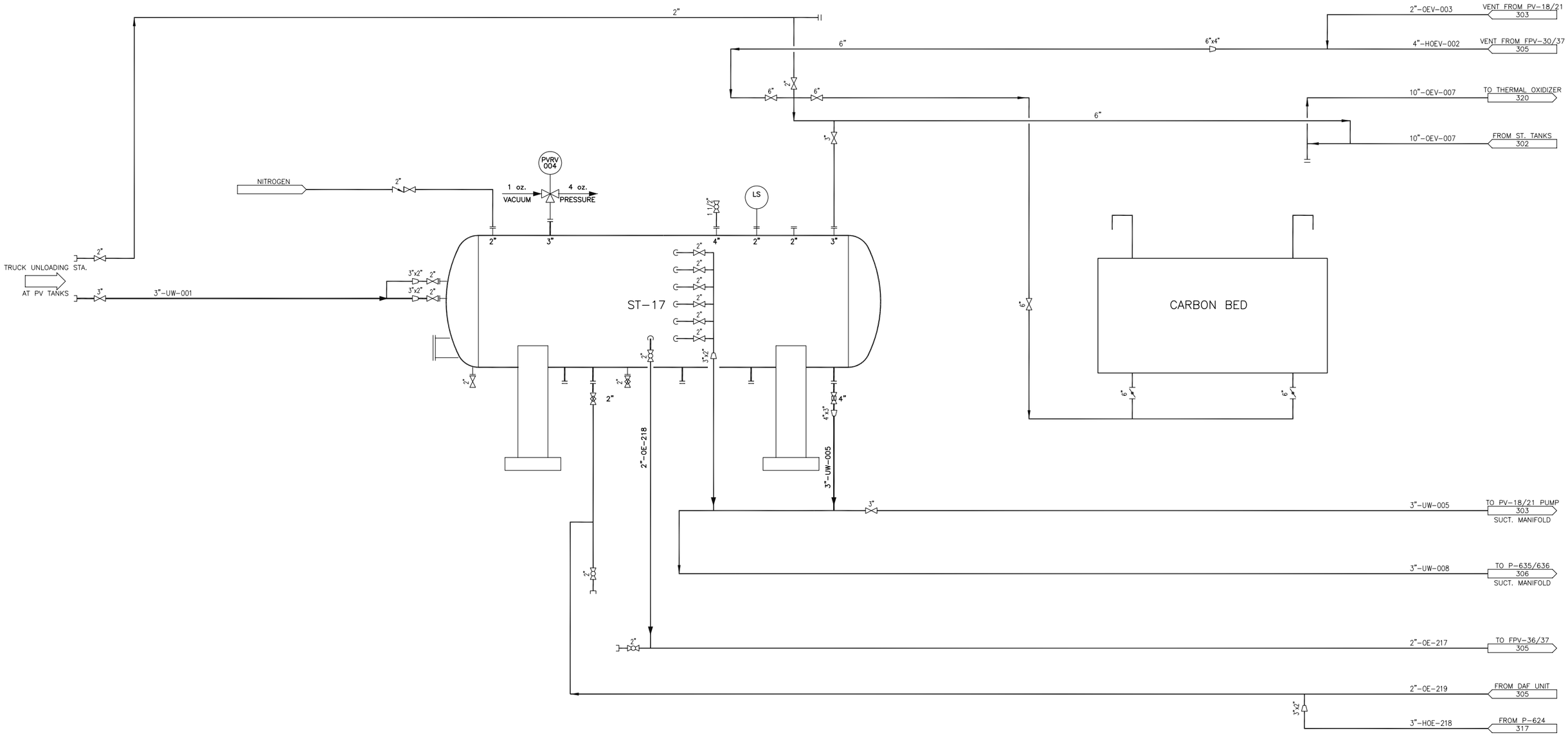
CleanHarbors®
SAN LEON, INC.

SCALE: AS NOTED

EVACUATION ROUTES AND ASSEMBLY AREAS

DRAWING NUMBER 105 REV. 0

ST-17
WASTEWATER STORAGE TANK
1500 BBLS
14'ø x 47'-9" s/s



REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	2/1/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED	BH	6/24/92

CleanHarbors®
SAN LEON, INC.

SCALE: N.T.S.

ST-17
STORAGE TANK
P&ID

DRAWING NUMBER 301 REV. 3

ST-5
DESORBER OIL STORAGE TANK
300 BBLS
12'ø×15'H

ST-6
DESORBER OIL STORAGE TANK
300 BBLS
12'ø×15'H

ST-7
DESORBER OIL STORAGE TANK
300 BBLS
12'ø×15'H

ST-8
DESORBER OIL STORAGE TANK
300 BBLS
12'ø×15'H

VENT HDR. 312
FR. PV-12/16
FR. P-624 317
@ COOLING UNIT AREA
FR. P-672 300
@ WEST TRUCK UNLOADING
FR. P-671 300
@ WEST TRUCK UNLOADING
EXCH. @ UNIT
@ PV-16
FR. ST TANK AREA 306
SCREW PUMP
FR. FILTER PRESS 304
FR. FILTER PRESS 304

10"-OEV-007
2"-HOE-181
3"-OE-019
3"OE-012
1"-HOE-035
3"-OE-031
3"-OE-032

3"-OEV-008 FROM ST-211 306
3"-OEV-009 FROM ST-10 306
3"-OEV-010 FROM ST-9 306
10"-OEV-007 VENT HDR. TO 301 C BEDS & TOXIDIZER
3"-HOE-182 TO PV-18/21 303
2" FROM UNIT (MULTIPLE SORCES)
1" TO UNIT
3"-OEV-015 FROM CENTRIFUGE BLDG. 308

HS START/STOP
PVRV 005 1 OZ. VAC. 4 OZ. PRESS.
LT
M
BF
ST-5
ST-6
ST-7
ST-8
24"x36" M.W.
BETWEEN ST-9 & 10

2"-OE-056 TO WEST TRUCK 305 LOADING AREA
2"-OE-055 TO WEST TRUCK 305 LOADING AREA
2"-OE-051 TO FPV-30/37 305
3"-OE-052 TO FPV-30/37 HDR 307
3"-OE-053 TO PV-18/21 303
3"-OE-054 TO WEST TRUCK 3123 LOADING AREA
1"-OE-057 TO CENTRIFUGE 1 304

PI
2P-630
P-630
P-632

2P- 630
P- 630
P- 632

REFERENCE DRAWINGS				NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	2/1/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED	BH	6/24/92

CleanHarbors
SAN LEON, INC.

SCALE: N.T.S.

ST-5, 6, 7, 8
DESORBER OIL STORAGE TANKS
P&ID

DRAWING NUMBER 302 REV. 3

PV-18
USED OIL TANK
600 BBLS.
10'øx36' s/s

PV-19
USED OIL TANK
600 BBLS.
10'øx36' s/s

PV-20
USED OIL TANK
600 BBLS.
10'øx36' s/s

PV-21
USED OIL TANK
600 BBLS.
10'øx36' s/s

FROM P-632
302
@ ST-5/8
3"-OE-053

NITROGEN
2"

FROM P-624
302
3"-HOE-182

TO VENT HEADER
301
2"-OEV-003

PCV
PVRV
LS
PV-18
PV-19
PV-20
PV-21

FROM ST-17
301
3"-UW-005

@ WALL UNDER ST-17

TRUCK LOADING/ UNLOADING @ SOUTH PV TANK AREA

AREA SUMP

OUTSIDE WALL

3"-OE-108
TO FPV-30/37
305

2"-OE-142
TO FPV-36/37
305

OUTSIDE WALL

PI
HS
START/ STOP
M
P

4"x4"	25 HP
880 RPM	

3"x2"	40 HP
1800 RPM	

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.
3	2/1/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED	BH	6/24/92

CleanHarbors
SAN LEON, INC.

SCALE: N.T.S.

PV-18, 19, 20 & 21
USED OIL TANKS
P&ID

DRAWING NUMBER 303 REV. 3

TO VENT HDR. 308

4" FLEX DUCT

FILTER PRESS
(OUT OF SERVICE)

BIN

TO ST-211 306

3"

TO 4" BTM. HDR. 302
BETWEEN ST-6 & 7

3"-OE-032

3"x2"

PT

HS START/ STOP

M

PROCESS VESSEL

CENTRIFUGE 2

CENTRIFUGE 1

FLEX CHUTE

ALT.

T-0256

@ WEST DOOR

1"-OE-029

TO PV-13 312

3"-OE-026

TO PV-13 312

3"-OE-031

TO 2P-630 302

1"-OE-057

FROM P-632 302 (ST-7 & 8)

BIN

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.
3	3/1/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED	BH	6/24/92

CleanHarbors®
SAN LEON, INC.

SCALE: N.T.S.

DESORBER OIL
CENTRIFUGE AND FILTER PRESS
P&ID

DRAWING NUMBER 304 REV. 3

FPV – 33
EMULSION MIX TANK
735 BBLS.
12'ø x 32'S/S

FPV – 32
EMULSION MIX TANK
735 BBLS.
12'ø x 32'S/S

FPV – 31
EMULSION MIX TANK
735 BBLS.
12'ø x 32'S/S

FPV – 30
EMULSION MIX TANK
735 BBLS.
12'ø x 32'S/S

FPV–37 FPV–36 FPV–35 FPV–34

HS START/ STOP
M
NITROGEN
PCV
PSV 1 1/2"
24" .W.M

4"–HOEV–002
4"–OEV–002 VENT FROM FPV–30/33 307
4"–HOEV–002 VENT TO HEADER 301
3"x2"
2"–OE–220 TO DAF UNIT 313
4"–HOE–116 FROM P–635 307
FROM PUMP @ ST–5/8 302
2"–OE–051
2"–OE–142 FROM PUMP 303 @ PV–18/21
3"–OE–041 FROM P– 308 @ CENT. TANK
2"–OE–063 TO FPV–30/33 307 HEADER
3"–OE–043 FROM P– 308 @ CENT. TANK
2"–OE–217 FROM ST–17 301
3"–OE–052 FR. PUMP @ ST–5/8 302
3"–OE–108 FROM PUMP @ PV–18/19 303
6"–OE–064 TO PUMP SUCT. HDR. 307 @ FPV–30/33
3"–OE–061 FROM P–635 307
3"–OE–062 TO ST–9 306

P–

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.
3	2/1/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED	BH	6/24/92

CleanHarbors
SAN LEON, INC.

SCALE: N.T.S.

FPV-34, 35, 36 & 37 EMULSION TANKS P&ID

DRAWING NUMBER 305 REV. 3

ST-9
STORAGE TANK
300 BBLS
12'ø×15'H

ST-10
STORAGE TANK
300 BBLS
12'ø×15'H

ST-211
STORAGE TANK
300 BBLS
12'ø×15'H

HDR. @ PV-33
305
3"-OE-062
BF
@ PV-12
FR. P-625 &
P-627
TO VENT HDR.
302
3"-OEV-008
3"-OE-025
308
FR. FILTER PRESS
304
TO VENT HDR.
302
3"-OEV-009
FR. AREA SUMP PUMPS
TO VENT HDR.
302
3"-OEV-010
FR. PUMP @
320
THERMAL OXIDIZER
TRUCK UNLOADING
OUTSIDE CONTAINMENT WALL
OUT OF SERVICE
@ P-663
SEAL
PIPE SLEEVE
@ ST-2
UNDERGROUND
FROM OUT OF SERVICE
SKID UNIT UNDER ST-17
@ BIN AREA
W. OF FPV-37
PVRV 005
1 OZ. VAC.
4 OZ. PRESS.
LT
LS
ST-9
ST-10
ST-211
24"x36" M.W.
CONTAINMENT AREA @ PV-12
4"-HOE-116
TO FPV-34/37
307
3"-HOE-032
TO WEST TRUCK
312
LOADING H.C.
TO ST-5
302
1"-HOE-035
2"-HOE-031
TO WEST TRUCK
312
LOADING AREA
FR. ST-17
301
3"-UW-008
PI
HS
START/
STOP
OPEN
P-635
P-636
CONTAINMENT AREA
FOR ST-5/211
TO HTR-3

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	2/1/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED	BH	6/24/92

CleanHarbors
SAN LEON, INC.

SCALE: N.T.S.

ST-9, 10, 211 WASTEWATER RECEIVING & TRANSFER TANKS P&ID

DRAWING NUMBER: 306
REV.: 3

FPV – 33
EMULSION MIX TANK
735 BBLS.
12'ø x 32'S/S

FPV – 32
EMULSION MIX TANK
735 BBLS.
12'ø x 32'S/S

FPV – 31
EMULSION MIX TANK
735 BBLS.
12'ø x 32'S/S

FPV – 30
EMULSION MIX TANK
735 BBLS.
12'ø x 32'S/S

HS START/ STOP

VENT TO HEADER 305

4"-0EV-002

NITROGEN

PCV

M

FPV-33

FPV-32

FPV-31

FPV-30

24" M.W.

TE

TO FPV-34/37 305 — 3"-0E-061

TO FPV-34/37 305 — 2"-0E063

4"HOE-117

TO P-635 306 — 4"-HOE-116

TO FPV-34/37 305 — 4"-HOE-116

FROM P-612 312 — 3"-0E-077

FR. FPV-34/37 305 BTMS. HEADER — 6"-0E-064

TRUCK LOADING/ UNLOADING @ SOUTH FPV-30 AREA

PI

4"-0E-065 TO EXCH. AT CENTRIFUGE

P-

REFERENCE DRAWINGS				NO.	DATE	REVISIONS	BY	APP.
				3	2/1/14	2014 PERMIT RENEWAL APPLICATION	WDS	AW
				2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
				1	4/1/94	PERMIT APPROVAL	CR	SC
				0	6/24/92	1992 PERMIT APPLICATION	CR	SC

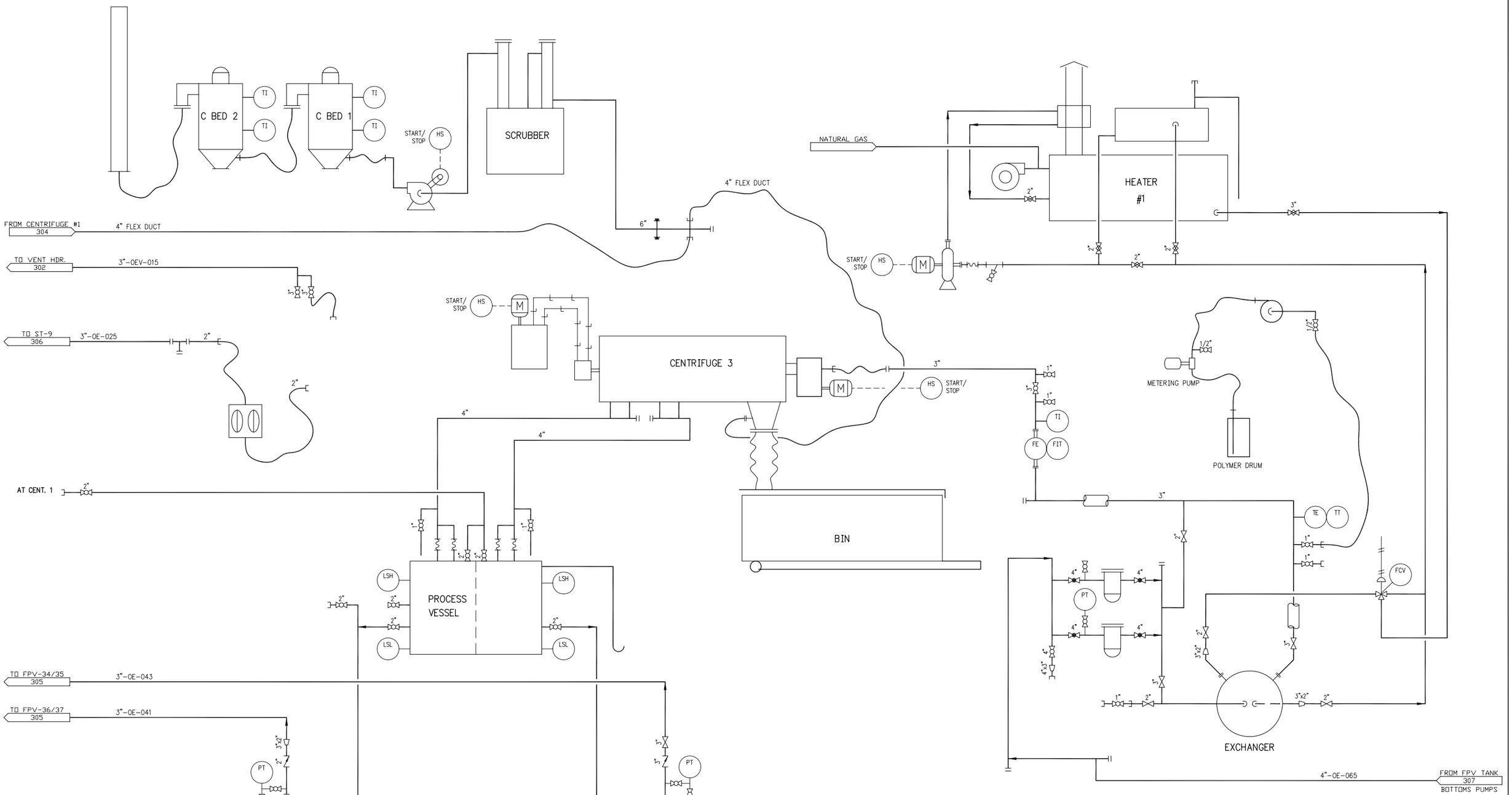
ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED		

CleanHarbors
SAN LEON, INC.

SCALE: N.T.S.

FPV-30, 31, 32 & 33 EMULSION MIX TANKS P&ID

DRAWING NUMBER 307 REV. 3



REFERENCE DRAWINGS				NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	2/12/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED	BH	6/24/92

CleanHarbors®
SAN LEON, INC.

SCALE: N.T.S.

OIL EMULSION CENTRIFUGE HEATER AND EXCHANGER P&ID

DRAWING NUMBER 308 REV. 3

PV-16
BLENDING TANK
12'-0" I.D. x 8'-6" S/S
DESIGN TEMP: 200°F
DESIGN PRESS: 1.0 PSIG

PV-15
BLENDING TANK
12'-0" I.D. x 8'-6" S/S
DESIGN TEMP: 200°F
DESIGN PRESS: 1.0 PSIG

PV-14
BLENDING TANK
12'-0" I.D. x 8'-6" S/S
DESIGN TEMP: 200°F
DESIGN PRESS: 1.0 PSIG

PV-13
BLENDING TANK
12'-0" I.D. x 8'-6" S/S
DESIGN TEMP: 200°F
DESIGN PRESS: 1.0 PSIG

FROM WEST 300 TRUCK LOADING STATION — 3"-OEV-014
SOLIDS FEED 314 FROM CONVEYOR
SOLIDS FEED 314 FROM CONVEYOR
FROM DESORBER UNIT 317 — 10"-OEV-007
10"-OEV-007
10"-OEV-007 — HDR. TO THERMAL OXIDIZER 302
2"-HOE-187 — FROM P-624 317
FROM CENTRIFUGE 1 304 AREA

LIT, HS START/STOP, PVRV, M

PV-16 OUT OF SERVICE
PV-15
PV-14 OUT OF SERVICE
PV-13
PV-12

AT VESSEL N. OF PV-16

OPEN
OPEN

AT WEST 300 TRUCK UNLOADING — 3"-OE-060
FR. P-632 302 @ ST-5/8 — 3"-OE-054
FR. P-672 AT WEST 300 TRUCK UNLOADING — 3"-OE-019
3"-OE-032 — FROM P-635 306
3"-OE-019 — TO ST-5/8 302
FROM SUMP PUMP
TO WEST 300 TRUCK LOADING — 3"-OE-032
AT WEST 300 TRUCK UNLOADING — 4"-OE-070
FROM CENT. 1 304
FROM OLD OOS SKID
TO FPV-30/33 307 — 4"-OE-077
TO PLATFORM AT HOPPER — 3"-OE-071
HOPPER
PI

START/STOP HS

MM- 811
RECIRCULATION PUMP

MUFFIN MONSTER	

P- 612
RECIRCULATION PUMP

6"x4"	
600 GPM @ 34'	50 HP
480V 3Ø	

P- 616
MIX/BLENDTRANS. PUMP

6"x5"	
250 GPM @ 275'	75 HP
480V 3Ø	

_75' 75 HP
480V 3Ø

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	2/8/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

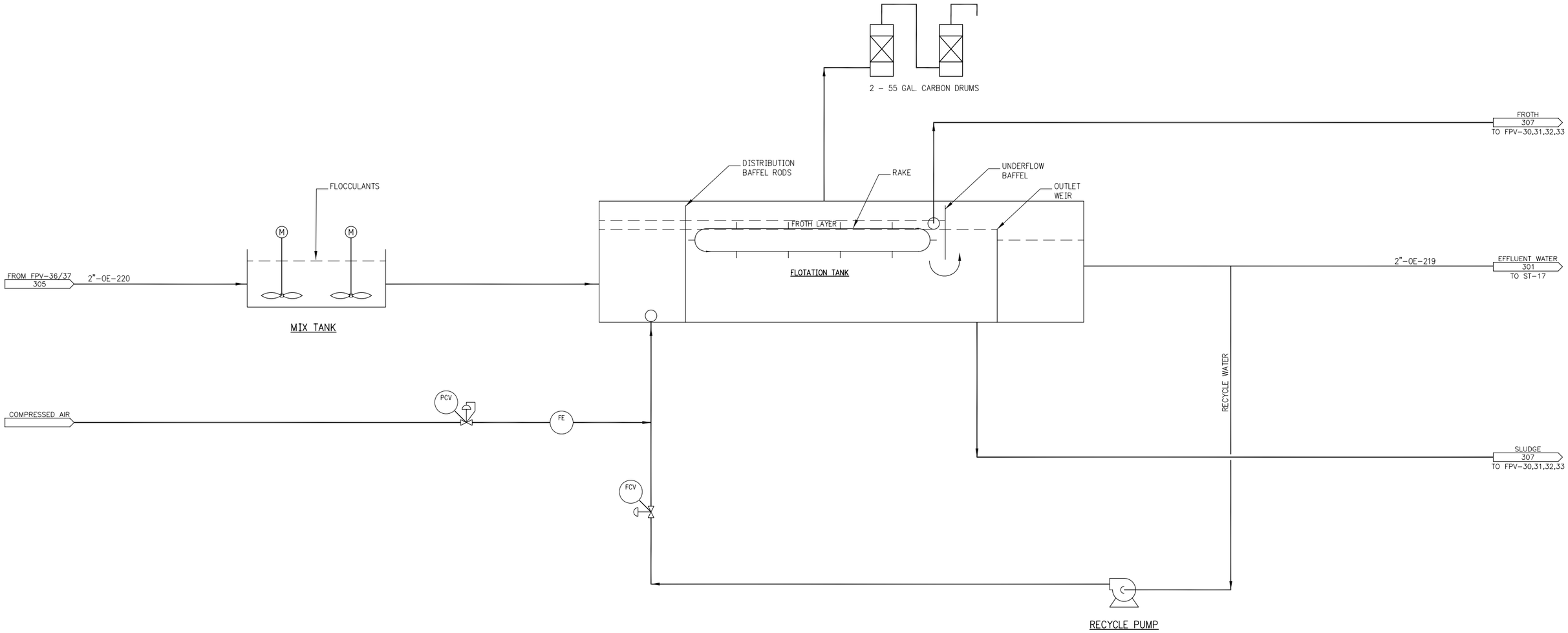
ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	SID	6/24/92
APPROVED	BH	6/24/92

CleanHarbors
SAN LEON, INC.

SCALE: N.T.S.

PV-12, 13, 14, 15 & 16
BLEND TANKS
P&ID

DRAWING NUMBER: 312
REV.: 3



REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
0	3/5/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/5/14
CHECKED	REL	3/5/14
APPROVED	REL	3/5/14

CleanHarbors®
SAN LEON, INC.

SCALE: N.T.S.

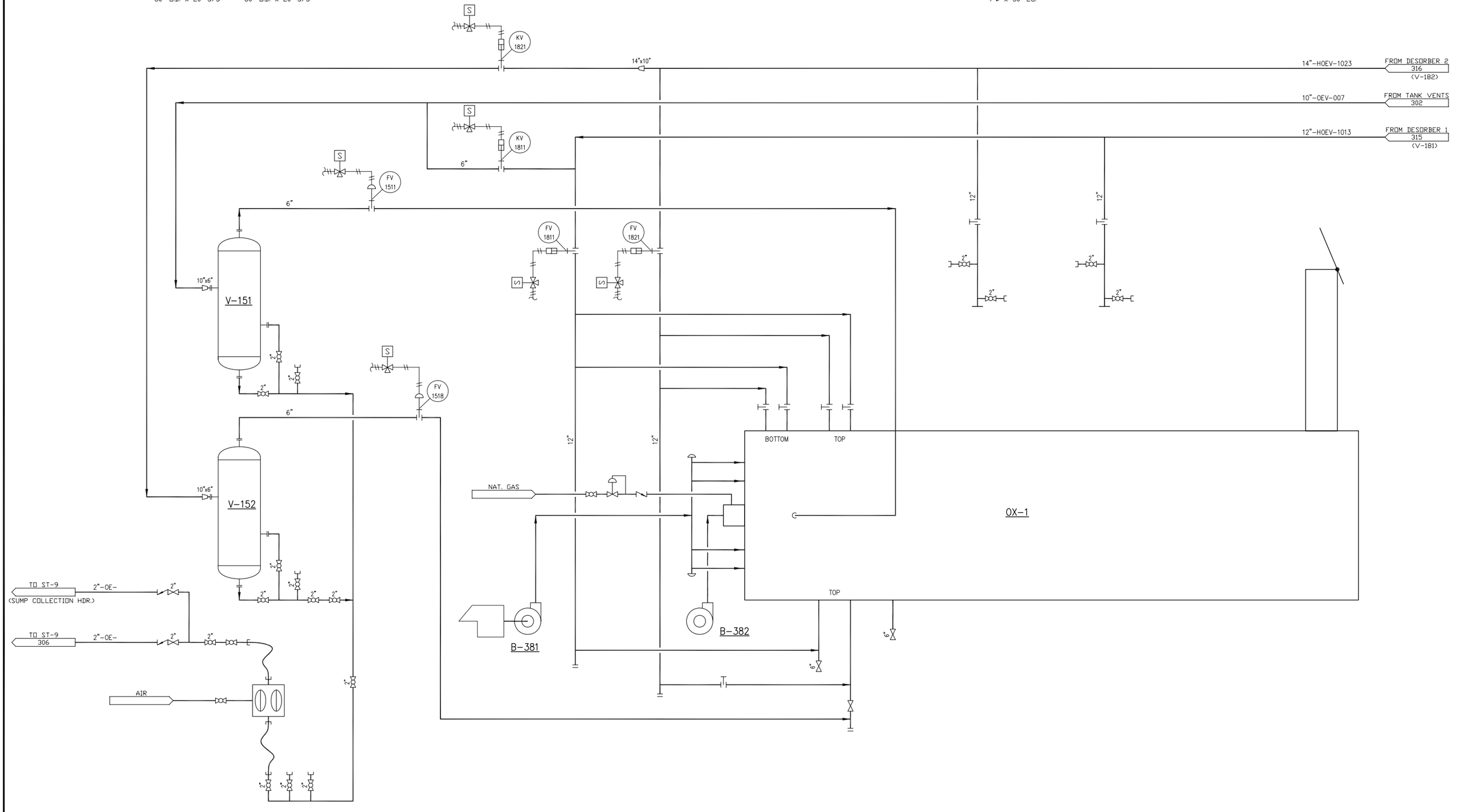
DISSOLVED AIR FLOTATION UNIT (DAF) P&ID

DRAWING NUMBER 313 REV. 0

V-181
DEMISTER POT
60" O.D. x 20' S/S

V-182
DEMISTER POT
60" O.D. x 20' S/S

OX-1
THERMAL OXIDIZER
7'ø x 30' L.G.



REFERENCE DRAWINGS				NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	3/1/14	2014 PERMIT RENEWAL APPLICATION	WDS	AW
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

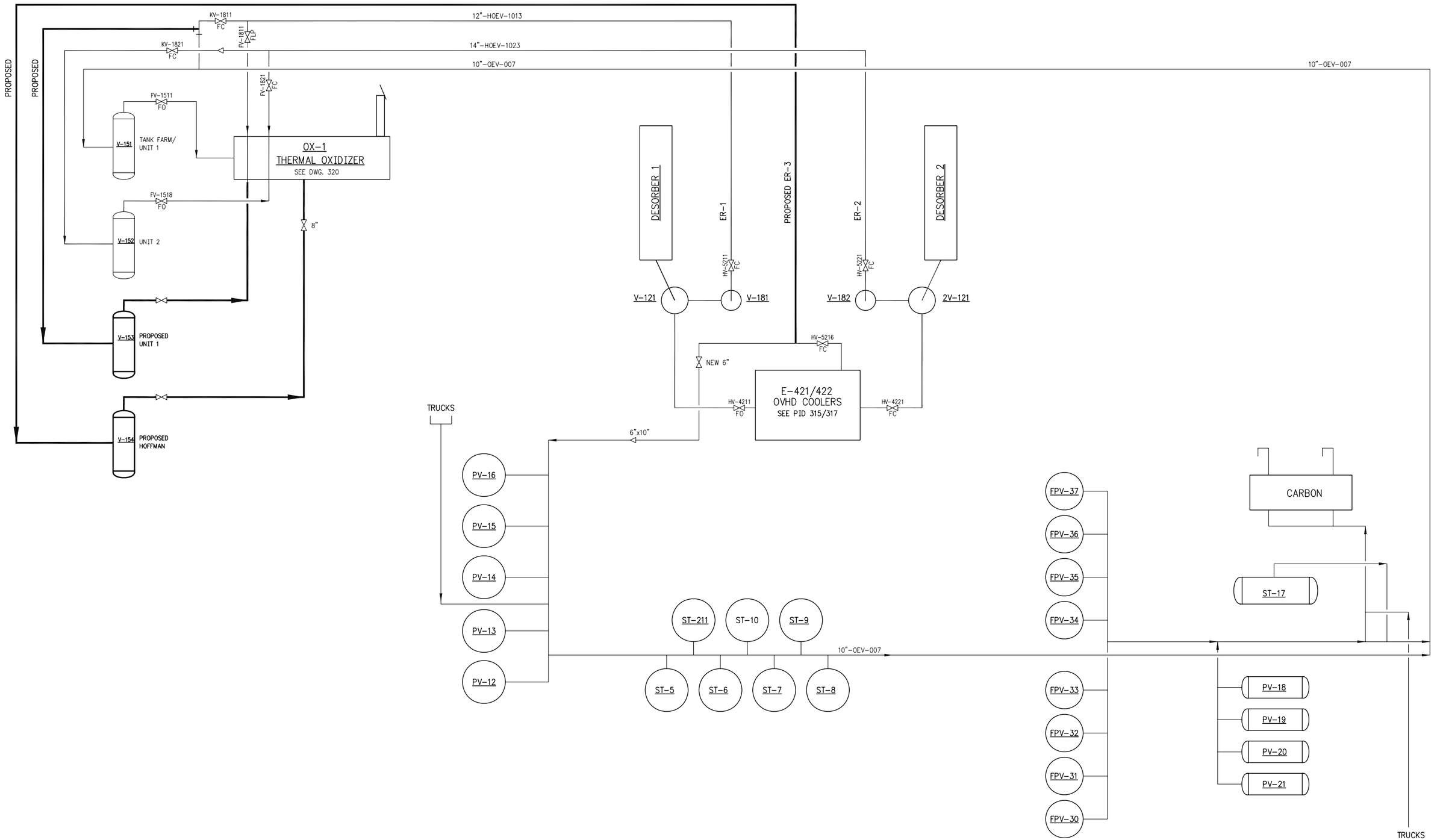
ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	2/10/14
CHECKED		
APPROVED		

CleanHarbors
SAN LEON, INC.

SCALE: N.T.S.

OX-1 THERMAL OXIDIZER P&ID

DRAWING NUMBER 320 REV. 3



REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	0	3/14/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

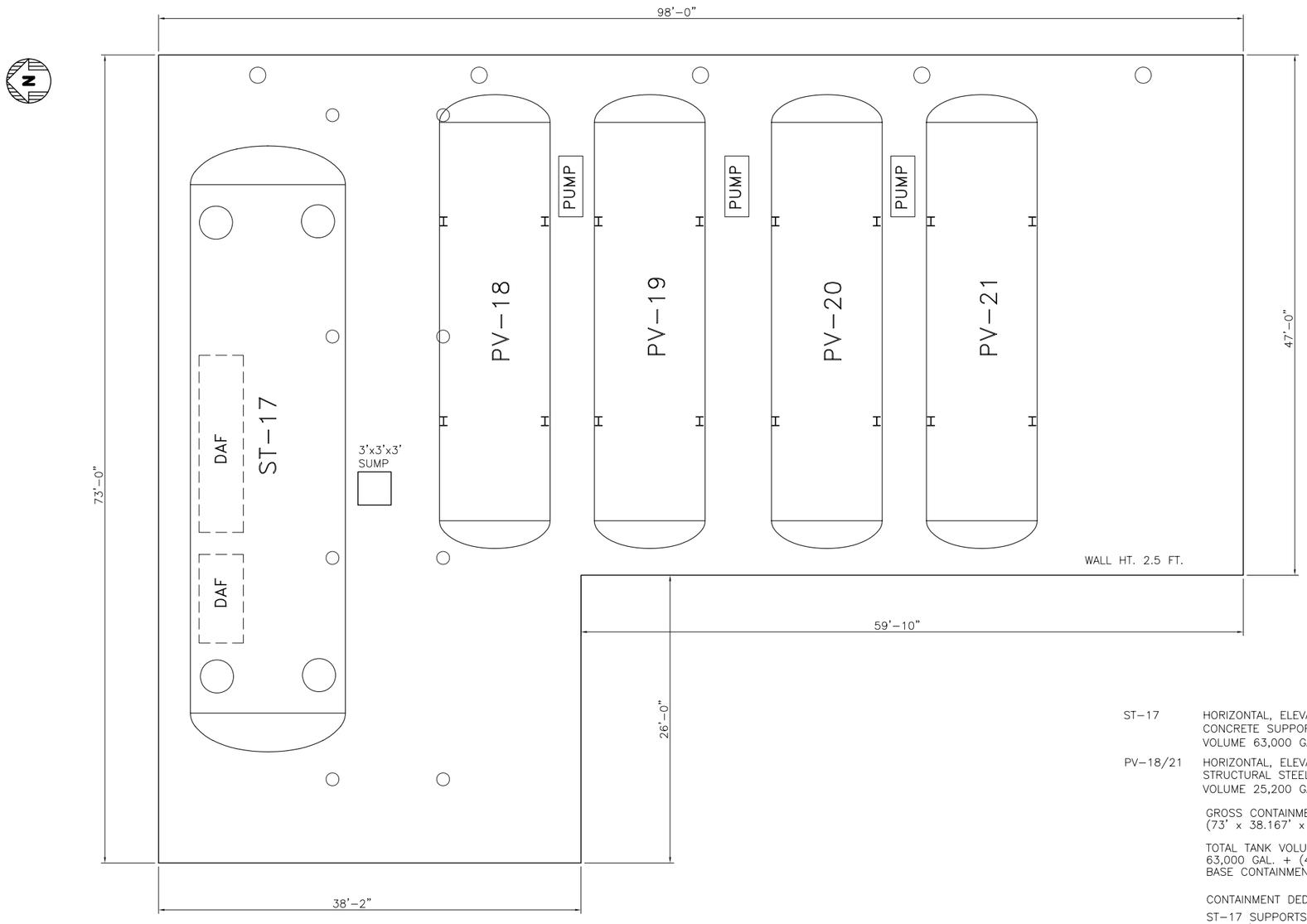
ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/10/14
CHECKED	REL	3/14/14
APPROVED	REL	3/14/14

CleanHarbors®
SAN LEON, INC.

SCALE: N.T.S.

EMISSIONS RECOVERY (ER) LINE P&ID

DRAWING NUMBER 321 REV. 0



ST-17 HORIZONTAL, ELEVATED STORAGE TANK 14'-0"ø x 47'-9" S/S
CONCRETE SUPPORT COLUMNS IN CONTAINMENT
VOLUME 63,000 GAL.

PV-18/21 HORIZONTAL, ELEVATED STORAGE TANKS 10'-0"ø x 36'-0" S/S
STRUCTURAL STEEL SUPPORT COLUMNS IN CONTAINMENT
VOLUME 25,200 GAL. EACH

GROSS CONTAINMENT:
(73' x 38.167' x 2.5') + (47' x 59.833' x 2.5') + (3' x 3' x 3') = 14,033 CU. FT.

TOTAL TANK VOLUMES
63,000 GAL. + (4 x 25,000 GAL.) = 163,800 GAL. x 10% = 16,380 GAL.
BASE CONTAINMENT ON 63,000 GAL.

CONTAINMENT DEDUCTS:

ST-17 SUPPORTS – 4 x 6.3 SQ. FT. x 2.5' = 63 CU. FT.
PV-18/21 SUPPORTS – 16 x 1.67' x1.67' x 0.5' = 22 CU. FT.
DAF UNIT – 4' x 8' x2.5' = 80 CU. FT
DAF UNIT – 4' x 16' x 2.5' = 160 CU. FT.
PIPE RACK SUPPORTS – 10 x 2.6 SQ. FT. x 2.5' = 58 CU. FT.
PUMPS – 3 x 5.5' x 2.167' x 1.5' = 54 CU. FT.
TOTAL DEDUCT = 437 CU. FT

AVAILABLE CONTAINMENT
14,022 CU. FT. – 437 CU. FT. = 13,585 CU. FT.

RAINFALL DEDUCT:
(73' x 38.167' x 0.875') + (47' x 59.833' x 0.875') =
2,438 CU. FT. + 2,461 CU. FT. = 4,899 CU. FT.

AVAILABLE SPILL CONTAINMENT
13,585 CU. FT. – 4,899 CU. FT. = 8,686 CU. FT. x 7.48 GAL./CU. FT. = 64,971 GAL.

AVAILABLE SPILL CONTAINMENT VOLUME IS > THE LARGEST TANK VOLUME OF 63,000 GAL.

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	1	3/6/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

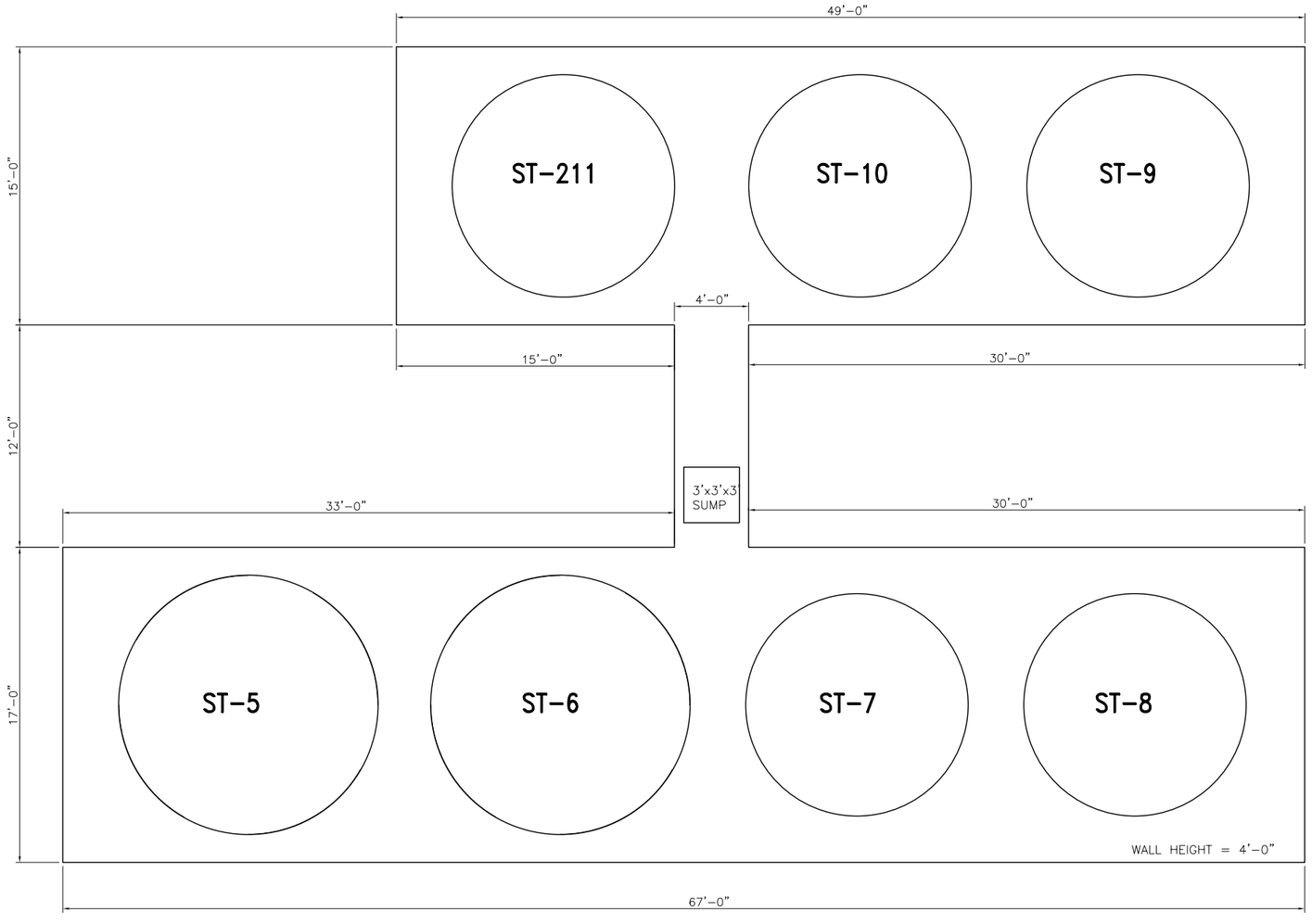
ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	2/24/14
CHECKED	REL	2/24/14
APPROVED	REL	3/6/14

CleanHarbors®
SAN LEON, INC.

SCALE: N.T.S.

SECONDARY CONTAINMENT AREA "A"

DRAWING NUMBER 400 REV. 1



N

ALL TANKS SETTING ON FLOOR IN CONTAINMENT.

ST–5	14'–0"ø x 20'–0" HIGH	23,100 GAL.
ST–6	14'–0"ø x 16'–0" HIGH	18,900 GAL.
ST–7	12'–0"ø x 15'–0" HIGH	12,600 GAL.
ST–8	12'–0"ø x 15'–0" HIGH	12,600 GAL.
ST–9	12'–0"ø x 15'–0" HIGH	12,600 GAL.
ST–10	12'–0"ø x 15'–0" HIGH	12,600 GAL.
ST–11	12'–0"ø x 15'–0" HIGH	12,600 GAL.
	TOTAL –	105,000 GAL.

CONTAINMENT BASED ON LARGEST TANK 23,100 GAL.

GROSS CONTAINMENT:
(17' x 67' x 4') + (12' x 4' x 4') + (15' x 49' x 4') + (3' x 3' x 3') =
4,556 CU. FT. 192 CU. FT. 2,940 CU. FT. 27 CU. FT. = 7,715 CU. FT.

RAINFALL DEDUCT
(17' x 67' x 0.875') + (12' x 4' x 0.875') + (15' x 49' x 0.875') =
997 CU. FT. 42 CU. FT. 641 CU. FT. = 1,680 CU. FT.

AVAILABLE SPILL CONTAINMENT BEFORE DEDUCTS:
7,715 – 1,680 = 6,135 CU. FT.

DEDUCTS FOR TANKS

ST–5	14'–0"ø 1,152 GAL/FT x 4'–0" = 4,608 GAL/7.48 GAL/CU. FT.	= 616 CU. FT.
ST–6	14'–0"ø 1,152 GAL/FT x 4'–0" = 4,608 GAL/7.48 GAL/CU. FT.	= 616 CU. FT.
ST–7	12'–0"ø 846 GAL/FT x 4'–0" = 3,384 GAL/7.48 GAL/CU. FT.	= 452 CU. FT.
ST–8	12'–0"ø 846 GAL/FT x 4'–0" = 3,384 GAL/7.48 GAL/CU. FT.	= 452 CU. FT.
ST–9	12'–0"ø 846 GAL/FT x 4'–0" = 3,384 GAL/7.48 GAL/CU. FT.	= 452 CU. FT.
ST–10	12'–0"ø 846 GAL/FT x 4'–0" = 3,384 GAL/7.48 GAL/CU. FT.	= 452 CU. FT.
ST–211	12'–0"ø 846 GAL/FT x 4'–0" = 3,384 GAL/7.48 GAL/CU. FT.	= 452 CU. FT.
		= 3,492 CU. FT.

AVAILABLE SPILL CONTAINMENT:
6,135 CU. FT. – 3,492 CU. FT. = 2,643 CU. FT.

CONTAINMENT BASED ON LARGEST TANK (ST–5) REQUIRED
(20' H – 4') = 16' x 1,152 GAL/FT. = 18,432 GAL/7.48 GAL./FT. = 2.464 CU. FT.

AVAILABLE CONTAINMENT:
2,643 CU. FT. AVAILABLE IS > 2,464 CU. FT. REQUIRED

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	1	3/6/14	2014 PERMIT RENEWAL APPLICATION	WDS	AW

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	2/24/14
CHECKED	REL	2/24/14
APPROVED	REL	3/6/14

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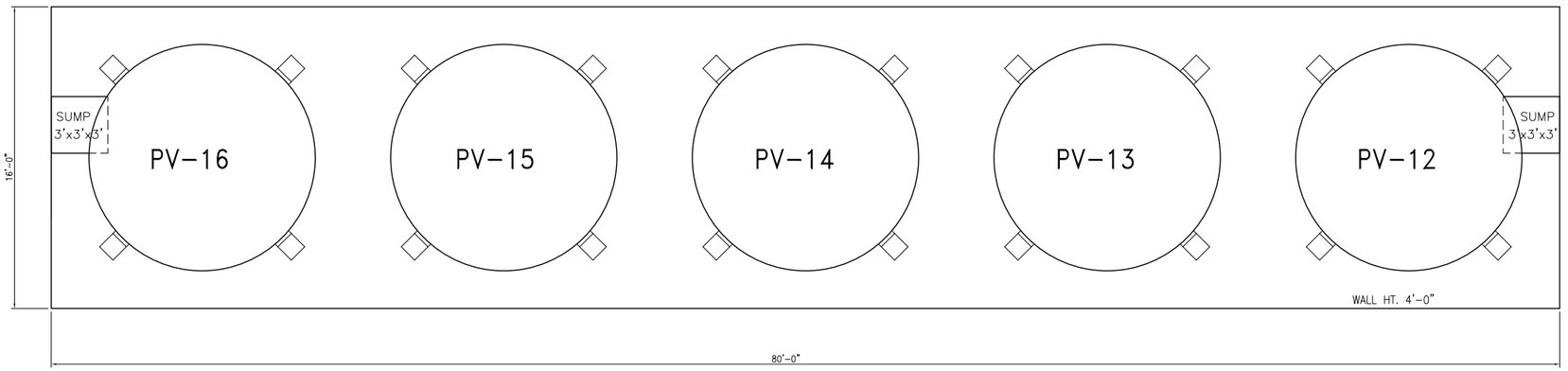
SAN LEON, INC.

SCALE: N.T.S.

SECONDARY CONTAINMENT AREA "B"

DRAWING NUMBER 401 REV. 1



PV-12 / 16
TANKS ELEVATED CYLINDRICAL WITH 45° CONE BOTTOM
12'-0"ø x 8'-6" S/S STRAIGHT SIDE, 9,786 GAL. EACH
5 x 9,786 GAL. = 48,930 GAL x 10% = 4,893 GAL.

SINGLE TANK VOLUME CONTROLS CONTAINMENT 9,786 GAL.
CONE IS OUT OF CONTAINMENT

CONTAINMENT VOLUME
(16'-0" x 80'-0" x 4') + 2 (3' x 3' x3') =
5,120 CU. FT + 54 CU. FT. = 5,174 CU. FT.

RAINFALL DEDUCT
10.5" RAIN = 0.875'
16'-0" x 80'-0" x 0.875' = 1,120 CU. FT. DEDUCT
5,174 CU. FT. – 1,120 CU. FT. = 4,054 CU. FT.

PIPING DEDUCT
80' + 64' = 144' of 10" pipe, 10.75" O.D. VOLUME = 0.63 CU. FT./FT.
VOLUME 0.63 CU. FT./FT x 144' = 91 CU. FT.

TANK SUPPORT DEDUCT
4 LEGS/TANK x 5 TANKS x 1 SQ. FT./LEG x 4' HIGH = 80 CU. FT.

TOTAL DEDUCT 91 CU. FT. + 80 CU. FT. = 171 CU. FT.

AVAILABLE SPILL CONTAINMENT
4,054 CU. FT. – 171 CU. FT = 3,883 CU. FT.

3,883 CU. FT. x 7.48 GAL/CU. FT. = 29,044 GAL. AVAILABLE

AVAILABLE SPILL CONTAINMENT IS > SINGLE TANK VOLUME

REFERENCE DRAWINGS				NO.	DATE	REVISIONS	BY	APP.
				1	3/6/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	2/26/14
CHECKED	REL	2/26/14
APPROVED	REL	3/6/14

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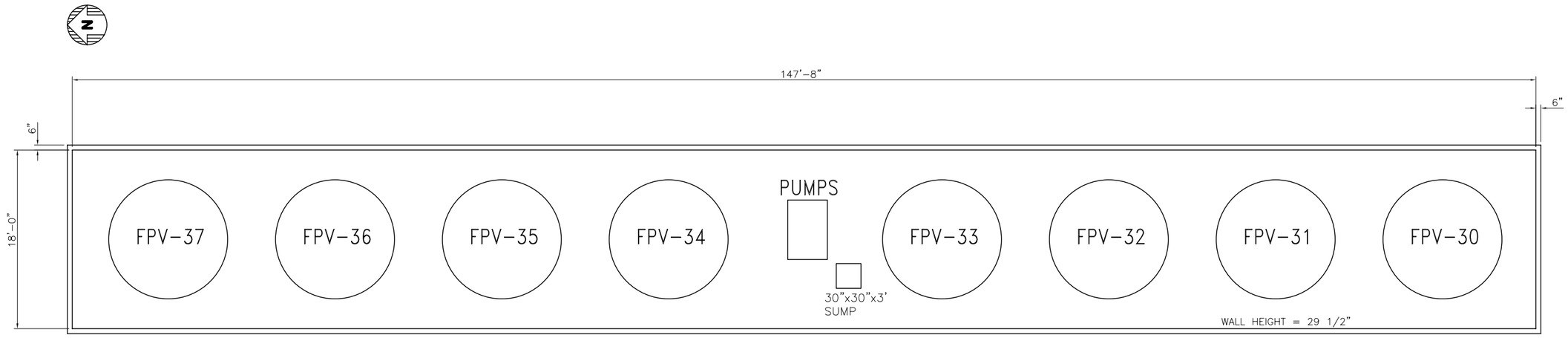
SCALE: N.T.S.

SECONDARY CONTAINMENT AREA "C"

DRAWING NUMBER 402 REV. 1



8 – TANKS 12'–0"ø x 32'–0"S/S VERTICLE W/CONE BOTTOM.
SKIRT IS IN CONTAINMENT. CONE IS ABOVE CONTAINMENT.
CAPACITY IS 30,870 GAL. EACH.

8 x 30,870 = 246,960 GAL. x 10% = 24,696 GAL.

BASE REQUIRED CONTAINMENT ON SINGLE TANK VOLUME.

AVAILABLE CONTAINMENT:
18' x 147.67' x 2.46' + (2.5' x 2.5' x 3')= 6,558 CU. FT. GROSS

DEDUCT PUMPS & PIPE RACK SUPPORTS
PUMPS – 4' x 6' x 2.46' = 59 CU. FT.
PIPE RACK – 2' x 2.6 SQ. FT x 2.46' = 13 CU. FT.
72 CU. FT.

TOTAL CONTAINMENT:
6,558CU. FT. – 72CU. FT. = 6,486 CU. FT.

RAINFALL DEDUCT
18' x 148' x 0.875' = 2,326 CU. FT.

TOTAL AVAILABLE CONTAINMENT:
6,486 CU. FT. – 2,326 CU. FT. = 4,160 CU. FT. x 7.48GAL/CU. FT. = 31,117 GAL.

AVAILABLE SPILL CONTAINMENT VOLUME IS > A SINGLE TANK VOLUME.

REFERENCE DRAWINGS			

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
1	3/6/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	2/24/14
CHECKED	REL	2/24/14
APPROVED	REL	3/6/14

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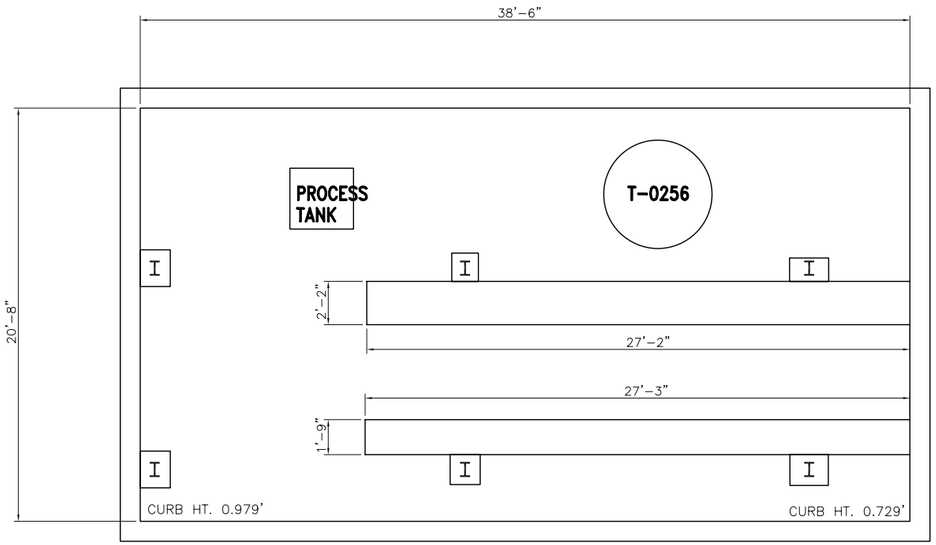
SAN LEON, INC.

SCALE: N.T.S.

SECONDARY CONTAINMENT AREA "D"

DRAWING NUMBER 403 REV. 1



T-292 = 3'-0 1/2" x 3'-2 1/4" (8" ABOVE FLOOR)
T-0256 = 5'-5"ø x 6'-4" H. = 172 GAL./FT. HEIGHT
NO RAINFALL INCLUDED, BUILDING HAS ROOF AND SIDES
USE AVERAGE CURB HEIGHT OF 0.854' = 10.25"

GROSS CONTAINMENT:
20.667' x 38.5' x 0.854' = 679 CU. FT.

DEDUCTS

NORTH RUNNER = 2.167' x 27.167' x0.854' = 50 CU. FT.
SOIUTH RUNNER = 1.75' x 27.25' s 0.854' = 41 CU. FT.
NE COLUMN = 1.96' x 1.167' x 0.727' = 1.67 CU. FT.
N CENTER COL. = 1.33' x 1.41' x 0.896 = 1.68 CU. FT.
NW COLUMN = 1.5' x 1.83' x 0.42' = 1.16 CU. FT.
SE COLUMN = 1.54' x 1.92' x 0.729' = 2,34 CU. FT.
S CENTER COL. = 1.5' x 1.5' x 0.986' = 2.02 CU. FT.
SW COLUMN = 1.5' x 1.83' x 0.25' = 0.69 CU. FT.
PROCESS TANK = 3.04' x 3.19' x 0.23' = 2.23 CU. FT.
T-0256 = $(2.71)^2 \times \pi \times 0.813 = \frac{18.75 \text{ CU. FT.}}{122 \text{ CU. FT.}}$

AVAILABLE SPILL CONTAINMENT:
679 CU. FT. – 122 CU. FT. = 557 CU. FT.

CONTAINMENT BASED ON LARGEST TANK (T-0256) REQUIRED
$(2.71)^2 \times \pi \times (6.33' - .0813) = 127$ CU. FT.

AVAILABLE CONTAINMENT IS > T-0256 VOLUME

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	1	3/6/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	2/24/14
CHECKED	REL	2/24/14
APPROVED	REL	3/6/14

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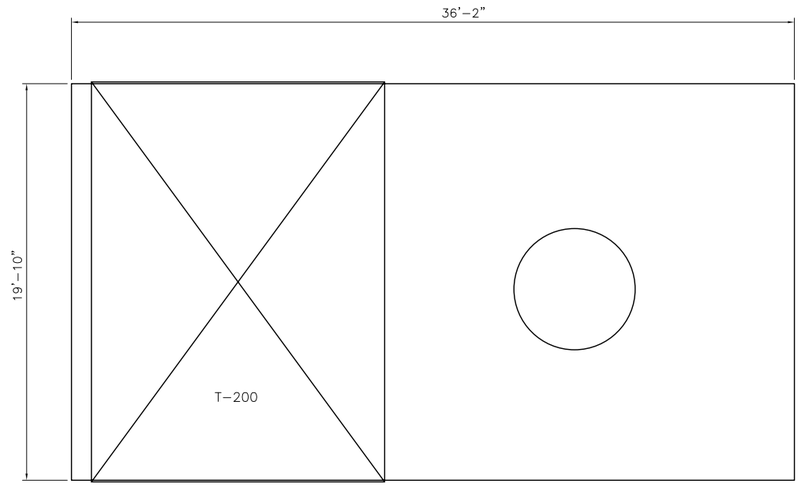
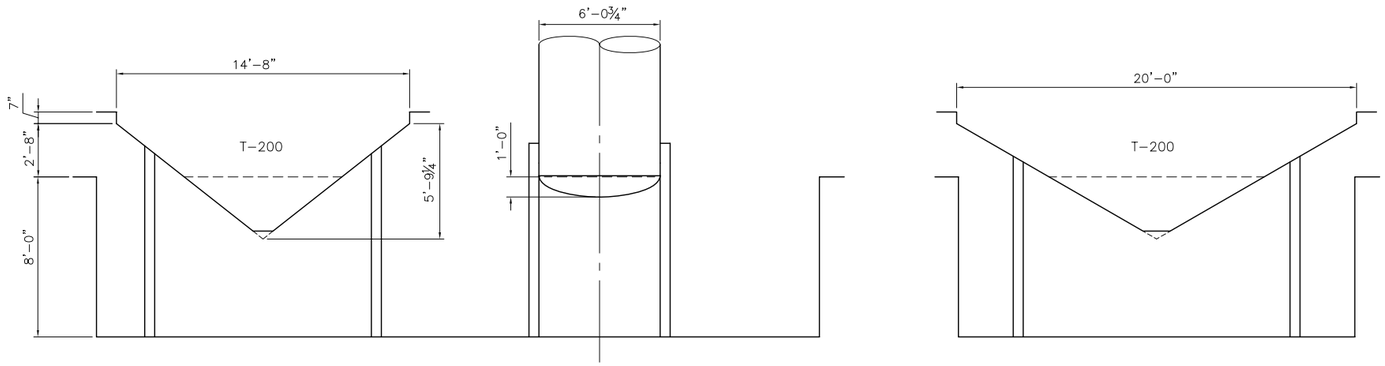
SCALE: N.T.S.

SECONDARY CONTAINMENT AREA "H" CENTRIFUGE/FILTER PRESS AREA

DRAWING NUMBER 404 REV. 1





INVERTED PYRAMID
V=1/3 (base area) x H

BASE AREA 14'–8" x 20'–0" H=5.77'

V=1/3(14.667' x 20'–0") x 5.77'
V=1/3 x 293.37 SQ. FT. x 5.77' = 564.13 CU. FT.

TOP VOLUME – 7" x 20'–0" x 14'–8"
VOLUME – 0.583' x 20'" x 14.667' = 171.02 CU. FT
T–200 VOLUME = 735.15 CU. FT.

CONTAINMENT VOLUME GROSS
36'–2" x 19'–10" x 8'–0"
36.167' x 19.83' x 8' = 5738 CU. FT.

DEDUCTS

T–200 IN CONTAINMENT
1/3 (BASE AREA) x HEIGHT
1/3 (7.88' x 19.74') x 3.1'
1/3(84.63') X 3.1' = 87.4 CU. FT.

VERTICLE TANK IN CONTAINMENT
π (3.031')^2 x 1' = 28.8 CU. FT.

TANK LEGS IN CONTAINMENT
4 x 1.57 CU. FT/FT x 8' = 50.2 CU. FT.

70' OF 4" PIPE IN CONTAINMENT
70' x 1.04 CU. FT./FT = 72.8 CU. FT.

EQUIPMENT = 30 CU. FT.

269 CU. FT.

RAINFALL DEDUCT = 0.875'
36.167' x 19.83' x 0.875' = 628 CU. FT.

NET CONTAINMENT VOLUME
5738 CU. FT. – 269 CU. FT – 628 CU. FT = 4841 CU. FT.

AVAILABLE CONTAINMENT VOLUME IS > T–200 VOLUME

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	1	3/17/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/17/14
CHECKED	REL	3/17/14
APPROVED	REL	3/17/14

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SCALE: N.T.S.

SECONDARY CONTAINMENT AREA "G" T–200

DRAWING NUMBER 405 REV. 1

LAB RECORDS STORAGE

RECORDS STORAGE (RELOCATED)

N

DITCH

COVERED RCP

54'-7"

CSA-2 WEST

TRENCH 22"W. x 20.5" AVG. D.

AREA = 10,804 SQ. FT.
AVG. D. = .335 FT.
VOL. = 3,619 CU. FT.
CAP. = 27,073.7 GAL.
TRENCH VOL. = 615.4 CU. FT.
TRENCH CAP. = 4,603.8 GAL.
TOT. CAP. = 31,677.5 GAL.

VOL. = 4,234.4 CU. FT.

EL. 7.82 — 19" DEEP — EL. 7.20
EL. 7.75 — 25" DEEP — EL. 7.00
EL. 7.77 — 17.5" DEEP — EL. 7.05
EL. 7.75
EL. 7.82
EL. 7.75
EL. 7.75
EL. 7.75

197'-5½"

CSA-2 EAST & WEST

EAST VOL. = 1243 CU. FT.
WEST VOL. = 4,234.4 CU. FT.
TOT. VOL. = 5,478 CU. FT.

EAST CAP. = 9,304 GAL.
WEST CAP. = 31,677 GAL.
TOT. CAP. = 40,981 GAL.

ST-2

TOP OF CURB EL. 7.50
EL. 7.70
EL. 7.20

SECTION A-A

131'-9"

EL. 7.50 — EL. 7.50

CSA-2 EAST

AREA = 6,450 SQ. FT.
AVG. D. = .15 FT.
VOL. = 967.5 CU. FT.
CAP. = 7,242 GAL.
TRENCH/SUMP VOL. = 222.8 CU. FT.
TRENCH/SUMP CAP. = 1,667 GAL.
EXTENDED AREA 52.7 CU. FT = 394.25 GAL
TOT. CAP. = 9,304 GAL.

TOT. VOL. = 1,243 CU. FT.

EXTENDED CONTAIMENT AREA

19'-6½"
1'-0"
4" TYP. CURB
TRENCH 14"W. x 16" AVG. D.
SUMP 3'x3'x3'
9'-0"
8'-0"
48'-11½"
56'-11½"

EL. 7.70
EL. 7.70
EL. 7.20
EL. 7.20
EL. 7.70
EL. 7.70

TOP OF CURB EL. 7.50

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	3	3/24/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	1/13/14	REVISED CALCULATIONS	WDS	REL
	1	6/26/13	ADDED EXTENDED AREA TO CSA-2 EAST	WDS	REL
	0	4/2/13	ISSUED FOR PERMIT	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/26/13
CHECKED	REL	3/36/13
APPROVED	REL	3/26/13

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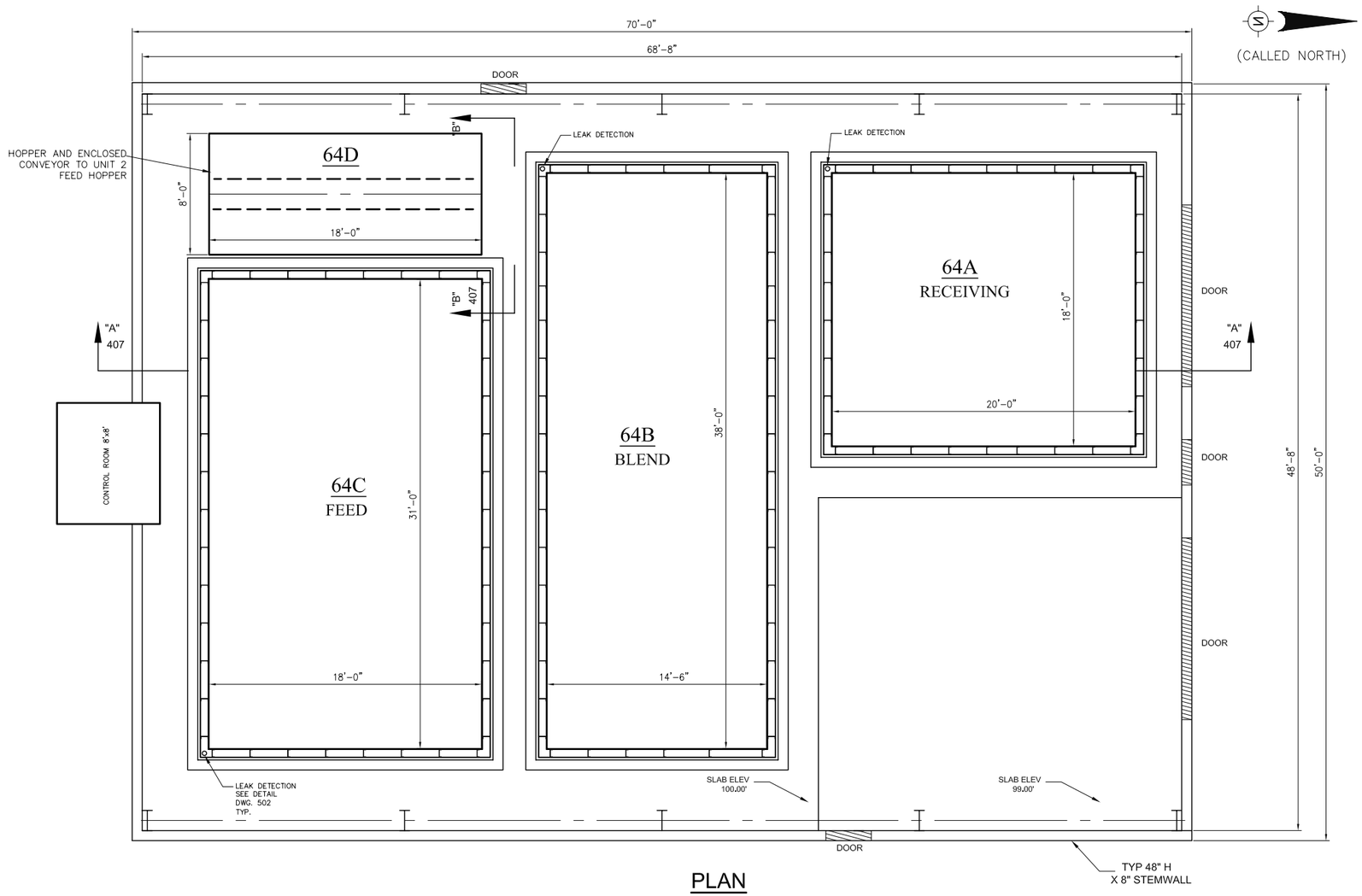
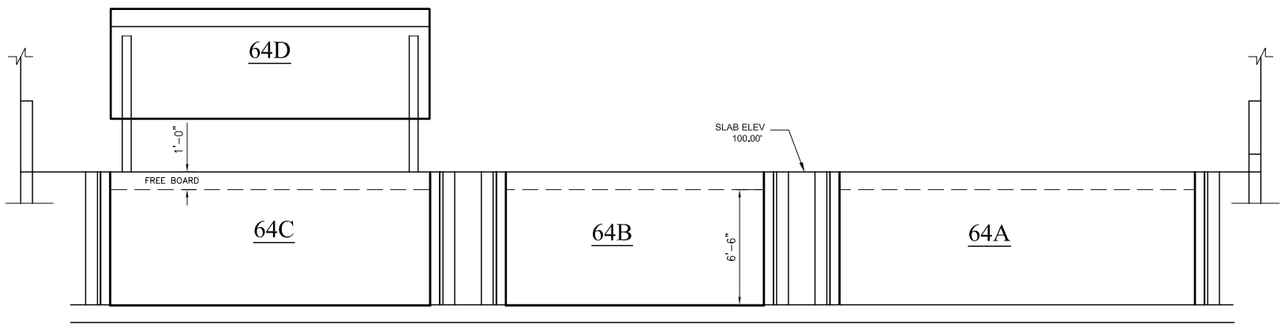
SCALE: 3/32"=1'

CSA-2 EAST & WEST (AREA E1/2)
SECONDARY CONTAINMENT
REF. OLD DWG. NO. H-001-CC-011-D

DRAWING NUMBER 406 REV. 3



PLAN



SECTION A-A

64D SINGLE WALL TANK
CONTAINMENT AVAILABLE IN 64C

A = 1/2 BH
A = 1/2(1)(1.73) = 0.866 SQ. FT.
A OF = 2 x 0.866 = 1.73 SQ. FT.

A = 1/2x8x6.93 = 27.72 SQ. FT.

= 27.72 SQ. FT. - 1.73 SQ. FT. = 25.99 SQ. FT.

V = 25.99 SQ. FT. x 18.0 FT. = 467.82 SQ. FT. = 468 CU. FT.

WASTE PRETREATMENT BUILDING
ALL TANKS HAVE 1 FT. FREEBOARD FOR VOLUME AND CONTAINMENT CALCULATIONS.

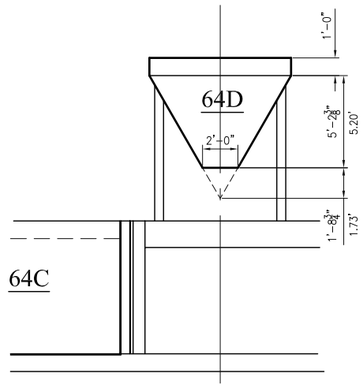
64A - RECEIVING (DOUBLE WALL TANK)
VOLUME = 18' x 20' x 6.5' = 2,340 CU. FT. x 7.48 GAL./FT = 17,503 GAL.

64B BLEND (DOUBLE WALL TANK)
VOLUME = 38' x 14.5' x 6.5' = 3,582 CU. FT. x 7.48 GAL./FT = 26,790 GAL.

64C FEED (DOUBLE WALL TANK)
VOLUME = 31' x 18' x 6.5' = 3,627 CU. FT. MAX USABLE VOL.
(SEE CALC. ABOVE) -468 CU. FT. 64D CONTAINMENT VOL.
3,159 CU. FT. OPERATING LIMIT

3,159/(18'x31') = 5,66' = 5'-8" MAX OPERATING LEVEL TO ALLOW FOR 64D SECONDARY CONTAINMENT

64C = 3,627 CU. FT = 27,130 GAL. MAX. VOLUME
- 468 CU. FT. = -3,501 GAL. 64D
-64D CONTAINMENT
3,159 CU. FT. 23,629 GAL. OPERATING LIMIT 64C
5'-8" OPERATING LEVEL
1'-10" FREE BOARD



SECTION B-B

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	0	3/24/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/24/14
CHECKED	REL	3/24/14
APPROVED	REL	3/24/14

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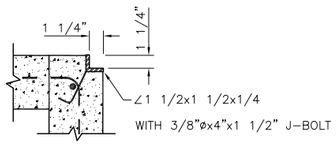
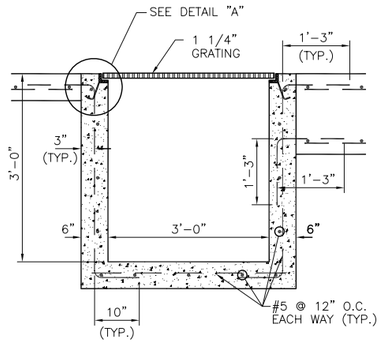
SCALE: 1/4"=1'

PROPOSED PLAN
WASTE PRETREATMENT BUILDING
SECONDARY CONTAINMENT

DRAWING NUMBER 407 REV. 0



DETAIL A



SEE DRAWINGS FOR SLAB REQUIREMENTS

STANDARD SUMP

CONCRETE GENERAL NOTES

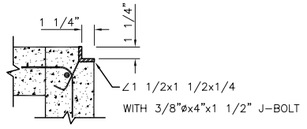
1. ALL CONCRETE WORK, MATERIALS, AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ACI-318 BUILDING CODE.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
3. MATERIAL SHALL CONFORM TO THE LATEST REVISION OF THE FOLLOWING ASTM SPECIFICATIONS:
   - 3.1 AGGREGATES ACCORDING TO ASTM C-33 MAXIMIM SIZE 1 1/2" UNLESS OTHERWISE SPECIFIED.
   - 3.2 CEMENT ACCORDING TO ASTM C-150 TYPE I UNLESS OTHERWISE SPECIFIED.
   - 3.3 DEFORMED REINFORCING BARS ACCORDING TO ASTM A-615 GRADE 60 UNLESS OTHERWISE SHOWN ON DRAWINGS.
   - 3.4 WELDED WIRE FABRIC ACCORDING TO ASTM A-185.
4. REINFORCING BARS SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST REVISION OF THE ACI-315 MANUAL.
5. UNLESS OTHERWISE SHOWN, REINFORCING STEEL SPLICES SHALL BE CLASS "C" IN ACCORDANCE WITH ACI-318.
6. WELDED WIRE FABRIC SHALL HAVE ONE FULL MESH PLUS 2" LAP. MINIMUM LAP NOT LESS THAN 6"
7. CONCRETE PROTECTION, UNLESS OTHERWISE SHOWN ON DRAWINGS, SHALL BE AS FOLLOWS:
   - 7.1 WHEN CONCRETE IS CASTED DIRECTLY AGAINST THE GROUND, PROTECTION SHALL BE 3".
   - 7.2 WHEN CONCRETE IS NOT CASTED DIRECTLY AGAINST THE GROUND, PROTECTION SHALL BE 2" FOR BAR #6 AND LARGER, AND 1 1/2" FOR SMALLER BARS.
8. CORNERS OF EXPOSED ABOVE GRADE CONCRETE SHALL HAVE A 3/4" BY 45° CHAMFER.
9. CONCRETE FINISH, UNLESS OTHERWISE SHOWN ON DRAWINGS, SHALL BE AS FOLLOWS:
   - 9.1 WOOD FLOAT FOR AREA PAVING, OUTSIDE SLAB, ETC.
   - 9.2 STEEL TROWEL FOR INSIDE FLOOR SLABS.
10. THE LOWER END OF ANCHOR BOLTS EXTENDING INTO FOUNDATION MATS SHALL BE PROTECTED WITH 3" CONCRETE COVER.
11. ALL EMBEDDED ITEMS, SUCH AS DRAINS, CONDUITS, GROUNDING WIRES, BOLTS, ETC. SHALL BE IN PLACE BEFORE CONCRETE IS POURED.
12. BEFORE STARTING ANY FOUNDATION EXCAVATION THE AREA SHOULD BE PROBED FOR UNDERGROUND INTERFERENCES.
13. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, FOUNDATIONS SHALL REST ON FIRM, UNDISTURBED SOIL.
14. SOFT, ORGANIC, EXCESSIVELY WET, OR UNSUITABLE FILL MATERIALS ENCOUNTERED WITHIN 3'± BELOW GRADE FOR TANK FOUNDATIONS FPV-30 thru 37, IN AREA "A", ST-5 thru 11 IN AREA "B", AND ALL OTHER MAJOR TANKS, ST-2 thru 4, FST 23 thru 25, PV-1, & FST-44 ETC. AND AT LEAST 12:± BELOW GRADE FOR ALL OTHER AREAS UNDER 6" OR 8" SLAB.
15. FILL SOIL SHALL HAVE A LIQUID LIMIT LESS THAN 40% AND A PLASTICITY INDEX LESS THAN 20%.
16. ALL COMPACTED FILL SHALL BE PLACED FROM THE BOTTOM OF THE EXCAVATION IN LIFTS NOT EXCEEDING EIGHT INCHES IN LOOSE THICKNESS AT MOISTURE CONTENT BETWEEN -1% & +3% OF THE OPTIMUM. MATERIAL SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.
17. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

ANCHOR BOLT GENERAL NOTES

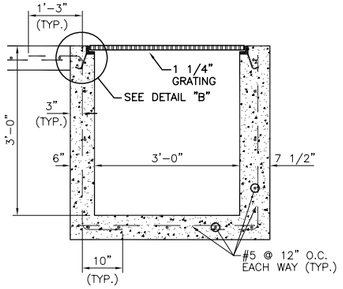
1. ALL MATERIAL SHALL CONFORM TO ASTM A-36 UNLESS OTHERWISE SHOWN ON DRAWINGS.
2. THREADS SHALL BE AMERICAN STANDARD "NATIONAL COARSE" CLASS "2A" FOR BOLTS, CLASS "2B" FOR NUTS.
3. BOLTS SHALL BE GRADE A IN ACCORDANCE WITH ASTM A-307, THOROUGHLY CLEANED OF RUST, THREADS CUTTING OIL, OR ANY OTHER SUBSTANCE THAT MIGHT REDUCE THE BOND OF THE BOLTS TO THE CONCRETE.
4. ALL NUTS SHALL BE HEAVY HEX IN ACCORDANCE WITH ANSI B18.2.2 MANUFACTURED FROM MATERIAL CONFORMING TO ASTM A-194, GRADE "1", UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
5. ALL BOLTS SHALL BE FURNISHED WITH A WASHER AND ONE NUT AT TOP UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
6. 3/4" AND SMALLER DIAMETER BOLTS NO LONGER THAN 24" CAN BE COLD BENT, LARGER DIAMETER BOLTS AND LENGTHS SHALL BE HOT BENT AND AIR COOLED, QUENCHING IS NOT ALLOWED.
7. ANCHOR BOLT SLEEVES SHALL BE "WILSON, "BELL BOTTOM" OR APPROVED EQUAL, UNLESS OTHERWISE SHOWN ON DRAWINGS.
8. ANCHOR BOLTS WITH SLEEVES SHALL HAVE THE ANNULAR SPACE BETWEEN BOLT SHANK AND SLEEVE FILLED WITH GROUT AFTER EQUIPMENT IS ALIGNED, PLUMBED, AND LEVELED AND BEFORE BASE PLATE IS GROUTED, UNLESS OTHERWISE SHOWN ON DRAWINGS.

STRUCTURAL STEEL GENERAL NOTES

1. FABRICATION AND ERECTION -
   ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS".
   - 1.1 FRAMES, STRUCTURES, AND OTHER ASSEMBLIES SHALL BE SHOP FABRICATED IN SECTIONS AS LARGE AS PRACTICAL FOR FABRICATION, GALVANIZING (IF REQUIRED), AND SHIPPING, UNLESS OTHERWISE SHOWN ON DRAWINGS.
2. MATERIAL -
   ALL STRUCTURAL AND MISCELANEOUS STEEL SHALL BE IN ACCORDANCE WITH ASTM A-36, UNLESS NOTED OTHERWISE.
3. CONNECTIONS -
   - 3.1 ALL SHOP CONNECTIONS SHALL BE WELDED.
   - 3.2 MINIMUM FILLET WELD SIZE SHALL BE 3/16".
   - 3.3 WELDING SHALL BE AS PER THE "STRUCTURAL WELDING CODE D.1.1, OF THE AMERICAN WELDING SOCIETY.
   - 3.4 ALL FIELD CONNECTIONS SHALL BE BOLTED UNLESS OTHERWISE SHOWN ON DRAWINGS.
   - 3.5 MINIMUM BOLT SIZE SHALL BE 3/4" UNLESS LIMITED BY THE MEMBER SIZE OR OTHERWISE SHOWN ON THE DRAWINGS.
   - 3.6 BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO (2) BOLTS.
   - 3.7 BOLTED CONNECTIONS SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A-325 OR A-490 BOLTS".
   - 3.8 UNLESS OTHERWISE NOTED, BOLT TIGHTENING SHALL BE BY THE USE OF "DIRECT TENSION INDICATORS".
   - 3.9 BOLT HOLES SHALL BE DRILLED OR PUNCHED, BURNING WILL NOT BE ALLOWED.
   - 3.10 BOLTED CONNECTIONS, EXCEPT THE ONES LISTED BELOW, SHALL HAVE ALL ASTM A-325 HIGH STRENGTH BOLTS.
   - 3.11 BOLTED CONNECTIONS FOR STAIR TREADS, RAILINGS, LADDERS, PURLINS, AND GIRTS SHALL HAVE ASTM A-307 BOLTS.
   - 3.12 MINIMUM THICKNESS OF STIFFENER, GUSSET, AND CONNECTION PLATES SHALL BE 3/8".
   - 3.13 ECCENTRIC CONNECTIONS WILL NOT BE PERMITTED.
   - 3.14 CLIP ANGLES WITH MINIMUM 5/16" THICKNESS. CONNECTIONS SHALL NOT BE SMALLER THAN RECOMMENDED IN THE "FRAMED BEAM CONNECTION TABLES" OF THE AISC MANUAL.
   - 3.15 ALL COLUMNS SHALL HAVE SQUARE CUT FINISH ENDS.
4. MISCELANEOUS -
   STEEL FABRICATOR SHALL FURNISH ALL BOLTS, NUTS, WASHERS, CLIPS, LOAD INDICATORS, ETC. NECESSARY FOR ERECTION, PLUS TWO (2) PERCENT EXTRA, INCLUDING BOLTS REQUIRED FOR EQUIPMENT ANCHORAGE.
5. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

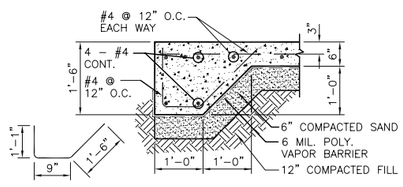


DETAIL B



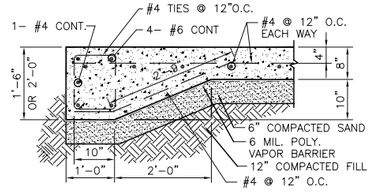
SEE DRAWINGS FOR SLAB REQUIREMENTS

SUMP AT EXTERIOR



6" SLAB W/TURNDOWN

DETAIL 3



8" SLAB W/TURNDOWN

DETAIL 4

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	3	1/7/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
	2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
	1	4/1/94	PERMIT APPROVAL	CR	SC
	0	6/24/92	1992 PERMIT APPLICATION	CJ	JCT

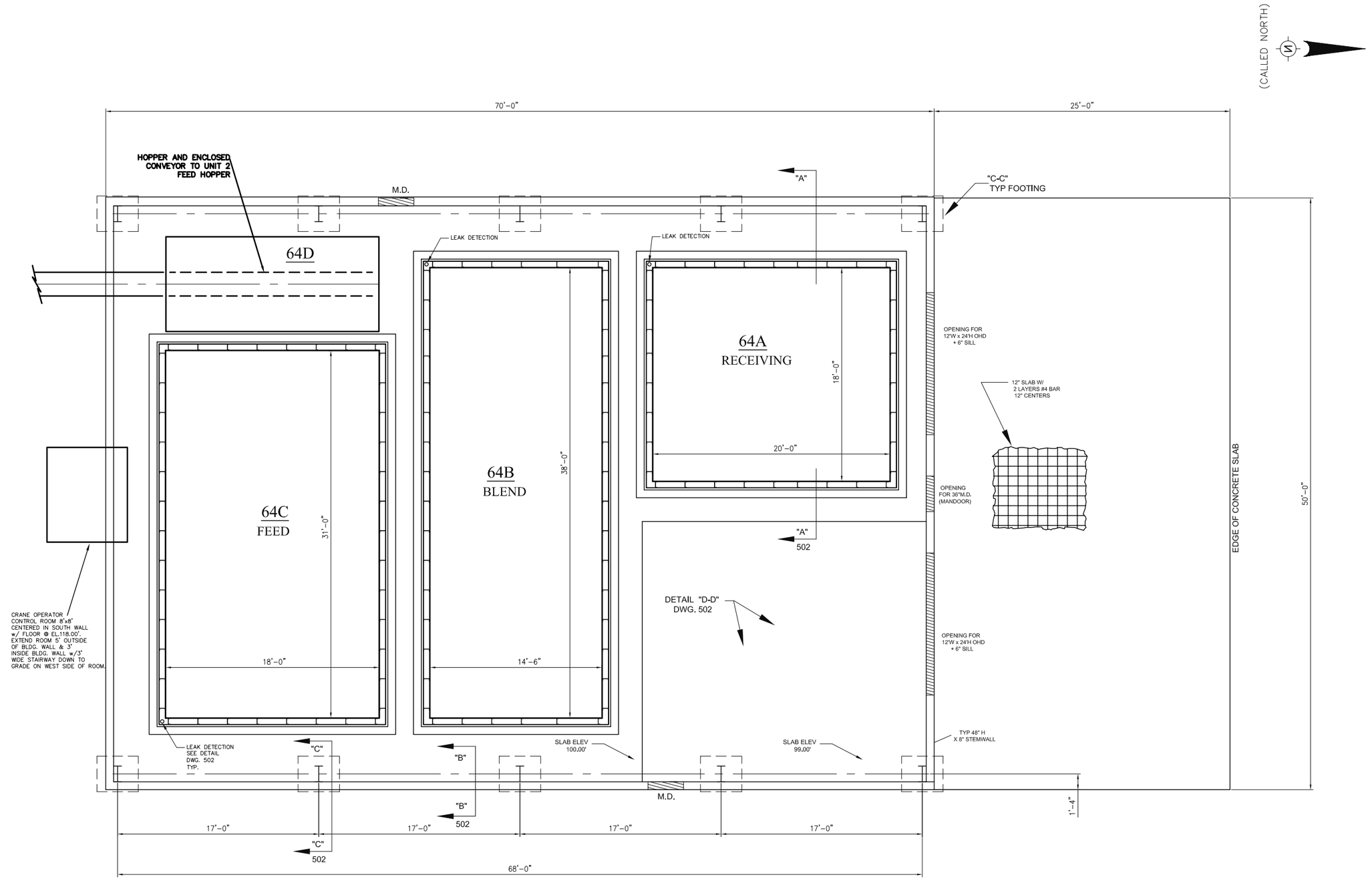
ENGINEERS RECORDS		DATE
DRAWN BY:	V.V.	6/24/92
CHECKED	N.D.P.	6/24/92
APPROVED	BH	6/24/92

CleanHarbors
SAN LEON, INC.

SCALE: N.T.S.

CONCRETE / STRUCTURAL GENERAL NOTES & DETAILS

DRAWING NUMBER 500 REV. 3



PLAN

REFERENCE DRAWINGS			NO.	DATE	REVISIONS	BY	APP.
			0	3/19/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

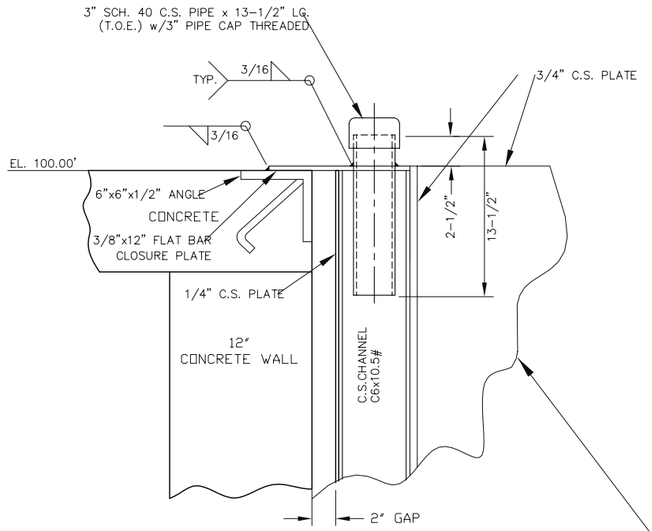
ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/19/14
CHECKED	REL	3/21/14
APPROVED	REL	3/21/14

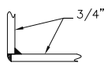
CleanHarbors®
SAN LEON, INC.

SCALE: 1/4"=1'

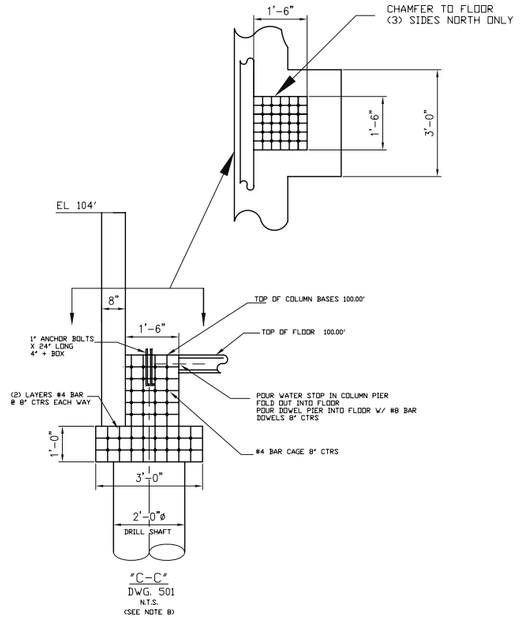
PROPOSED PLAN
WASTE PRETREATMENT BUILDING

DRAWING NUMBER 501 REV. 0

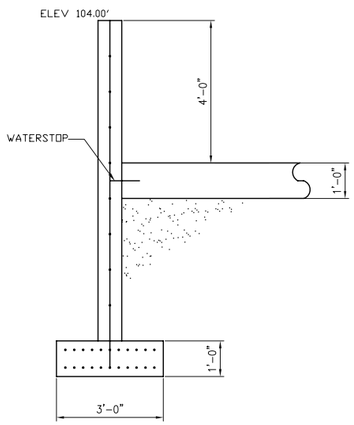




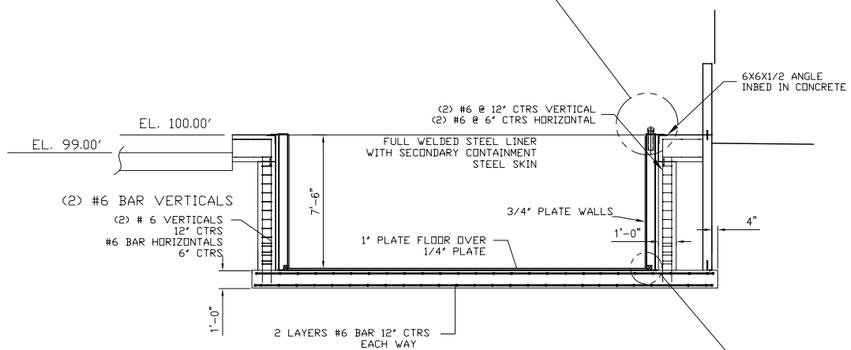
DETAIL 1
CORNER DETAIL
(TYP. 8 PLACES)
SCALE: NONE



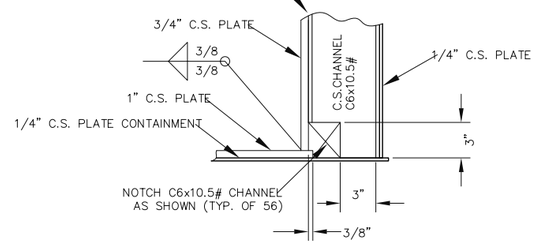
"C-C"
DWG. 501
N.T.S.
(SEE NOTE 8)

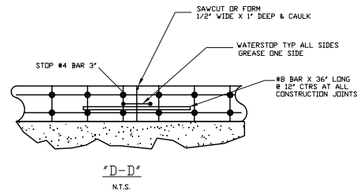


"B-B"
DWG. 501
N.T.S.



SECTION "A-A"
DWG. 501





"D-D"
N.T.S.

NOTES:

1. ALL CONCRETE 4000 PSI @ 28 DAYS. 3/4" AGGREGATE (SEE CONC SPECIFICATIONS)
2. ALL SLABS SHALL GAVE HARDNER APPLIED AFTER 14 DAYS, TO BE COMPATIBLE W/ EPOXY FLOOR COATING SYSTEM APPLIED AFTER 28 DAYS.
3. AS NOTED ON PLAN SILLS AT DOORS TO BE 6"ABV INTERIOR SLAB W/RAMPS IN & OUT.
4. SLAB/WALL SYSTEM TO BE COMPLETELY WATERSTOPPED AT ALL JOINTS & WALLS
5. CONSTRUCTION JOINTS TO HAVE 1" X 1/2" WIDE KEY AT TOP SEALED WITH SEKA PRODUCT.
6. ALL EXTERIOR WALLS INCLUDE 8" X 48" HIGH CONCRETE STEMWALL.
7. FOR ANCHOR BOLT PLACEMENT SEE CECO DRAWING.
8. FINAL PIER LOCATION AND DESIGN BASED ON CECO FINAL REACTIONS.
9. BUILDING WILL BE EXPLOSION VENTED AS PER IBC 2006 AND NFPA 68 INTERNAL PRESSURE DESIGN FOR 100PSF.

REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	0	3/19/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/19/14
CHECKED	REL	3/21/14
APPROVED	REL	3/21/14

CleanHarbors®
SAN LEON, INC.

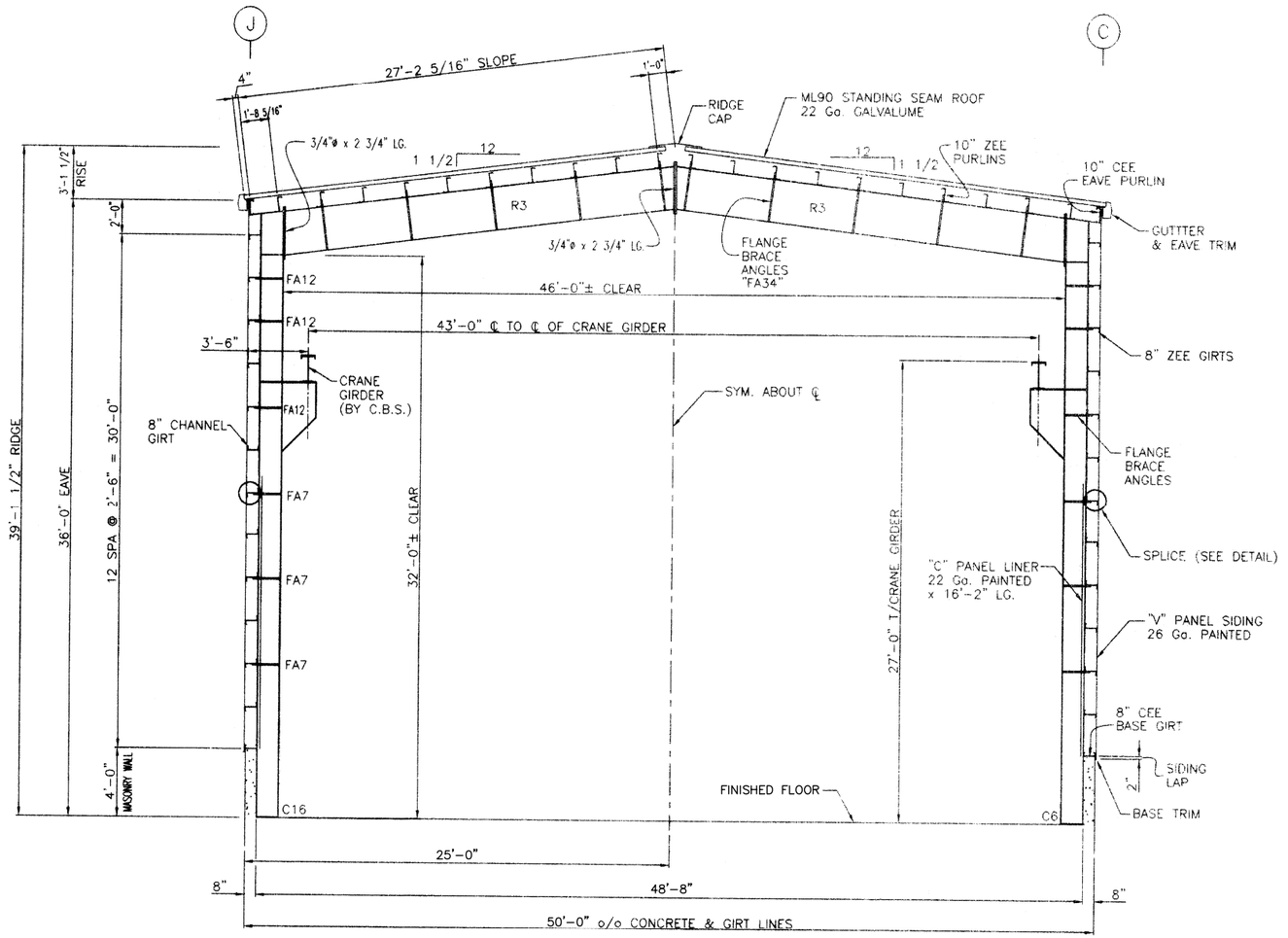
SCALE: 1/4"=1'

PROPOSED SECTIONS
WASTE PRETREATMENT BUILDING

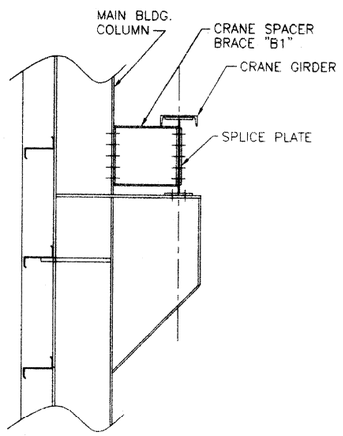
DRAWING NUMBER: 502 REV. 0

DESIGN:

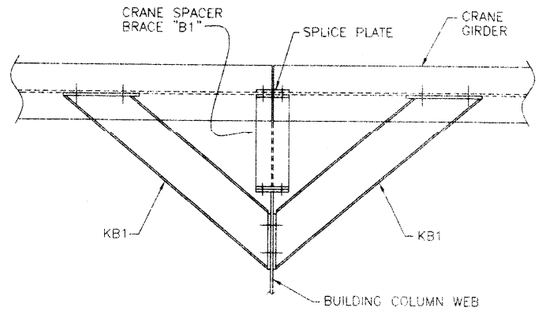
CODE:	INTERNATIONAL BUILDING CODE – DATE AS ADOPTED
ROOF SNOW LOAD:	TBD
ROOF DEAD LOAD:	4 PSF
ROOF COLLATERAL LOAD:	10 PSF
ROOF CONCENTRATED LOAD:	4 KIPS ON RAFTER
INTERNAL PRESSURE:	100 PSF
WIND LOAD:	47 PSF
BRIDGE CRANE:	7–1/2 TON



CROSS SECTION
@ LINE 6



CRANE GIRDER DETAIL



CRANE GIRDER DETAIL

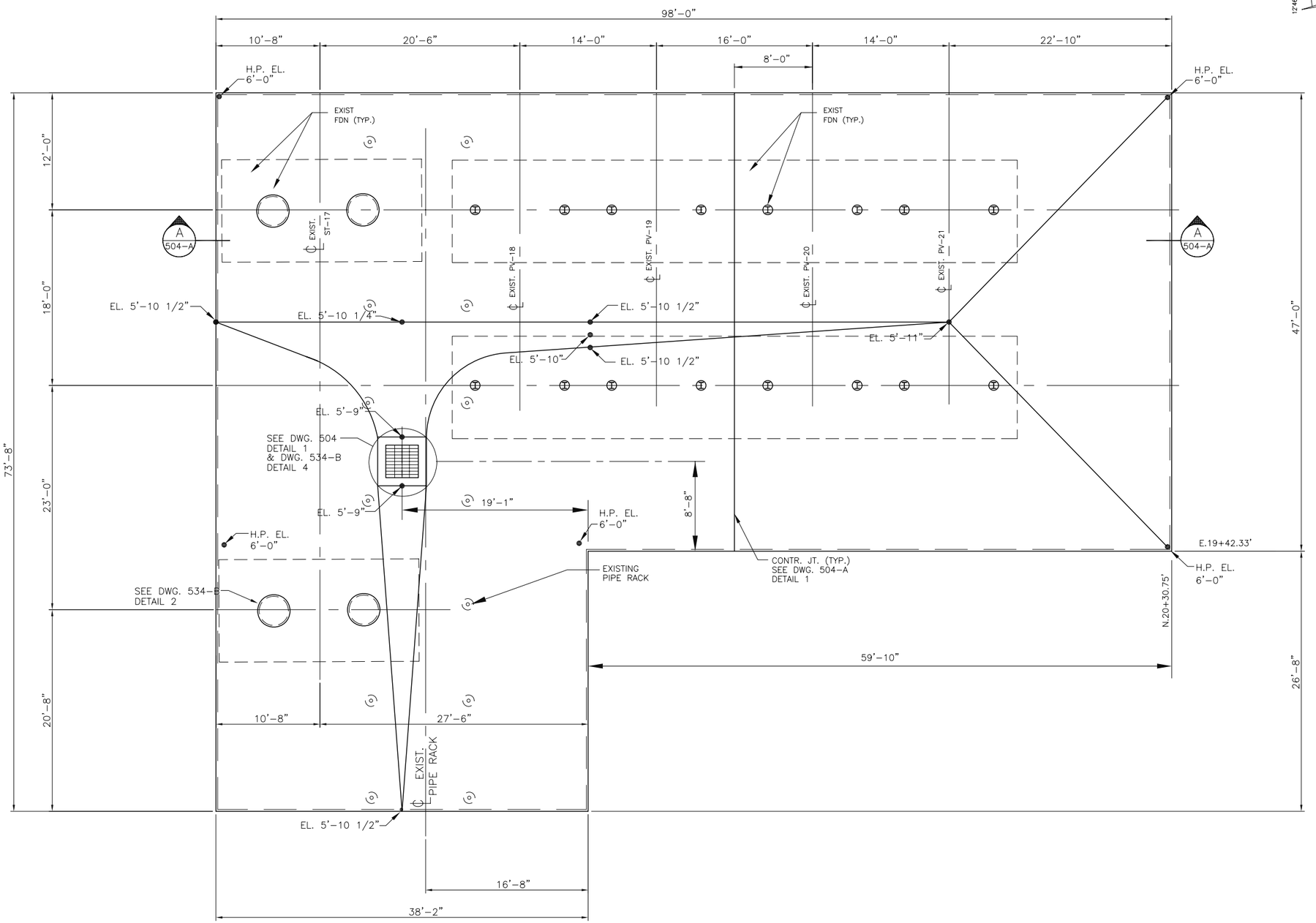
REFERENCE DRAWINGS	NO.	DATE	REVISIONS	BY	APP.
	0	3/21/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL

ENGINEERS RECORDS		DATE
DRAWN BY:	WDS	3/21/14
CHECKED	REL	3/21/14
APPROVED	REL	3/21/14

SCALE: N.T.S.

PROPOSED STRUCTURAL DETAILS WASTE PRETREATMENT BUILDING

DRAWING NUMBER 503 REV. 0



REFERENCE DRAWINGS			
500	CONCRETE/STRUCT. GENERAL NOTES		

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	3/24/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

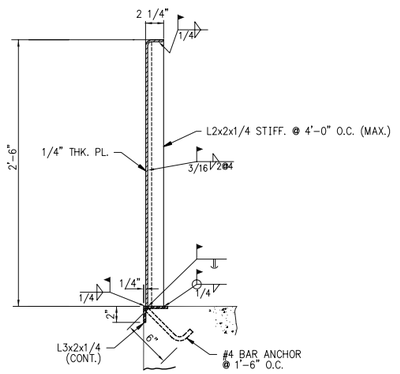
ENGINEERS RECORDS		
DRAWN BY:	C.J.	6/24/92
CHECKED	N.D.P.	6/24/92
APPROVED	BH	6/24/92

CleanHarbors®
SAN LEON, INC.

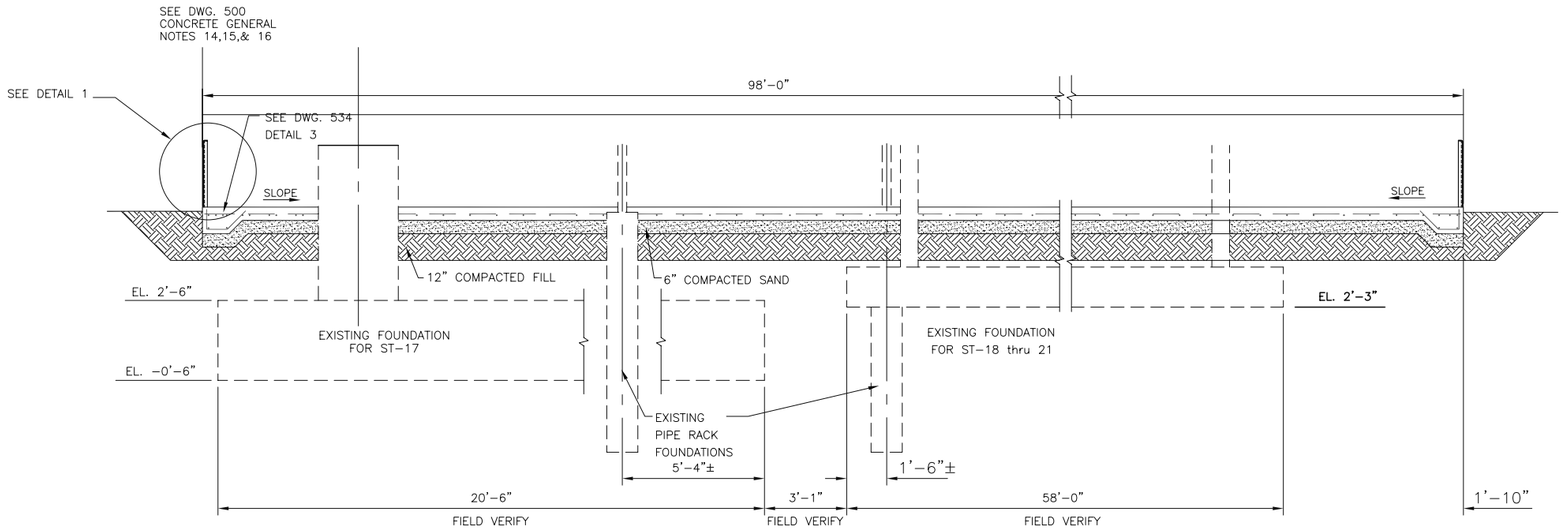
SCALE: 3/16"=1'

FOUNDATION PLAN AREA "A"

DRAWING NUMBER 504 REV. 3



DETAIL "1"
N.T.S.



SECTION "A-A"

REFERENCE DRAWINGS			
500	CONCRETE/STRUCT. GENERAL NOTES		

NO.	DATE	REVISIONS	BY	APP.
3	3/25/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

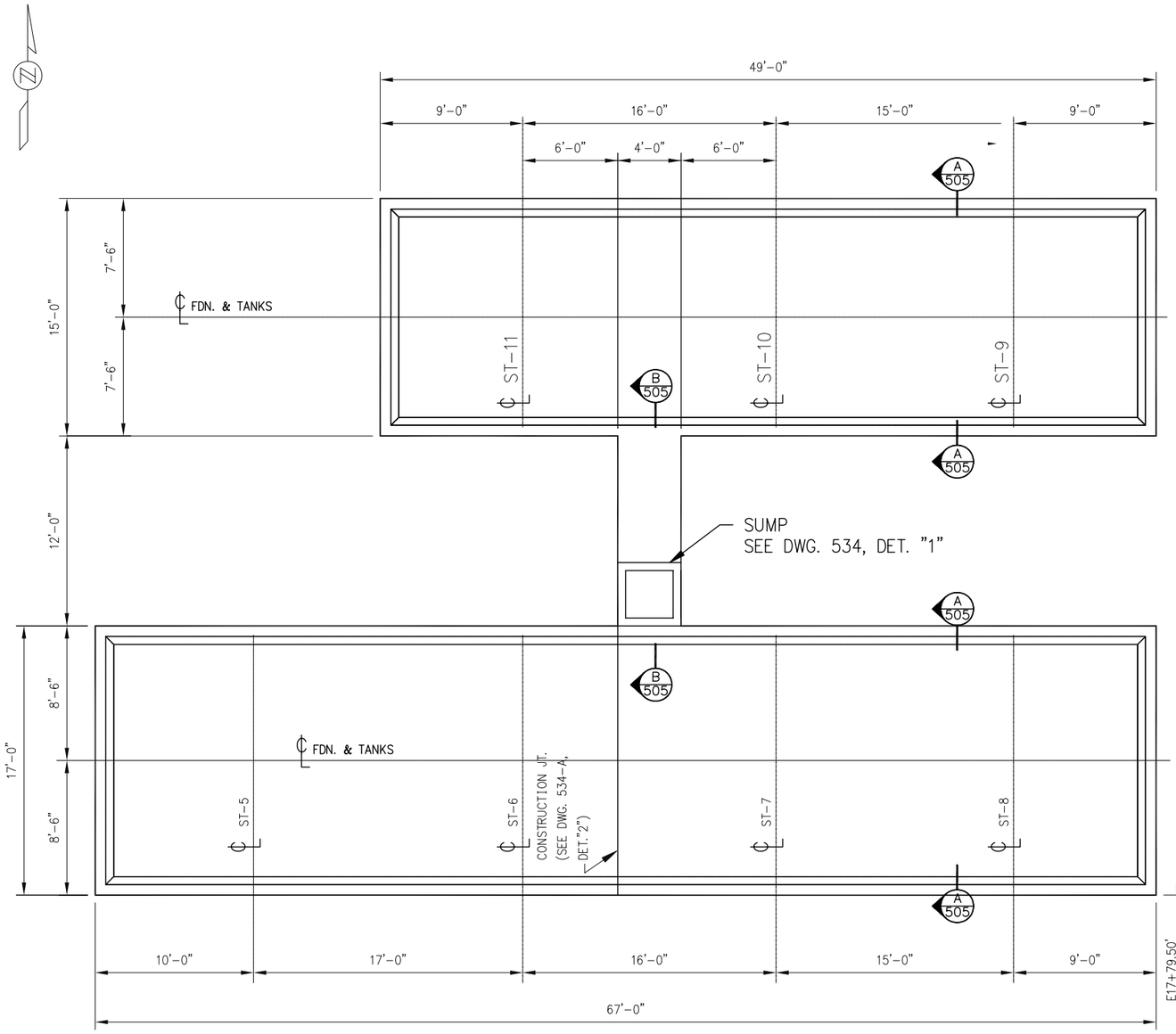
ENGINEERS RECORDS		DATE
DRAWN BY:	C.J.	6/24/92
CHECKED	N.D.P.	6/24/92
APPROVED	BH	6/24/92

CleanHarbors®
SAN LEON, INC.

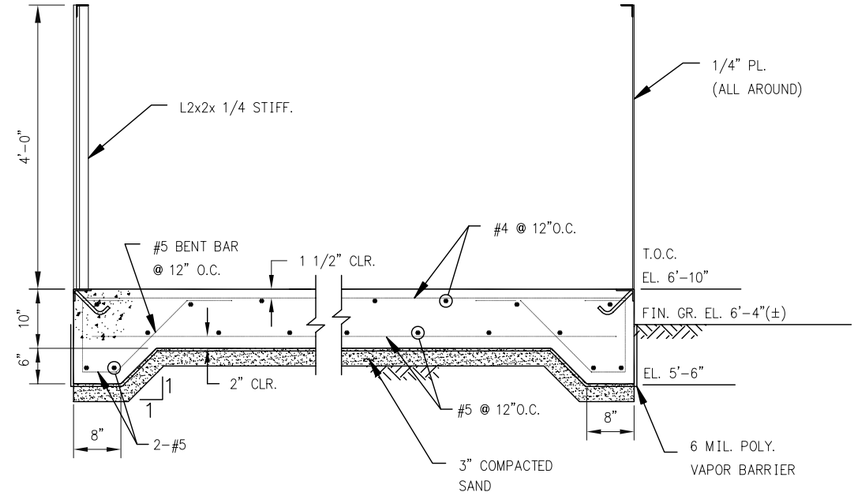
SCALE: 3/8"=1'

FOUNDATION SECTIONS & DETAILS AREA "A"

DRAWING NUMBER 504-A REV. 3

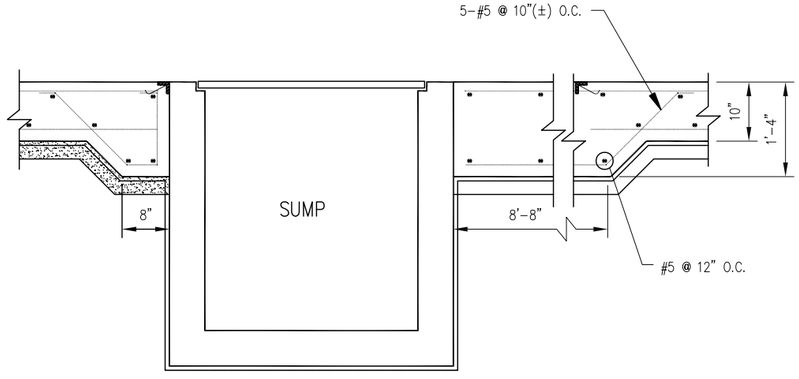


PLAN



SECTION "A-A"

NTS



SECTION "B-B"

NTS

REFERENCE DRAWINGS			
500	CONCRETE/STRUCT. GENERAL NOTES		

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	3/26/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	1/15/92	1992 PERMIT APPLICATION	CR	SC

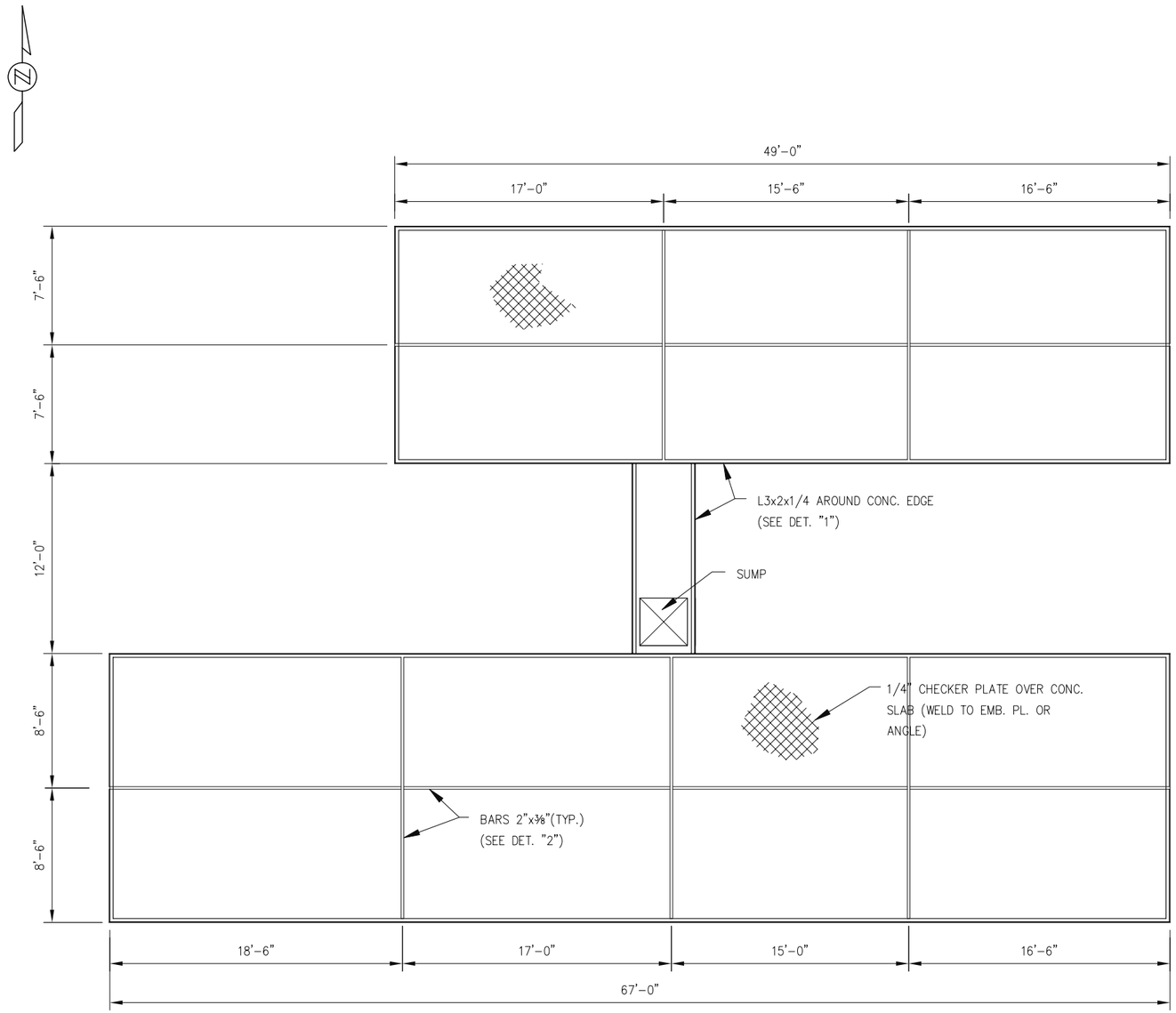
ENGINEERS RECORDS		DATE
DRAWN BY:	PGE	10/15/92
CHECKED	JCT	10/15/92
APPROVED	SID	10/15/92

CleanHarbors®
SAN LEON, INC.

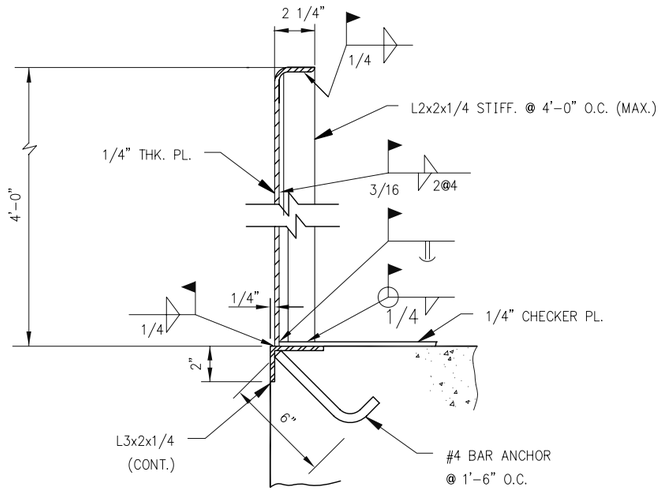
SCALE: 1/4"=1'

FOUNDATION PLAN AND SECT.
AREA "B"

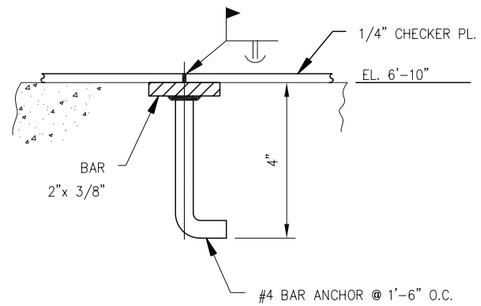
DRAWING NUMBER 505 REV. 3



EMBEDMENT PLAN



DETAIL "1"
(NTS)



DETAIL "2"
(NTS)

REFERENCE DRAWINGS			
500	CONCRETE/STRUCT. GENERAL NOTES		

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	3/26/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	1/4/94	PERMIT APPROVAL	CR	SC
0	1/15/92	1992 PERMIT APPLICATION	CR	SC

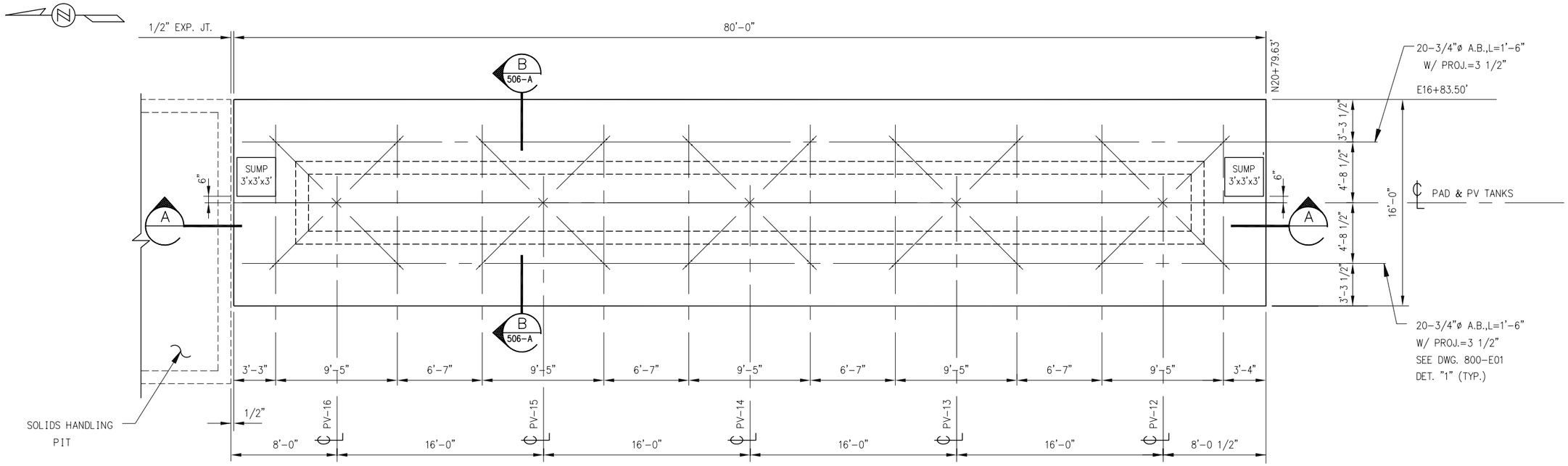
ENGINEERS RECORDS		DATE
DRAWN BY:	PGE	10/15/92
CHECKED	JCT	10/15/92
APPROVED	SID	10/15/92

CleanHarbors®
SAN LEON, INC.

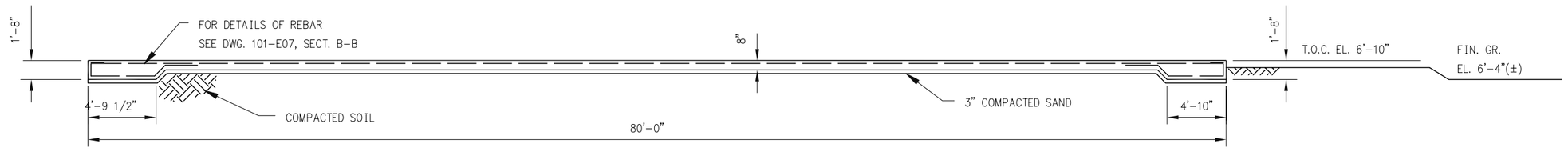
SCALE: 1/4"=1'

STRUCTRUAL PLAN & DETAILS
AREA "B"

DRAWING NUMBER 505-A REV. 3



PLAN



SECTION "A-A"

REFERENCE DRAWINGS			
500	CONCRETE/STRUCT. GENERAL NOTES		

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	3/26/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	11/192	1992 PERMIT APPLICATION	CR	SC

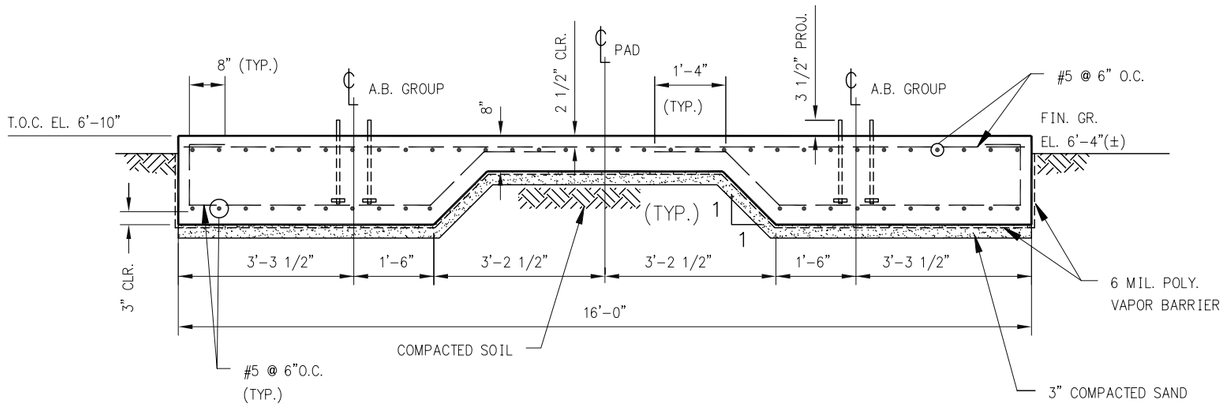
ENGINEERS RECORDS		DATE
DRAWN BY:	PGE	11/10/92
CHECKED	JCT	11/10/93
APPROVED	SID	11/10/93

CleanHarbors®
SAN LEON, INC.

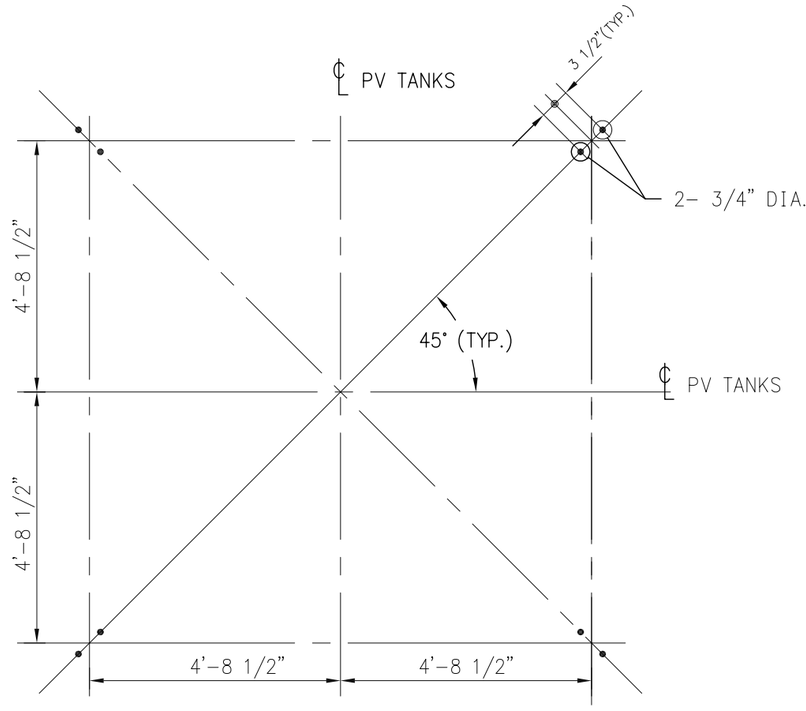
SCALE: 1/4"=1'

FOUNDATION PLAN & SECT.
AREA "C"

DRAWING NUMBER 506 REV. 3



SECTION "B-B"



TYPICAL A.B. LAYOUT
(N.T.S.)

REFERENCE DRAWINGS				NO.	DATE	REVISIONS	BY	APP.
500	CONCRETE/STRUCT. GENERAL NOTES							
				3	3/26/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
				2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
				1	4/1/94	PERMIT APPROVAL	CR	SC
				0	11/10/93	1992 PERMIT APPLICATION	CR	SC

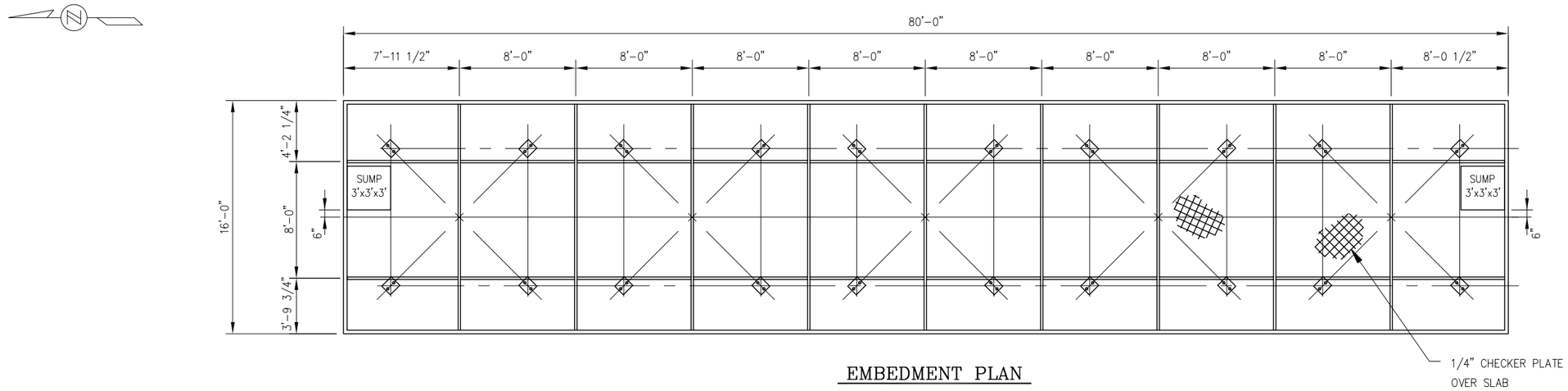
ENGINEERS RECORDS		DATE
DRAWN BY:	PGE	10/11/92
CHECKED	JCT	11/10/93
APPROVED	SID	11/10/93

CleanHarbors
SAN LEON, INC.

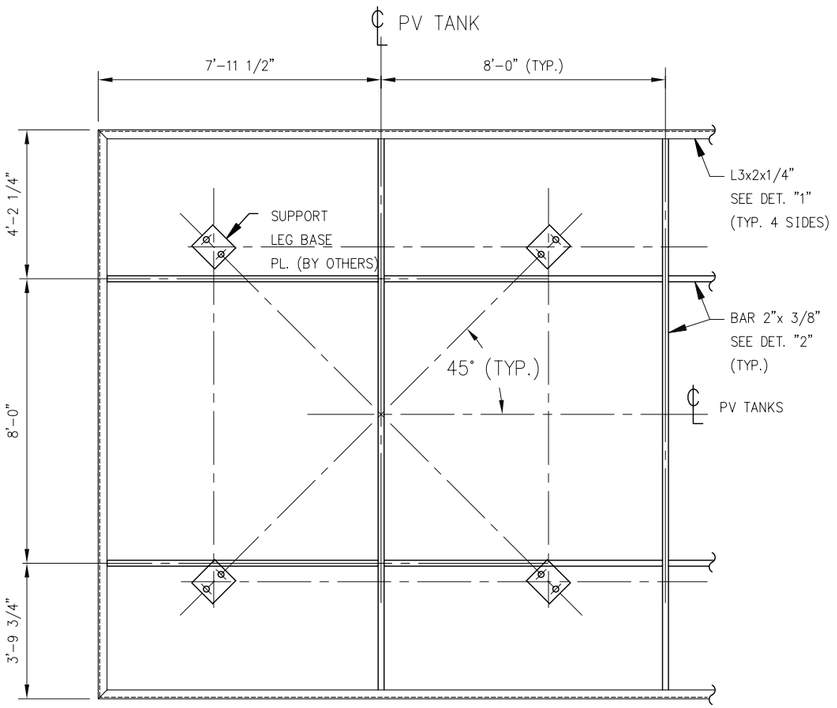
SCALE: 3/4"=1'

FOUNDATION SECTION & DETAIL AREA "C"

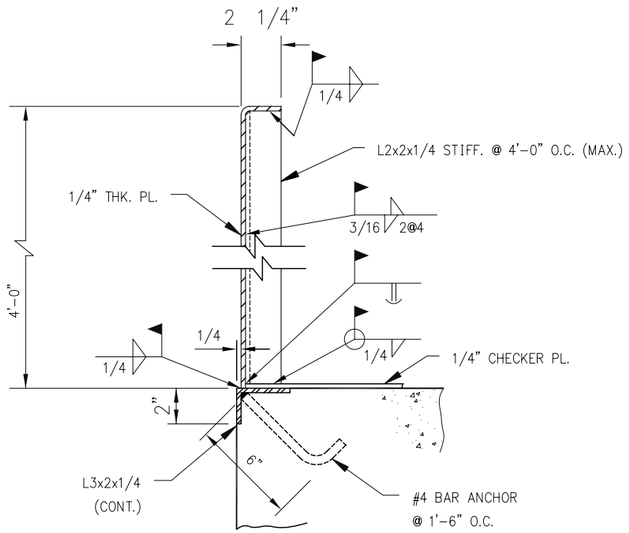
DRAWING NUMBER 506-A REV. 3



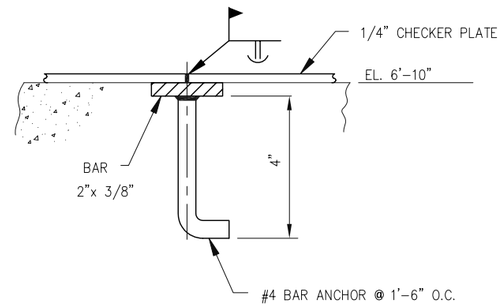
EMBEDMENT PLAN



ENLARGED PLAN
(NTS)



DETAIL "1"
(NTS)



DETAIL "2"
(NTS)

REFERENCE DRAWINGS			
500	CONCRETE/STRUCT. GENERAL NOTES		

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	3/26/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	11/10/92	1992 PERMIT APPLICATION	CR	SC

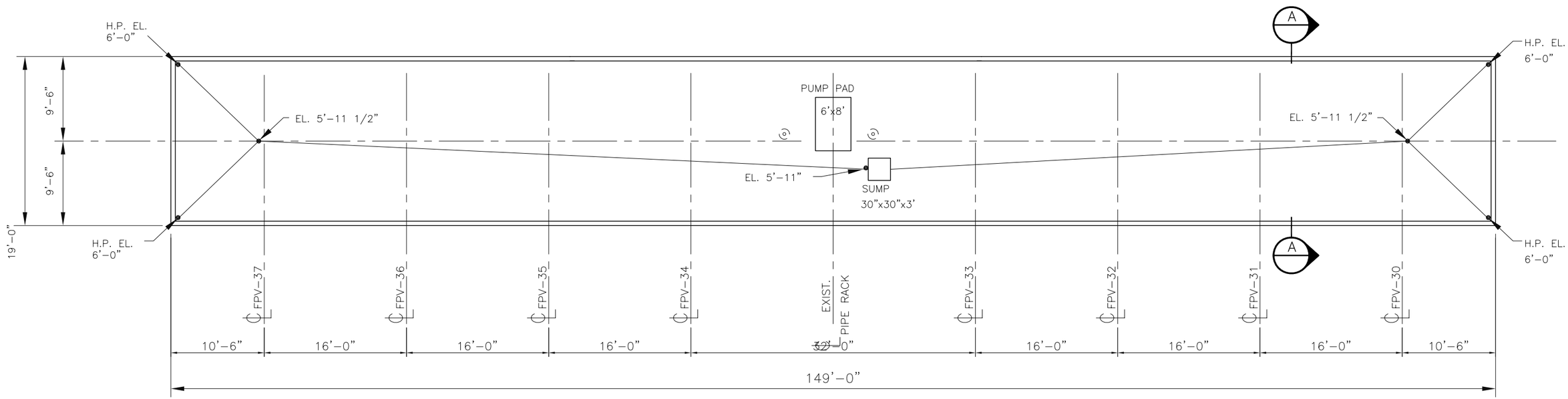
ENGINEERS RECORDS		DATE
DRAWN BY:	PGE	11/10/92
CHECKED	JCT	11/10/92
APPROVED	SID	11/10/92

CleanHarbors®
SAN LEON, INC.

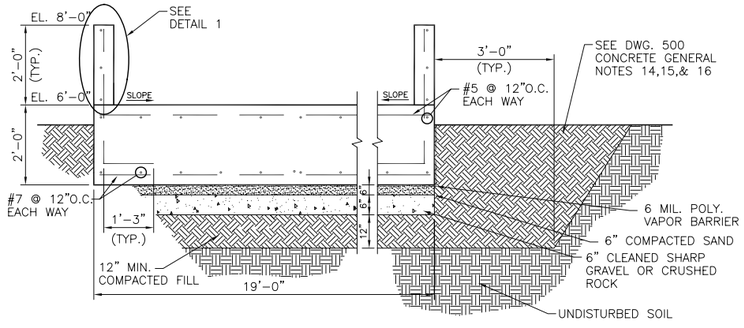
SCALE: 1/4"=1'

STRUCTURAL PLAN & DETAILS
AREA "C"

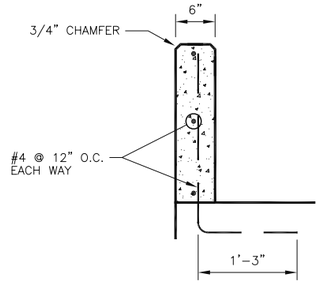
DRAWING NUMBER 506-B REV. 3



PLAN



SECTION "A-A"
NTS



DETAIL 1
NTS

NOTE:
1. CONSTRUCTION JOINTS ARE OPTIONAL. INSTALL ANY TIME SLABS CONSTRUCTION OPERATIONS ARE SUSPENDED FOR A HALF HOUR OR MORE.

REFERENCE DRAWINGS			
500	CONCRETE/STRUCT. GENERAL NOTES		

NO.	DATE	REVISIONS	BY	APP.

NO.	DATE	REVISIONS	BY	APP.
3	3/26/14	2014 PERMIT RENEWAL APPLICATION	WDS	REL
2	2/3/03	2003 PERMIT RENEWAL APPLICATION	CR	RC3
1	4/1/94	PERMIT APPROVAL	CR	SC
0	6/24/92	1992 PERMIT APPLICATION	CR	SC

ENGINEERS RECORDS		DATE
DRAWN BY:	C.J.	6/24/92
CHECKED	M.D.P.	6/24/92
APPROVED	BH	6/24/92

CleanHarbors
SAN LEON, INC.

SCALE: 3/16"=1'

FOUNDATION PLAN
SECTION & DETAIL
AREA "D"

DRAWING NUMBER 507 REV. 3

Galveston Central Appraisal District

Galveston Central Appraisal District

SCALE 1" = 200'
Date: 4/2/2015

SCALE 1" = 200'
Date: 4/2/2015

FACILITY

POINT OF DISCHARGE

DISCHARGE ROUTE

1/2 mi. Rad.

1/2 mi. Rad.

DICKINSON BAYOU

DICKINSON BAYOU

SAN LEON FARM HOME TRACTS

MACS SUB

GALLION SUB

JONES SUB

HART ACRES

FRANK'S SUB

COY ROBINSON SUB

LITTLE RIVIERA

1 2 3 4 5 6 7 8 9 10 11

W1 W2 W3 W4 W5 W6

APPENDIX B

DESIGN CALCULATIONS

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WAVE HEIGHT ANALYSIS, DURATHERM ENVIRONMENTAL TRACT, DICKINSON BAYOU, GALVESTON COUNTY, TEXAS

April 1996

Prepared for:

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Prepared by:

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1115 5th Street SW
Charlottesville, VA 22902

EARTH TECH Report 4020-96-01

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Introduction

This report presents the results of a detailed Wave Height Analysis (WHA) for a ± 11-acre site in Gavleston County, Texas (community number 485470), on the North side of Dickinson Bayou. The site is rectangular in shape; approximately 1,000 ft by 500 ft in size, and surrounded by a levee/floodwall structure.

The majority of the site falls on FIRM panel 100, with the Southeast corner of the site on FIRM panel 99. The site lies between Transects 34 and 35, as shown in Figure 3 of the Flood Insurance Study (FIS) report (FEMA, 1982). Ten-year, 100-year and 500-year stillwater elevations (SWL) are given in the Table 5 of the FIS report as 4.9 ft, 10.6 ft and 13.6 ft NGVD, respectively.

This WHA has been prepared by EARTH TECH, Inc. for Gulf Coast Engineering and Surveying, based on the following information:

- USGS Topographic Quadrangle, Texas City, Texas (1954, photorevised 1969 and 1972)
- NOAA Nautical Chart 11326, Galveston Bay, Texas (January 1994)
- 1996 Tide Tables, East Coast of North and South America
- Plot plans and cross-sections for Flood Dike Design, Bird Environmental Gulf Coast, Inc. (present-day DURATHERM tract), January 1992, prepared by Halliburton NUS Environmental Corporation
- February 1992 vertical aerial photography for the site
- site elevations, provided by Gulf Coast Engineering and Surveying
- dike and floodwall descriptions, provided by Gulf Coast Engineering and Surveying
- Flood Insurance Study, Galveston County, Texas, unincorporated areas, November 2, 1982
- Galveston County Flood Insurance Rate Map Panels 99 and 100, revised May 2, 1983

The WHA has been completed in accordance with the document Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping, Final Draft (FEMA, March 1995), using the following models:

- WHAFIS, version 3.0
- RUNUP, version 2.0
- ACES, version 1.07d (Windspeed Adjustment and Wave Growth)

Based on research by FEMA's Technical Evaluation Contractors, it appears that the Tetra Tech wave program was used for initial wave height studies in the area, then modified or replaced at a later date. Unfortunately, *research failed to provide backup documentation for previous WHAFIS modeling of transects near the site.*

It is believed that the analysis performed by EARTH TECH is a more detailed analysis, and is based on more detailed topographic data at the site of the levee/floodwall structure. It should be noted that although a revised FIS report was published for Galveston County on July 5, 1995, the revisions pertain to barrier island areas and not to the site which is the subject of this WHA -- the information contained in the November 2, 1992 FIS report remains valid for the study site.

It should also be stated that based on the levee-floodwall description and other data provided by Gulf Coast Engineering and Surveying, WHAFIS and Runup modeling were performed on the existing topography. The analyses conducted as part of the present study assume the vegetation and armoring along the levee will prevent erosion of the levee structure.

The analyses conducted showed the most critical factor for removal of the area inside the levee from the Special Flood Hazard Area (SFHA, i.e., 100-yr floodplain) is wave overtopping. While the existing levee-floodwall structure satisfies freeboard requirements above the 100-yr stillwater level and above the wave runup elevation, it does not satisfy

wave overtopping criteria for removal from the SFHA; only when East levee armoring is completed will the structure satisfy overtopping criteria for SFHA removal.

Levee-Floodwall Characteristics

The wave analyses performed by EARTH TECH were based on the following levee-floodwall information provided by Gulf Coast Engineering and Surveying:

East Side: compacted clay levee (constructed over smaller, pre-existing dike)
interior side slope (v:h) 1 on 2
exterior side slope (v:h) 1 on 3
existing elevation at base (exterior side) 6.0 ft NGVD
existing crest elevation 17.1 ft NGVD
existing levee sides and top vegetated with thick grass
planned levee modification: armor exterior slope and top with concrete rubble (approx. thickness 1.5 ft), resulting in new crest elevation of ± 18.5 ft NGVD

South Side: (West end) approx. 360 ft of compacted clay levee (constructed over smaller, pre-existing dike)
(East end) approx. 585 ft of vertical floodwall
interior side slope of levee (v:h) 1 on 2
exterior side slope of levee (v:h) 1 on 3
existing elevation at levee base (exterior side) 6.0 ft NGVD
existing elevation at floodwall base (exterior side) 6.5 ft NGVD
existing levee/floodwall crest elevation 17.0 ft NGVD
existing levee sides and top vegetated with thick grass

West Side: compacted clay levee (constructed over smaller, pre-existing dike)
interior side slope (v:h) 1 on 2
exterior side slope (v:h) 1 on 3
existing elevation at base (exterior side) 6.0 ft NGVD
existing crest elevation 17.0 ft NGVD
existing levee sides and top vegetated with thick grass

North Side: compacted clay levee (constructed over smaller, pre-existing dike)
interior side slope (v:h) 1 on 2
exterior side slope (v:h) 1 on 3
existing elevation at base (exterior side) 6.0 ft NGVD
existing crest elevation 17.0 ft NGVD
existing levee sides and top vegetated with thick grass

Wave Analyses

Examination of maps and charts of the site and adjoining areas showed potential wave effects from the East and South should be investigated. Of the two directions of wave approach, waves from the East (i.e., from East Bay) would be of greater concern.

Wave Generation across East Bay

The first task undertaken during the wave height analysis was to estimate wave conditions in Dickinson Bay during 100-year flood conditions. The estimated wave conditions at the mouth of the bay were later used to estimate input wave conditions for WHAFIS modeling at the East side of the levee.

Wave heights and periods at the mouth of Dickinson Bay were calculated using the *Windspeed Adjustment and Wave Growth* program of ACES 1.07d, using shallow-water wave equations. Thirteen fetch radials were drawn from the mouth of Dickinson Bay into East Bay, as shown in Figure 1. Radial characteristics are shown in Table 1 (the weighted-average depth for the radials was determined to be approximately 6.2 ft MLLW, or 6.7 ft MWL). Thus, the model predicted wave conditions using an average water depth of 17.3 ft over the fetch area (6.7 ft ave. MLW chart depth, plus 10.6 ft NGVD 100-yr SWL), using an overwater wind speed of 80 mph (1-hour average winds, 6-hour duration, measured 30 ft above the water surface), originating from 60° to 132°. Model results are contained in Appendix 1.

Averaging the model results for wave heights and wave periods from the 66°, 72°, 78°, 84° and 90° radials (i.e., the radials yielding the largest wave heights and periods) will be assumed to approximate 100-year wave conditions at the mouth of Dickinson Bay during 100-year flood conditions: H_{mo} = 6.9 ft and T_{peak} = 5.8 sec.

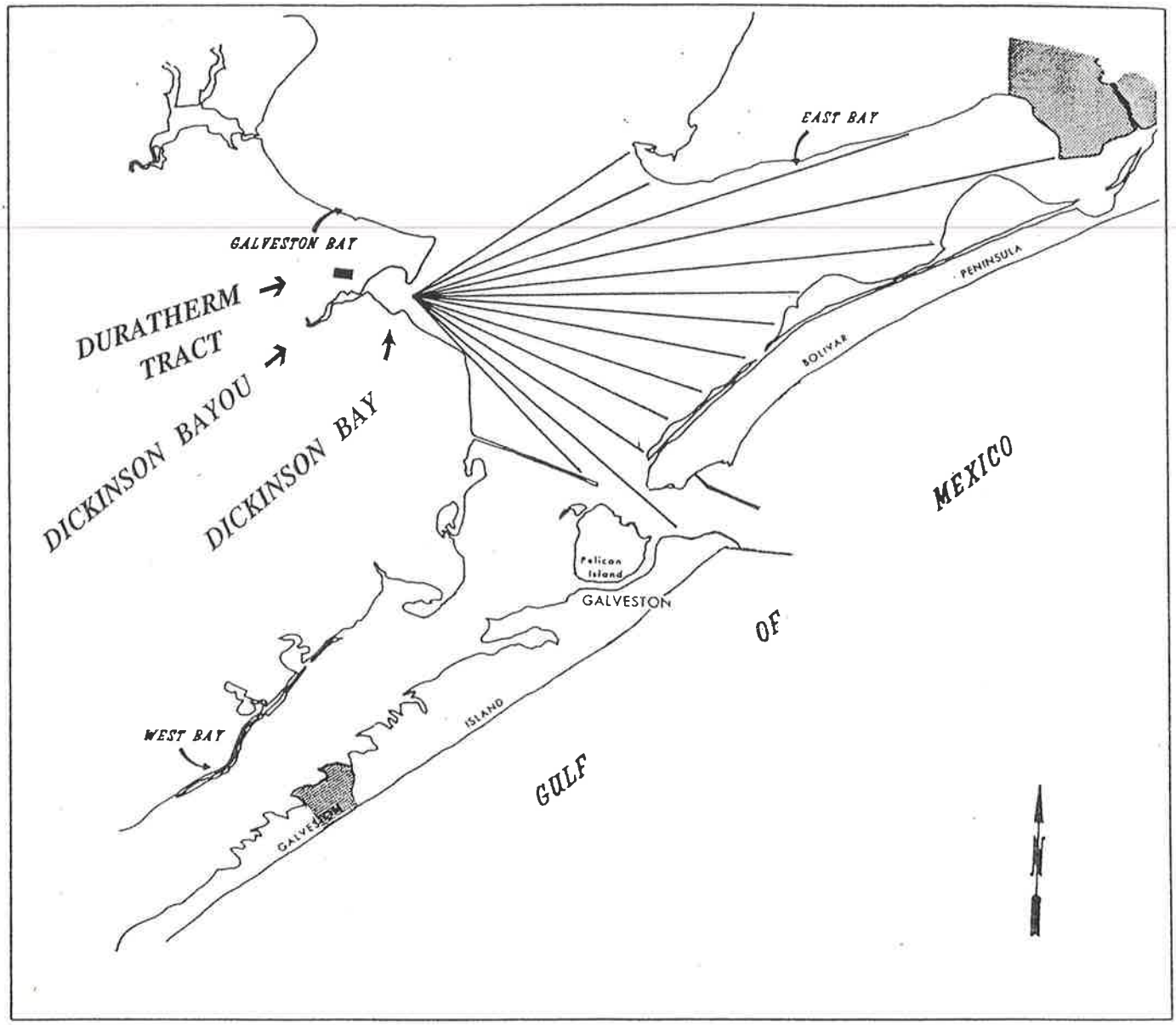

Figure 1. WHA Fetch Geometry, approx. scale 1"= 10,000'

Table 1. ***Fetch Geometry for Dickinson Bay, Texas, WHAFIS Input Wave Calculations***

Radial	Direction (deg from N)	Approximate Length (ft)	Approx. Average Depth (ft below NGVD) [a]
1	60	52,000	6.0
2	66	53,300	6.5
3	72	106,700	5.5
4	78	130,000	6.0
5	84	104,700	6.0
6	90	76,700	6.5
7	96	72,000	6.5
8	102	68,000	7.0
9	108	63,300	7.5
10	114	59,300	8.0
11	120	58,700	8.0
12	126	58,000	8.0
13	132	72,000	13.0 [b]
		fetch area average depth	6.7

a. MWL = 0.5 ft MLLW; assumes NGVD ≈ MWL

b. includes Galveston Bay entrance channel between Bolivar Peninsula and Galveston Island; the average depth over the 53,000 ft fetch closest to Dickinson Bay and excluding the reach through Bolivar Roads is 7.5 ft.

Although the model predicts waves produced by winds blowing along the five radials will approach from an azimuth of 78°, it will be assumed in this analysis that the waves refract as they enter Dickinson Bay, and propagate toward the East side of levee under 100-year flood conditions. This method of analysis is probably more conservative than that employed during the original FIS, but it is believed to yield a more accurate representation of wave conditions that could affect the East side of the levee during 100-year flood conditions.

Wave Generation across Dickinson Bayou

The fetch to the South of the levee-floodwall structure is limited to less than 1 mile by the Texas City levee (crest elevation 22 ft NGVD), designed and constructed by the USACE. Further, Thus, input wave heights and periods for WHAFIS modeling at the South side of the levee-floodwall should be significantly less than input wave conditions for WHAFIS modeling at the East side of the levee.

WHAFIS Modeling

While no documentation for the May 1983 mapping was found during the present study, the May 1983 FIRMS are assumed to accurately reflect the results of WHAFIS (or earlier Tetra Tech Wave Model) runs. The DURATHERM site appears on unincorporated Galveston County FIRM panels 99 and 100, and lies entirely within an A12 (el 12) zone, with flooding effects from Galveston Bay.

The section below will show that if the FIS for unincorporated Galveston County was redone today, the DURATHERM site could be remapped with the Eastern portion of the site in a VE (el 13 zone) and the western portion of the site in an AE (el 13 zone). All wave height, runup and overtopping calculations performed as part of the present study are based on the zones anticipated as a result of a restudy.

For the present study, two new transects were drawn from the levee/floodwall site:

- Transect A -- drawn at S 84° E (96° azimuth), extending from the East side of the sloping levee into Dickinson Bay
- Transect B -- drawn at S 24° E (156° azimuth), extending from the levee-floodwall on the South side of the site, between transects 34 and 35, across Dickinson Bayou to the USACE Texas City levee

Transect locations are shown in Figure 2. Transect elevations were supplied by Gulf Coast Engineering and Surveying (GCES), or taken from data provided by GCES.

Input WHAFIS wave conditions for were estimated from the results of the ACES wave generation modeling and standard procedures for estimating depth-limited wave heights. In the case of Transect A, it was assumed that 5.8 second waves would propagate through Dickinson Bay, and across the shoreline toward the East side of the levee. The input wave height was taken as the greatest wave height supported at the shoreline, but no higher than the 6.9 ft significant wave height calculated by ACES. For a 10.6 ft NGVD SWL at the shoreline, wave theory tells us the maximum depth-limited wave height will be approximately 8.5 ft (0.8 times stillwater depth of 10.6 ft); taking the controlling wave height to be 8.5 ft, the significant wave height H_S at the shoreline can be expected to be 5.3 ft. Thus, input wave conditions for 100-yr WHAFIS calculations at Transect A were H_S = 5.3 ft and T_{peak} = 5.8 sec. Potential wave dissipation by marsh vegetation along Transect A was believed to be small, and therefore ignored. Results of the WHAFIS run for Transect A (with and without the levee) are included in Appendix 2.

In the case of Transect B, it was assumed that waves crossing the shoreline would not be similar to waves approaching along Transect A. There are two reasons for this assumption: 1) the USACE levee on the South side of Dickinson Bayou (crest elevation 22 ft NGVD) will restrict the fetch along Transect B to less than one mile; and 2) the orientation of the floodwall and levee along the South side of the site is such that waves propagating toward

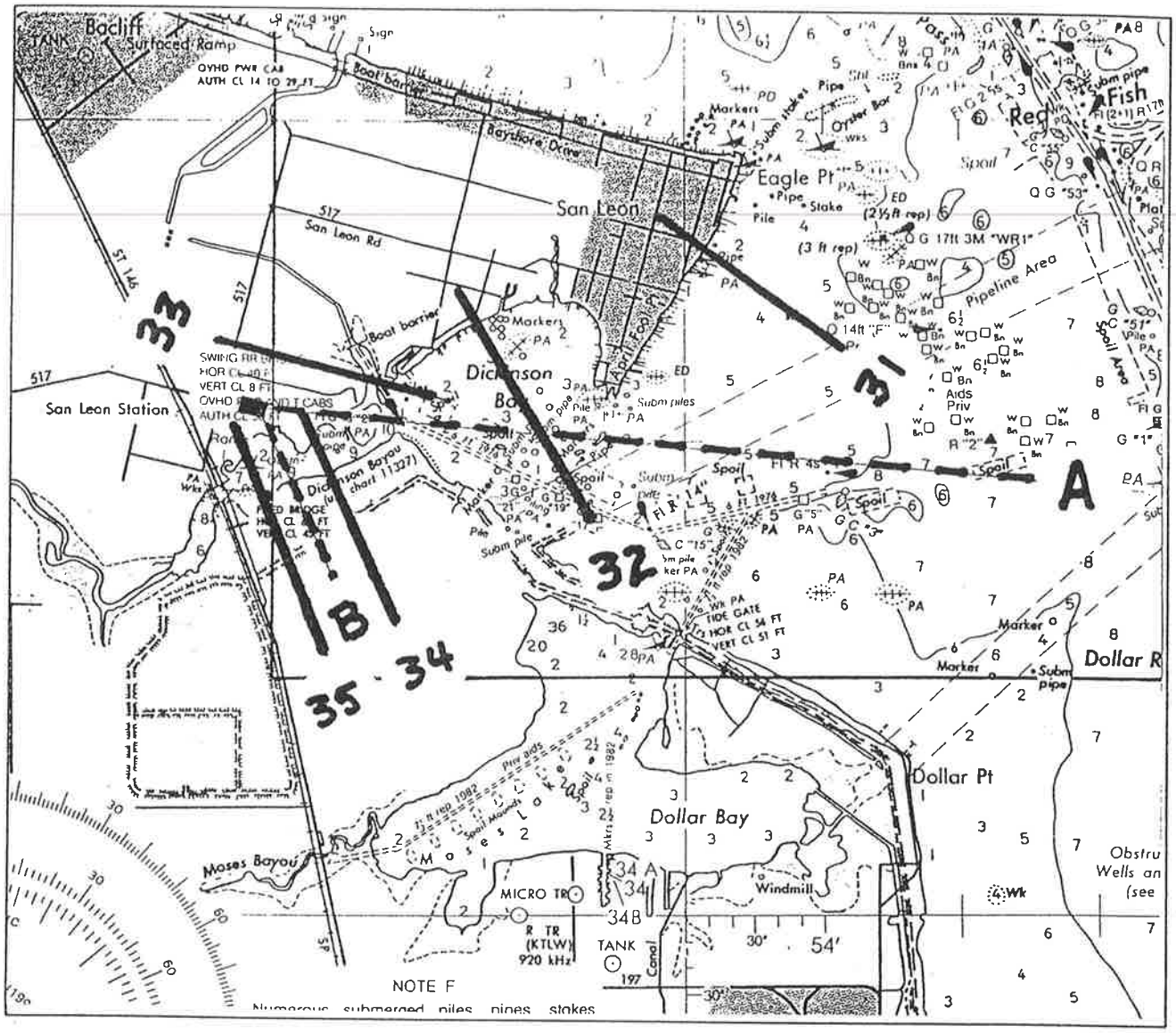

Figure 2. Location of FIS (1982) transects 31 - 35, and transects A and B from this WHA. (approx. scale 1" = 6,667')

the site from Dickinson Bay will not strike the levee/floodwall, or will do so only obliquely. Input wave conditions for 100-yr WHAFIS calculations at Transect B were estimated using ACES 1.07d to be H_S = 2.0 ft and T_{peak} = 2.5 sec. Again, potential wave dissipation effects of vegetation along the transect were believed to be small and were ignored. Two WHAFIS runs were made for Transect B: one run with the levee at the landward end and one run with the vertical floodwall at the landward end. Results of the WHAFIS runs for Transect B are included in Appendix 3.

Wave Runup Modeling -- Transect A

Wave runup against the armored East levee were computed using FEMA's RUNUP (version 2.0) model, following procedures outlined in FEMA (March 1995) -- average wave heights and periods were used as input, with $H_{ave} = 0.625\ H_S$ and $T_{ave} = 0.85\ T_{peak}$.

Given previous wave calculations at the shoreline for Transect A, the average input wave height and period were calculated to be H_{ave} = 3.3 ft and T_{ave} = 4.9 sec; the roughness coefficient for the East side armoring was taken to be 0.80. Preliminary calculations showed the RUNUP model predicted near-zero values of wave runup for waves at or larger than the specified 3.3 ft wave height; therefore, input wave conditions were modified slightly to investigate runup for lesser wave heights known to cause more plausible runup values. Runup resulting from combinations of three wave heights (2.5 ft, 2.75 ft and 3.0 ft) and three wave periods (4.7 sec, 4.9 sec and 5.1 sec) were investigated (note that other combinations of lesser wave heights and shorter wave periods were examined, but produced lower runup). Results are contained in Appendix 4. The runup resulting from the 3.0 ft waves was less than 0.20 ft, and the runup from the 2.75 ft, 5.1 sec wave was 0.88 ft; these results were discarded. The results from the remaining five cases were averaged to yield an expected mean runup of 4.8 ft above SWL. Thus, the expected 100-yr mean runup elevation at Transect A is 15.4 ft NGVD. When armored, the East levee crest

elevation of ± 18.5 ft NGVD will provide 3.1 ft of freeboard above the 100-yr mean runup elevation and 7.9 ft of freeboard above the 100-year SWL.

During estimated 500-yr flood conditions along Transect A (SWL = 13.6 ft, H_{ave} = 4.0 to 4.6 ft and T_{ave} = 4.7 to 5.1 sec), calculations show the average wave runup will reach 20.4 ft NGVD, exceeding the armored crest elevation by 1.9 ft (see Appendix 4).

At Transect B, two cases were investigated: 1) runup against the South-facing vertical floodwall (cap elevation 17.0 ft NGVD, grade elevation 6.5 ft NGVD); and 2) runup against the South-facing levee section (crest elevation 17.0 ft, toe elevation 6.0 ft NGVD) West of the floodwall. Note that in both cases waves would likely strike the floodwall or levee sections obliquely, thereby reducing wave runup elevations from those calculated for normal incidence.

Overtopping Analysis -- Transect A

Wave runup calculations for 100-yr conditions at Transect A (armored levee) show an average runup height of 4.8 ft, which is approximately 61% of the freeboard above the stillwater level. Standard procedure for studies such as this call for evaluation of wave overtopping whenever runup heights exceed 40% of the freeboard. Therefore, wave overtopping during 100-yr conditions was calculated using the procedures described in FEMA (March, 1995). Specifically, the mean overtopping rate, Q_{ave}, was calculated using Figure 19, equation (2) and equation (3) on pages 85, 86 and 88 of FEMA (March 1995).

In keeping with de Wall and van der Meer (1992), and van der Meer and Janssen (1995), the dimensionless overtopping rate, Q*, was calculated using equation 3 for two cases: 1) for "smooth slope" conditions with a roughness coefficient r = 1.00 and a shallow water coefficient γ_h = 1.00; and 2) for the rough slope, shallow water conditions at Transect A, with r = 0.80 and γ_h = 0.85 (note that the Q* resulting from case 2 is equivalent to a case

with r = 0.65 and γ_h = 1.00). The ratio of calculated values of Q* for cases 1 and 2 was found to be approximately 25; therefore, Q_{ave} for the armored transect A was found using Figure 19 with a modified equation (2) as follows:

$$Q_{ave} = 1/25 \cdot Q^*_{Fig19} \cdot \{gH_s^3\}^{0.5}$$

Using Figure 19 of FEMA (March 1995) with F = 7.9 ft (18.5 ft crest elev. - 10.6 ft SWL), H_s = 2.75 ft and Cot θ = 3.0 yields $Q^* \cong 7.0 \times 10^{-5}$. Therefore, $Q_{ave} \cong 7.2 \times 10^{-5}$ cfs/ft, which is less than the critical value of 1.0×10^{-4} cfs/ft used to differentiate between flood zones X and A0 behind a levee. The area behind the armored East levee would properly be classified as a shaded zone X and removed from the SFHA.

Wave Runup Modeling -- Transect B (Levee Section)

Wave runup against the South-facing levee was computed using FEMA's RUNUP (version 2.0) model, with input wave conditions equal to the average wave conditions H_{ave} = 1.25 ft and T_{ave} = 2.1 sec; the roughness coefficient for the vegetated South levee was taken as 0.90.

Runup resulting from combinations of three wave heights (1.0 ft, 1.25 ft and 1.5 ft) and three wave periods (1.9 sec, 2.1 sec and 2.3 sec) were investigated (note that other combinations of lesser wave heights and shorter wave periods were examined, but produced lower runup). Results are contained in Appendix 5. The model computed runup for eight of the nine cases (the 1.5 ft, 1.9 sec wave exceeded the 0.07 steepness criterion); results of the eight cases were averaged to yield an expected mean runup of 1.5 ft above SWL. Thus, the expected 100-yr mean runup elevation at Transect B (Levee) is 12.1 ft NGVD. The existing South-side vegetated levee section provides 4.9 ft of freeboard above the 100-yr mean runup elevation and 6.4 ft of freeboard above the 100-year SWL.

During estimated 500-yr flood conditions along Transect B (SWL = 13.6 ft), average wave runup is estimated to reach no more than 2.0 ft above SWL, or 15.6 ft NGVD (wave steepness considerations limit input wave heights to values slightly higher than 100-yr conditions; the resulting runup will also be slightly higher than 100-yr conditions). Therefore, the existing South-side vegetated levee section is estimated to provide 1.4 ft of freeboard above the 500-yr mean runup elevation and 3.4 ft of freeboard above the 500-year SWL.

Wave Runup Modeling -- Transect B (Vertical Floodwall Section)

Since FEMA's RUNUP 2.0 cannot calculate runup against vertical walls, wave runup against the South-facing vertical floodwall was computed using ACES 1.07d (*Wave Runup and Overtopping on Impermeable Structures*). Runup was calculated for a vertical slope and for a 1-on-3 slope (i.e., the levee section), then compared. The comparison showed runup against the South floodwall can be expected to reach approximately 85% of the previously computed runup against the levee slope, or 1.3 ft above the 10.6 ft NGVD SWL. Therefore, the existing South-side vertical floodwall section provides 5.1 ft of freeboard above the 100-yr mean runup elevation and 6.4 ft of freeboard above the 100-year SWL.

During estimated 500-yr flood conditions along Transect B (SWL = 13.6 ft), average wave runup is estimated to reach no more than 1.7 ft above SWL, or 15.3 ft NGVD. Therefore, the existing South-side vertical floodwall section is estimated to provide 1.7 ft of freeboard above the 500-yr mean runup elevation and 3.4 ft of freeboard above the 500-year SWL.

Overtopping Analysis -- Transect B (Levee and Floodwall Sections)

Wave runup calculations for 100-yr conditions at Transect B (vegetated levee and vertical floodwall) show an average runup height of 1.3 to 1.5 ft, which is approximately 20% to 23% of the freeboard above the 100-yr SWL. Since the runup height is less than 40% of

the freeboard, South-side overtopping is not expected to cause flooding behind the levee and detailed overtopping analyses were not performed.

Wave runup estimates for 500-yr conditions at Transect B show an average runup height of 1.7 to 2.0 ft, which is approximately 50% to 59% of the freeboard above the 500-yr SWL. Based on these figures, minor overtopping of the South levee and floodwall sections is expected during 500-yr flood conditions.

Revised Flood Hazard Zones

Approximately two-thirds of the levee/floodwall structure and 80 percent of the enclosed area are included on FIRM Panel 100. The Southeast corner of the levee/floodwall structure and enclosed area are included on FIRM panel 99. The entire structure and enclosed area are shown on the effective maps (5/2/83) as lying within an A12 (el 12) zone, based on flooding effects from Galveston Bay.

Wave analyses conducted as part of the present study predict significantly greater landward penetration of the V zone than that shown on the effective maps (Figure 3 shows a comparison of zones computed along Transect A during this study and zones on the effective maps). This difference is likely due to two factors: 1) use of more recent models than those employed in the FIS, and 2) use of conservative assumptions during the present study regarding input wave conditions for WHAFIS and Runup modeling. The net result is that the A-V gutter location and flood zones computed during the present study cannot be matched or blended with the gutter and zones shown on the effective maps.

Note that the intent of the present wave analysis is not to remap the Dickinson Bay-Dickinson Bayou area, but instead to analyze the flood zone changes resulting from consideration of the levee/floodwall structure at the DURATHERM tract. Therefore, the

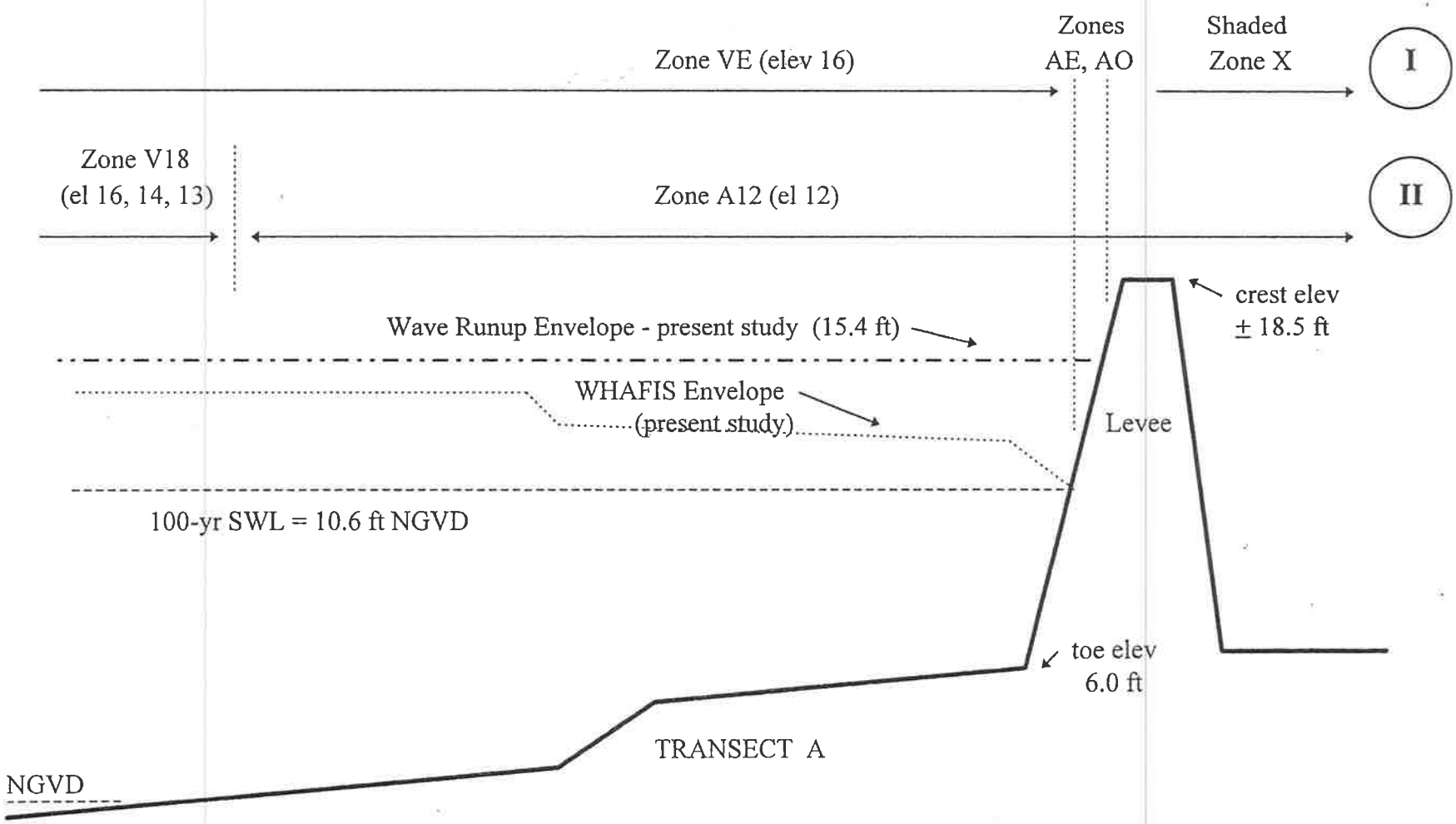

Figure 3. Flood Zone along Transect A. Zones on line (I) represent zones predicted by revised wave analyses, this study. Zones on line (II) represent zones on effective maps.

results of the wave analyses should be used to modify the existing flood zones only in the vicinity of the levee itself.

EARTH TECH recommends the zones on the effective maps remain unchanged, with the exception of the removal from the SFHA of the area behind the crest of the levee/floodwall structure. Specifically, EARTH TECH recommends any area within the 16.0 ft NGVD contour along the exterior of the levee/floodwall be classified as a shaded Zone X and removed from the SFHA.

EARTH TECH also recommends that a note be added to FIRM panels 99 and 100, indicating that recent wave analyses (i.e., more recent than those which the effective maps are based upon) have indicated the likelihood of widespread zone changes during future restudies.

It should be stated that the influence of the levee structure is expected to be localized -- the presence of the structure is not expected to increase the base flood elevation or otherwise increase flood hazards on adjacent parcels. In fact, the presence of the structure should reduce potential wave effects for the area "sheltered" by the levee -- that area immediately West and Northwest of the levee. However, given difficulties in matching effective flood zones and zones predicted by this analysis, no sheltering effects have been considered during this map revision.

In summary, the results of the present wave studies reveal the following:

1. Backup information and model results from previous flood and wave studies at the site could not be obtained. The wave modeling and analysis procedures followed during the present study were undoubtedly more conservative than the original study, but are consistent with methods that would be applied during an area-wide restudy today. The results of the present study show the area behind the

levee/floodwall structure should be mapped as a shaded Zone X and removed from the SFHA.

2. The previous levee design calling for a crest elevation of approximately 17 ft NGVD appears to have been based on stillwater flood depth and wave runup freeboard considerations only; it appears that wave overtopping was not considered in the determination of the levee crest elevation. Calculations performed as part of the present study show the elevation of the East levee crest needs to be raised approximately 1.5 ft, and the outside slope of the East levee slope needs to be armored to reduce wave overtopping to levels consistent with a Zone X designation behind the levee.

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APPENDIX 1

Restricted Fetch Wave Generation Results -- ACES 1.07d

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	21.67	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.97	ft	Shallow-water
Wave Period	Tp:	5.84	sec	Fetch-limited
Wind Direction	Wdir:	78.00	deg	
Mean Wave Direction	Theta:	78.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	21.64	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.96	ft	Shallow-water
Wave Period	Tp:	5.83	sec	Fetch-limited
Wind Direction	Wdir:	84.00	deg	
Mean Wave Direction	Theta:	79.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	21.64	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.90	ft	Shallow-water
Wave Period	Tp:	5.80	sec	Fetch-limited
Wind Direction	Wdir:	90.00	deg	
Mean Wave Direction	Theta:	79.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater

Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	21.64	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.80	ft	Shallow-water
Wave Period	Tp:	5.74	sec	Fetch-limited
Wind Direction	Wdir:	96.00	deg	
Mean Wave Direction	Theta:	79.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	21.43	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.68	ft	Shallow-water
Wave Period	Tp:	5.67	sec	Fetch-limited
Wind Direction	Wdir:	102.00	deg	
Mean Wave Direction	Theta:	80.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	21.43	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.50	ft	Shallow-water
Wave Period	Tp:	5.57	sec	Fetch-limited
Wind Direction	Wdir:	108.00	deg	
Mean Wave Direction	Theta:	80.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	

Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	21.12	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.31	ft	Shallow-water
Wave Period	Tp:	5.46	sec	Fetch-limited
Wind Direction	Wdir:	114.00	deg	
Mean Wave Direction	Theta:	81.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	20.70	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.08	ft	Shallow-water
Wave Period	Tp:	5.32	sec	Fetch-limited
Wind Direction	Wdir:	120.00	deg	
Mean Wave Direction	Theta:	82.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
Duration of Observed Wind	DurO:	1.00	HOURS	
Duration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	20.18	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------
Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	5.80	ft	Shallow-water
Wave Period	Tp:	5.15	sec	Fetch-limited
Wind Direction	Wdir:	126.00	deg	
Mean Wave Direction	Theta:	83.00	deg	

WIND ADJUSTMENT and WAVE GROWTH

Elevation of Observed Wind	Zobs:	30.00	FEET	Wind Observation Type
Observed Wind Speed	Uobs:	80.00	MPH	----------
Air-Sea Temp. Difference	delT:	0.00	DEG C	Overwater
uration of Observed Wind	DurO:	1.00	HOURS	
ration of Final Wind	DurF:	6.00	HOURS	
Latitude of Observation	LAT:	29.50	deg	
Average Depth of Fetch	d:	17.30	FEET	
Length of Wind Fetch	F:	11.01	mi	Wave Growth Equations
Equiv. Neutral Wind Speed	Ue:	71.53	MPH	----------

Adjusted Wind Speed	Ua:	121.66	MPH	Restricted Fetch
Wave Height	Hm0:	6.51	ft	Shallow-water
Wave Period	Tp:	5.19	sec	Fetch-limited
Wind Direction	Wdir:	132.00	deg	
Mean Wave Direction	Theta:	122.00	deg	

APPENDIX 2

WHAFIS -- Transect A Results:

- 100-yr Flood, no Levee
- 100-yr Flood, with Levee

*** THE FOLLOWING MESSAGES ARE THE RESULTS FROM THE 100-YR ELEVATION INTERPOLATION FOR THE TRANSECT:

WHAFIS INPUT SET -- TRANSECT A, NO LEVEE

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (VERSION 3.0, 9_88)
WHAFIS INPUT SET -- TRANSECT A, NO LEVEE

PART1 INPUT

IE	.000	.000	.000	4.900	10.600	5.300	5.800	.000	.001	.000
IF	2500.000	2.000	.000	10.600	.000	.000	.000	.000	.002	.000
IF	2700.000	5.000	.000	10.600	.000	.000	.000	.000	.003	.000
IF	3767.000	6.000	.000	10.600	.000	.000	.000	.000	.001	.000
DU	7400.000	10.000	.000	.000	10.600	.000	.000	.000	.001	.000
ET	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IE	.000	.000	.000	4.900	10.600	5.300	5.800	.000	.001	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	2500.000	2.000	.000	10.600	.000	.000	.000	.000	.002	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	2700.000	5.000	.000	10.600	.000	.000	.000	.000	.003	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	3767.000	6.000	.000	10.600	.000	.000	.000	.000	.001	.000

	DUNE CREST STATION	DUNE CREST ELEVATION	DUNE OR SEAWALL	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
DU	7400.000	10.000	.000	.000	10.600	.000	.000	.000	.001	.000

----------END OF TRANSECT----------

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

LOCATION		CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	.00	5.30	5.80	14.31
	150.00	5.34	5.80	14.34
	350.00	5.40	5.81	14.38
	750.00	5.51	5.81	14.46
	1150.00	5.61	5.81	14.53

	1550.00	5.68	5.81	14.58
	2350.00	5.62	5.81	14.54
IF	2500.00	5.61	5.81	14.52
	2640.00	4.78	5.81	13.95
IF	2700.00	4.15	5.81	13.51
	2850.00	4.06	5.81	13.44
	3050.00	3.92	5.81	13.35
	3250.00	3.79	5.81	13.25
	3450.00	3.66	5.81	13.16
	3650.00	3.52	5.81	13.07
IF	3767.00	3.44	5.81	13.01
DU	7400.00	.47	5.81	10.93

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE

NO SURGE CHANGES IN THIS TRANSECT

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
4307.55	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
.00	14.31		
		V18 EL=14	90
986.08	14.50		
		V18 EL=15	90
2505.93	14.50		
		V18 EL=14	90
2717.61	13.50		
		V18 EL=13	90
4307.55	12.70		

		A14 EL=13	70
4656.16	12.50		
		A14 EL=12	70
6399.18	11.50		
		A14 EL=11	70
7400.00	10.93		

ZONE TERMINATED AT END OF TRANSECT

*** THE FOLLOWING MESSAGES ARE THE RESULTS FROM THE 100-YR ELEVATION INTERPOLATION FOR THE TRANSECT:

WHAFIS INPUT SET -- TRANSECT A

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (VERSION 3.0, 9_88)
WHAFIS INPUT SET -- TRANSECT A

PART1 INPUT

IE	.000	.000	.000	4.900	10.600	5.300	5.800	.000	.001	.000
IF	2500.000	2.000	.000	10.600	.000	.000	.000	.000	.002	.000
IF	2700.000	5.000	.000	10.600	.000	.000	.000	.000	.003	.000
IF	3767.000	6.000	.000	10.600	.000	.000	.000	.000	.005	.000
DU	3781.000	10.600	.000	.000	10.600	.000	.000	.000	.329	.000
ET	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IE	.000	.000	.000	4.900	10.600	5.300	5.800	.000	.001	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	2500.000	2.000	.000	10.600	.000	.000	.000	.000	.002	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	2700.000	5.000	.000	10.600	.000	.000	.000	.000	.003	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	3767.000	6.000	.000	10.600	.000	.000	.000	.000	.005	.000

	DUNE CREST STATION	DUNE CREST ELEVATION	DUNE OR SEAWALL	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
DU	3781.000	10.600	.000	.000	10.600	.000	.000	.000	.329	.000

----------END OF TRANSECT----------

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

1

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

LOCATION		CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	.00	5.30	5.80	14.31
	150.00	5.34	5.80	14.34
	350.00	5.40	5.81	14.38
	750.00	5.51	5.81	14.46
	1150.00	5.61	5.81	14.53

	1550.00	5.68	5.81	14.56
	2350.00	5.62	5.81	14.54
IF	2500.00	5.61	5.81	14.52
	2640.00	4.78	5.81	13.95
IF	2700.00	4.15	5.81	13.51
	2850.00	4.06	5.81	13.44
	3050.00	3.92	5.81	13.35
	3250.00	3.79	5.81	13.25
	3450.00	3.66	5.81	13.16
	3650.00	3.52	5.81	13.07
IF	3767.00	3.44	5.81	13.01
DU	3781.00	.01	5.81	10.61

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE

NO SURGE CHANGES IN THIS TRANSECT

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
3768.81	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
.00	14.31		
		V18 EL=14	90
986.08	14.50		
		V18 EL=15	90
2505.93	14.50		
		V18 EL=14	90
2717.61	13.50		
		V18 EL=13	90
3768.81	12.70		

A14 EL=13 70

3769.97 12.50

A14 EL=12 70

3775.79 11.50

A14 EL=11 70

3781.00 10.61

ZONE TERMINATED AT END OF TRANSECT

APPENDIX 3

WHAFIS -- Transect B Results:

- 100-yr Flood, Levee
- 100-yr Flood, Floodwall

*** THE FOLLOWING MESSAGES ARE THE RESULTS FROM THE 100-YR ELEVATION INTERPOLATION FOR THE TRANSECT:

WHAFIS INPUT SET -- TRANSECT B (LEVEE)

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (VERSION 3.0, 9_88)
WHAFIS INPUT SET -- TRANSECT B (LEVEE)

PART1 INPUT

IE	.000	.000	.000	4.900	10.600	2.000	2.500	.000	.200	.000
IF	10.000	2.000	.000	10.600	.000	.000	.000	.000	.020	.000
IF	100.000	2.000	.000	10.600	.000	.000	.000	.000	.007	.000
IF	450.000	5.000	.000	10.600	.000	.000	.000	.000	.011	.000
IF	464.000	6.000	.000	10.600	.000	.000	.000	.000	.200	.000
DU	478.000	10.600	.000	.000	10.600	.000	.000	.000	.329	.000
ET	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IE	.000	.000	.000	4.900	10.600	2.000	2.500	.000	.200	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	10.000	2.000	.000	10.600	.000	.000	.000	.000	.020	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	100.000	2.000	.000	10.600	.000	.000	.000	.000	.007	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	450.000	5.000	.000	10.600	.000	.000	.000	.000	.011	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	464.000	6.000	.000	10.600	.000	.000	.000	.000	.200	.000

	DUNE CREST STATION	DUNE CREST ELEVATION	DUNE OR SEAWALL	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
DU	478.000	10.600	.000	.000	10.600	.000	.000	.000	.329	.000

----------END OF TRANSECT----------

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

LOCATION		CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	.00	2.00	2.50	12.00
IF	10.00	1.96	2.50	11.97

IF	100.00	2.04	2.52	12.02
	205.00	2.10	2.53	12.07
	345.00	2.17	2.55	12.12
IF	450.00	2.24	2.57	12.17
IF	464.00	2.26	2.57	12.18
DU	478.00	.01	2.57	10.61

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION 10-YEAR SURGE 100-YEAR SURGE

NO SURGE CHANGES IN THIS TRANSECT

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER ELEVATION ZONE DESIGNATION FHF

.00 12.00

*** THE FOLLOWING MESSAGES ARE THE RESULTS FROM THE 100-YR ELEVATION INTERPOLATION FOR THE TRANSECT:

WHAFIS INPUT SET -- TRANSECT B (WALL)

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (VERSION 3.0, 9_88)
WHAFIS INPUT SET -- TRANSECT B (WALL)

PART1 INPUT

IE	.000	.000	.000	4.900	10.600	2.000	2.500	.000	.200	.000
IF	10.000	2.000	.000	10.600	.000	.000	.000	.000	.020	.000
IF	100.000	2.000	.000	10.600	.000	.000	.000	.000	.007	.000
IF	450.000	5.000	.000	10.600	.000	.000	.000	.000	.011	.000
IF	464.000	6.000	.000	10.600	.000	.000	.000	.000	.031	.000
IF	499.000	6.500	.000	10.600	.000	.000	.000	.000	.128	.000
DU	500.000	10.600	.000	.000	10.600	.000	.000	.000	4.100	.000
ET	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD		BOTTOM SLOPE	AVERAGE A-ZONES
IE	.000	.000	.000	4.900	10.600	2.000	2.500	.000	.200	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	10.000	2.000	.000	10.600	.000	.000	.000	.000	.020	.000

END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR	BOTTOM SLOPE	AVERAGE A-ZONES

IF	100.000	2.000	.000	10.600	.000	.000	.000	.000	.007	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	450.000	5.000	.000	10.600	.000	.000	.000	.000	.011	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	464.000	6.000	.000	10.600	.000	.000	.000	.000	.031	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	499.000	6.500	.000	10.600	.000	.000	.000	.000	.128	.000

	DUNE CREST STATION	DUNE CREST ELEVATION	DUNE OR SEAWALL	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
DU	500.000	10.600	.000	.000	10.600	.000	.000	.000	4.100	.000

----------END OF TRANSECT----------

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL
PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

	LOCATION	CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	.00	2.00	2.50	12.00
IF	10.00	1.96	2.50	11.97
IF	100.00	2.04	2.52	12.02
	205.00	2.10	2.53	12.07
	345.00	2.17	2.55	12.12
IF	450.00	2.24	2.57	12.17
IF	464.00	2.26	2.57	12.18
IF	499.00	2.30	2.57	12.21
DU	500.00	.01	2.57	10.61

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION 10-YEAR SURGE 100-YEAR SURGE

NO SURGE CHANGES IN THIS TRANSECT

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
.00	12.00		
		A14 EL=12	70
499.44	11.50		
		A14 EL=11	70
500.00	10.61		

ZONE TERMINATED AT END OF TRANSECT

APPENDIX 4

RUNUP -- Transect A Results:

- 100-yr Flood, Armored Levee
- 500-yr Flood, Armored Levee

****

CROSS SECTION PROFILE

	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-100.0	-2.5		
			40.00	1.00
2	.0	.0		
			FLAT	.90
3	2500.0	2.0		
			66.67	.90
4	2700.0	5.0		
			FLAT	.90
5	3766.7	6.0		
			3.00	.80
6	3804.2	18.5		

LAST SLOPE .00 LAST ROUGHNESS .80

****

OUTPUT TABLE: 100-yr Flood Conditions

INPUT PARAMETERS			RUNUP RESULTS			
WATER LEVEL ABOVE DATUM (FT.)	DEEP WATER WAVE HEIGHT (FT.)	DEEP WATER WAVE PERIOD (SEC.)	BREAKING SLOPE NUMBER	RUNUP SLOPE NUMBER	RUNUP ABOVE WATER LEVEL (FT.)	BREAKER DEPTH (FT.)
10.60	2.50	4.70	5	5	4.47	3.22
10.60	2.50	4.90	5	5	4.71	3.25
COMPOSITE SLOPE USED BUT WAVE MAY REFLECT, NOT BREAK						
10.60	2.50	5.10	5	5	4.92	3.28
COMPOSITE SLOPE USED BUT WAVE MAY REFLECT, NOT BREAK						
10.60	2.75	4.70	5	5	4.74	3.50
10.60	2.75	4.90	5	5	4.99	3.54
10.60	2.75	5.10	4	5	.88	4.66
10.60	3.00	4.70	4	5	.20	4.88
10.60	3.00	4.90	4	5	.17	4.95
10.60	3.00	5.10	4	5	.07	5.01

****

CROSS SECTION PROFILE

	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-100.0	-2.5		
			40.00	1.00
2	.0	.0		
			FLAT	.90
3	2500.0	2.0		
			66.67	.90
4	2700.0	5.0		
			FLAT	.90
5	3766.7	6.0		
			3.00	.80
6	3804.2	18.5		

LAST SLOPE .00 LAST ROUGHNESS .80

****

OUTPUT TABLE: 500-yr Flood Conditions

INPUT PARAMETERS			RUNUP RESULTS			
WATER LEVEL ABOVE DATUM (FT.)	DEEP WATER WAVE HEIGHT (FT.)	DEEP WATER WAVE PERIOD (SEC.)	BREAKING SLOPE NUMBER	RUNUP SLOPE NUMBER	RUNUP ABOVE WATER LEVEL (FT.)	BREAKER DEPTH (FT.)
13.60	4.00	4.70	5	6	5.83	5.08
13.60	4.00	4.90	5	6	6.33	5.08
13.60	4.00	5.10	5	6	6.76	5.08
13.60	4.30	4.70	5	6	6.30	5.46
13.60	4.30	4.90	5	6	6.81	5.46
13.60	4.30	5.10	5	6	7.39	5.46
13.60	4.60	4.70	5	6	6.76	5.84
13.60	4.60	4.90	5	6	7.40	5.84
13.60	4.60	5.10	5	6	7.88	5.84

****

OUTPUT TABLE: 100-yr Flood Conditions

INPUT PARAMETERS			RUNUP RESULTS			
WATER LEVEL ABOVE DATUM (FT.)	DEEP WATER WAVE HEIGHT (FT.)	DEEP WATER WAVE PERIOD (SEC.)	BREAKING SLOPE NUMBER	RUNUP SLOPE NUMBER	RUNUP ABOVE WATER LEVEL (FT.)	BREAKER DEPTH (FT.)
10.60	1.00	1.90	6	6	1.19	1.27
10.60	1.25	1.90	6	6	1.35	1.59
10.60	1.50	1.90	**** H0/L0 GREATER THAN 0.07 ****			
10.60	1.00	2.10	6	6	1.30	1.27
10.60	1.25	2.10	6	6	1.47	1.59
10.60	1.50	2.10	6	6	1.63	1.90
10.60	1.00	2.30	6	6	1.40	1.27
10.60	1.25	2.30	6	6	1.59	1.59
10.60	1.50	2.30	6	6	1.75	1.90

SLOPE STABILITY CALCULATIONS

FOR THE

EARTHEN FLOOD CONTROL DIKE

DURATHERM, INC.

(FORMERLY BIRD ENVIRONMENTAL GULF COAST)

RECYCLING CENTER

SAN LEON, TEXAS

CLIENT: BIRD	FILE NO.: 8K27 HA	BY: BL	PAGE 1 OF 1
SUBJECT: SLOPE STABILITY ANALYSIS		CHECKED BY:	DATE: 3/5/92

TABLE OF CONTENTS

PURPOSE	1
SCOPE	1
SUMMARY OF RESULTS	1-2
BORING LOCATION	3
SOIL PROFIL	4-5
DERIVATION OF SOIL PARAMETERS	6-10
REFERENCES	11

APPENDICES

A BORING LOGS, JANUARY 1992. DB1 – DB10
B GEOTEST LABORATORY RESULTS (DRAFT)
C TRIAL RUNS
- EOC 2
- RD2
- RD2NS
- PC 2
- EOC 3
- RD 3
- PC 3

CLIENT: BIRD	FILE NO.: 8K27 HA	BY: BL	PAGE 1 OF 11
SUBJECT: SLOPE STABILITY		CHECKED BY:	DATE: 3/5/92

PURPOSE : THE PURPOSE OF THIS ANALYSIS IS TO DEMONSTRATE THE STABILITY AGAINST THE SLOPE FAILURE OF THE PROPOSED FLOOD CONTROL DIKE.

SCOPE : THREE CONDITIONS WERE ANALYZED FOR BOTH THE INTERIOR SLOPE AND EXTERIOR SLOPE.

(1) END OF CONSTRUCTION (EOC) - TOTAL STRESS CONDITION.

(2) POST CONSTRUCTION (PC) - EFFECTIVE STRESS CONDITION.

(3) RAPID DRAWDOWN (RD) - TOTAL STRESS CONDITION.

SUMMARY OF RESULTS : THE MINIMUM FACTOR OF SAFETY AGAINST SLOPE FAILURE WAS CALCULATED TO BE 1.61, WHICH IS ADEQUATE. SEE PAGE 2 FOR A COMPLETE SUMMARY OF THE ANALYSIS.

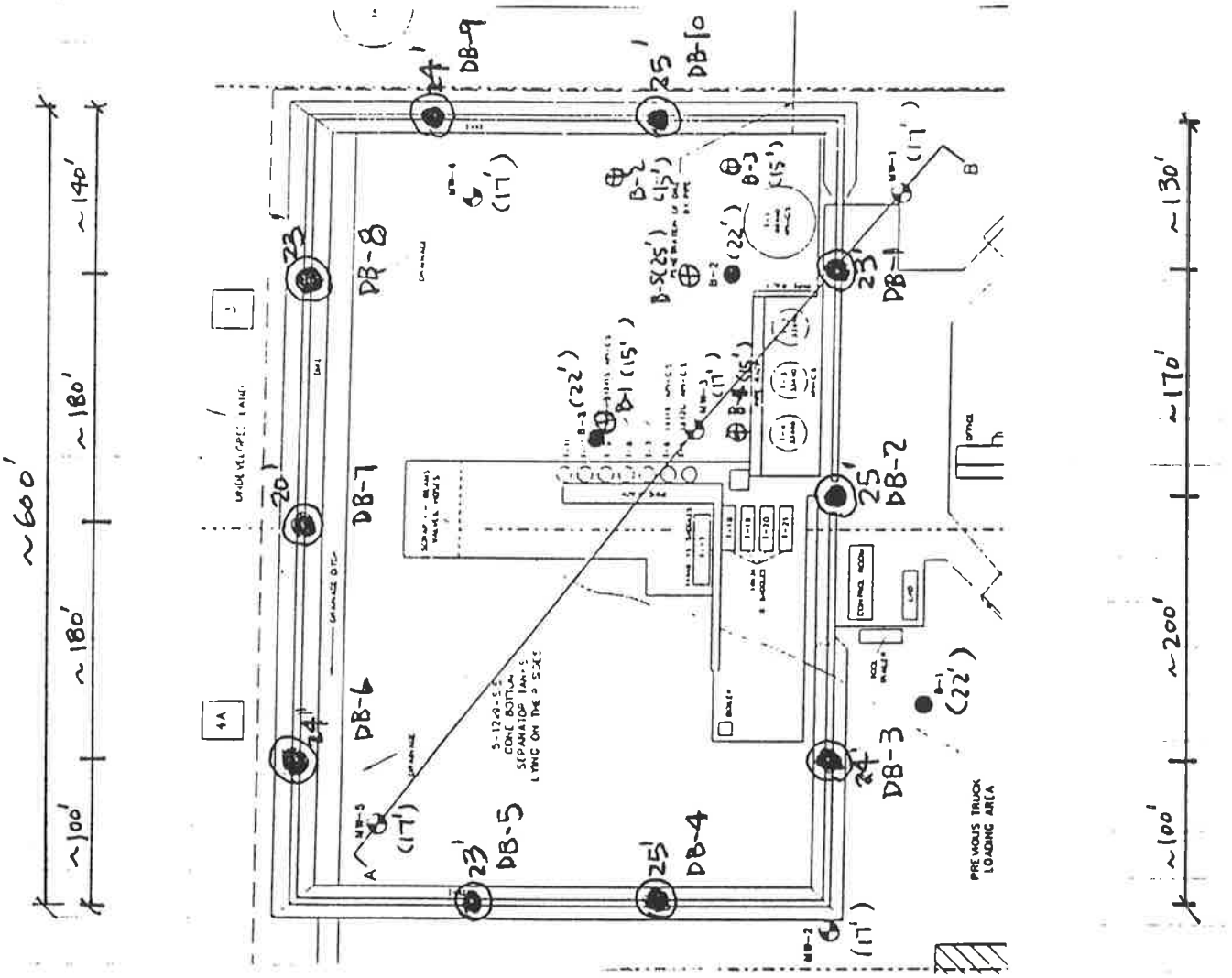
CLIENT: BIRD	FILE NO.: 8K27 HA	BY: BL	PAGE 2 OF 11
SUBJECT: SLOPE STABILITY SUMMARY		CHECKED BY:	DATE: 3/5/93

	FACTOR OF SAFETY		
CONDITION / SLOPE	END OF CONSTRUCTION (MIN. F.S. = 1.3) TOTAL STRESS	POST CONSTRUCTION (MIN. F.S. = 1.5) EFFECTIVE STRESS	RAPID DRAWDOWN (MIN. F.S. = 1.3) TOTAL STRESS
INTERIOR SLOPE (2H:1V) INTERMEDIATE SAND	(EOC2) 2.760 OK	(PC2) 1.606 OK	(RD2) 2.547 OK
INTERIOR SLOPE (2H:1V) CONTINUOUS CLAY	—	—	(RD2NS) 2.907 OK
EXTERIOR SLOPE (2.8H:1V) INTERMEDIATE SAND	(EOC3) 2.835 OK	(PC3) 1.874 OK	(RD3) 2.657 OK

F.S. = FACTOR OF SAFETY

CLIENT: BIRD	FILE NO.: 8K27 HA	BY: BL	PAGE 3 OF 11
SUBJECT: BORING LOCATIONS		CHECKED BY:	DATE: 3/3/92

~110' ~170' ~150'



~150' ~150' ~130'

~430'

N

Corporation and Subsidiaries

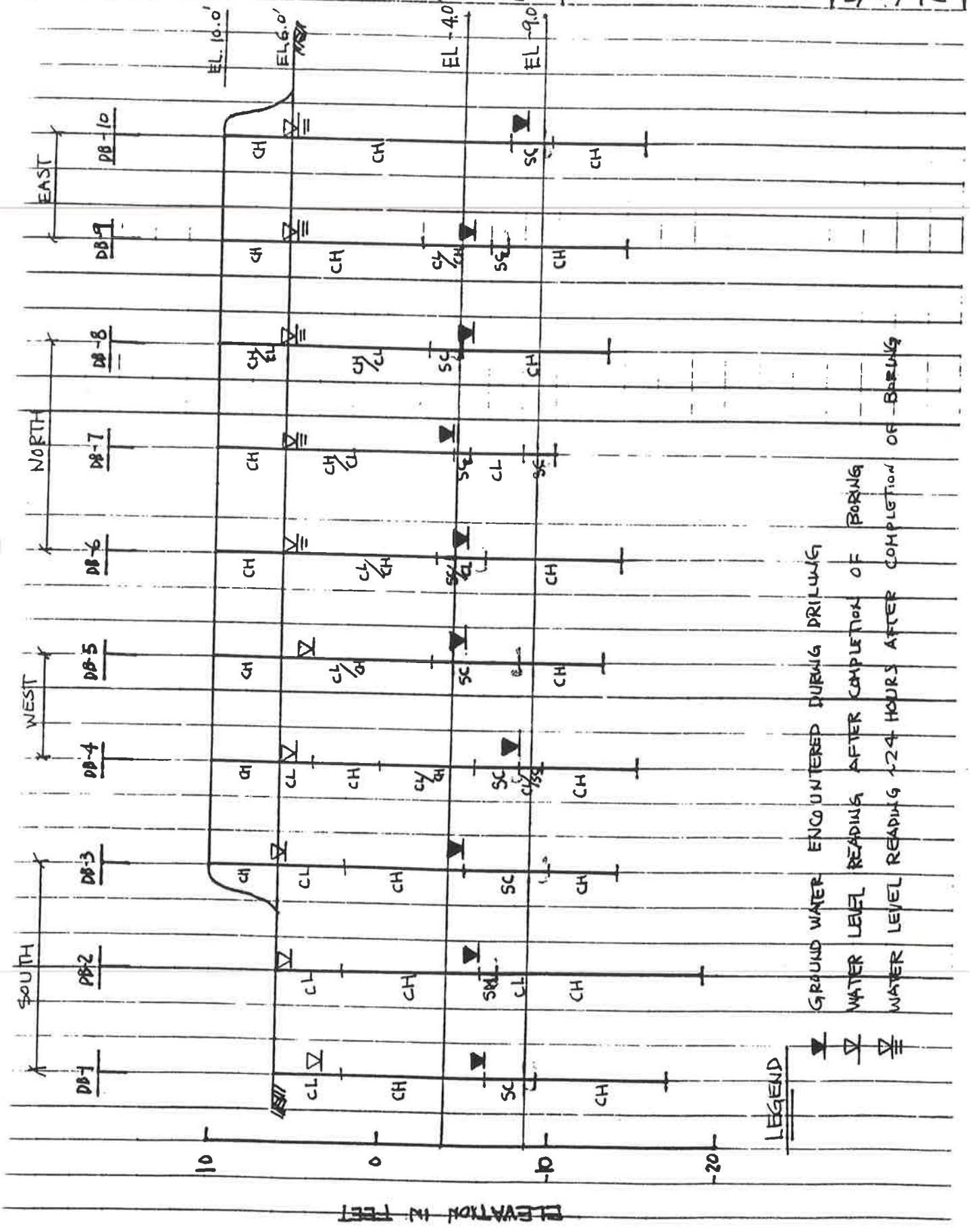
SHEET

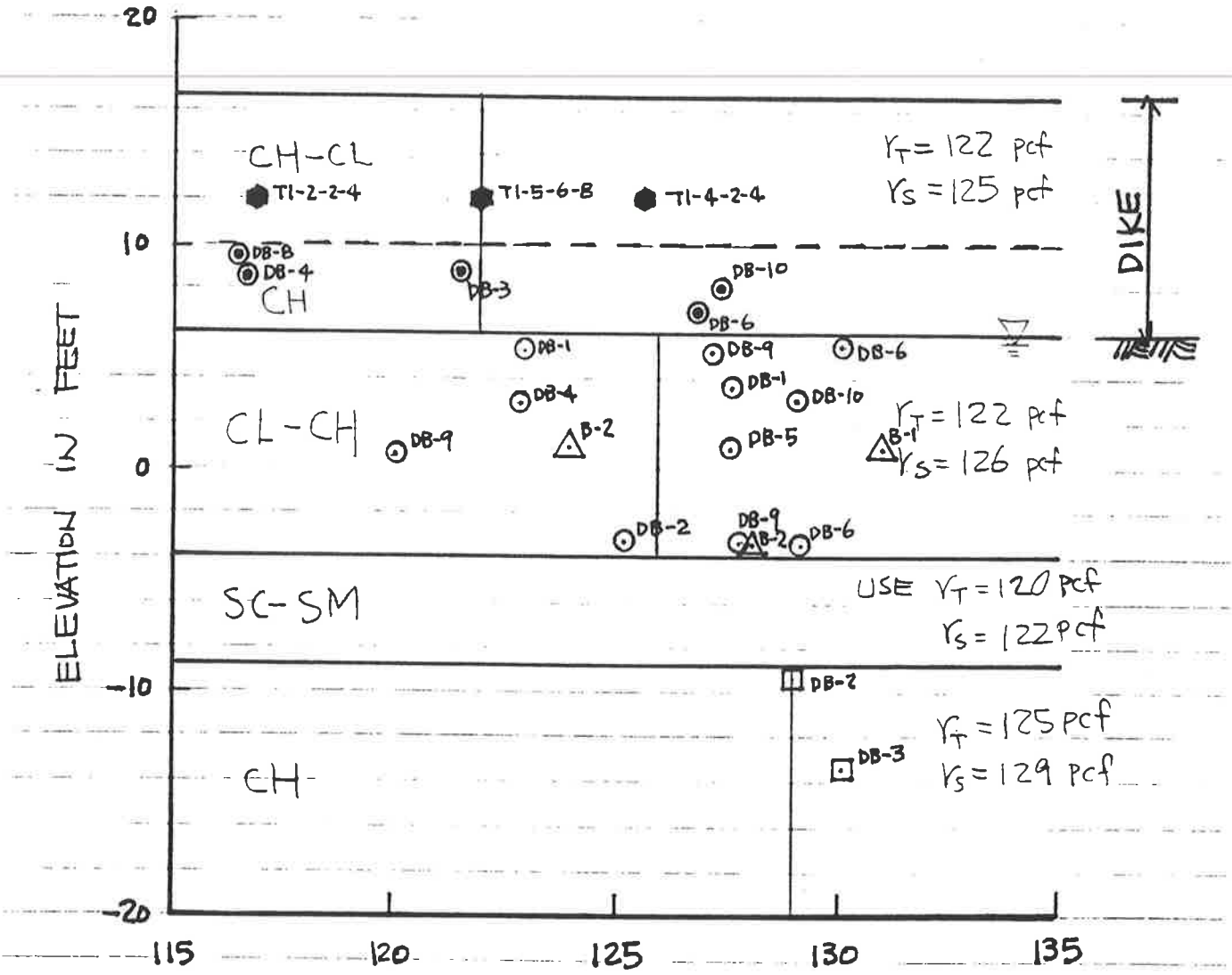
CLIENT: BIRD	FILE NO.: 8K27	BY: BL	PAGE 4 OF 11
SUBJECT: SOIL PROFIL		CHECKED BY:	DATE: 3/3/92

Corporation and Subsidiaries

SHEET

CLIENT: BIRD	FILE NO.: 8K27	BY: BL	PAGE 5 OF 11
SUBJECT: SOIL PROFIL (GENERALIZED)		CHECKED BY:	DATE: 3/3/92

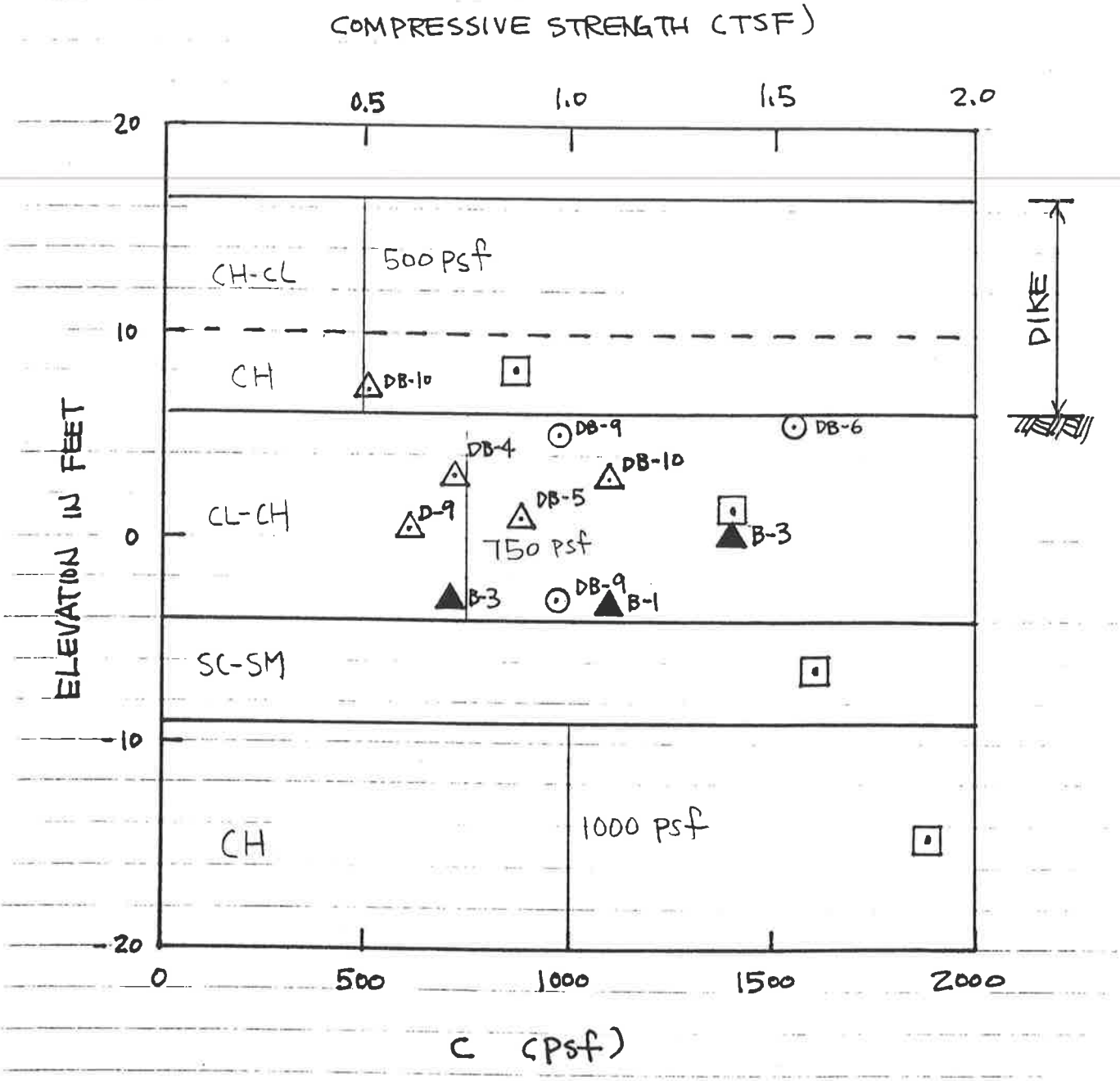




LEGEND

- ⬢ REMOLDED (PROCTOR) CLAY FOR NEW DIKE (GEOTEST 1992)
- ◉ EXISTING DIKE (GEOTEST, 1992)
- ⊙ NATURAL CLAY, UPPER ZONE (GEOTEST, 1992)
- ⊡ NATURAL CLAY, BOTTOM ZONE (GEOTEST, 1992)
- △ NATURAL CLAY, UPPER ZONE CLAW ENG. 1991)

CLIENT: BIRD	FILE NO.: 8K27HA	BY: BL	PAGE 7 OF 11
SUBJECT: SOIL PARAMETER - COHESION		CHECKED BY:	DATE: 3/3/92



LEGEND

△ UU TEST RESULT (GEOTEST, 1992)

▲ UU TEST RESULT (LAW. ENG., 1991)

⊙ q_u TEST RESULT (GEOTEST, 1992)

⊡ AVERAGE POCKET PENETROMETER READING IN EACH SOIL LAYER CONVERT TO COHESION (P.P. * 2000/3 = C). SEE ATTACHED SPREADSHEET. (GEOTEST, 1992)

DATE:3/3/92 4:30PM
BY: BL
FILE:BIRD\PP2
PAGE 1 OF 2

1992 GEOTECHNICAL INVESTIGATIPROJ.: 8K27HA
POCKET PENETRATOR READINGS (HALLIBURTON NUS)
(TSF)

8/11

ELEV. (FT)		DB-1	DB-2	DB-3	DB-4	DB-5	DB-6	DB-7	DB-8	DB-9	DB-10	DEPTH (FT)	AVG.
10				----------								0	
9				0.75	0.25	0.37		0.25	0.5			1	0.42
8	DEPTH			0.75	0.25	0.5	1	0.75	0.75	0.25	0.25	2	0.56
7	(FT)			1.75	1	1.5	0.62	2	1	0.5	1.36	3	1.22
6	0	----------		2.25	2.5	3	2		2.5		1.25	4	1.69
5	1	0.75	1.4	2.8	1.25	2.7	3.25	3	2.5		0.5	5	2.02
4	2	1.2	1.5	3.7	2.75	2.7			2		2.75	6	2.37
3	3	2.5	2.75	4	1.5	3.5	2.62	1.25	1.62		1.5	7	2.36
2	4				1.5		2		2		1.5	8	1.75
1	5	1.4	1.12	2.4	1.25	2	1.37	1.37	1.37	1.37	1.12	9	1.48
0	6	1.4	1.37	1.8	1.5	1.9	1.5	1.75	1.5	1.12	1.25	10	1.51
-1	7	1.4	2.5		1.12							11	1.67
-2	8	1.4	2.5		1.75	1.62			2.62			12	1.98
-3	9	3.25	2.37	3.25		2.25	2.25		3.25	3		13	2.80
-4	10	3.3	2.8	3.5	1.12		2.25	2.12		2.87	2	14	2.50
-5	11				1.75						3.5	15	2.63
-6	12	2.75										16	2.75
-7	13	2.75	2						1.62			17	2.12
-8	14		2				2.62		2.62	2.1		18	2.34
-9	15		2.5		1.12		1.75					19	1.79
-10	16				1.62						3.25	20	2.44
-11	17	2.75										21	2.75
-12	18	3.3				1.5			1.12			22	1.97
-13	19		2.5	1		1.6	3		2.62	1.25		23	2.00
-14	20		2.25	3	2.25		2.25			3.75		24	2.70
-15	21				2.75						3.5	25	3.13
-16	22	2.3											2.30
-17	23	3.75											3.75
-18	24		3.25										3.25
-19	25		3.25										3.25

SANDY MATERIAL DEPTH INTERVAL (FT)	12.5 ¦ 15.5	12 ¦ 13	15 ¦ 20	15.5 ¦ 18	13 ¦ 15 ¦ 16 ¦ 18	14 ¦ 15	13.5 ¦ 14.5	16 ¦ 17	17 ¦ 18.5

DATE:3/3/92 4:30PM
BY: BL
FILE:BIRD\PP2

9/11

1992 GEOTECHNICAL INVESTIGATION
POCKET PENETRATOR READINGS (GEOTEST)
(TSF)

ELEV. (FT)	DB-1	DB-2	DB-3	DB-4	DB-5	DB-6	DB-7	DB-8	DB-9	DB-10	DEPTH (FT)	GEO AVG.	HNUS AVG.	HNUS & GEO AVERAGE	AVERAGE P.P	COHESION= PP*2000/3
10			----------								0					
9			0.75	0.25	0.25	0.25	0.5	0.5	0.25		1	0.39	0.42	0.41		
8	DEPTH									1	2	1.00	0.56	0.78	---------	-------
7	(FT)		2	2	2	2		1	0.75		3	1.63	1.22	1.42	1.31	871
6	0 ----------					3.5	2.5	2.25	2.5	1.5	4	1.75	1.69	1.72		
5	1 1	1.5	3	2.5	3						5	2.20	2.02	2.11	---------	-------
4	2					3	1.5			2	6	2.17	2.37	2.27		
3	3 2.5	3	4	2	3.5						7	3.00	2.36	2.68		
2	4					2		2	1.5	3	8	2.13	1.75	1.94		
1	5 1.5	1.5	2	2	2.5	2	1.75	1.5		2	9	1.86	1.48	1.67	2.10	1402
0	6										10		1.51	1.51		
-1	7 2	2									11	2.00	1.67	1.84		
-2	8				2.75	2		2.5	3		12	2.56	1.98	2.27		
-3	9 3	2.5	3	2.5			1.5				13	2.50	2.80	2.65		
-4	10										14		2.50	2.50	----------	
-5	11										15		2.63	2.63		
-6	12 2.5	2									16	2.25	2.75	2.50	2.41	1606
-7	13				2	3		2.5	2		17	2.38	2.12	2.25		
-8	14					2.5	1.5				18	2.00	2.34	2.17		
-9	15										19		1.79	1.79	----------	
-10	16 3										20	3.00	2.44	2.72		
-11	17										21		2.75	2.75		
-12	18				2	3		2.5			22	2.50	1.97	2.24		
-13	19	3	3.5	3					2.5		23	3.00	2.00	2.50		
-14	20									3.75	24	3.75	2.70	3.23	2.84	1894
-15	21										25		3.13	3.13		
-16	22 2.75											2.75	2.30	2.53		
-17	23												3.75	3.75		
-18	24	3.5										3.50	3.25	3.38		
-19	25												3.25	3.25		
															---------	-------

SANDY MATERIAL DEPTH INTERVAL (FT)	12.5 ¦ 15.5	12 ¦ 13	15 ¦ 20	15.5 ¦ 18	13 ¦ 15 ¦ 16 ¦ 18		14 ¦ 15 ¦ 18 ¦ 20	13.5 ¦ 14.5	16 ¦ 17	17 ¦ 18.5

HALLIBURTON NUS Environmental Corporation and Subsidiaries

STANDARD CALCULATION SHEET

CLIENT: BIRD | FILE NO: 8K27 HA | BY: BL | PAGE 10 OF 11

SUBJECT: SOIL PARAMETER. | CHECKED BY: | DATE: 3/4/92

SOIL TYPE	ELEVATION (FT)	LAYER DESIGNATION	TOTAL STRESS		EFFECTIVE STRESS		UNIT WEIGHT	
			C (psf)	ϕ (DEGREE)	C' (psf)	ϕ' (DEGREE)	TOTAL γ_T (pcf)	SATURATED γ_S (pcf)
DIKE MATERIAL COMPACTED CLAY (CH-CL)	16.5 TO 5.0	1	500	0	106	22	122	125
NATURAL CLAY UPPER ZONE (CL-CH)	5.0 TO -4.0	2	750	0	100	22	122	126
NATURAL SANDY CLAY TO CLAYEY SILTY SAND (SC-SM)	-4.0 TO -9.0	3	0	25	0	25	120	122
NATURAL CLAY LOWER ZONE (CH-CL)	-9.0 TO -19.0	4	1000	0	100	22	125	129

NOTE: (1) CONSERVATIVE ESTIMATES WERE ASSUMED FOR SOIL PARAMETERS WITHOUT LABORATORY ANALYSIS.

CLIENT: BIRD	FILE NO.: 8K27 HA	BY: BL	PAGE 11 OF 11
SUBJECT: REFERENCES		CHECKED BY:	DATE: 3/4/92

REFERENCES:

(1) LAW ENGINEERING, APRIL 1991, REPORT OF GEOTECHNICAL EXPLORATION, TANK FARM, SAN LEON, TEXAS, PREPARED FOR INTERNATIONAL TECHNOLOGY CORPORATION, HOUSTON, TEXAS. PROJECT NO. HT-4537-91G.

(2) GEOTEST ENGINEERING, FEBRUARY, 1992, SUMMARY OF LABORATORY TEST RESULTS.

(3) USER GUIDE FOR PC STABL 5M, JOINT HIGHWAY RESEARCH PROJECT, INFORMATIONAL REPORT, JHRP-88/19. DECEMBER, 1988.

(4) HALLIBURTON NUS ENVIRONMENTAL CORPORATION BORING LOGS, DB-1 THROUGH DB-10, JANUARY 1992.

(5) FOUNDATION ANALYSIS AND DESIGN BY JOSEPH E. BOWLES.

BORING LOGS.

JANUARY, 1992.

DB1 – DB10

6360 Park Ten Place
Suite 300
Houston, Texas 77084
(713) 492-1888

LOG OF BORING

Sheet 1 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental
Location of Boring
Datum Elevation

Drilling Method: Solid Flight
Sampling Method: Shelby Tube
Driller: Van & Sons Drilling Services
Logged By: D. Gibson

					Drilling Start	Drilling Finish
Water Level						
Time					1143	1230
Date					1/29/92	1/29/92
Casing Depth		Boring Depth		23'		

Surface Conditions:

Sample No / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph	
DB-1 0.25-1.25	ST	24 /		0 0	NR 0.75	(1.0)	CL	Brown-orange sandy clay
		/ 18		17	1.0	(1.25) 1	CL	Dark brown-black sandy clay - chemical odor.
						(0.5) 2	NR	
DB-1 2-3		24 /		0 0	4.25 2.5	(2.0) 3	CL	Brown and black sandy clay with root material. Chemical odor
		/ 14					NR	
DB-1		24 /		0	1.5	4 (1.25) 5		Gray and olive sandy clay with orange limonite and black Fe/Mn stains
4.5-5.5		/ 24		0 0	1.5	(1.25) 6	CL	
		24 /		0 0	1.5 1.5	(1.25) 7		
		/ 24		0 0	1.75	(1.25) 8		
DB-1		24 /			3.25	(1.25) 9	CH	As above, with very slight sand content
8.5-9.5		/ 24			3.5	(1.25) 10		Note Water wash below 10'
	Drill					11		
DB-1 11.5-12.5	ST	24 /			2.5 3.0	12		
		/ 24			2.75	13	SC	Gray clayey sand
	Drill					14		
						15		
	ST	24 /			3.0	(2.5) 16	CL/CH	Gray sandy clay grading to Gray sandy clay and red clay with calcareous nodules
		/ 18			3.5	(1.25) 17		
	Drill					18	NR	
						19	CL/CH	Gray and red sandy clay and clay

·6360 Park Ten Place
Suite 300
Houston, Texas 77084
(713) 492-1888

OF BORING

Boring No. [illegible]
Sheet 2 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

					Drilling	
Drilling Method: Solid Flight						
Sampling Method: Shelby Tube						
Driller: Van & Sons Drilling Services					Start	Finish
Logged By: D. Gibson						
Water Level					Time	Time
Time					1143	1230
Date					Date	Date
Casing Depth		Boring Depth		23'	1/29/92	1/29/92

Sample No / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth In Feet	Soil Graph
	Drill						
DB-1 21.5-22.5'	ST	24 / 24				21	
						22	CL
						23	
						4	
						5	
						6	
						7	
						8	
						9	
						0	
						1	
						2	
						3	
						4	
						5	
						6	
						7	
						8	
						9	

Surface Conditions:

Orange and gray sandy clay with abundant calcareous nodules

TD 23.0'

16360 Park Ten Place
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OF BORING

Boring No. DB-2
Sheet 1 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

					Drilling	
Drilling Method: Solid Flight						
Sampling Method: Shelby Tube						
Driller: Van & Sons Drilling Services					Start	Finish
Logged By: D. Gibson					Time	Time
Water Level					1057	1135
Time					Date	Date
Date					1/29/92	1/29/92
Casing Depth		Boring Depth	25'			

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	PP HNu/OVA Reading ppm	Pocket Penetrometer	Depth In Feet	Soil Graph	Surface Conditions:
DB-2 0.5-1.5	ST	24/24		(1.25) (1.5) (2.5)	1.5 1.5	1	CL	Tan-orange sandy clay with slight amount of gravel.
DB2-2.0-2.5		24/6		(4.5)	2.25	2	CL	Dark gray-brown sandy clay with root material
						3	NR	
DB2-4.25-5.25		24/18		(1.25) (1.5)	1.0 1.25	4 5	CL	Pale olive sandy clay with limonite and black Fe/Mn stains Root material also present
						6	NR	
2- 6.5-7.5		24/24		(3.0) (2.5)	1.5 3.0 2.75 2.0	7	CH	Grayish clay with orange limonite stains and pockets.
DB2-9-10		24/24			2.25 2.5 2.75 3.0	8 9	CH/CL	Pale olive-gray sandy clay and clay with orange limonite stains and black Fe/Mn stains
	Drill					10 11		
DB2- 13.5-14.5	ST	24/24		(2.0) (2.5)	2.0 2.0	12 13	SM	Water at 12' Gray slightly silty sand
	Drill					14 15	CL	Gray very sandy clay with orange limonite stains Note: Water wash below 15.0'
						16 17	CH/CL	Reddish sandy clay and clay
DB2-19-20	ST	24/24			1.5 2.5 3.25	18 19	CL CH/CL	Orange-grayish sandy clay with abundant large calcareous nodules Red clay interbedded with orange and tan slightly sandy clay with black Fe/Mn stains and calcareous nodules

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OF BORING

Boring No. B8-2

Sheet 2 of 2

Project Name Bird Environmental

Project Number 3K27

Client Bird Environmental

Location of Boring

Datum Elevation

					Drilling	
Drilling Method: Solid Flight						
Sampling Method: Shelby Tube						
Driller: Van & Sons Drilling Services					Start	Finish
Logged By: D. Gibson					Time	Time
Water Level					1057	1135
Time						
Date					Date	Date
Casing Depth		Boring Depth		25'	1/29/92	1/29/92

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	PP HNU/OVA Reading End	Pocket Penetrometer	Depth In Feet	Soil Graph
	Drill					21	
						22	
						23	
	ST	24 /			3.25		CH/SP
DB2-24-25		/ 24		(3.25) (3.25)	3.25	24	
						25	

Surface Conditions:

See previous page

Orange and grey clay with occasional very small pockets of black Fe/Mn. Thin (1/32") seams of sand clay present

TD 25.0'

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LOG OF BORING

Boring No. DB-3
Sheet 1 of 2

Project Name Bird Environmental
Project Number 2K27
Client Bird Environmental
Location of Boring
Datum Elevation

					Drilling	
Drilling Method: Solid Flight						
Sampling Method: Shelby Tube						
Driller: Van & Sons Drilling Services					Start Time	Finish Time
Logged By: D. Gibson					1000	1048
Water Level					Date	Date
Time					1/29/92	1/29/92
Date						
Casing Depth		Boring Depth	24'			

Sample No / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA PP Reading Ent.	Pocket Penetrometer	Depth in Feet	Soil Graph	Surface Conditions:
DB3-0.5-1.5	ST	24/20			0.5 1.0 0.75	1	CH/CL	Tan, gray, and red sandy clay and clay
						2	NR	
DB3-2.5-3.5		24/18			2.0 1.5 2.25	3	CL/CH	Tan, orange and brown slightly sandy clay and clay with black Fe/Mn stains and small calcareous nodules
						4	NR	
DB3-4.25-5.25		24/18			3.0 2.75 3.75	5	CH/CL	As above Dike material to 5.25'
							CL	Dark brown sandy clay with rootlets and calcareous nodules to 1/8" dia.
6.5		24/9		H.C 4.0 (3.75)	4.0 3.75	6	NR	
						7	CL	As above with orange limonite stains
DB3-8-9		24/18		2.0	2.0 1.75	8	NR	
						9	CH	Dark gray and brown clay
						10	NR	
	Drill					11	CH	Pale olive and gray clay with small calcareous nodules
						12	CL	Gray and orange-tan slightly sandy clay with small (1/16") diameter calcareous nodules
DB3-12.5-13.5	ST	24/24			3.0 3.5	13	CL/CH	Gray and orange sandy clay and clay with small calcareous nodules and black Fe/Mn stains
	Drill					14		
						15		Water at 15'
						16	SC	Gray clayey sand with light orange limonite stains.
18 to 5	ST	24/18		(1.75) (1.75)		17		
	Drill					18		
						19	NR	Water wash below 19'

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LOG OF BORING

Boring No. B-3
Sheet 2 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method: Solid Flight					
Sampling Method: Shelby Tube					
Driller: Van & Sons Drilling Services				Drilling	
Logged By: D. Gibson				Start	Finish
Water Level				Time	Time
Time				1000	1048
Date				Date	Date
Casing Depth		Boring Depth	24'	1/29/92	1/29/92

Sample No / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	PP Reading (HNU/OVA) Ends	Pocket Penetrometer	Depth in Feet	Soil Graph	Surface Conditions:
	Drill					21	CL/CH	Gray sandy clay and reddish clay
	ST	24 /		(3.75)	1.0 1.0	22	CH/SC	Gray tan orange and tab very sandy clay - layer
B33-23-24		24		(2.5)	2.75 3.5	23	CL	sand Grades to: Orange and slightly gray slightly sandy clay.
						24		TD 24.0'
						5		
						6		
						7		
						8		
						9		
						0		
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		

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OF BORING

Boring No. [illegible]
Sheet 1 of 2

Project Name 3rd Environmental
Project Number 2K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method: Solid Flight					
Sampling Method: Shelby Tube					
Driller: Van & Sons Drilling Services				Drilling	
Logged By: D. Gibson				Start	Finish
Water Level				Time	Time
Time				856	948
Date				Date	Date
Casing Depth		Boring Depth	25'	1/29/92	1/29/92

Sample No. / Sample Depth	Sampler Type	Inches Driven / Pushed / Inches Recovered	Blows Sampler	HNU/OVA PPM Reading (End)	Pocket Penetrometer	Depth In Feet	Soil Graph	Surface Conditions:
	ST	24/			0.25 0.25	1	CL	Grayish orange sandy clay with abundant rootlets.
DB4-1-2		/15			0.25		NR	
		24/		(1.5)	1.25	2		
DB4-2.5-3.5		/26		(2.5)	2.5	3	CL	As above, no rootlets
		24/		(2.0)	1.25 1.25	4	NR	
						5	CL	As above Dike material ends at ~5' below grade
DB4-5-6		24/		(2.0) (2.75)	3.5 2.75	6	CL	Dark brown sandy clay with calcareous nodules and orange limonite and black Fe/Mn stains.
4-5-		24/		(2.0)	1.0 1.5	7		Dark grey clay with orange limonite and black Fe/Mn stains
7.5		/24		(2.25)	1.5 1.25			
DB4-		24/		(1.25)	1.0 1.25	8	CH	
8.5-9.5		/24		(1.25)	1.75 1.0	9		
	Drill					10		
						11		Gray and orange sandy clay and clay with Fe/Mn stains from 13' to 15.5'
						12	CL/CH	
DB4-13.5	ST	24/		(2.5)	1.0 1.25	13		
14.5		/24		(3.0)	1.75 1.75	14		
	Drill					15		
						16	SC	Gray and orange clayey sand becoming predominantly orange by 18'
						17		
						18		Water at 18'
DB4-18.5	ST	24/		(1.25)	1.0	19	CL/SC	Orangish and gray very sandy clay - clayey sand with some reddish clay at 19.5'
19.5		/18		(1.25)	2.5		NR	

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OF BORING

Boring No. [illegible]
Sheet 2 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

					Drilling	
Drilling Method: Solid Flight						
Sampling Method: Shelby Tube						
Driller: Van & Sons Drilling Services					Start Time	Finish Time
Logged By: D. Gibson					856	948
Water Level					Date	Date
Time					1/29/92	1/29/92
Date						
Casing Depth		Boring Depth	25'			

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth In Feet	Soil Graph
	Drill					21	NR
						22	
						23	
ST		24			3.25		
D04 24-25		24		(2.5)	2.25	24	CL
				(3.2)	2.75	25	

Surface Conditions:

Water wash below 20'

Brown slightly sandy clay and gray slightly sandy clay with occasional limonite stains

TD 25.0'

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LOG OF BORING

Boring No. DB5
Sheet 1 of 2

Project Name Bird Environmental
Project Number 2K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method: Solid Flight				
Sampling Method: Shelby Tube				
Driller: Van & Sons Drilling Services			Drilling Start Time	Drilling Finish Time
Logged By: D. Gibson			806	846
Water Level				
Time				
Date			Date	Date
Casing Depth	Boring Depth	23'	1/29/92	1/29/92

Sample No / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	P.P HNU/OVA Reading End	Pocket Penetrometer	Depth in Feet	Soil Graph	Surface Conditions:
	SS	24		(NR)	0.25			
DB5-0.5-					0.5	1	CL	Tan, gray and orangish sandy clay with abundant root material
1.5		18		(0.75)	0.25			
						2	NR	
		24		(1.5)	1.0			Dark brown-gray and orangish sandy clay.
DB5-					0.5	3	CL	
2.75-3.75		24		(3.5)	1.5			
					3.25	4		Dike material present to ~4' below grade.
DB5-4-5		24		(3.25)	2.5			
				(3.0)	2.25	5	CH/CL	Olive clay and sandy clay with some reddish clay with calcareous nodules (few) and black Fe/Mn staining
		18		(3.0)	2.5			
						6	NR	
5-7		24		(4.0)	3.0		CL	Dark brown sandy clay with abundant rootlets
						7		
		12					NR	
						8		
DB5-8.5-		24		(2.5)	1.25			
9.5					1.5	9	CL	As above, with out rootlets
		24		(2.0)	2.0			
					1.75	10		
	Drill						CL	Pale olive sandy clay with a slight amount of gray and orange sandy clay
	ST				1.5	11		
		24		(2.0)	1.75			
DB5-12-13					2.25	12	CL	Gray and orange sandy clay with black Fe/Mn stains Grades to
		24		(2.5)	2.5	13		
	Drill							Gray and orange clayey sand.
						14		Water at 15'
						15	SC	
	ST				NR			
DB5-		24		(0.25)	0.25	16		
					1.0	17		
		24		(0.75)	2.0			
						18		Grades to
	Drill						CL	Reddish and gray sandy clay
						19		

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OF BORING

Boring No. DB5
Sheet 2 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method: Solid Flight					
Sampling Method: Shelby Tube					
Driller: Van & Sons Drilling Services				Drilling	
Logged By: D. Gibson				Start	Finish
Water Level				Time	Time
Time				806	846
Date				Date	Date
Casing Depth		Boring Depth	23'	1/29/92	1/29/92

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	PID HNU/OVA Reading (Headspace)	Pocket Penetrometer	Depth In Feet	Soil Graph
	Drill						
DB5-21.25-23.25	ST	24 / 18		(2.0) (2.25)	1.0 1.5 1.0	21 22 23	CL/CH NR

Surface Conditions:

See previous page

Gray and brown slightly sandy clay and clay

TD 23.0'

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LOG OF BORING

Boring No. DBG
Sheet 1 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method: Solid Flight				
Sampling Method: Shelby Tube				
Driller: Van & Sons Drilling Services			Drilling	
Logged By: D. Gibson			Start	Finish
Water Level			Time	Time
Time			1607	1658
Date			Date	Date
Casing Depth		Boring Depth 24'	1/28/92	1/28/92

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph	Surface Conditions:
	ST	24			NR			Soft moist brown and gray sandy clay with
DBG-0.5-					NR	1	CL	black Fe/Mn stains below 1'
1.5		18			1.0			
						2	NR	
		24			0.5			Orange and gray sandy clay and red clay,
DBG-					0.75	3	CL	with calcareous pockets and black Fe/Mn
2.75-3.75		24			2			stains and pockets.
					2	4		Dike material to 4' below grade
DBG-4-5		24			2.5		CL	Dark brown sandy clay
					4.0	5		
		12					NR	
						6		
		24			2.5			
6-5-					2.75	7	CL	As above with orange sandy clay
7.5		18			2.0			
						8	NR	
		24			1.25			Gray and orange slightly sandy clay with
					1.5	9	CL	occasional 1/16" diameter calcareous nodules and
DBG-9-10		24			1.5			occasional black Fe/Mn stains.
					1.5	10		
	Dr. 11						CL/CH	Tan and reddish sandy clay and clay with
						11		small calcareous nodules and black Fe/Mn stains.
	ST	24			2.25	12		Gray and orange sandy clay with black
					2.25		CL	Fe/Mn stains.
DBG-13-14		24			2	13		
					2.5			
	Dr. 11					14		
						15	CL	As above, with reddish sandy clay
								Water at 15'
						16		
	ST	24			2.75	17	CH	Reddish clay with calcareous nodules
					3.5			
17.5-18.5		24			1.25	18		
					1.25			
	Dr. 11					19	CL	Reddish and gray sandy clay with calcareous
								nodules

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OF BORING

Boring No. DB6
Sheet 2 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

					Drilling	
Drilling Method: Solid Flight						
Sampling Method: Shelby Tube						
Driller: Van & Sons Drilling Services					Start Time	Finish Time
Logged By: D. Gibson					1607	1658
Water Level					Date	Date
Time					1/24/92	1/24/92
Date						
Casing Depth		Boring Depth	24'			

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth In Feet	Soil Graph
	Drill					1	
	↓						
	ST	24			2.5 3.5	2	
DB6-23-24	↓	24			2.25 2.25	3	CH/CL
						4	
						5	
						6	
						7	
						8	
						9	
						0	
						1	
						2	
						3	
						4	
						5	
						6	
						7	
						8	
						9	

Surface Conditions:

See previous page

Orange and gray clay and sandy clay with black Fe/Mn stains

TD 24.0'

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OF BORING

Boring No. DB 7
Sheet 1 of 1

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method: Solid Flight				
Sampling Method: Shelby Tube				
Driller: Van & Sons Drilling Services				Drilling
Logged By: D. Gibson				Start / Finish
Water Level				Time / Time
Time				1518 / 1551
Date				Date / Date
Casing Depth		Boring Depth	20'	1/28/92 / 1/28/92

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph	Surface Conditions:
	ST	24			0.25			
					NR	1	CL	Tan and brown sandy clay
DB7-1-2		24			0.5			
					1.0	2		
DB7-2-3		24			0.75		CL/CH	Tan and orange sandy clay and clay
					3.5	3		
		12					NR	Dike material present to 3.0' below grade
		24			1.5	4		
DB7-4.25-5.25					4.5		SM	Brown silty sand
		10				5	SC	Gray sandy clay
							NR	
7-7		24			1.25	6		
					1.25		CL	Brown and orange-brown sandy clay with black Fe/Mn streaks
		12				7		
							NR	
		24			1.0	8		
					1.75			
DB7 9-10		24			1.75	9	CL	As above
					1.75			
	Drill					10		
							CL	As above with 1/16" diameter calcareous nodules.
						11		
						12		
							CL	Reddish brown and brown sandy clay with abundant calcareous material and black Fe/Mn streaks
	ST	24			2.0	13		
DB7					2.25		CL	Gray and reddish sandy clay
13.5-14.5					1.0	14		
		24			1.5		SC	Gray clayey sand Water 14-15' below grade.
	Drill					15		
						16		
							CL	Tan sandy clay
						17		
						18		
DB7-18-19	ST	24			1.5			
					1.5	19	SC	Gray and orange slightly clayey sand
		16					NR	TD 20.0'

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LOG OF BORING

Boring No. DB 8
Sheet 1 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Drilling Method: Solid Flight
Sampling Method: Shelby Tube
Driller: Van & Sons Drilling Services
Logged By: D. Gibson

	Drilling Start Time	Drilling Finish Time
Water Level		
Time	1420	1500
Date	1/28/92	1/28/92
Casing Depth	Boring Depth 23'	

Location of Boring

Datum Elevation

Surface Conditions:

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph	
	ST	24			0.5			
					0.5	1	CL/CH	Tan and brown sandy clay and clay with rock fragments
DB8-1-2		24			0.5			
					1.0	2		
		24			1.0			
DB8-2.5					1.0	3	CL/CH	As above with calcareous nodules - no rock.
3.5					2.5			Dike material present to ~ 3.5' below grade.
		18				4	NR	
		24			2.5			
DB8-4.5-					2.5	5	CL	Dark gray sandy clay
5.5					2.0			
		18				6	NR	
		24			1.5			
DB8-6.5					1.75	7	CL	Gray and orange sandy clay with pockets of black Fe/Mn.
7.5					2.0			
		20				8	NR	
		24			1.25			
					1.5	9	CL	
DB8-9-10		24			1.5			Gray and light orange sandy clay with black Fe/Mn streaks
					1.5	10		
	D&W							
						11		
DB8 11-12	ST	24			2.75			
					2.5	12	CL/CH	Sandy clay and clay as above
					2.25			
		24			2.25	13		Gray and orange clayey sand
	D&W						SC	
						14		
						15	CL	Water at 15'
								Gray and orange sandy clay
						16		
	ST	24			1.75		CL	
					1.5	17		Gray sandy clay
					3.25			
17-18		24			2.5	18	CL	Orange sandy clay
	D&W							
						19	NR	Water rose below 18'

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OF BORING

Boring No. DB8
Sheet 2 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

					Drilling	
Drilling Method: Solid Flight						
Sampling Method: Shelby Tube						
Driller: Van & Sons Drilling Services					Start	Finish
Logged By: D. Gibson					Time	Time
Water Level					1420	1500
Time					Date	Date
Date					1/28/92	1/28/92
Casing Depth		Boring Depth	23'			

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph
	Drill						NR
	ST	24			1.0 1.25	21	
DB8-21.75-22.75		24			2.25 2.5	22	CL
						23	
						4	
						5	
						6	
						7	
						8	
						9	
						0	
						1	
						2	
						3	
						4	
						5	
						6	
						7	
						8	
						9	

Surface Conditions:

Gray and brown very sandy clay with calcareous nodules

TD 23.0'

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FIELD LOG OF BORING

Boring No. DB 9
Sheet 1 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method:	Solid Flight
Sampling Method:	Shelby Tube
Driller:	Van & Sons Drilling Services
Logged By:	D. Gibson

	Drilling Start	Drilling Finish
Water Level		
Time	1310	1405
Date	1/28/92	1/28/92
Casing Depth	Boring Depth 24'	

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph	Surface Conditions:
	ST	24			NR			Light orange and gray sandy clay
DB 9					NR	1	CL	
0.5-1.5		16			0.25 NR			
						2	NR	
DB 9 2-3		24			0.5			As above with abundant light Fe/Mn stains
					0.5	3	CL	and several 1/16" to 1/2" diameter calcareous nodes.
		16					NR	
		24				4		
DB 9							CL	Gray-brown sandy clay
4.5-5.5		18				5	CL	Dike material to 5' below grade
								Dark brown sandy clay with red orange sandy clay pockets
		24				6	NR	
DB 9							CL	
6.5-7.5		18				7		As above
							NR	
		24			1.5	8		
					1.25			
DB 9 9-10		24			1.25	9	CL	As above with black Fe/Mn nodules
					1.0			
	Drill					10		Tan and light orange sandy clay with black Fe/Mn nodules and calcareous nodules from 11' to 12'
						11	CL	
						12		
	ST	24			3.0			Red, gray and orange clay and sandy clay with
					3.0	13	CL/CH	calcareous seams and pockets. Occasional
DB 9 13-14		24			2.75			small Fe/Mn stains
					3.0	14		
	Drill							
						15		Water at 15'
						16	SC	Tan and orange clayey sand
							CL	Tan and orange very sandy clay
						17		
	ST	24			2.75			
17.5-18.5					1.5	18	CL	Orange and gray sandy clay with calcareous
		16					NR	nodules
	Drill					19		
								Water wash below 19'.

Environmental Corporation

6360 Park Ten Place
Suite 300
Houston, Texas 77084
(713) 492-1888

FIELD LOG OF BORING

Boring No. DB9
Sheet 2 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method: Solid Flight					
Sampling Method: Shelby Tube					
Driller: Van & Sons Drilling Services				Drilling	
Logged By: D. Gibson				Start	Finish
Water Level				Time	Time
Time				1310	1405
Date				Date	Date
Casing Depth		Boring Depth	24'	1/28/92	1/28/92

Surface Conditions:

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph
	Drill					21	NR
						22	
	ST	24 /			1.0 1.5	23	CL
DB9 2324		/ 24			4.5 3.25	24	

Gray and orange sandy clay with pockets of gray wavy sandy clay

TD 24.0'

Environmental Corporation

16360 Park Ten Place
Suite 300
Houston, Texas 77084
(713) 492-1888

FIELD LOG OF BORING

Boring No. DB 10
Sheet 1 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

				Drilling	
Drilling Method: Solid Flight					
Sampling Method: Shelby Tube					
Driller: Van & Sons Drilling Services				Drilling	
Logged By: D. Gibson				Start	Finish
Water Level				Time	Time
Time				1210	1301
Date				Date	Date
Casing Depth		Boring Depth	25	1/28/92	1/28/92

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph	Surface Conditions: Top of dike, wet.
DB10-0.5-1.5'	ST	24/18			NR NR 0.5 0.75	1	CL	Tan brown sandy clay with a small amount of shell fragments
						2	NR	
DB10-2.5-3.5		24/18			1.0 1.75 1.25	3	CL/CH	As above with some orange clay and small calcareous nodules
						4	NR	
		24/18			NR 0.5	5	CL/CH	As above with wood material Dike material to ~5' below grade.
DB10-5-6		24/24			2.5 3.5	6	CL	Dark brown sandy clay with root material and several small calcareous nodules.
7.0-7.5		24/18			1.25 1.75 1.5	7	CL	Brown and orange slightly sandy clay
						8	NR	
DB10-9-10		24/24			1.0 1.25 1.25 1.25	9	CL	Gray and light orange slightly sandy clay
	D&H					10		
						11		
						12	CL	As above with small calcareous nodules and black Fe/Mn pockets and stains
						13		
DB10 13.75-14.75	ST	24/24			1.75 2.25 4.0 3.0	14		
	D&H					15	CH	Reddish and gray clay with black Fe/Mn stains with 1/8" to 1/16" diameter calcareous nodules from 15.0' to 17.0'.
						16		
						17		
						18	CL/SC	Gray and orange damp very sandy clay - clayey sand
DB10-18.75-19.75	ST	24/21			NR NR 3.0 3.5	19	SC CL NR	Gray clayey sand Gray sandy clay

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(713) 492-1888

OF BORING

Boring No. DB 10
Sheet 2 of 2

Project Name Bird Environmental
Project Number 3K27
Client Bird Environmental

Location of Boring

Datum Elevation

Drilling Method: Solid Flight				Drilling	
Sampling Method: Shelby Tube				Start	Finish
Driller: Van & Sons Drilling Services				Time	Time
Logged By: D. Gibson				1210	1301
Water Level				Date	Date
Time				1/28/92	1/28/92
Date					
Casing Depth		Boring Depth	25		

Sample No. / Sample Depth	Sampler Type	Inches Driven / Inches Recovered	Blows Sampler	HNU/OVA Reading	Pocket Penetrometer	Depth in Feet	Soil Graph
	Dr. H					1	CL
						2	
	ST	24				3	NR
DATU- 24.5-25		12			2.25 / 4.25	4	CL
						5	
						6	
						7	
						8	
						9	
						0	
						1	
						2	
						3	
						4	
						5	
						6	
						7	
						8	
						9	

Surface Conditions:

Gray, tan, and reddish sandy clay with shell material, calcareous nodules and black Fe/Mn stains.

As above.

TD 25.0'

GEOTEST LABORATORY SUMMARY

(DRAFT)

RCV BY:XEROX TELECOPIER 7010 ; 2-21-92 3:11PM ; 713 266 2977 7134920504:# 2
FEB 21 '92 15:26 GEOTEST ENGINEERING P.2/9

SUMMARY OF LABORATORY TEST RESULTS

Project: Bird Environmental Gulf Coast Project **GEI Job No.:** 14G561
Client: Halliburton NUS **Work Release Document No.** BO-91-021H-03

Boring No./ Sample No.	Visual Classification	LL (%)	PL (%)	#200 Sieve percent passing	MC (%)	Wet Unit Weight (pcf)	Compressive Strength qu (tsf)	UU (tsf)	CU (tsf)	Confining Pressure (psi)	Strain at Failure (%)	Pore Pressure at Failure (psi)
DB-1-0.3-1.3	Gray & yellow gray sandy clay(w/ chemical odor)	45	18		24.0	123.0						
DB-1-2-3	Very dark gray sandy clay				20.7	127.6						
DB-2-9-10	Gray & tan clay w/ some calcareous nodules	60	24		27.7	125.2						
DB-2-19-20	Gray & tan sandy clay w/ some calcareous nodules				25.7	129.0						
DB-3-0.5-1.5	Fill: tan & gray clay w/ sand pockets,stone pieces,roots	59	24		28.4	121.6						
DB-3-8-9	Gray clay	60	23		26.0							
DB-3-23-24	Tan & gray sandy clay w/ calcareous nodules				23.5	130.2						
DB-4-1.2-2	Tan & gray clay w/ sandy clay,calcareous nodules				30.2	116.7	0.13				4.6	
DB-4-6.5-7.5	Gray clay				23.3	122.9		0.72		8.0	15.0	
DB-5-8.5-9.5	Gray & tan sandy clay				23.9	127.6		0.88		10.0	15.0	
DB-5-16.5-17.5	Gray & tan sandy clay			63	21.2							
DB-6-2.8-3.8	Fill: tan & gray clay w/ sand clay layer,stone pieces	54	22		24.2	126.9						
DB-6-4-5	Gray sandy clay				19.5	130.3	1.56				4.3	
DB-6-13-14	Light gray, gray & tan sandy clay	28	14		21.4	129.2						
DB-7-6-7	Gray & tan clay w/ sand pockets	74	28		30.0							
DB-8-1-2	Tan & gray silty clay w/ sand & clay pockets & stone pieces	49	21		30.5	116.6						

LL: Liquid Limit, PL: Plastic Limit, MC: Moisture Content, qu: Unconfined Compressive Strength
UU: Unconsolidated-undrained Triaxial Compressive Strength (Maximum Deviator Stress)
CU: Consolidated-undrained Triaxial Compressive Strength (Maximum Deviator Stress)
* Unable to run the test due to insufficient length of intact sample

GEOTEST ENGINEERING, INC.

File: pc7-qproll/14g561.wq3

RCV BY:XEROX TELECOPIER 7010 ; 2-21-92 3:12PM ; 713 266 2977
FEB 21 '92 15:26 GEOTEST ENGINEERING
7134920504;# 3
P.3/9
4

SUMMARY OF LABORATORY TEST RESULTS

Project: Bird Environmental Gulf Coast Project
Client: Halliburton NUS
GEI Job No.: 14G561
Work Release Document No. BO-91-021H-03

Boring No./ Sample No.	Visual Classification	LL (%)	PL (%)	#200 Sieve percent passing	MC (%)	Net Unit Weight (pcf)	Compressive Strength					
							qu (tsf)	UU (tsf)	CU (tsf)	Confining Pressure (psi)	Strain at Failure (%)	Pore Pressure at Failure (psi)
DB-9-4.5-5.5	Gray sandy clay	47	20		20.2	127.2	0.95				9.8	
DB-9-9-10	Gray & tan sandy clay				26.7	120.1		0.61		10.0	10.0	
DB-9-13-14	Reddish brown & gray clay				24.9	127.8	0.95				6.8	
DB-10-2.5-3.5	Fill: tan & gray clay w/ sand pockets,stone pieces	68	27		26.3	127.4	0.51				8.6	
DB-10-6.5-7.5	Gray & tan clay w/ sand partings	54	22		19.8	129.1	1.1				8.9	
DB-10-9-10	Gray & tan clay w/ sand partings				24.8							
T1-1-2-4	Yellowish gray clay	63	23		28.9							
T1-1-6-8	Gray & yellowish sandy clay				29.5							
T1-2-6-8	Yellowish brown sandy clay	47	20		24.2							
T1-3-2-4	Dark gray clay	72	27		34.8							
T1-3-6-8	Gray brown & yellow clay				29.3							
T1-4-6-8	Light gray silty clay	38	17		20.2							
T1-5-2-4	Gray clay	88	31		34.3							
P1-1-3-4	Gray clay				23.8							
P1-1-9-10	Gray & yellowish brown sandy clay w/ sand pockets	45	18		20.7							
P1-1-14-15	Reddish brown & gray clay w/ calcareous nodules				23.6							

LL: Liquid Limit, PL: Plastic Limit, MC: Moisture Content, qu: Unconfined Compressive Strength
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* Unable to run the test due to insufficient length of intact sample

GEOTEST ENGINEERING, INC.

File: pc7-qproll/14g561.wq3

RCV BY:XEROX TELECOPIER 7010 ; 2-21-92 3:12PM ; 713 266 2977
FEB 21 '92 15:27 GEOTEST ENGINEERING P.4/9
7134920504;# 4

SUMMARY OF LABORATORY TEST RESULTS

Project: Bird Environmental Gulf Coast Project **GEI Job No.:** 14G561
Client: Halliburton NUS **Work Release Document No.** BO-91-021H-03

Boring No./ Sample No.	Visual Classification	LL (%)	PL (%)	#200 Sieve percent passing	MC (%)	Wet Unit Weight (pcf)	Compressive Strength qu (tsf)	UU (tsf)	CU (tsf)	Confining Pressure (psi)	Strain at Failure (%)	Pore Pressure at Failure (psi)
P1-2-3.5-4	Grayish yellow clay				27.9							
P1-2-9-10	Grayish yellow sandy clay				17.9							
P1-2-14-15	Grayish yellow & brown sandy clay				20.7							
T2-1-2-4	Yellow clay	93	31		42.3							
T2-2-6-8	Yellowish gray clay	76	30		37.1							
T2-3-2-4	Grayish yellow clay				45.0							
T2-3-6-8	Yellowish gray clay				35.8							
P2-1-4-5	Yellowish gray clay				35.63							
P2-1-8.5-9	Yellowish gray sandy clay w/ sand pockets	40	20		27.5							
P2-1-13.5-14	Yellowish gray silty clay w/ calcareous nodules				24.6							

LL: Liquid Limit, PL: Plastic Limit, MC: Moisture Content, qu: Unconfined Compressive Strength
UU: Unconsolidated-undrained Triaxial Compressive Strength (Maximum Deviator Stress)
CU: Consolidated-undrained Triaxial Compressive Strength (Maximum Deviator Stress)
* Unable to run the test due to insufficient length of intact sample

GEOTEST ENGINEERING, INC.

File: pc7-qproll/14g561.wq3

TRIAL RUNS

EOC 2	SKETCH	&	EOC-1 THROUGH 11
RD 2	SKETCH	&	RD2 – 1 THROUGH 11
RD 2 NS	SKETCH	&	RD2NS – 1 THROUGH 11
PC 2	SKETCH	&	PC2 – 1 THROUGH 10
EOC 3	SKETCH	&	EOC 3 – 1 THROUGH 11
RD 3	SKETCH	&	RD 3 – 1 THROUGH 11
PC 3	SKETCH	&	PC 3 – 1 THROUGH 10

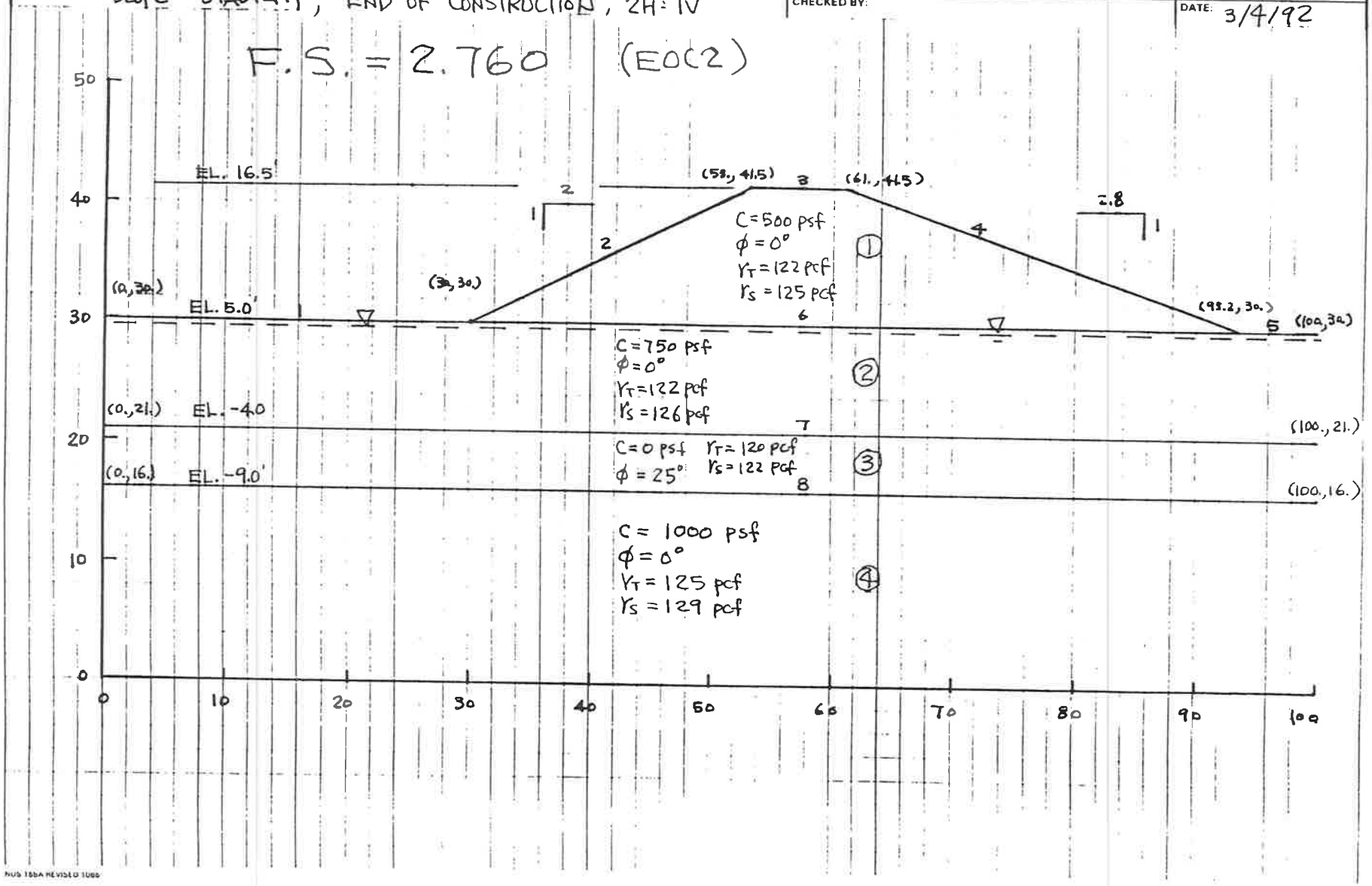
NUS CORPORATION AND SUBSIDIARIES

STANDARD CALCULATION SHEET

CLIENT: BIRD | FILE NO.: 8K27 | BY: BL | PAGE OF

SUBJECT: SLOPE STABILITY, END OF CONSTRUCTION, 2H:1V | CHECKED BY: | DATE: 3/4/92

F.S. = 2.760 (EOC2)



NUS 168A REVISED 1086

** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 3/4/92

Time of Run: 2:00 PM
Run By: BL

Input Data Filename: EOC2.IN
Output Filename: EOC2.OUT
Plotted Output Filename: EOC2.PLT

PROBLEM DESCRIPTION BIRD, 2H:1V, END OF CONSTRUCTION

BOUNDARY COORDINATES

5 Top Boundaries
8 Total Boundaries

Soil Type Below Bnd	Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
2	1	.00	30.00	30.00	30.00
1	2	30.00	30.00	53.00	41.50
1	3	53.00	41.50	61.00	41.50
1	4	61.00	41.50	93.20	30.00
2	5	93.20	30.00	100.00	30.00
2	6	30.00	30.00	93.20	30.00

EOC2, 1/11

	7	.00	21.00	100.00	21.00
3					
	8	.00	16.00	100.00	16.00
4					
1					

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	122.0	125.0	500.0	.0	.00	.0	1
2	122.0	126.0	750.0	.0	.00	.0	1
3	120.0	122.0	.0	25.0	.00	.0	1
4	125.0	129.0	1000.0	.0	.00	.0	1
1							

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	30.00
2	100.00	30.00
1		

Searching Routine Will Be Limited To An Area Defined By 1 Boundaries
Of Which The First 1 Boundaries Will Deflect Surfaces Upward

EDC2, 2/1

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
1	.00	.00	100.00	.00

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

Janbus Empirical Coef. is being used for the case of c & phi both > 0
100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = .00 ft.
and X = 30.00 ft.

Each Surface Terminates Between X = 50.00 ft.
and X = 70.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.

6.00 ft. Line Segments Define Each Trial Failure Surface.

1

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 13 Coordinate Points

EOC 2, 3/11

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.67	30.00
2	10.96	25.81
3	15.90	22.40
4	21.35	19.89
5	27.14	18.33
6	33.12	17.78
7	39.10	18.25
8	44.91	19.72
9	50.39	22.16
10	55.38	25.50
11	59.73	29.63
12	63.32	34.44
13	66.00	39.71

*** 2.760 ***

Individual data on the 18 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Tie Force Hor Lbs(kg)	Earthquake Surcharge Ver Load Lbs(kg)
1	4.3	1133.7	.0	784.8	.0	.0	.0	.0
2	4.9	3669.5	.0	2206.8	.0	.0	.0	.0
3	3.0	3176.3	.0	1732.9	.0	.0	.0	.0
4	2.4	2894.9	.0	1582.3	.0	.0	.0	.0
5	5.8	7908.1	.0	4077.8	.0	.0	.0	.0
6	2.9	4218.7	.0	2114.1	.0	.0	.0	.0
7	3.1	5000.2	.0	2358.6	.0	.0	.0	.0
8	6.0	11192.3	.0	4488.4	.0	.0	.0	.0
9	5.8	12284.5	.0	4124.5	.0	.0	.0	.0
10	2.9	6343.1	.0	1890.4	.0	.0	.0	.0

EOC2, 4/11

11	2.6	5808.3	.0	1501.0	.0	.0	.0
.0	.0						
12	2.6	5735.2	.0	1362.4	.0	.0	.0
.0	.0						
13	2.4	4934.8	.0	948.0	.0	.0	.0
.0	.0						
14	4.4	7440.6	.0	912.7	.0	.0	.0
.0	.0						
15	.3	395.8	.0	5.4	.0	.0	.0
.0	.0						
16	1.0	1307.2	.0	.0	.0	.0	.0
.0	.0						
17	2.3	2323.3	.0	.0	.0	.0	.0
.0	.0						
18	2.7	1020.3	.0	.0	.0	.0	.0
.0	.0						

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	3.33	30.00
2	7.60	25.78
3	12.49	22.30
4	17.88	19.67
5	23.63	17.95
6	29.58	17.18
7	35.57	17.38
8	41.46	18.56
9	47.07	20.68
10	52.27	23.68
11	56.91	27.48
12	60.87	31.98
13	64.05	37.07
14	65.26	39.98

*** 2.789 ***

1

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	3.33	30.00
2	7.70	25.89
3	12.66	22.50

EOC2, 5/11

4	18.08	19.93
5	23.83	18.22
6	29.77	17.42
7	35.77	17.54
8	41.68	18.60
9	47.35	20.55
10	52.65	23.36
11	57.46	26.96
12	61.65	31.25
13	65.12	36.14
14	66.77	39.44

*** 2.804 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.67	30.00
2	11.16	26.02
3	16.24	22.83
4	21.77	20.50
5	27.60	19.09
6	33.59	18.65
7	39.56	19.18
8	45.37	20.67
9	50.87	23.09
10	55.90	26.36
11	60.33	30.40
12	64.05	35.10
13	66.51	39.53

*** 2.807 ***

1

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	.00	30.00
2	4.40	25.92
3	9.34	22.52

EDC2. 6/11

4	14.73	19.88
5	20.45	18.07
6	26.37	17.10
7	32.37	17.02
8	38.32	17.81
9	44.09	19.47
10	49.55	21.95
11	54.59	25.21
12	59.10	29.17
13	62.98	33.74
14	66.15	38.84
15	66.46	39.55

*** 2.825 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	3.33	30.00
2	7.75	25.94
3	12.72	22.58
4	18.13	19.99
5	23.87	18.22
6	29.80	17.33
7	35.80	17.32
8	41.74	18.20
9	47.48	19.95
10	52.90	22.52
11	57.87	25.87
12	62.30	29.92
13	66.08	34.58
14	68.57	38.80

*** 2.848 ***

1

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00

EOC2, 7/11

2	17.82	26.02
3	22.97	22.93
4	28.59	20.84
5	34.50	19.82
6	40.50	19.91
7	46.38	21.10
8	51.95	23.34
9	57.00	26.58
10	61.37	30.69
11	64.92	35.53
12	66.79	39.43

*** 2.857 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.58	25.76
3	22.52	22.36
4	28.01	19.93
5	33.85	18.55
6	39.84	18.26
7	45.79	19.07
8	51.48	20.96
9	56.74	23.85
10	61.37	27.67
11	65.23	32.26
12	68.18	37.49
13	68.62	38.78

*** 2.895 ***

1

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	.00	30.00
2	4.34	25.86
3	9.22	22.37

EDC2, 8/11

4	14.54	19.59
5	20.20	17.58
6	26.07	16.38
7	32.06	16.02
8	38.04	16.49
9	43.90	17.79
10	49.52	19.90
11	54.79	22.77
12	59.60	26.35
13	63.87	30.57
14	67.51	35.34
15	69.31	38.53

*** 2.899 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	10.00	30.00
2	14.63	26.18
3	19.81	23.16
4	25.42	21.02
5	31.30	19.83
6	37.29	19.60
7	43.25	20.36
8	49.00	22.07
9	54.39	24.69
10	59.29	28.15
11	63.56	32.37
12	67.09	37.22
13	67.99	39.00

*** 2.899 ***

1

Y A X I S F

T

.00 12.50 25.00 37.50 50.00

62.50

X .00

EOC2, 9/11

```
L----------+--*---*--+---*-----+---------+---------+
           -
           -                          5. 2
           -                            .1
           -                        5  2 .
           -                        . .1  0
       12.50 +                        2. ...7
           -                          5. . 0..
           -                            1..8 ..
           -                          2..  7..
           -                        5.1  0.....
           -                        23 .7......
   A   25.00 +                        ..0. ....
           -                        9518 .......
           -                        2..7......*
           -                        9. 0.. ....
           -                        14.........
           -                        2.7.........
   X   37.50 +                        95.0........
           -                          17........ .
           -                          2......... .
           -                        9 5.......... .
           -                          814........  .
           -                          32 ..........
   I   50.00 +                        9 1.......... ...
           -                          862.............*
           -                          9.5.....  ......
           -                          .8142. ...... ..
```

EOC2, 10/11

```
                    -                    .635.... .....
                    -                    98.172 . ...*
S       62.50       +                    ...63.51.. ..
                    -                      .9 8.432 2
                    -                      ....6.051
                    -                           ..86
                    -                              .
                    -
        75.00       +
                    -
                    -
                    -
                    -
                    -
F       87.50       +
                    -
                    -
                    -                           *
                    -
                    -
T       100.00      L              *    *       *
```

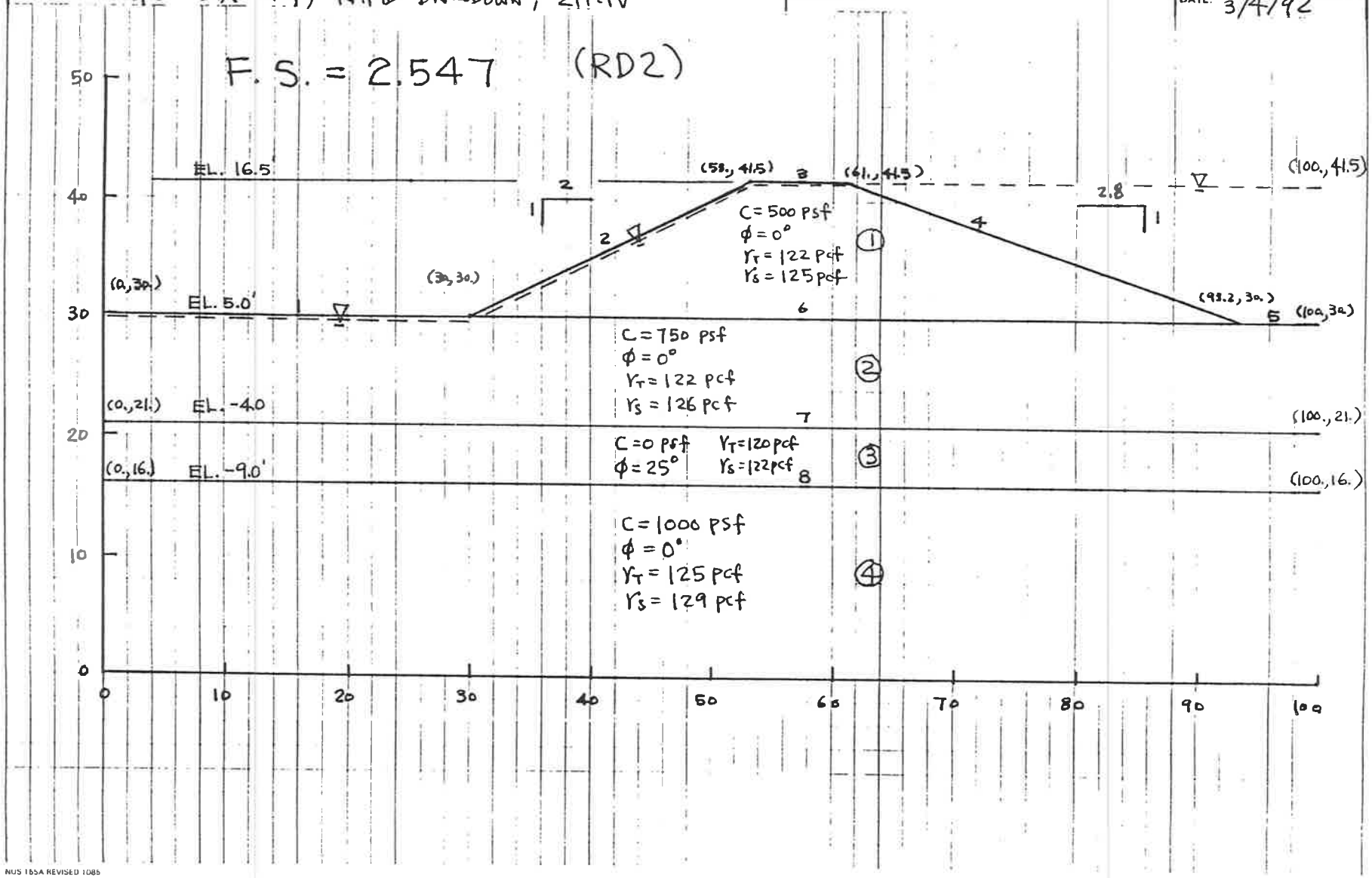
E0C2 , 11/1/

NUS CORPORATION AND SUBSIDIARIES

STANDARD CALCULATION SHEET

CLIENT: BIRD | FILE NO.: 8K27 | BY: BL | PAGE OF

SUBJECT: SLOPE STABILITY, RAPID DRAWDOWN, 2H:1V | CHECKED BY: | DATE: 3/4/92



NUS 185A REVISED 1085

** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date:	3/4/92
Time of Run:	11:00 AM
Run By:	BL
Input Data Filename:	RD2.IN
Output Filename:	RD2.OUT
Plotted Output Filename:	RD2.PLT

PROBLEM DESCRIPTION BIRD, 2H:1V, RAPID DRAWDOWN

BOUNDARY COORDINATES

5 Top Boundaries
8 Total Boundaries

Soil Type Below Bnd	Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
2	1	.00	30.00	30.00	30.00
1	2	30.00	30.00	53.00	41.50
1	3	53.00	41.50	61.00	41.50
1	4	61.00	41.50	93.20	30.00
2	5	93.20	30.00	100.00	30.00
2	6	30.00	30.00	93.20	30.00

RD2, 1/11

	7	.00	21.00	100.00	21.00
3					
	8	.00	16.00	100.00	16.00
4					
1					

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Piez. Constant (psf)	Surface No.
1	122.0	125.0	500.0	.0	.00	.0	
1							
2	122.0	126.0	750.0	.0	.00	.0	
1							
3	120.0	122.0	.0	25.0	.00	.0	
1							
4	125.0	129.0	1000.0	.0	.00	.0	
1							
1							

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 4 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	30.00
2	30.00	30.00
3	53.00	41.50
4	100.00	41.50

1

Searching Routine Will Be Limited To An Area Defined By 1 Boundaries

RD2, 2/11

Of Which The First 1 Boundaries Will Deflect Surfaces Upward

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
1	.00	.00	100.00	.00

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

Janbus Empirical Coef. is being used for the case of c & phi both > 0
100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = .00 ft.
and X = 30.00 ft.

Each Surface Terminates Between X = 50.00 ft.
and X = 70.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.

6.00 ft. Line Segments Define Each Trial Failure Surface.

1

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

RD2, 3/11

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.58	25.76
3	22.52	22.36
4	28.01	19.93
5	33.85	18.55
6	39.84	18.26
7	45.79	19.07
8	51.48	20.96
9	56.74	23.85
10	61.37	27.67
11	65.23	32.26
12	68.18	37.49
13	68.62	38.78

*** 2.547 ***

Individual data on the 18 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Tie Force Hor Lbs(kg)	Earthquake Surcharge Ver Load Lbs(kg)
1	4.2	1134.0	.0	794.2	.0	.0	.0	.0
2	4.9	3702.9	.0	2223.7	.0	.0	.0	.0
3	3.1	3227.2	.0	1748.0	.0	.0	.0	.0
4	2.4	2885.7	.0	1565.8	.0	.0	.0	.0
5	2.0	2571.9	.0	1314.3	.0	.0	.0	.0
6	3.8	5749.0	.0	2655.9	.0	.0	.0	.0
7	6.0	11230.7	.0	5060.5	.0	.0	.0	.0
8	5.9	13164.8	.0	5978.5	.0	.0	.0	.0
9	5.7	13744.8	.0	6504.6	.0	.0	.0	.0

RD2, 4/11

.0	.0						
10	.1	193.4	.0	99.1	.0	.0	.0
.0	.0						
11	1.4	3556.5	.0	1822.9	.0	.0	.0
.0	.0						
12	3.7	8748.5	.0	4972.3	.0	.0	.0
.0	.0						
13	4.3	8488.9	.0	5474.6	.0	.0	.0
.0	.0						
14	.4	645.0	1.6	418.3	.0	.0	.0
.0	.0						
15	2.0	2986.3	62.6	2408.6	.0	.0	.0
.0	.0						
16	1.9	2182.8	147.3	1910.5	.0	.0	.0
.0	.0						
17	3.0	1692.7	398.2	2480.9	.0	.0	.0
.0	.0						
18	.4	40.1	77.5	287.1	.0	.0	.0
.0	.0						

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.61	25.80
3	22.57	22.42
4	28.06	19.98
5	33.89	18.56
6	39.88	18.20
7	45.83	18.91
8	51.57	20.68
9	56.90	23.43
10	61.65	27.09
11	65.68	31.54
12	68.84	36.64
13	69.56	38.44

*** 2.553 ***

1

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.67	30.00

RD2, 5/11

2	10.96	25.81
3	15.90	22.40
4	21.35	19.89
5	27.14	18.33
6	33.12	17.78
7	39.10	18.25
8	44.91	19.72
9	50.39	22.16
10	55.38	25.50
11	59.73	29.63
12	63.32	34.44
13	66.00	39.71

*** 2.554 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	3.33	30.00
2	7.75	25.94
3	12.72	22.58
4	18.13	19.99
5	23.87	18.22
6	29.80	17.33
7	35.80	17.32
8	41.74	18.20
9	47.48	19.95
10	52.90	22.52
11	57.87	25.87
12	62.30	29.92
13	66.08	34.58
14	68.57	38.80

*** 2.555 ***

1

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00

RD2, 6/11

2	17.67	25.86
3	22.68	22.55
4	28.19	20.17
5	34.03	18.82
6	40.03	18.51
7	45.98	19.27
8	51.70	21.07
9	57.01	23.86
10	61.75	27.54
11	65.76	32.00
12	68.92	37.11
13	69.46	38.48

*** 2.557 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	.00	30.00
2	4.34	25.86
3	9.22	22.37
4	14.54	19.59
5	20.20	17.58
6	26.07	16.38
7	32.06	16.02
8	38.04	16.49
9	43.90	17.79
10	49.52	19.90
11	54.79	22.77
12	59.60	26.35
13	63.87	30.57
14	67.51	35.34
15	69.31	38.53

*** 2.568 ***

1

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

RD2, 7/11

1	.00	30.00
2	4.41	25.93
3	9.33	22.50
4	14.67	19.77
5	20.34	17.80
6	26.22	16.61
7	32.21	16.24
8	38.19	16.69
9	44.06	17.96
10	49.70	20.01
11	55.00	22.81
12	59.88	26.31
13	64.23	30.44
14	67.98	35.12
15	69.89	38.33

*** 2.575 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	3.33	30.00
2	7.70	25.89
3	12.66	22.50
4	18.08	19.93
5	23.83	18.22
6	29.77	17.42
7	35.77	17.54
8	41.68	18.60
9	47.35	20.55
10	52.65	23.36
11	57.46	26.96
12	61.65	31.25
13	65.12	36.14
14	66.77	39.44

*** 2.576 ***

1

Failure Surface Specified By 13 Coordinate Points

RD2, 8/11

Point	X-Surf	Y-Surf

No.	(ft)	(ft)
1	6.67	30.00
2	11.16	26.02
3	16.24	22.83
4	21.77	20.50
5	27.60	19.09
6	33.59	18.65
7	39.56	19.18
8	45.37	20.67
9	50.87	23.09
10	55.90	26.36
11	60.33	30.40
12	64.05	35.10
13	66.51	39.53

*** 2.598 ***

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	3.33	30.00
2	7.60	25.78
3	12.49	22.30
4	17.88	19.67
5	23.63	17.95
6	29.58	17.18
7	35.57	17.38
8	41.46	18.56
9	47.07	20.68
10	52.27	23.68
11	56.91	27.48
12	60.87	31.98
13	64.05	37.07
14	65.26	39.98

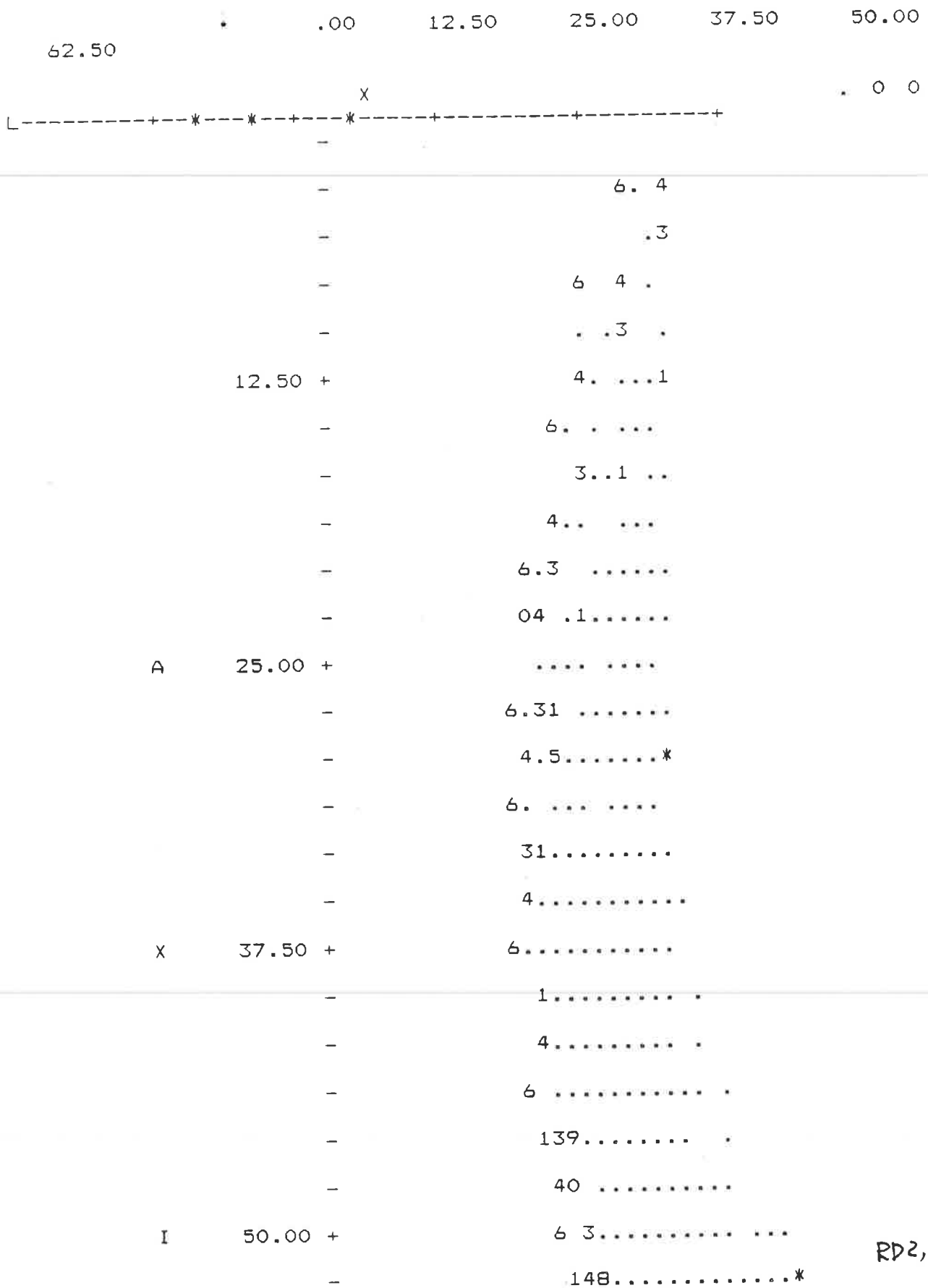
*** 2.602 ***

1

Y A X I S F

T

RD2, 9/11



RD2, 10/11

```
                  -                  6.......  ......
                  -                  .1390. ...... ..
                  -                    .48..... .....
                  -                    61.3.0 . ...*
S       62.50     +                    .2.48..3.. ..
                  -                      .6 1.980 0
                  -                       .25.4...3
                  -                           7211
                  -                              7
                  -
        75.00     +
                  -
                  -
                  -
                  -
                  -
F       87.50     +
                  -
                  -
                  -                          *
                  -
                  -
T      100.00     L                *    *       *          W
```

RD2, 11/1

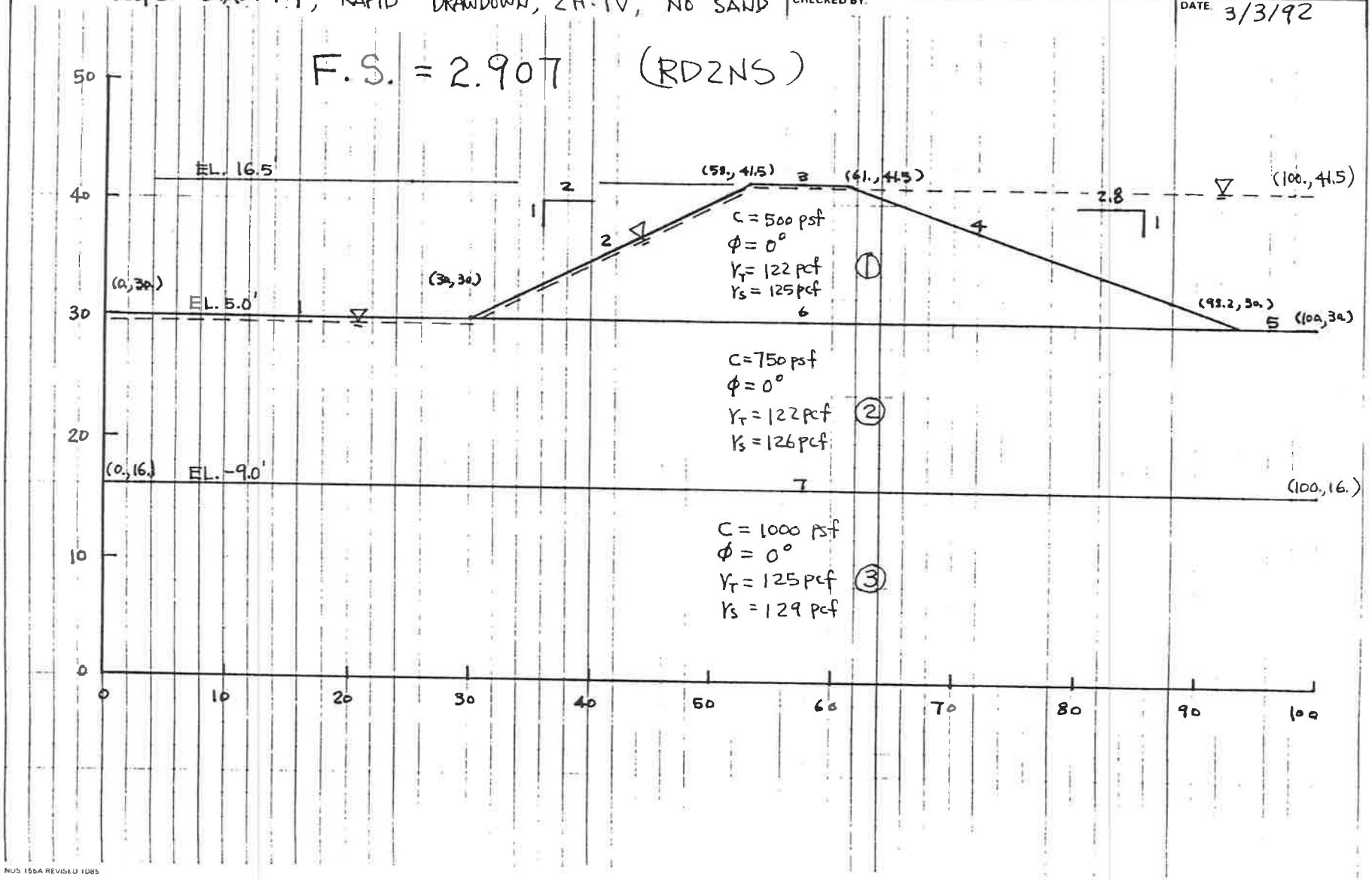
NUS CORPORATION AND SUBSIDIARIES

STANDARD CALCULATION SHEET

CLIENT: BIRD | FILE NO.: 8K27 | BY: BL | PAGE OF

SUBJECT: SLOPE STABILITY, RAPID DRAWDOWN, 2H:1V, NO SAND | CHECKED BY: | DATE 3/3/92

F.S. = 2.907 (RD2NS)



NUS 156A REVISED 1085

** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 3/3/92

Time of Run: 10:00 AM
Run By: BL

Input Data Filename: RD2NS.IN
Output Filename: RD2NS.OUT
Plotted Output Filename: RD2NS.PLT

PROBLEM DESCRIPTION BIRD, 2H:1V, RAPID DRAWDOWN, NO SAND

BOUNDARY COORDINATES

5 Top Boundaries
8 Total Boundaries

Soil Type Below Bnd	Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
2	1	.00	30.00	30.00	30.00
1	2	30.00	30.00	53.00	41.50
1	3	53.00	41.50	61.00	41.50
1	4	61.00	41.50	93.20	30.00
2	5	93.20	30.00	100.00	30.00
2	6	30.00	30.00	93.20	30.00

	7	.00	21.00	100.00	21.00
2					
	8	.00	16.00	100.00	16.00
3					
1					

ISOTROPIC SOIL PARAMETERS

3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Piez. Pressure Constant (psf)	Surface No.
1	122.0	125.0	500.0	.0	.00	.0	
1							
2	122.0	126.0	750.0	.0	.00	.0	
1							
3	125.0	129.0	1000.0	.0	.00	.0	
1							
1							

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 4 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	30.00
2	30.00	30.00
3	53.00	41.50
4	100.00	41.50
1		

Searching Routine Will Be Limited To An Area Defined By 1 Boundaries
Of Which The First 1 Boundaries Will Deflect Surfaces Upward

RD2NS, 2/11

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
1	.00	.00	100.00	.00

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

Janbus Empirical Coef. is being used for the case of c & phi both > 0
100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = .00 ft.
and X = 30.00 ft.

Each Surface Terminates Between X = 50.00 ft.
and X = 70.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.

6.00 ft. Line Segments Define Each Trial Failure Surface.

1

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 13 Coordinate Points

RD2NS, 3/11

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.58	25.76
3	22.52	22.36
4	28.01	19.93
5	33.85	18.55
6	39.84	18.26
7	45.79	19.07
8	51.48	20.96
9	56.74	23.85
10	61.37	27.67
11	65.23	32.26
12	68.18	37.49
13	68.62	38.78

*** 2.907 ***

Individual data on the 18 slices

Slice No.	Surcharge Load Ft(m) Lbs(kg)	Width Lbs(kg)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Tie Force Hor Lbs(kg)	Earthquake Ver Lbs(kg)
1	4.2	1134.0	.0	794.2	.0	.0	.0	.0	.0
2	4.9	3702.9	.0	2223.7	.0	.0	.0	.0	.0
3	3.1	3227.2	.0	1748.0	.0	.0	.0	.0	.0
4	2.4	2890.9	.0	1565.8	.0	.0	.0	.0	.0
5	2.0	2582.3	.0	1314.3	.0	.0	.0	.0	.0
6	3.8	5779.7	.0	2655.9	.0	.0	.0	.0	.0
7	6.0	11292.9	.0	5060.5	.0	.0	.0	.0	.0
8	5.9	13220.4	.0	5978.5	.0	.0	.0	.0	.0
9	5.7	13767.3	.0	6504.6	.0	.0	.0	.0	.0
10	.1	193.4	.0	99.1	.0	.0	.0	.0	.0

RD2NS, 4/11

11	1.4	3556.5	.0	1822.9	.0	.0	.0
.0	.0						
12	3.7	8748.5	.0	4972.3	.0	.0	.0
.0	.0						
13	4.3	8488.9	.0	5474.6	.0	.0	.0
.0	.0						
14	.4	645.0	1.6	418.3	.0	.0	.0
.0	.0						
15	2.0	2986.3	62.6	2408.6	.0	.0	.0
.0	.0						
16	1.9	2182.8	147.3	1910.5	.0	.0	.0
.0	.0						
17	3.0	1692.7	398.2	2480.9	.0	.0	.0
.0	.0						
18	.4	40.1	77.5	287.1	.0	.0	.0
.0	.0						

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.61	25.80
3	22.57	22.42
4	28.06	19.98
5	33.89	18.56
6	39.88	18.20
7	45.83	18.91
8	51.57	20.68
9	56.90	23.43
10	61.65	27.09
11	65.68	31.54
12	68.84	36.64
13	69.56	38.44

*** 2.911 ***

1

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.00	30.00
2	24.26	25.77
3	29.35	22.61
4	35.03	20.66

RD2NS, 5/11

5	41.00	20.02
6	46.95	20.74
7	52.60	22.77
8	57.65	26.01
9	61.84	30.30
10	64.98	35.42
11	66.37	39.58

*** 2.912 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.67	25.86
3	22.68	22.55
4	28.19	20.17
5	34.03	18.82
6	40.03	18.51
7	45.98	19.27
8	51.70	21.07
9	57.01	23.86
10	61.75	27.54
11	65.76	32.00
12	68.92	37.11
13	69.46	38.48

*** 2.913 ***

1

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	28.38	26.76
3	34.00	24.65
4	39.94	23.77
5	45.92	24.14
6	51.70	25.77
7	57.01	28.57

RD2NS, 6/11

8	61.61	32.42
9	65.31	37.14
10	66.47	39.55

*** 2.929 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.82	26.02
3	22.97	22.93
4	28.59	20.84
5	34.50	19.82
6	40.50	19.91
7	46.38	21.10
8	51.95	23.34
9	57.00	26.58
10	61.37	30.69
11	64.92	35.53
12	66.79	39.43

*** 2.935 ***

1

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	28.13	26.40
3	33.56	23.84
4	39.39	22.42
5	45.38	22.19
6	51.30	23.18
7	56.90	25.33
8	61.96	28.56
9	66.26	32.74
10	69.64	37.69
11	69.91	38.32

RD2WS, 7/11

*** 2.944 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	28.40	26.79
3	34.00	24.64
4	39.92	23.66
5	45.92	23.86
6	51.75	25.26
7	57.20	27.79
8	62.03	31.34
9	66.06	35.79
10	67.97	39.01

*** 2.946 ***

1

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.00	30.00
2	25.04	26.75
3	30.63	24.55
4	36.53	23.49
5	42.53	23.60
6	48.39	24.90
7	53.88	27.31
8	58.79	30.76
9	62.93	35.10
10	65.88	39.76

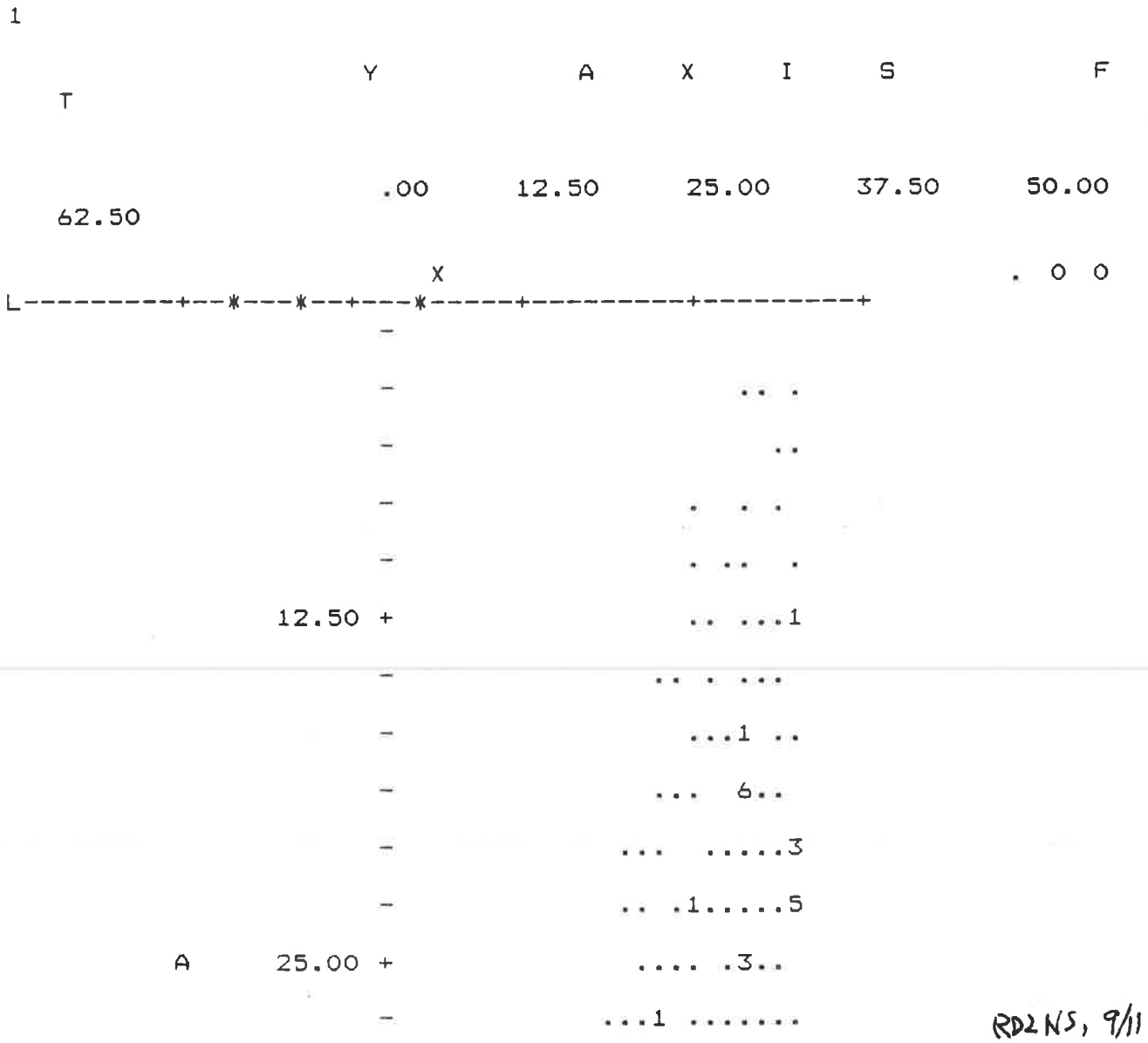
*** 2.946 ***

Failure Surface Specified By 9 Coordinate Points

RD2NS, 8/11

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	28.45	26.87
3	34.15	25.00
4	40.13	24.50
5	46.07	25.38
6	51.64	27.61
7	56.55	31.06
8	60.53	35.54
9	63.30	40.68

*** 2.954 ***



RD2 NS, 9/11

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                -                ..463..5..*
                -               .. ... 9...
                -                .1...75....
                -                ..63........
X       37.50 +                 ......9.....
                -                 16.750.... .
                -                 .3..9..... .
                -                . .......... .
                -                 1.6750.....  .
                -                  .3 .9........
I       50.00 +                   . .......... ...
                -                   136850..........*
                -                    ....9...  ......
                -                   .17685 0..... ..
                -                     .3...9.. .....
                -                      .1..6. 0 ...*
S       62.50 +                      .27385.9.. .0
                -                        .. 1.3.5 .
                -                       .24..8..3
                -                            .211
                -                               7
                -
        75.00 +
                -
                -
                -
                -
```

RD2NS, 10/11

```
                    -
F       87.50       +
                    -
                    -
                    -                                   *
                    -
                    -
T      100.00       L                *   *       *          W
```

RD2NS, 11/11

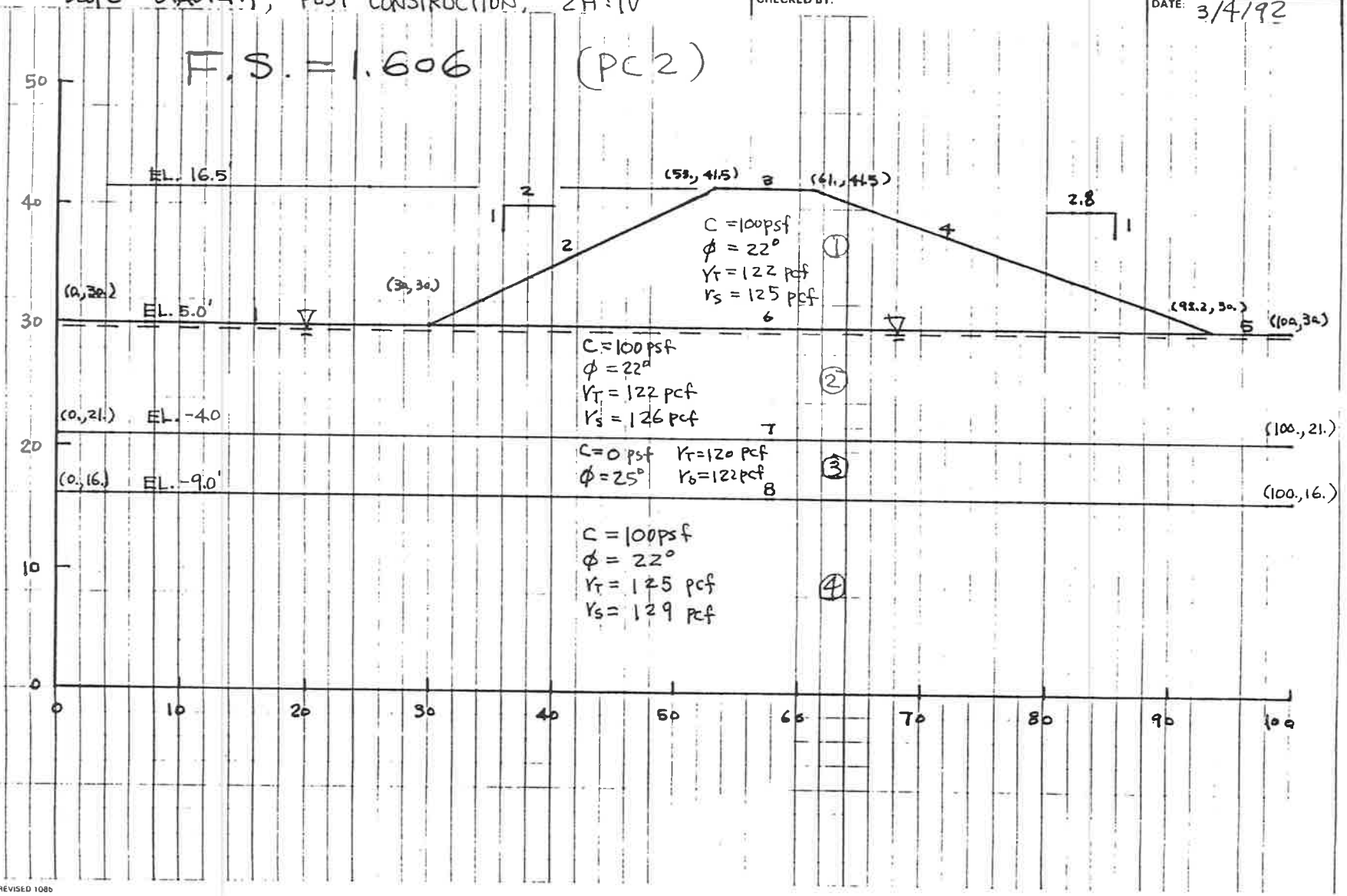
NUS CORPORATION AND SUBSIDIARIES

STANDARD CALCULATION SHEET

CLIENT: BIRD | FILE NO.: 8K27 | BY: BL | PAGE OF

SUBJECT: SLOPE STABILITY, POST CONSTRUCTION, 2H:1V | CHECKED BY: | DATE: 3/4/92

F.S. = 1.606 (PC2)



NUS 155A REVISED 1086

** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 3/4/92

Time of Run: 3:00 PM
Run By: BL

Input Data Filename: PC2.IN
Output Filename: PC2.OUT
Plotted Output Filename: PC2.PLT

PROBLEM DESCRIPTION BIRD, 2H:1V, POST CONSTRUCTION

BOUNDARY COORDINATES

5 Top Boundaries
8 Total Boundaries

Soil Type Below Bnd	Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
2	1	.00	30.00	30.00	30.00
1	2	30.00	30.00	53.00	41.50
1	3	53.00	41.50	61.00	41.50
1	4	61.00	41.50	93.20	30.00
2	5	93.20	30.00	100.00	30.00
2	6	30.00	30.00	93.20	30.00

PC2, V10

	7	.00	21.00	100.00	21.00
3					
	8	.00	16.00	100.00	16.00
4					
1					

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	122.0	125.0	100.0	22.0	.00	.0	1
2	122.0	126.0	100.0	22.0	.00	.0	1
3	120.0	122.0	.0	25.0	.00	.0	1
4	125.0	129.0	100.0	22.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	30.00
2	100.00	30.00

1

Searching Routine Will Be Limited To An Area Defined By 1 Boundaries

Of Which The First 1 Boundaries Will Deflect Surfaces Upward

PC2, 2/10

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
1	.00	.00	100.00	.00

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

Janbus Empirical Coef. is being used for the case of c & phi both > 0
100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = .00 ft.
and X = 30.00 ft.

Each Surface Terminates Between X = 50.00 ft.
and X = 70.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

6.00 ft. Line Segments Define Each Trial Failure Surface.

1

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 8 Coordinate Points

PC2, 3/10

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	28.76	27.44
3	34.69	26.50
4	40.64	27.24
5	46.15	29.62
6	50.78	33.44
7	54.16	38.39
8	55.18	41.50
***	1.606	***

Individual data on the 10 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Tie Force Hor Lbs(kg)	Earthquake Surcharge Ver Load Lbs(kg)
1	5.4	874.8	.0	479.0	.0	.0	.0	.0
2	1.2	414.9	.0	208.1	.0	.0	.0	.0
3	4.7	2517.6	.0	926.6	.0	.0	.0	.0
4	6.0	5131.1	.0	1172.0	.0	.0	.0	.0
5	5.5	5591.7	.0	587.8	.0	.0	.0	.0
6	.5	474.3	.0	7.2	.0	.0	.0	.0
7	4.2	3877.7	.0	.0	.0	.0	.0	.0
8	2.2	1594.0	.0	.0	.0	.0	.0	.0
9	1.2	560.1	.0	.0	.0	.0	.0	.0
10	1.0	192.8	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 7 Coordinate Points

Point	X-Surf	Y-Surf

PC2, 4/10

No.	(ft)	(ft)
1	26.67	30.00
2	32.46	28.44
3	38.46	28.40
4	44.28	29.88
5	49.53	32.79
6	53.87	36.93
7	56.69	41.50

*** 1.611 ***

1

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.00	30.00
2	35.87	28.77
3	41.85	29.30
4	47.41	31.55
5	52.09	35.31
6	55.46	40.27
7	55.85	41.50

*** 1.625 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	26.67	30.00
2	32.15	27.57
3	38.14	27.13
4	43.92	28.73
5	48.82	32.19
6	52.28	37.09
7	53.49	41.50

*** 1.637 ***

PCZ, 5/10

1

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	29.04	28.15
3	35.03	27.77
4	40.93	28.88
5	46.37	31.41
6	51.01	35.21
7	54.58	40.03
8	55.18	41.50

*** 1.643 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	28.70	27.32
3	34.54	25.96
4	40.54	26.00
5	46.37	27.43
6	51.70	30.19
7	56.24	34.10
8	59.75	38.97
9	60.78	41.50

*** 1.646 ***

1

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.00	30.00

PC2, 6/10

2	24.99	26.66
3	30.62	24.60
4	36.58	23.93
5	42.54	24.69
6	48.14	26.83
7	53.08	30.24
8	57.07	34.73
9	59.88	40.02
10	60.26	41.50

*** 1.656 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.00	30.00
2	25.62	27.90
3	31.56	27.04
4	37.54	27.47
5	43.30	29.17
6	48.56	32.06
7	53.08	36.01
8	56.65	40.83
9	56.96	41.50

*** 1.663 ***

1

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	22.04	27.32
3	27.85	25.83
4	33.84	25.59
5	39.75	26.62
6	45.32	28.86
7	50.28	32.23
8	54.43	36.56
9	57.47	41.50

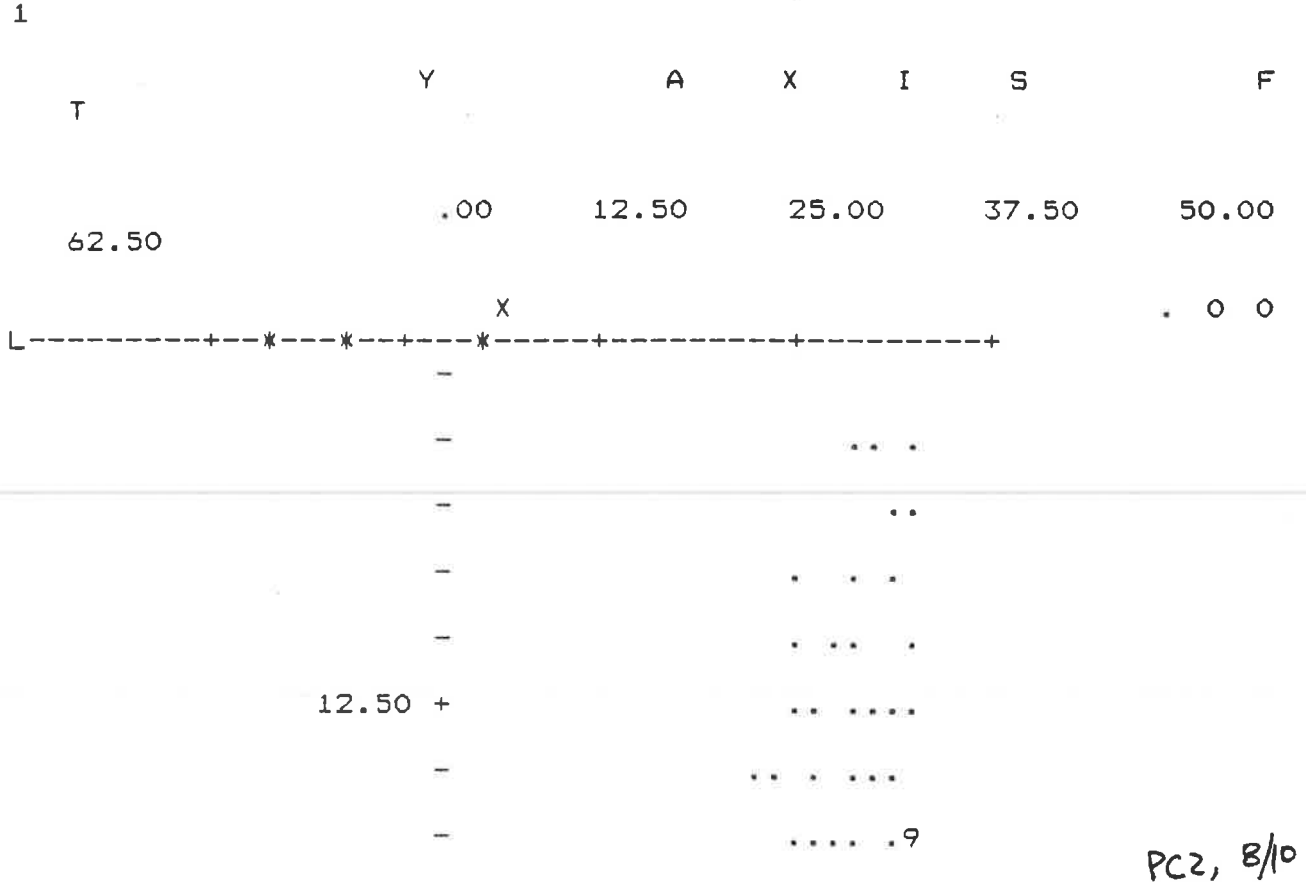
PC2, 7/10

*** 1.685 ***

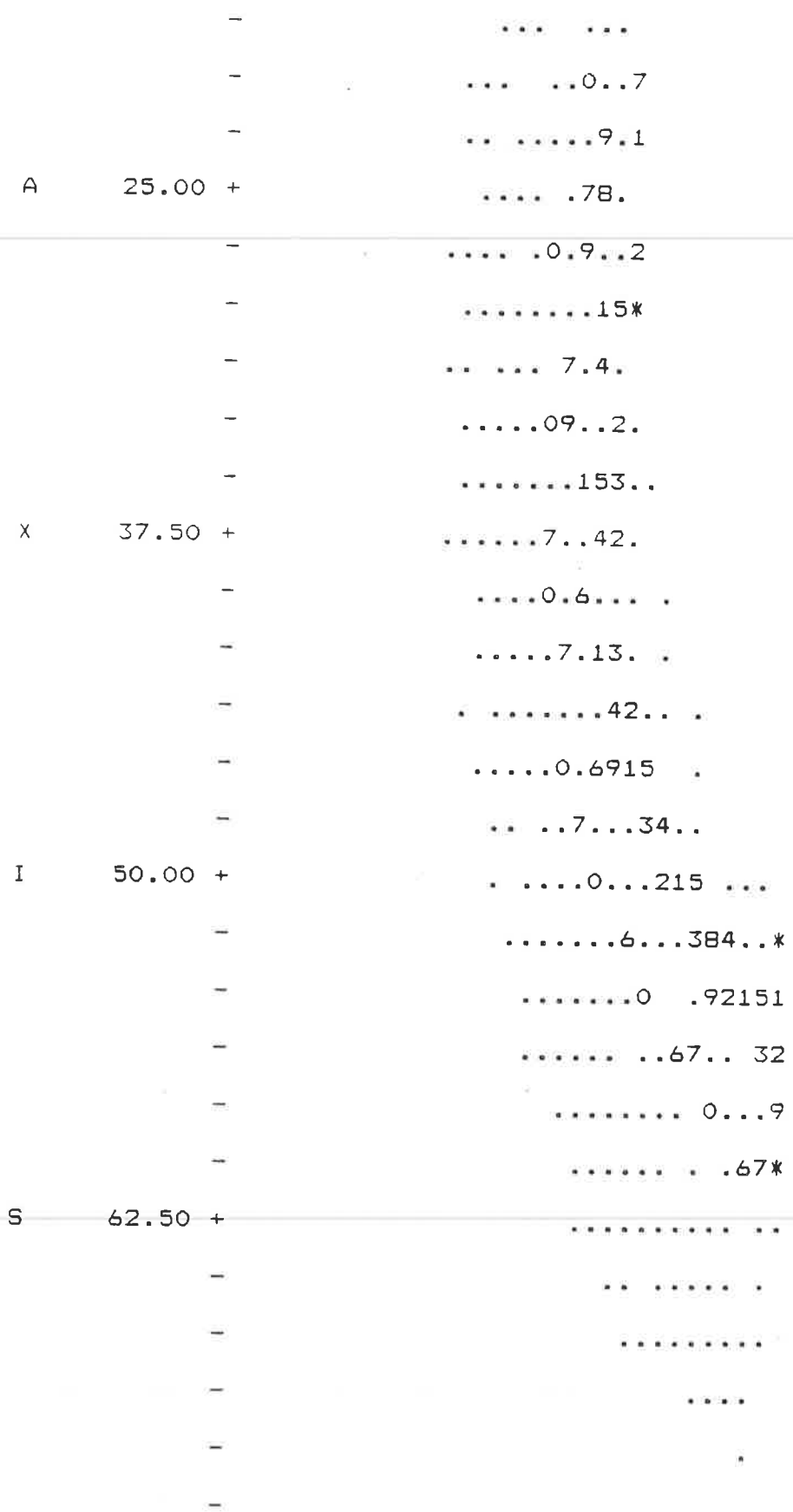
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	21.57	26.55
3	27.12	24.25
4	33.03	23.22
5	39.02	23.50
6	44.81	25.09
7	50.10	27.91
8	54.66	31.82
9	58.25	36.62
10	60.43	41.50

*** 1.688 ***



PC2, 8/10



PC2, 9/10

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          75.00 +
                -
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F         87.50 +
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                -
                -                              *
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T        100.00 L                 *     *      *
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PC2, 10/10

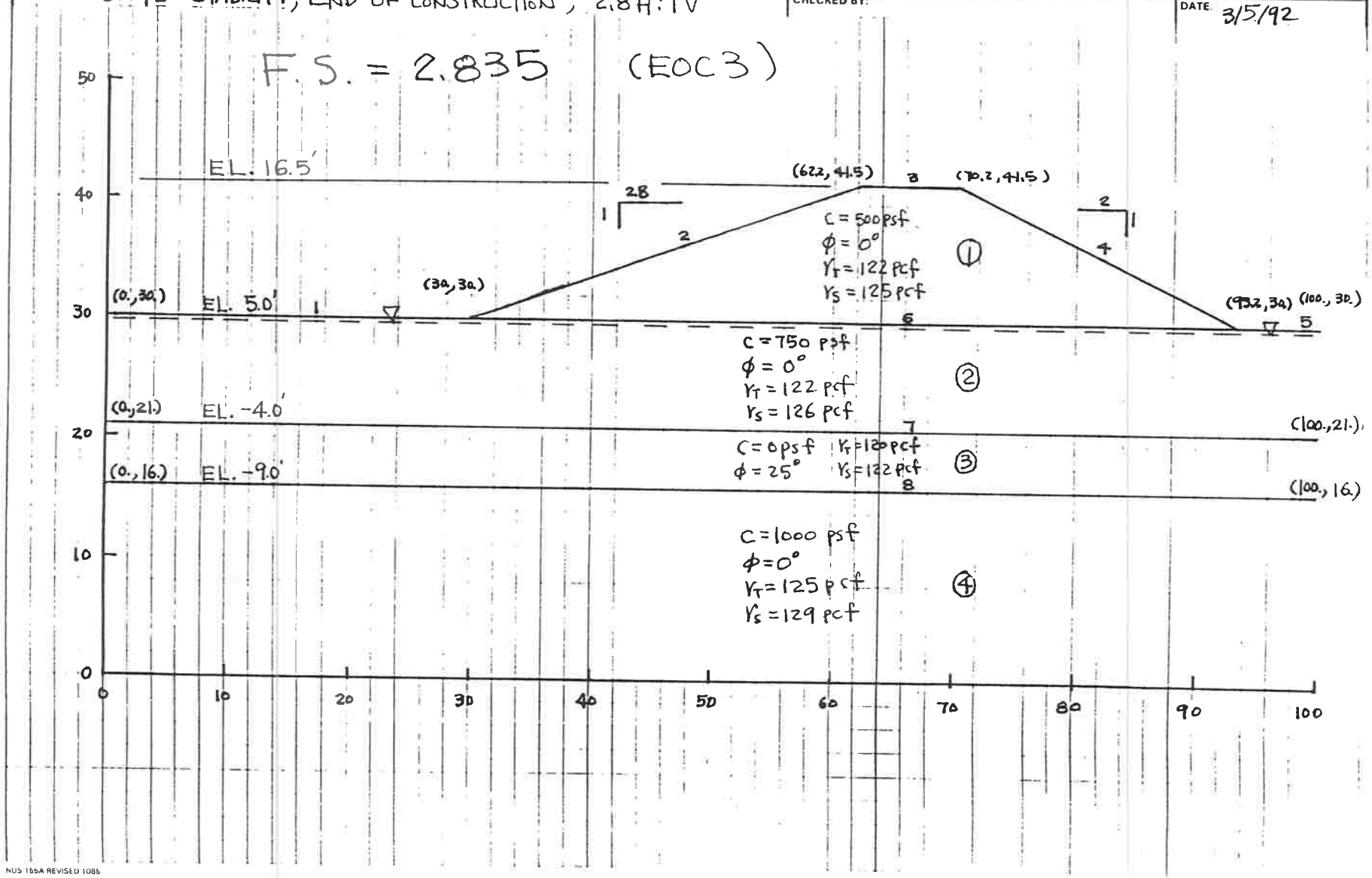
NUS CORPORATION AND SUBSIDIARIES

STANDARD CALCULATION SHEET

CLIENT: BIRD | FILE NO.: 8K27 | BY: BL | PAGE OF

SUBJECT: SLOPE STABILITY, END OF CONSTRUCTION, 2.8H:1V | CHECKED BY: | DATE 3/5/92

F.S. = 2.835 (EOC3)



NUS 185A REVISED 1086

** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date:	3/5/92
Time of Run:	1:00 PM
Run By:	BL
Input Data Filename:	EOC3.IN
Output Filename:	EOC3.OUT
Plotted Output Filename:	EOC3.PLT

PROBLEM DESCRIPTION BIRD, 2.8H:1V, END OF CONSTRUCTION

BOUNDARY COORDINATES

5 Top Boundaries
8 Total Boundaries

Soil Type Below Bnd	Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
	1	.00	30.00	30.00	30.00
2	2	30.00	30.00	62.20	41.50
1	3	62.20	41.50	70.20	41.50
1	4	70.20	41.50	93.20	30.00
1	5	93.20	30.00	100.00	30.00
2	6	30.00	30.00	93.20	30.00
2					

EOC3, 1/11

3	7	.00	21.00	100.00	21.00
4	8	.00	16.00	100.00	16.00

1

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	122.0	125.0	500.0	.0	.00	.0	1
2	122.0	126.0	750.0	.0	.00	.0	1
3	120.0	122.0	.0	25.0	.00	.0	1
4	125.0	129.0	1000.0	.0	.00	.0	1

1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	30.00
2	100.00	30.00

1

Searching Routine Will Be Limited To An Area Defined By 1 Boundaries

Of Which The First 1 Boundaries Will Deflect Surfaces Upward

EDC3, 2/11

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
1	.00	.00	100.00	.00

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

Janbus Empirical Coef. is being used for the case of c & phi both > 0
100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = .00 ft.
and X = 30.00 ft.

Each Surface Terminates Between X = 60.00 ft.
and X = 80.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.

6.00 ft. Line Segments Define Each Trial Failure Surface.

1

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 14 Coordinate Points

EOC3, 3/11

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.64	25.83
3	22.60	22.44
4	28.06	19.96
5	33.86	18.43
6	39.84	17.92
7	45.82	18.44
8	51.62	19.96
9	57.08	22.45
10	62.04	25.83
11	66.35	30.01
12	69.88	34.85
13	72.54	40.23
14	72.57	40.32

*** 2.835 ***

Individual data on the 19 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Tie Force Hor Lbs(kg)	Earthquake Surcharge Load Ver Lbs(kg)
1	4.3	1133.4	.0	781.6	.0	.0	.0	.0
2	5.0	3663.3	.0	2196.0	.0	.0	.0	.0
3	3.2	3306.8	.0	1799.6	.0	.0	.0	.0
4	2.3	2742.0	.0	1494.9	.0	.0	.0	.0
5	1.9	2506.9	.0	1288.6	.0	.0	.0	.0
6	3.9	5677.2	.0	2756.4	.0	.0	.0	.0
7	6.0	10621.7	.0	4425.8	.0	.0	.0	.0
8	6.0	12178.2	.0	4425.6	.0	.0	.0	.0
9	5.8	12591.4	.0	4044.4	.0	.0	.0	.0
10	2.3	4999.5	.0	1490.9	.0	.0	.0	.0

.0	.0						
11	3.2	6840.1	.0	1802.6	.0	.0	.0
.0	.0						
12	5.0	10044.4	.0	2194.5	.0	.0	.0
.0	.0						
13	.2	307.6	.0	57.1	.0	.0	.0
.0	.0						
14	4.1	6860.1	.0	722.7	.0	.0	.0
.0	.0						
15	.0	7.3	.0	.0	.0	.0	.0
.0	.0						
16	3.5	3911.9	.0	.0	.0	.0	.0
.0	.0						
17	.3	244.8	.0	.0	.0	.0	.0
.0	.0						
18	2.3	871.3	.0	.0	.0	.0	.0
.0	.0						
19	.0	.1	.0	.0	.0	.0	.0
.0	.0						

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	21.02	25.87
3	26.03	22.56
4	31.53	20.18
5	37.37	18.80
6	43.36	18.45
7	49.32	19.16
8	55.06	20.90
9	60.41	23.61
10	65.21	27.22
11	69.30	31.60
12	72.57	36.64
13	73.85	39.68

*** 2.894 ***

1

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	3.33	30.00

EOC3, 5/11

2	7.68	25.87
3	12.58	22.40
4	17.93	19.69
5	23.62	17.77
6	29.52	16.69
7	35.52	16.48
8	41.48	17.14
9	47.29	18.65
10	52.81	20.98
11	57.95	24.09
12	62.58	27.90
13	66.61	32.35
14	69.95	37.33
15	71.61	40.79

*** 2.908 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.67	30.00
2	11.16	26.02
3	16.15	22.69
4	21.53	20.04
5	27.22	18.14
6	33.12	17.02
7	39.11	16.69
8	45.09	17.16
9	50.95	18.43
10	56.59	20.48
11	61.91	23.25
12	66.81	26.71
13	71.21	30.80
14	75.02	35.43
15	76.75	38.23

*** 2.965 ***

1

Failure Surface Specified By 14 Coordinate Points

Point	X-Surf	Y-Surf

EOC 3, 6/11

No.	(ft)	(ft)
1	13.33	30.00
2	17.82	26.02
3	22.85	22.75
4	28.31	20.26
5	34.08	18.61
6	40.03	17.84
7	46.03	17.95
8	51.94	18.96
9	57.64	20.84
10	63.00	23.54
11	67.90	27.00
12	72.23	31.16
13	75.89	35.91
14	77.09	38.06

*** 3.014 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	27.76	25.95
3	32.92	22.89
4	38.60	20.96
5	44.56	20.25
6	50.54	20.78
7	56.28	22.52
8	61.54	25.41
9	66.09	29.32
10	69.73	34.09
11	72.32	39.50
12	72.52	40.34

*** 3.035 ***

1

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

Exc 3, 7/11

1	23.33	30.00
2	27.58	25.76
3	32.63	22.53
4	38.26	20.43
5	44.19	19.57
6	50.18	20.00
7	55.94	21.68
8	61.21	24.54
9	65.76	28.46
10	69.37	33.25
11	71.88	38.70
12	72.27	40.46

*** 3.060 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	10.00	30.00
2	14.63	26.18
3	19.72	23.01
4	25.19	20.54
5	30.94	18.82
6	36.86	17.88
7	42.86	17.73
8	48.82	18.38
9	54.65	19.82
10	60.23	22.02
11	65.47	24.94
12	70.28	28.53
13	74.57	32.73
14	78.26	37.46
15	78.27	37.47

*** 3.086 ***

1

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

BDC3, 8/11

1	6.67	30.00
2	10.96	25.81
3	15.80	22.26
4	21.09	19.42
5	26.72	17.36
6	32.59	16.10
7	38.57	15.68
8	44.56	16.10
9	50.42	17.36
10	56.05	19.43
11	61.34	22.27
12	66.18	25.82
13	70.47	30.01
14	74.13	34.77
15	76.23	38.48

*** 3.096 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.00	30.00
2	24.26	25.77
3	29.20	22.36
4	34.66	19.88
5	40.47	18.40
6	46.46	17.97
7	52.42	18.60
8	58.19	20.27
9	63.56	22.93
10	68.38	26.50
11	72.50	30.87
12	75.78	35.89
13	76.77	38.22

*** 3.099 ***

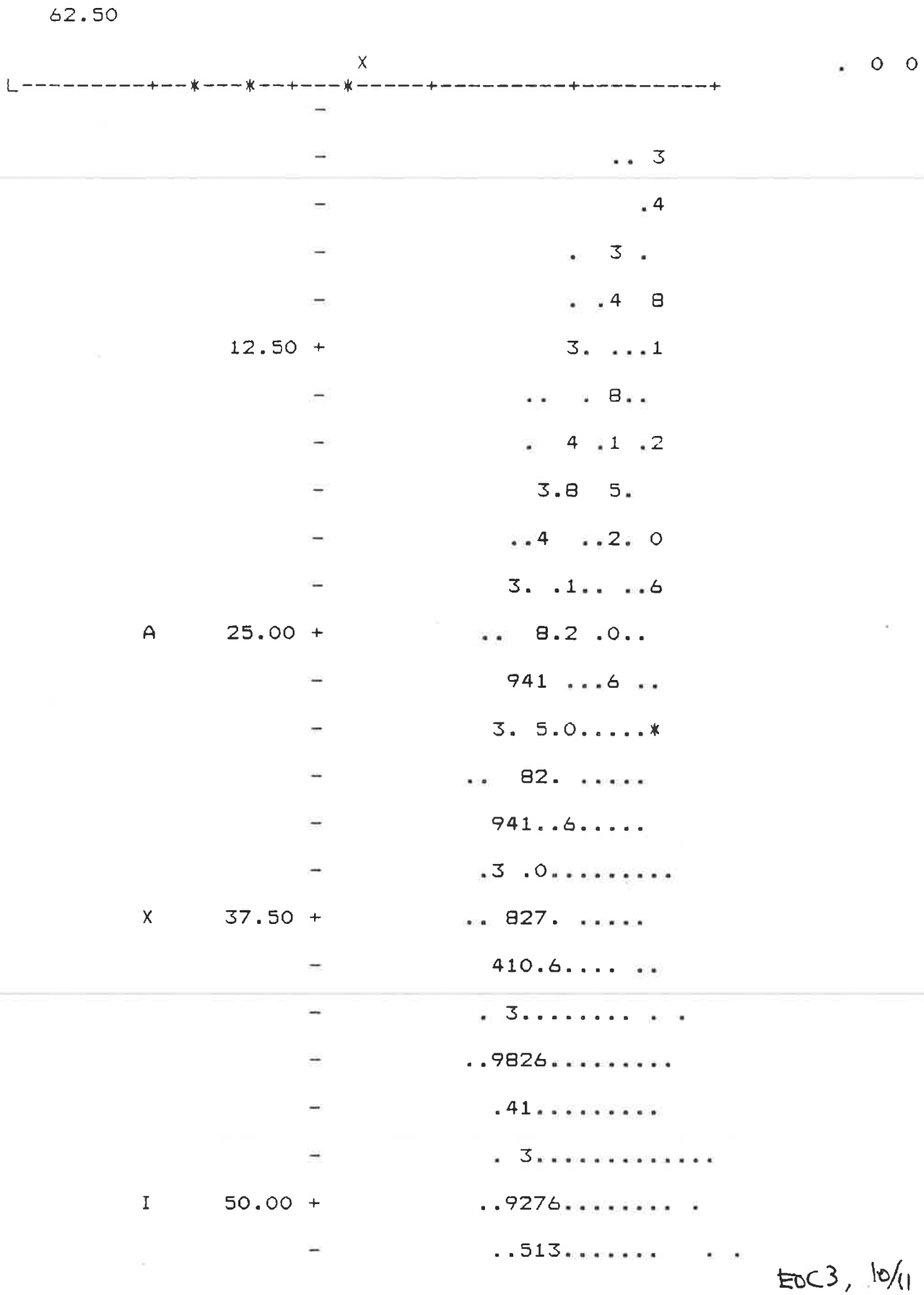
1

Y A X I S F

T

.00 12.50 25.00 37.50 50.00

BC3, 9/11


62.50
X
. 0 0
L----------+---*---*--+---*-----+---------+---------+
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A 25.00 +
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-
941 ...6 ..
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.. 827. .....
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410.6.... ..
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I 50.00 +
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EDC3, 10/11

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                  -              ..82.....
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                  -                05 3 .....
                  -                . 827.....
S       62.50     +                ...4613.....*
                  -                  0.8.2.....
                  -                  .. 4.61 3.....
                  -                  ..05  2.6 .....
                  -                     . 894..1.3..*
                  -                     ...5.. 2.71.
        75.00     +                       ..8.45...
                  -                        .....54
                  -                           ..8
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                  -
F       87.50     +
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                  -                              *
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                  -
T       100.00    L                *    *       *
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EO3, 11/11

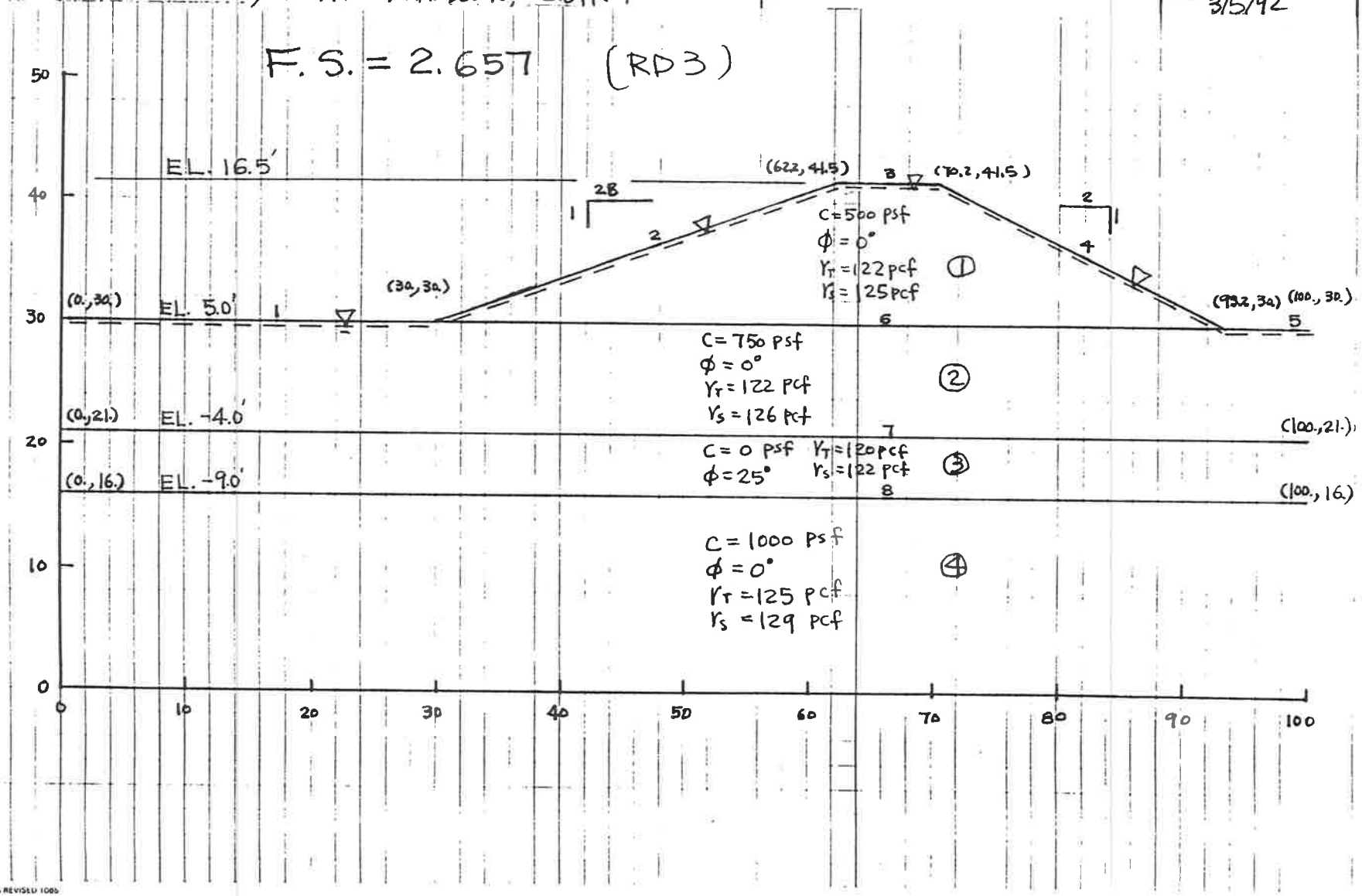
NUS CORPORATION AND SUBSIDIARIES

STANDARD CALCULATION SHEET

CLIENT: BIRD | FILE NO.: 8K27 | BY: BL | PAGE OF

SUBJECT: SLOPE STABILITY, RAPID DRAWDOWN, 2.8H:1 | CHECKED BY: | DATE: 3/5/92

F.S. = 2.657 (RD3)



** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 3/5/92

Time of Run: 10:30 AM
Run By: BL

Input Data Filename: RD3.IN
Output Filename: RD3.OUT
Plotted Output Filename: RD3.PLT

PROBLEM DESCRIPTION BIRD, 2.8H:1V, RAPID DRAWDOWN

BOUNDARY COORDINATES

5 Top Boundaries
8 Total Boundaries

Soil Type Below Bnd	Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
	1	.00	30.00	30.00	30.00
2	2	30.00	30.00	62.20	41.50
1	3	62.20	41.50	70.20	41.50
1	4	70.20	41.50	93.20	30.00
1	5	93.20	30.00	100.00	30.00
2	6	30.00	30.00	93.20	30.00
2					

RD3, 1/11

	7	.00	21.00	100.00	21.00
3					
	8	.00	16.00	100.00	16.00
4					
1					

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Piez. Constant (psf)	Surface No.
1	122.0	125.0	500.0	.0	.00	.0	1
2	122.0	126.0	750.0	.0	.00	.0	1
3	120.0	122.0	.0	25.0	.00	.0	1
4	125.0	129.0	1000.0	.0	.00	.0	1
1							

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 6 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	30.00
2	30.00	30.00
3	62.20	41.50
4	70.20	41.50
5	93.20	30.00
6	100.00	30.00

1

RD3, 2/11

Searching Routine Will Be Limited To An Area Defined By 1 Boundaries
Of Which The First 1 Boundaries Will Deflect Surfaces Upward

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
1	.00	.00	100.00	.00

1

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.

Janbus Empirical Coef. is being used for the case of c & phi both > 0
100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = .00 ft.
and X = 30.00 ft.

Each Surface Terminates Between X = 60.00 ft.
and X = 80.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.

6.00 ft. Line Segments Define Each Trial Failure Surface.

1

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

RD3, 3/11

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.64	25.83
3	22.60	22.44
4	28.06	19.96
5	33.86	18.43
6	39.84	17.92
7	45.82	18.44
8	51.62	19.96
9	57.08	22.45
10	62.04	25.83
11	66.35	30.01
12	69.88	34.85
13	72.54	40.23
14	72.57	40.32

*** 2.657 ***

Individual data on the 19 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Tie Force Hor Lbs(kg)	Earthquake Surcharge Load Lbs(kg)	Surcharge Ver Lbs(kg)
1	4.3	1133.4	.0	781.6	.0	.0	.0	.0	.0
2	5.0	3663.3	.0	2196.0	.0	.0	.0	.0	.0
3	3.2	3306.8	.0	1799.6	.0	.0	.0	.0	.0
4	2.3	2742.0	.0	1494.9	.0	.0	.0	.0	.0
5	1.9	2506.9	.0	1288.6	.0	.0	.0	.0	.0
6	3.9	5677.5	.0	2762.8	.0	.0	.0	.0	.0
7	6.0	10651.1	.0	5040.0	.0	.0	.0	.0	.0

RD3, 4/11

8	6.0	12243.7	.0	5793.9	.0	.0	.0
.0	.0						
9	5.8	12690.6	.0	6177.4	.0	.0	.0
.0	.0						
10	2.3	5048.4	.0	2607.7	.0	.0	.0
.0	.0						
11	3.2	6917.5	.0	3571.6	.0	.0	.0
.0	.0						
12	5.0	10187.6	.0	5799.6	.0	.0	.0
.0	.0						
13	.2	312.7	.0	204.9	.0	.0	.0
.0	.0						
14	4.1	7003.0	.0	4862.6	.0	.0	.0
.0	.0						
15	.0	7.5	.0	5.2	.0	.0	.0
.0	.0						
16	3.5	4008.0	.0	3396.1	.0	.0	.0
.0	.0						
17	.3	250.9	.0	282.7	.0	.0	.0
.0	.0						
18	2.3	890.6	.0	905.4	.0	.0	.0
.0	.0						
19	.0	.2	.0	.2	.0	.0	.0
.0	.0						

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	21.02	25.87
3	26.03	22.56
4	31.53	20.18
5	37.37	18.80
6	43.36	18.45
7	49.32	19.16
8	55.06	20.90
9	60.41	23.61
10	65.21	27.22
11	69.30	31.60
12	72.57	36.64
13	73.85	39.68

*** 2.695 ***

1

Failure Surface Specified By 15 Coordinate Points

RDJ, 5/11

Point No.	X-Surf (ft)	Y-Surf (ft)
1	3.33	30.00
2	7.68	25.87
3	12.58	22.40
4	17.93	19.69
5	23.62	17.77
6	29.52	16.69
7	35.52	16.48
8	41.48	17.14
9	47.29	18.65
10	52.81	20.98
11	57.95	24.09
12	62.58	27.90
13	66.61	32.35
14	69.95	37.33
15	71.61	40.79

*** 2.743 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.67	30.00
2	11.16	26.02
3	16.15	22.69
4	21.53	20.04
5	27.22	18.14
6	33.12	17.02
7	39.11	16.69
8	45.09	17.16
9	50.95	18.43
10	56.59	20.48
11	61.91	23.25
12	66.81	26.71
13	71.21	30.80
14	75.02	35.43
15	76.75	38.23

*** 2.745 ***

RDJ, 6/11

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.82	26.02
3	22.85	22.75
4	28.31	20.26
5	34.08	18.61
6	40.03	17.84
7	46.03	17.95
8	51.94	18.96
9	57.64	20.84
10	63.00	23.54
11	67.90	27.00
12	72.23	31.16
13	75.89	35.91
14	77.09	38.06

*** 2.778 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.00	30.00
2	24.26	25.77
3	29.20	22.36
4	34.66	19.88
5	40.47	18.40
6	46.46	17.97
7	52.42	18.60
8	58.19	20.27
9	63.56	22.93
10	68.38	26.50
11	72.50	30.87
12	75.78	35.89
13	76.77	38.22

*** 2.829 ***

RD3, 7/11

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	13.33	30.00
2	17.58	25.76
3	22.41	22.20
4	27.72	19.40
5	33.38	17.43
6	39.28	16.33
7	45.28	16.13
8	51.24	16.83
9	57.03	18.41
10	62.51	20.84
11	67.57	24.07
12	72.09	28.01
13	75.97	32.59
14	78.81	37.20

*** 2.838 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	10.00	30.00
2	14.63	26.18
3	19.72	23.01
4	25.19	20.54
5	30.94	18.82
6	36.86	17.88
7	42.86	17.73
8	48.82	18.38
9	54.65	19.82
10	60.23	22.02
11	65.47	24.94
12	70.28	28.53
13	74.57	32.73
14	78.26	37.46
15	78.27	37.47

*** 2.851 ***

RD3, 8/11

1

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	27.58	25.76
3	32.63	22.53
4	38.26	20.43
5	44.19	19.57
6	50.18	20.00
7	55.94	21.68
8	61.21	24.54
9	65.76	28.46
10	69.37	33.25
11	71.88	38.70
12	72.27	40.46

*** 2.871 ***

Failure Surface Specified By 12 Coordinate Points

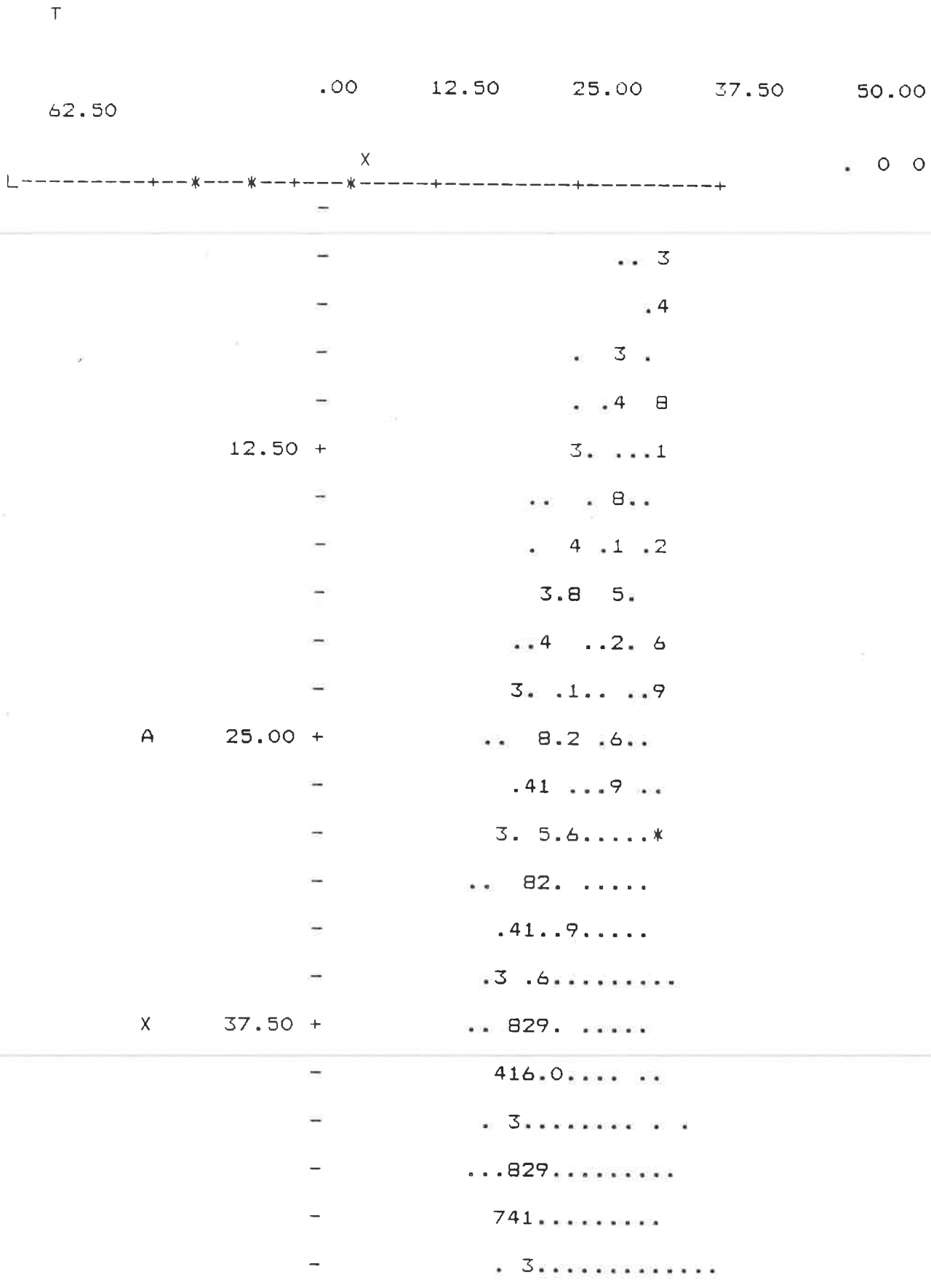
Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	27.76	25.95
3	32.92	22.89
4	38.60	20.96
5	44.56	20.25
6	50.54	20.78
7	56.28	22.52
8	61.54	25.41
9	66.09	29.32
10	69.73	34.09
11	72.32	39.50
12	72.52	40.34

*** 2.874 ***

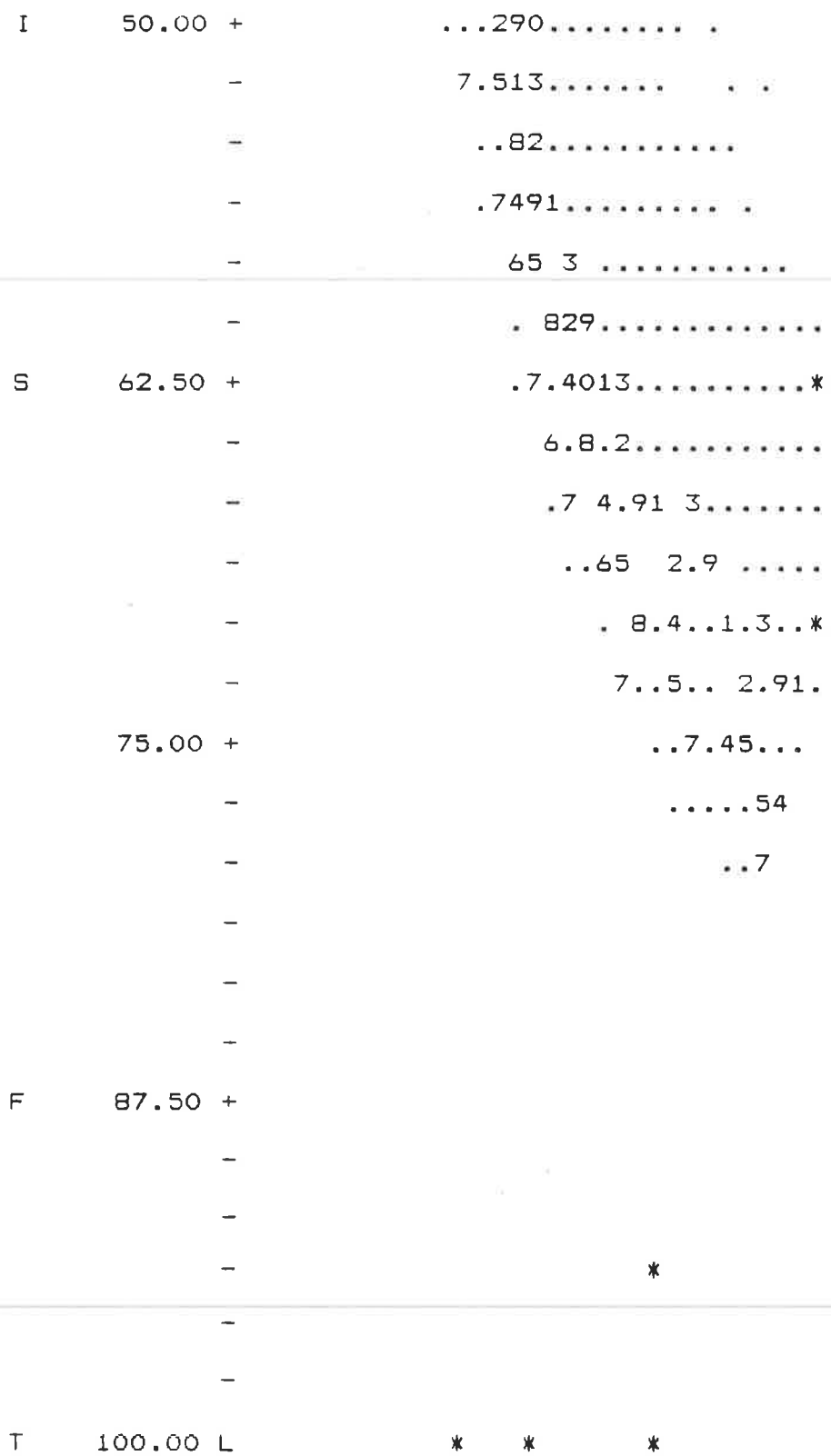
1

Y A X I S F

RD3, 9/11



RD3, 10/11



RD3, 11/11

NUS CORPORATION AND SUBSIDIARIES

STANDARD CALCULATION SHEET

CLIENT: BIRD

FILE NO.: 8K27

BY: BL

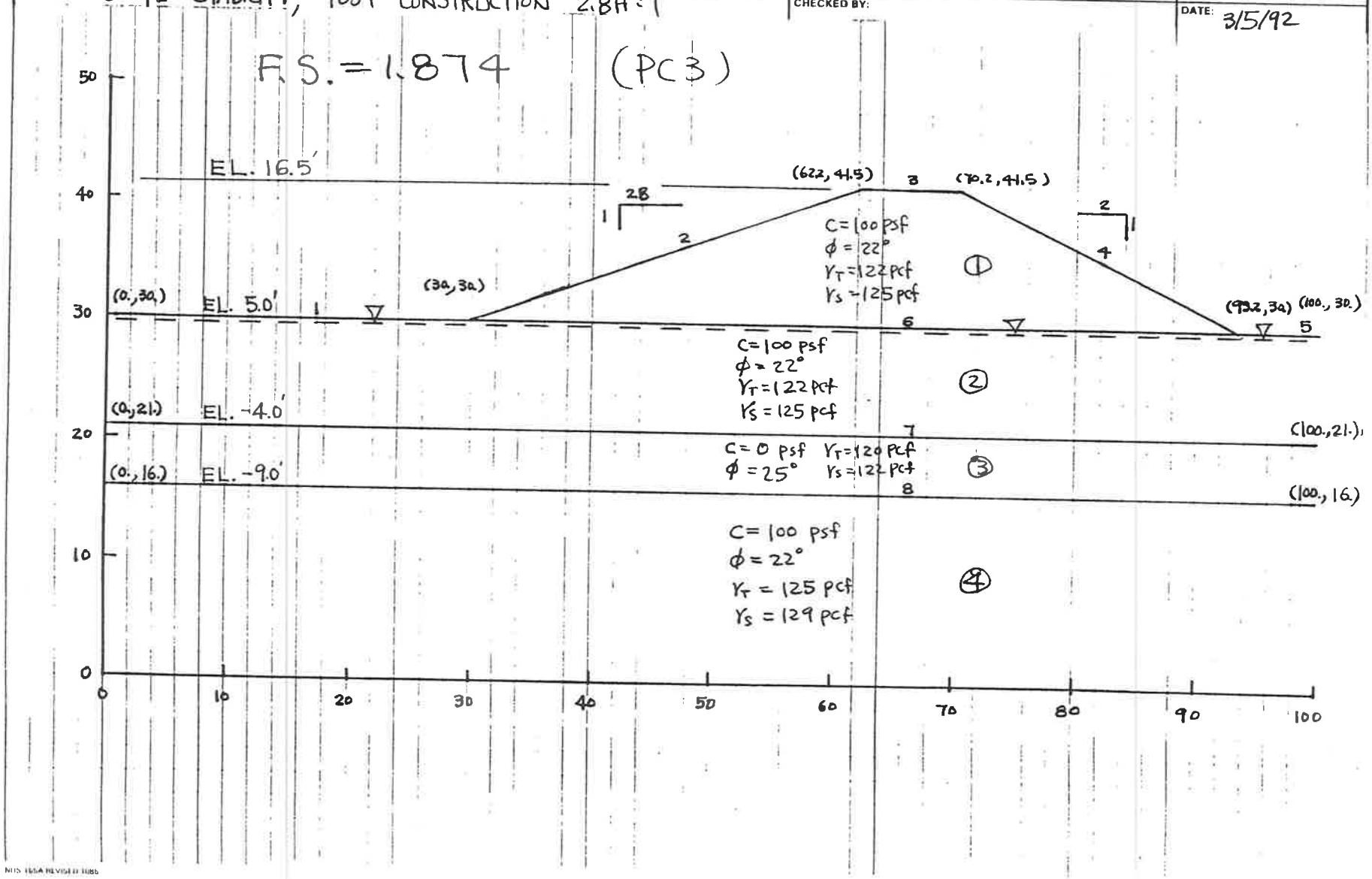
CHECKED BY:

PAGE OF

DATE: 3/5/92

SUBJECT: SLOPE STABILITY, POST CONSTRUCTION 2.8H:1

F.S. = 1.874 (PC3)



** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 3/5/92

Time of Run: 3:00 PM
Run By: BL

Input Data Filename: PC3.IN
Output Filename: PC3.OUT
Plotted Output Filename: PC3.PLT

PROBLEM DESCRIPTION BIRD, 2.8H:1V, END OF CONSTRUCTION

BOUNDARY COORDINATES

5 Top Boundaries
8 Total Boundaries

Soil Type Below Bnd	Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
2	1	.00	30.00	30.00	30.00
1	2	30.00	30.00	62.20	41.50
1	3	62.20	41.50	70.20	41.50
1	4	70.20	41.50	93.20	30.00
2	5	93.20	30.00	100.00	30.00
2	6	30.00	30.00	93.20	30.00

	7	.00	21.00	100.00	21.00
3					
	8	.00	16.00	100.00	16.00
4					
1					

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	122.0	125.0	100.0	22.0	.00	.0	
1							
2	122.0	126.0	100.0	22.0	.00	.0	
1							
3	120.0	122.0	.0	25.0	.00	.0	
1							
4	125.0	129.0	100.0	22.0	.00	.0	
1							
1							

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	30.00
2	100.00	30.00
1		

Searching Routine Will Be Limited To An Area Defined By 1 Boundaries

Of Which The First 1 Boundaries Will Deflect Surfaces Upward

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
1	.00	.00	100.00	.00

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

Janbus Empirical Coef. is being used for the case of c & phi both > 0
100 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = .00 ft.
and X = 30.00 ft.

Each Surface Terminates Between X = 60.00 ft.
and X = 80.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

6.00 ft. Line Segments Define Each Trial Failure Surface.

1

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	23.33	30.00
2	28.76	27.44
3	34.58	25.98
4	40.57	25.66
5	46.51	26.51
6	52.18	28.48
7	57.36	31.51
8	61.85	35.49
9	65.50	40.25
10	66.12	41.50

*** 1.869 ***

Individual data on the 12 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Tie Force Hor Lbs(kg)	Earthquake Surcharge Ver Lbs(kg)	Surcharge Load Lbs(kg)
1	5.4	874.8	.0	479.0	.0	.0	.0	.0	.0
2	1.2	423.8	.0	216.4	.0	.0	.0	.0	.0
3	4.6	2445.7	.0	1015.6	.0	.0	.0	.0	.0
4	6.0	5133.8	.0	1565.2	.0	.0	.0	.0	.0
5	5.9	6434.8	.0	1465.8	.0	.0	.0	.0	.0
6	5.7	6562.8	.0	937.6	.0	.0	.0	.0	.0
7	2.6	2897.7	.0	142.1	.0	.0	.0	.0	.0
8	2.6	2698.8	.0	.0	.0	.0	.0	.0	.0
9	4.5	3880.1	.0	.0	.0	.0	.0	.0	.0
10	.3	243.0	.0	.0	.0	.0	.0	.0	.0
11	3.3	1370.0	.0	.0	.0	.0	.0	.0	.0
12	.6	47.1	.0	.0	.0	.0	.0	.0	.0

.0 .0

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	26.67	30.00
2	32.15	27.57
3	38.04	26.42
4	44.04	26.60
5	49.84	28.11
6	55.17	30.87
7	59.75	34.75
8	63.36	39.54
9	64.23	41.50

*** 1.874 ***

1

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	26.67	30.00
2	31.57	26.54
3	37.15	24.34
4	43.10	23.55
5	49.06	24.20
6	54.70	26.27
7	59.68	29.61
8	63.71	34.06
9	66.56	39.33
10	67.13	41.50

*** 1.893 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	23.33	30.00
2	28.91	27.78
3	34.81	26.68
4	40.81	26.74
5	46.68	27.95
6	52.21	30.28
7	57.19	33.63
8	61.42	37.88
9	63.84	41.50

*** 1.915 ***

1

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	20.00	30.00
2	24.99	26.66
3	30.49	24.26
4	36.32	22.87
5	42.31	22.53
6	48.27	23.26
7	54.00	25.02
8	59.33	27.78
9	64.09	31.43
10	68.13	35.87
11	71.32	40.94

*** 1.917 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	20.92	25.77
3	25.96	22.51
4	31.56	20.36
5	37.49	19.42
6	43.48	19.71
7	49.29	21.24

PC3, 6/10

8	54.65	23.93
9	59.34	27.66
10	63.17	32.29
11	65.95	37.60
12	67.05	41.50

*** 1.917 ***

1

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	21.05	25.90
3	26.21	22.84
4	31.91	20.97
5	37.88	20.38
6	43.84	21.09
7	49.51	23.07
8	54.61	26.22
9	58.91	30.40
10	62.21	35.42
11	64.34	41.02
12	64.41	41.50

*** 1.920 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	21.36	26.27
3	26.73	23.58
4	32.53	22.04
5	38.52	21.72
6	44.45	22.64
7	50.06	24.75
8	55.13	27.97
9	59.43	32.15
10	62.78	37.13

11	64.56	41.50

*** 1.926 ***

1

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	22.04	27.32
3	27.75	25.51
4	33.69	24.61
5	39.69	24.64
6	45.61	25.60
7	51.31	27.48
8	56.65	30.22
9	61.49	33.76
10	65.73	38.00
11	68.27	41.50

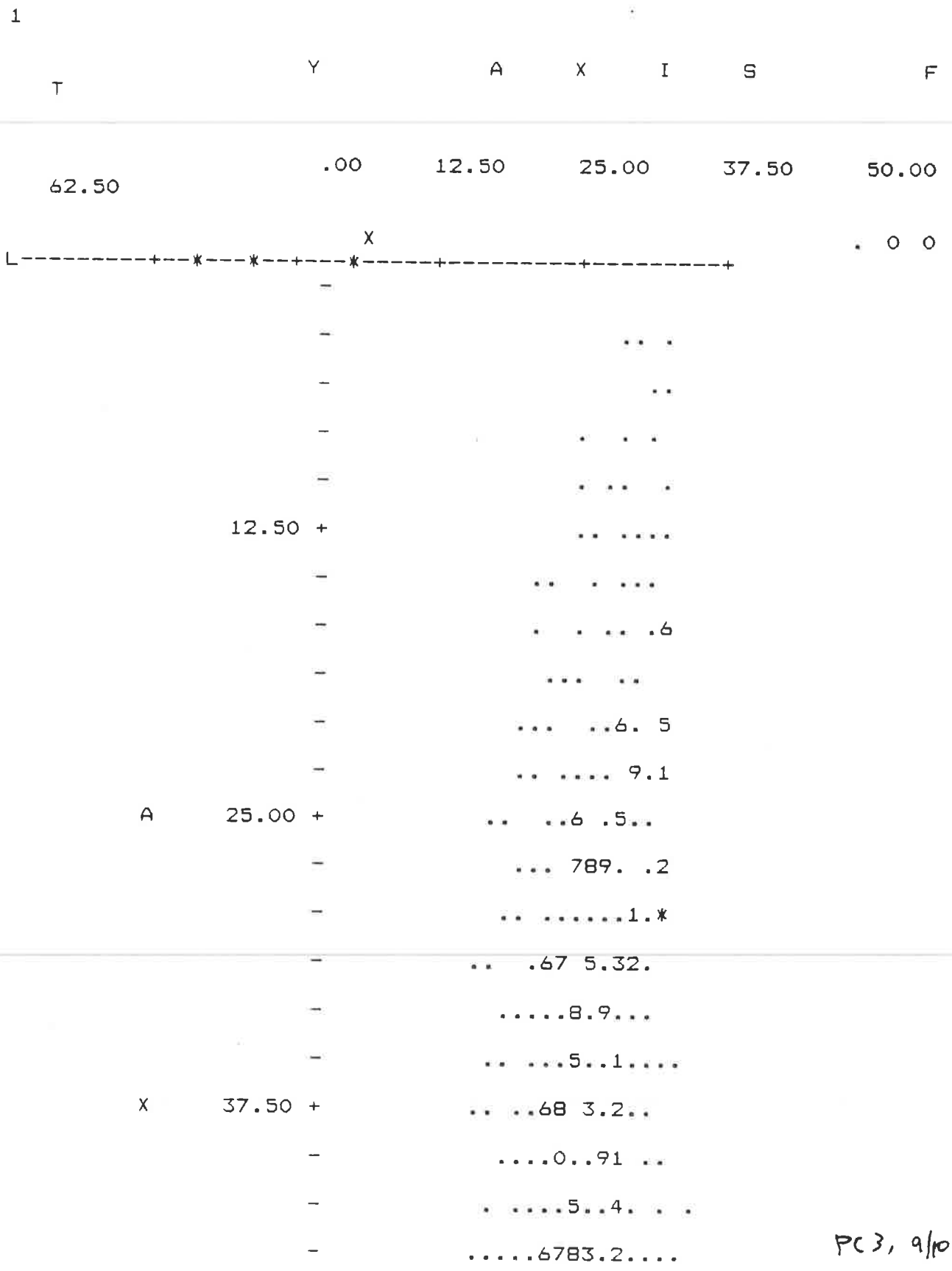
*** 1.937 ***

Failure Surface Specified By 12 Coordinate Points

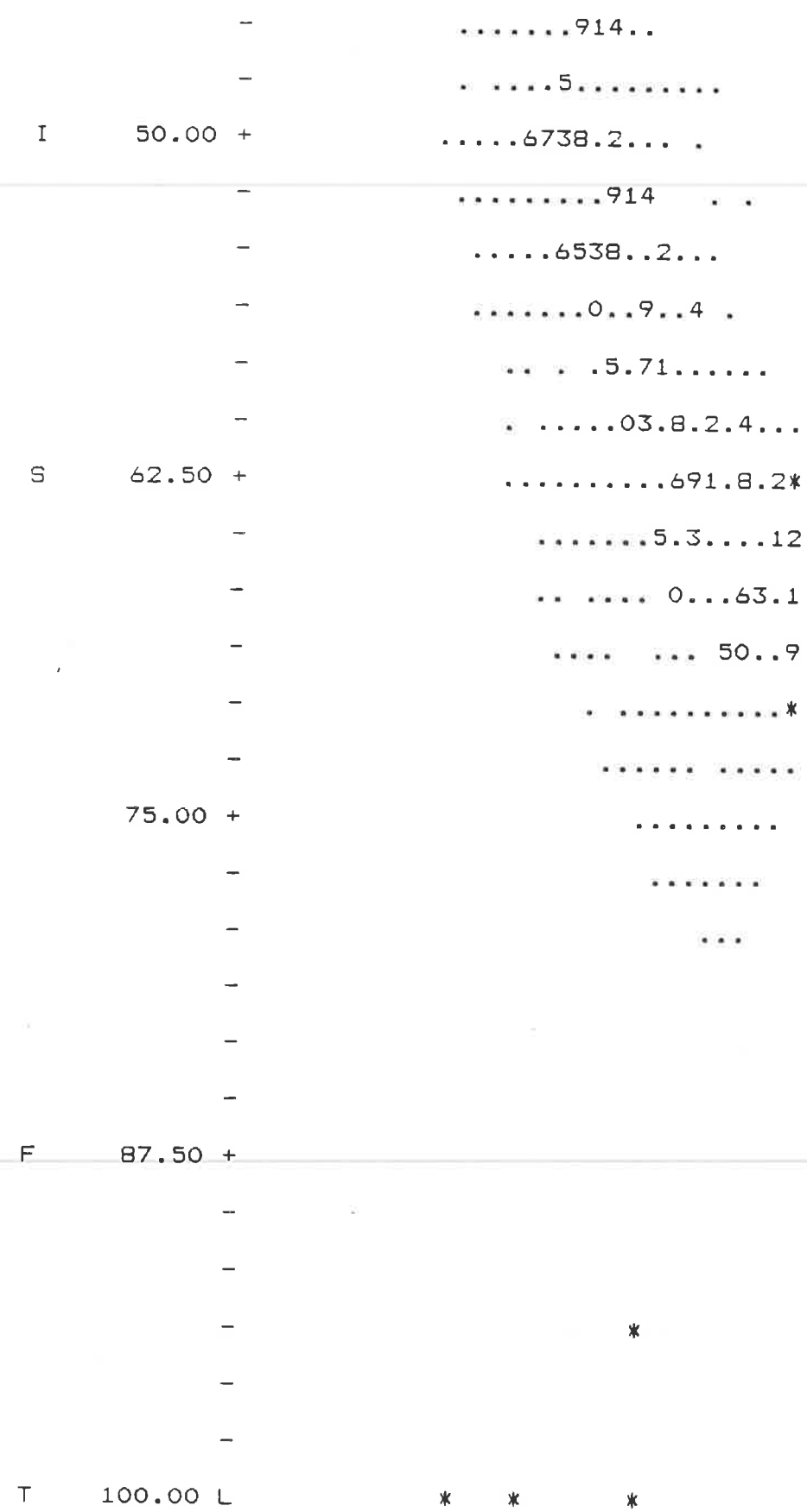
Point No.	X-Surf (ft)	Y-Surf (ft)
1	16.67	30.00
2	21.57	26.55
3	26.99	23.96
4	32.76	22.32
5	38.72	21.67
6	44.71	22.03
7	50.56	23.38
8	56.09	25.69
9	61.16	28.90
10	65.63	32.91
11	69.35	37.62
12	71.21	41.00

*** 1.938 ***

Pc3, 8/10



PC 3, 9/10



pc3, 10/10

WAVE RUNUP

AND

WIND SETUP CALCULATIONS

DURATHERM, INC.

RECYCLING CENTER

SAN LEON, TEXAS

CALCULATION WORKSHEET Order No. 19118 (09-88)

PAGE 1 OF

CLIENT: Bird Environmental Project | JOB NUMBER: SF-03902

SUBJECT: Effective Fetch

BASED ON: Ref. CGS Maps 519 & 11323 | DRAWING NUMBER:

BY: DEC | CHECKED BY: AW 11/26/91 | APPROVED BY: | DATE: 11-21-91

Ref. Drawing	Ray 0 Scaled Length (Inch)	Ray 0 Distance (Mile)	Ray 1 Scaled Length (Inch)	Ray 1 Distance (Mile)	Ray 3 Scaled Length (Inch)	Ray 3 Distance (Mile)	Ray 5 Scaled Length (Inch)	Ray 5 Distance (Mile)
CGS No. 519	1.85	0.73	2.56	1.02	2.80	1.11	3.30	1.31
	6.85	2.72	6.50	2.58	6.20	2.46	5.10	2.03
	11.21	4.45	10.50	4.17	11.10	4.41	15.30	6.08
	23.20	9.33	23.60	9.37	23.90	9.49	24.20	9.61
CGS No. 11323	6.06	2.75	5.30	6.78	4.20	5.37	3.30	4.22
Total		17.08		16.15		14.86		13.83

Ray	Scaled Length (Inch)	Distance (Mile)
7	2.65	1.05
9	2.50	0.99
11	2.30	0.91
13	2.25	0.89

Ray	Scaled Length (Inch)	Distance (Mile)
2	6.3	2.50
4	6.9	2.74
6	7.9	3.14
8	9.1	3.61
10	9.6	3.81
12	8.6	3.41
14	8.0	3.18

CALCULATION WORKSHEET Order No. 19116 (09-86)

CLIENT	JOB NUMBER
Bird Environmental Project	SJ-0302
SUBJECT: Effective Fetch	
BASED ON	DRAWING NUMBER
BY: JCC	CHECKED BY: AV 11/26/91
APPROVED BY	DATE: 11-21-91

Ray	Angle α (degree)	Cos α	X_i	$X_i \cos\alpha$
14	42	0.743	3.18	2.36
12	36	0.809	3.42	2.76
10	30	0.866	3.81	3.30
8	24	0.914	3.61	3.30
6	18	0.951	3.14	2.98
4	12	0.978	2.74	2.68
2	6	0.995	2.50	2.49
0	0	1.000	17.08	17.08
1	6	0.995	16.15	16.07
3	12	0.978	14.86	14.54
5	18	0.951	13.83	13.15
7	24	0.914	1.05	0.96
9	30	0.866	0.99	0.86
11	36	0.809	0.91	0.74
13	42	0.743	0.89	0.66
Total		13.51		83.94

$$\text{Effective Fetch} = \frac{83.94}{13.51} = 6.21 \text{ miles}$$

$\approx$ 32,790 feet

Z-00150-01 (09-88)

CALCULATION WORKSHEET Order No. 19118 (09-88)

CLIENT	JOB NUMBER
Bird Environmental Project	5J-0582
SUBJECT	
Weighted Water Depth along the Longest Ray	
BASED ON	DRAWING NUMBER
BY	CHECKED BY / APPROVED BY / DATE
QKC	AJ 11/26/91 / / 11-21-91

3 OF

Ray 0

(Mile)		Adjusted Depth MSL	100-Year Flood Depth (Elev. 13.0)	Avg. Depth	Weighted Depth
0.0		5.0	8.0		
	0.73			10.74	7.89
0.73		0.0	-0.47	13.47	
	1.99			14.97	29.72
2.72		-3.0	-3.47	16.47	
	1.73			17.97	31.11
4.45		-6.0	-6.47	19.47	
	4.88			20.47	99.89
9.33		-8.0	-8.47	21.47	
	7.75			20.97	162.60
7.75		-7.0	-7.47	20.47	
Sum	17.09				331.21

Average Depth = $\frac{331.21}{17.09}$ = 19.38 feet

use 20.0 feet

CLIENT	JOB NUMBER
Bird Environment Project	
SUBJECT: Design Wind	
~~DASSCON~~ Ref. (1) Wave Runup and Wind Setup on Reservoir Embankment	~~DRAWING NUMBER~~ (2) Climatic Atlas of the United States

BY	CHECKED BY	APPROVED BY	DATE
JEC	AJ 11/26/91		11-26-91

Design Wind

From Figure 4, Ref. 1 — The fastest mile (about 1 minute duration) wind velocity about 55 mph, over land.

From Figure 8, Ref. 1 — The maximum one hour wind velocity is about 60 mph, over land.

The fastest mile wind velocity should equal or exceed the maximum on hour wind velocity. However, the values obtained from the figures, do not reflect this. A new source was used.

From P. 74 of Ref. 2, Climatic Atlas of the United States, the fastest mile of wind at Galveston, Texas is 91 mph, E, occurred in August. This value is used for this calculation.

Wind Duration minutes	Wind Velocity Over Water mph
1	91
60	$60 \times 1.15 = 78.0$
120	$78 \times 0.96 = 74.88$

CALCULATION WORKSHEET Order No. 19116 (09-86)

CLIENT	JOB NUMBER
Bird Environmental Inc., Project	SJ-0382
SUBJECT: Design Wind	
BASED ON: Ref. Wave Runup and Wind Setup on Reservoir Embankment	DRAWING NUMBER:

BY	CHECKED BY	APPROVED BY	DATE
DEC	AV 11/26/91		11-26-91

From Figure 11, the wind velocity-duration relationship for a 6.21 fetch is as follows

Wind Duration Minutes	Wind Speed Over Water, MPH
52	80
55	70
58	60
63	50
70	40

CALCULATION WORKSHEET Order No. 19116 (09-86)

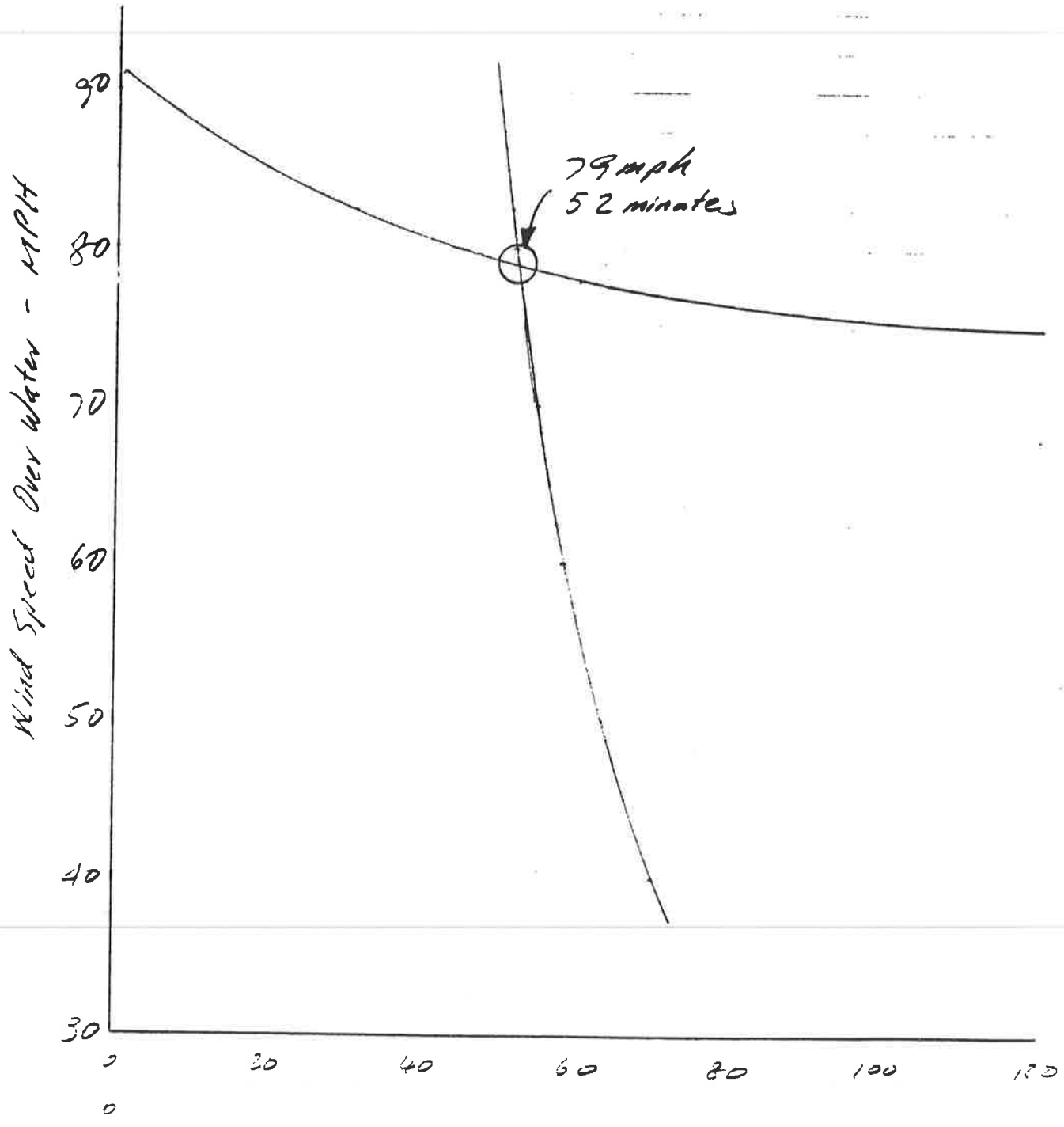
CLIENT	JOB NUMBER
Bird Environmental Project	SJ-0382

SUBJECT: Design Wind

BASED ON: Ref. Wave Runup and Wind Setup on Reservoir Embankment

DRAWING NUMBER:

BY	CHECKED BY	APPROVED BY	DATE
JCC	AV 11/26/91		11-21-91



CALCULATION WORKSHEET Order No. 19116 (09-86)

CLIENT	JOB NUMBER
Bird Environmental Project	SJ-0382
SUBJECT	
Effective Fetch & Wave Period	
BASED ON	**DRAWING NUMBER**
Shore Protection Manual	
BY / **CHECKED BY**	**APPROVED BY** / **DATE**
DEC / AV 1/10/92	/ 1-7-92

For a significant wave height of 3.43 feet and a wind speed of 29 mph, the effective fetch obtained from Figure 3-30 (20 feet depth) is

F_e = 14,000 feet < 32,790 feet, use 14,000 ft

The corresponding wave period

T = 3.1 seconds

CLIENT	JOB NUMBER
Bird Environmental Project	SJ-0382
SUBJECT: Significant Wave Height, H_s	
BASED ON: Flood Insurance Study Report, Galveston County, Texas, Unincorporated a	DRAWING NUMBER
BY: JCC / CHECKED BY: AV 1/10/92	APPROVED BY / DATE: 1-7-92

From Table 5, Transect 32,

100 year flood level = 10.6 feet

For Zone A12, Base Flood Elevation ranges from 13-11 feet

Use 13 feet.

Since BFE includes wave height, the wave height above still water level is

13 - 10.6 = 2.4 feet

2.4 feet is 70% of the total wave height. The total wave height is then

$$H_s = \frac{2.4}{0.7} = 3.43 \text{ feet}$$

CLIENT	JOB NUMBER
Bird Environmental Project	SJ-0382
SUBJECT: Deepwater Wave, Ho'	
BASED ON: Ref. Shore Protection Manual	DRAWING NUMBER
BY: dcc / CHECKED BY: AV 1/10/92	APPROVED BY / DATE: 1-7-92

Deepwater Wave, Ho'

$L_o = 5.12T^2 = 5.12 \times 3.1^2 = 49.20$ feet

$\frac{d}{L_o} = \frac{20}{49.2} = 0.4065$

From Table C-1,

For $d/L_o = 0.4065$, $H/H_o' = 0.9764$

$H_o' = 3.43/0.9764 = 3.5129$ feet

CALCULATION WORKSHEET Order No. 19116 (09-86)

CLIENT	JOB NUMBER
Bird Environmental Project	SJ-0382
SUBJECT: Depth of Water at the Toe of Dike	
BASED ON	DRAWING NUMBER
BY: JCC	CHECKED BY: AV 1/10/92
APPROVED BY	DATE: 1-7-92

Depth of Water at the Toe of Dike

100 year stillwater level : Elev. 10.5 feet

Ground Elevation at the Toe : Elev. 5.0 feet

Depth of Water at the Toe of Dike:

10.5 - 5.0 = 5.5 feet

CLIENT	JOB NUMBER
Bird Environmental Project	55-0382
SUBJECT: Wave Runup	
BASED ON: Ref. Shore Protection Manual	DRAWING NUMBER
BY: dcc / CHECKED BY: AV 1/10/92	APPROVED BY / DATE: 1-7-92

Wave Runup, R

$$\frac{d_s}{H_o'} = \frac{5.5}{3.5129} = 1.5657 \; ; \quad \frac{H_o'}{gT^2} = \frac{3.5129}{32.2 \times 3.1^2} = 0.0114$$

From Figure 7-19

$d_s/H_o' = 0.8$, $R/H_o' = 1.125$

From Figure 7-11,

$d_s/H_o' = 2.0$, $R/H_o' = 1.17$

∴ For $d_s/H_o' = 1.5657$, $R/H_o' = 1.1537$

$R = 1.1537 \times 3.5129 = 4.0529$

From Figure 7-13

For cotangent $\theta = 3.0$, Correction Factor $= 1.12$

$R = 1.12 \times 4.0529 = 4.5392$ feet

CLIENT	JOB NUMBER
Bird Environmental Project	SJ-0382
SUBJECT: Wind Setup	
BASED ON: Ref. Wave Runup and Wind Setup	DRAWING NUMBER: on Reservoir Embankment
BY: JCC	CHECKED BY: AV 1/10/92
APPROVED BY:	DATE: 1-7-92

Wind Setup, S

$$S = \frac{U^2 F}{1400 D}$$

U = 79 MPH

D = 20 feet

F = 2 x 2.6521 = 5.304 Miles

$$S = \frac{79^2 \times 5.304}{1400 \times 20} = 1.182 \text{ feet}$$

CALCULATION WORKSHEET Order No. 19116 (09-86)

CLIENT	JOB NUMBER
Bird Environment Project	SJ-0382
SUBJECT: Top of Dike Elevation	
BASED ON	DRAWING NUMBER
BY: JCC	CHECKED BY: AV 1/10/92
APPROVED BY	DATE: 1-7-92

100 yr stillwater level = 10.5 feet

Wave Runup = 4.6527 feet

Wind Setup = 1.182 feet

Top of dike elevation:

10.5 + 4.5392 + 1.182 = 16.2212 feet

Say 16.5 feet

CONCRETE STORM SURGE WALL

DESIGN CALCULATIONS

DURATHERM, INC.

RECYCLING CENTER

SAN LEON, TEXAS

CLIENT	JOB NUMBER
Halliburton NUS	SJ-0382-008
SUBJECT: Retaining Wall Check	
BASED ON	DRAWING NUMBER
BY: CLF / CHECKED BY	APPROVED BY / DATE: 3-9-92

RETAINING WALL CHECK
for
Halliburton NUS

Bird Environmental Gulf Coast, Inc. Proj

3-9-92

Contents

Item	Page
Introduction	2
Purpose	3
Section of wall to be checked	4
Givens	5
Wave Pressure Calcs	5
Stability Calcs	9
Resteel	13

Carl L Fick
3-19-92

CLIENT	JOB NUMBER		
Hal NUS	SJ-0382-008		
SUBJECT	Retaining Wall Check		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-9-92

Introduction

NUS has designed a retaining wall as shown on page 3. The wall is to be exposed to wave forces.

Purpose

The purpose of these calcs. is to check the adequacy of the NUS design.

CLIENT:

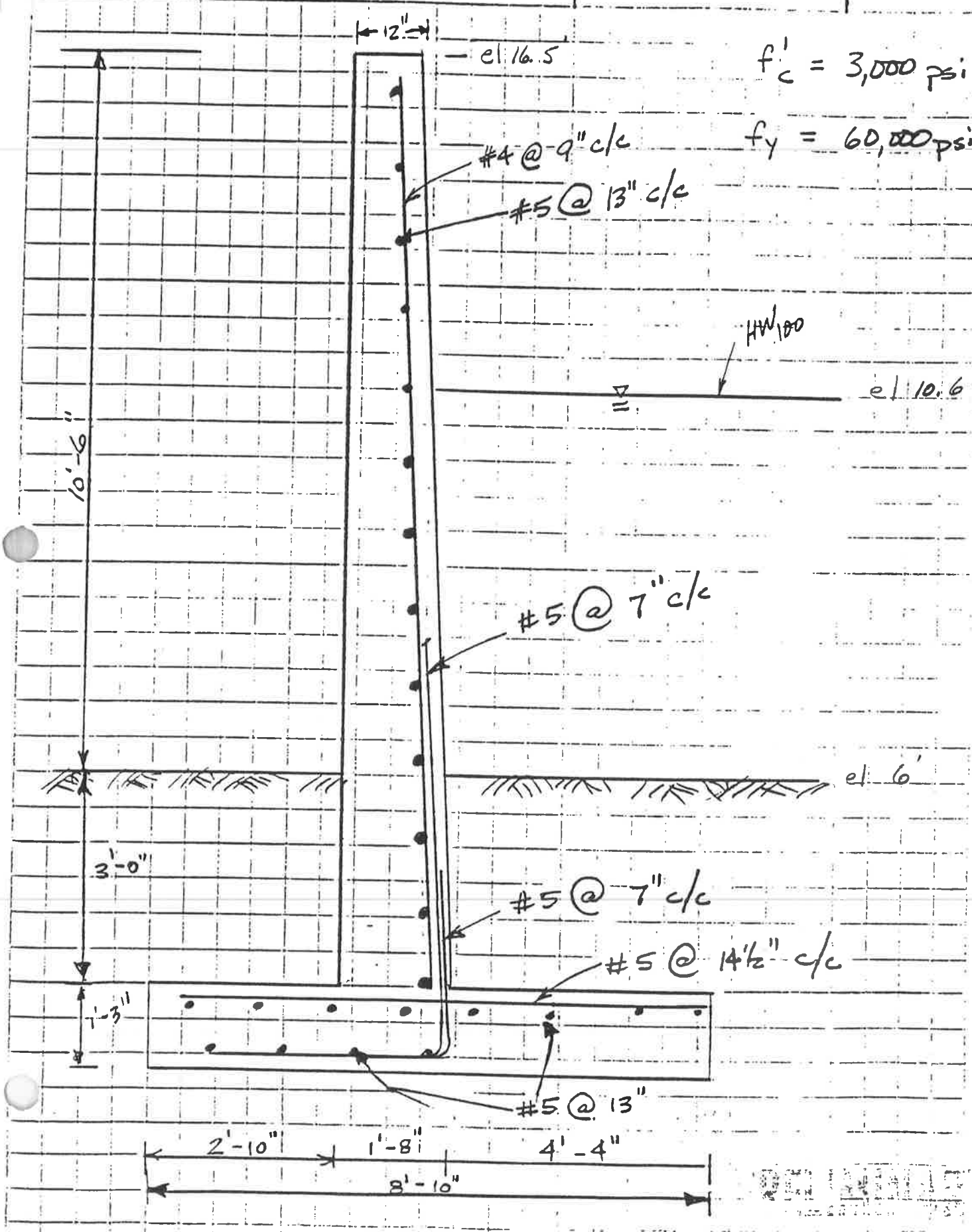
SUBJECT:

NOT FOR CONSTRUCTION

CHECKED BY:

PAGE OF

DATE:



CLIENT		JOB NUMBER	
NUS		SJ-0382-008	
SUBJECT	Retaining Wall Check		
BASED ON		DRAWING NUMBER	
BY: CF	CHECKED BY	APPROVED BY	DATE: 3-9-92

An evaluation of literature shows that much research has been done on wave forces on walls for both breaking and non breaking waves.

The forces caused by waves include impact and the impact loads caused by breaking waves are large and very short in duration. The inclusion of short term impact forces in an analysis is subject to question.

Therefore, in these calculations, both breaking and non breaking waves will be evaluated as a check of the NUS design.

CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0382-008		
SUBJECT	Retaining Wall Check		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-9-92

To check retaining wall design by NUS

Given:

From calc by J. Chang, dated 1-7-92 #NUS Info

a) 100 yr still water level = El. 10.5 feet (p.10)
b) Depth of water @ toe of dike = 4.5. feet (p.10) = d
c) Wave height = 3.43' (p.8) = H_s (10.5 - 6 = 4.5' = d)
d) Wave period = 3.1 seconds (p.7) = T
e) Length of wave = 49.2 feet (p.9) = L_o
f) Wall features as shown on sheet 3

From Part 2 of Chap. 4 of U.S. Army Coastal Engineering Research Center's "Shore Protection, Planning and Design, Technical Report #4", Ref [1]

Use average wave height for breaking wave as the design wave, (p. 247) H = 3.43'
With d < 1.3H or 4.5 < 1.3 x 3.43 or 4.5' ≈ 4.48' (p. 247)
∴ Could use breaking or non breaking wave.

First, use a breaking wave with Hb = .78d (p. 247)
= .78 x 4.5' = 3.50' as design wave = H_b

From page 255, para 4.231, using Minikin wave pressure Diagram, Fig 4.5 (see page 7)

$$P_m = \frac{101 \times H_b \times W}{L_o} \times \frac{d}{D}(D+d)$$

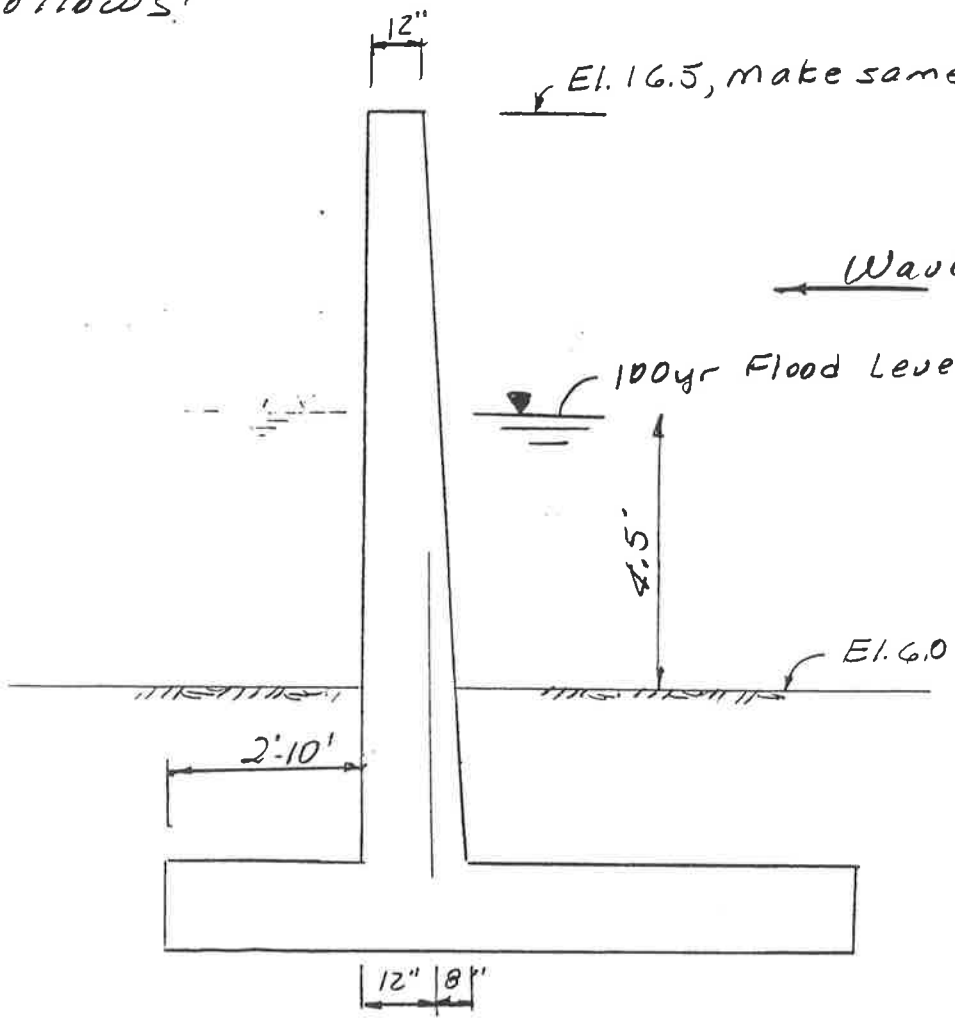
$$= \frac{101 \times 3.50' \times 62.4}{49.2} \times \frac{4.5}{4.5}(4.5+4.5)$$

$$= 450 \times 9.0 = 4050 \text{ psf}$$

This 4050psf pressure not appropriate, but check results.

CLIENT		JOB NUMBER	
NVS		SJ-0382-008	
SUBJECT	Retaining Wall Check		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-9-92

Examine NVS section slightly modified Cross section of retaining wall as follows:



SECTION (shown how NVS pictured it)

CLIENT		JOB NUMBER	
NUS		5J-0382-008	
SUBJECT	Retaining Wall check		
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
CF			3-9

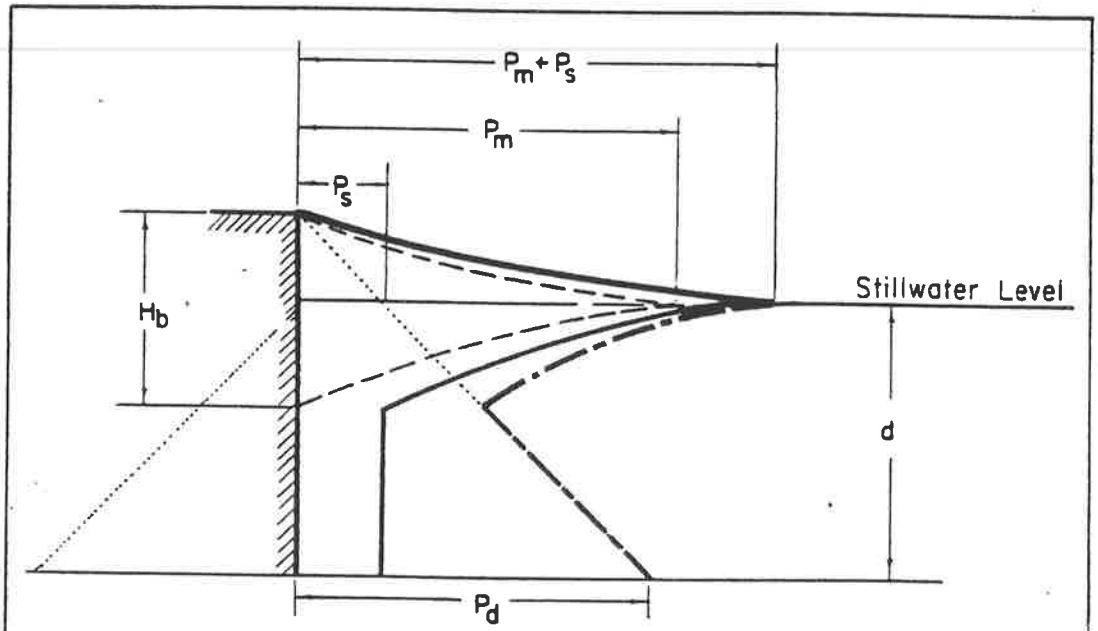


FIGURE 4-5 MINIKIN WAVE PRESSURE DIAGRAM

This diagram taken from p. 257 of Ref [1]

CLIENT		JOB NUMBER	
NUS		SJ-0382-008	
SUBJECT	Retaining Wall check		
BASED ON		DRAWING NUMBER	
BY	CF	CHECKED BY	APPROVED BY	DATE 3-9-92

$$P_s = \frac{wH_b}{2} = \frac{62.4 \times 3.50}{2} = 109 \text{ psf}$$ $_{t_{p.256}}$

$$P_d = w\left(d + \frac{H_b}{2}\right) = 62.4\left(4.5 + \frac{3.5}{2}\right)$$ $_{t_{p.256}}$

$$= 62.4(4.5 + 1.75)$$

$$= 62.4\ (6.25)$$

$$= 390 \text{ psf}$$

With no water on land side

$$R = \frac{P_m H_b}{3} + \frac{P_d}{2}\left(d + \frac{H_b}{2}\right)$$ $_{t_{p.257}}$

$$= \frac{4,050 \times 3.5}{3} + 195\left(4.5 + \frac{3.5}{2}\right)$$ (1.75)

$$= 4,740 + 1,220 = 5,960 \text{ plf/ft} \leftarrow \text{shear}$$

$$m = \frac{P_m H_b}{3} \times d + \frac{P_d}{6}\left(d + \frac{H_b}{2}\right)^2 \quad \text{at ground line}$$

$$M = \frac{4,050 \times 3.5}{3} \times 4.5 + \frac{390}{6}\left(4.5 + \frac{3.50}{2}\right)^2$$ $_{t_{P257}}$

$$= 21,300^{\#} + .065\,(6.25)^2 = 21.3^{K} + 2.54^{K} = 23.84^{K}$$

$$= 23.84^{K} \text{ at ground level, At top of ftg. add } 3' \times 5.96^{K} = 17.9^{K}$$

$\therefore$ Total mom $= 23.84^{K} + 17.9^{K} = 41.74^{K}$

By stess method

$$A_s = \frac{m}{1.33 a x d} = \frac{41.74^{K}}{1.33 \times 1.76 \times 21} = \frac{41.74}{49.3} = .85^{\square"}/\text{ft}$$

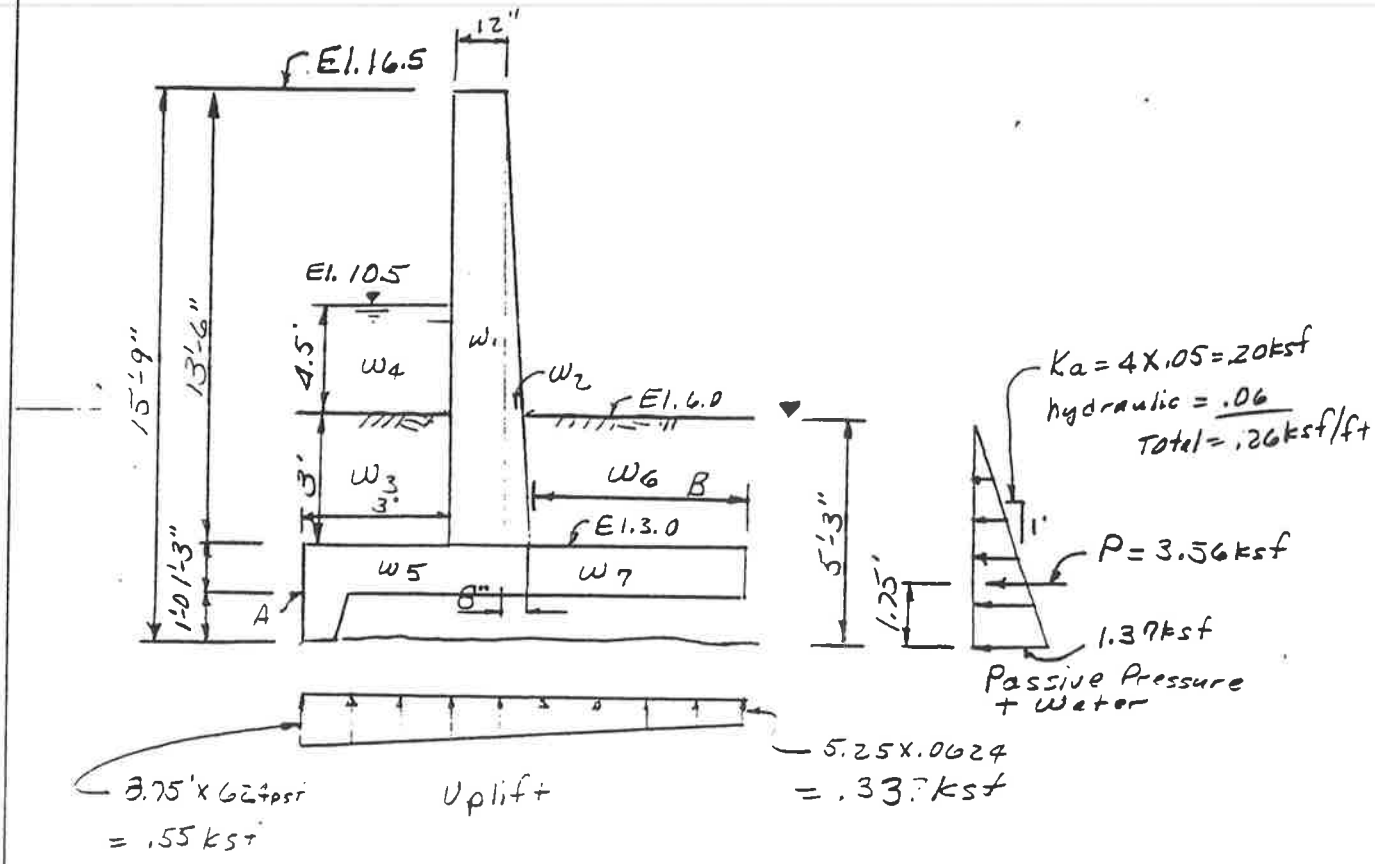
#6@6" = .88 $^{\square"}$, Sag OK

$$v = \frac{V}{bd} = \frac{5960}{12 \times 21} = \frac{5,960^{\#}}{252^{\square"}} = 17 \text{ psi} \quad OK$$

If 20" wall is used, As req'd $= \frac{21}{17} \times .85 = 1.05^{\square"}$ or #7@7"oc

CLIENT	JOB NUMBER
NUS	SJ-0382-009
SUBJECT: Retaining Wall Check	
BASED ON	DRAWING NUMBER
BY: CF / CHECKED BY	APPROVED BY / DATE

Check Stability



ΣM@A try B = 12'

Item	Area	X Unit Wt = Wt	X dist = Mom
W_1	1X13.5	X .150kcf = 2.00 k	X 3.5' = 7.0 ik
W_2	.67X13.5÷2	X .150 = .67	X 4.2' = 2.8
W_3	3X3	X .12 = 1.08	X 1.5' = 1.6
W_4	3X4.5	X .06 = .81	X 1.5' = 1.2
W_5	1.25X4.67	X .15 = .89	X 2.33' = 2.1
Sub Total		5.45 k	14.7 ik
W_6	12X3 X .12 kcf	= 4.32 k	X 10.66' = 46.0 ik
W_7	12X12.5÷2 X .150	= 2.26 k	X 10.66' = 24,10
		12.03 k	87.8 ik
V_p =	.33X 10.67	= 3.53 k	X 10.67 = - 46.0 ik
=	.22X16.67/2	1.83 ik	X 10.67/3 = - 10.2
		4.70 k	Total 31.6 ik

CLIENT	JOB NUMBER		
NUS	SJ - 0382-008		
SUBJECT	Retaining Wall Check		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-9-92

Mom due to horiz water pressure from left - from right

$= 41.74^{k} + 1.25' \times 5.96^{k}$

$= 41.74^{k} + 7.45^{k}$

$= 49.19^{k}$

This value includes impact which lasts only .01 to .001 of a second and therefore should not be used for stability.

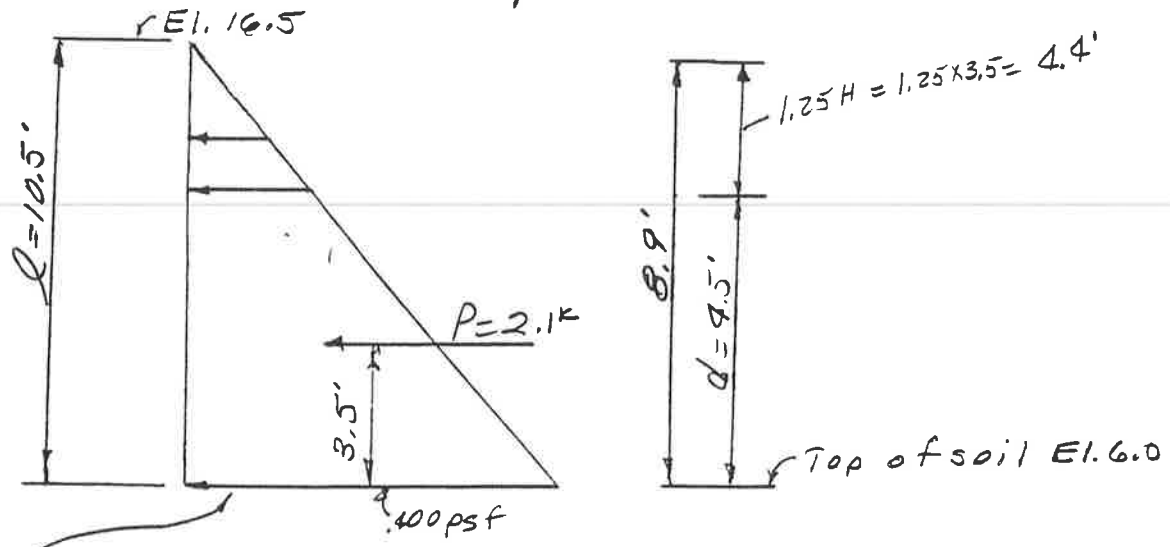
The pressure resulting from the longer duration is very nearly equal to pressure caused by the nonbreaking wave. See bottom of p. 25 ¢

∴ Use nonbreaking wave pressures for overturning in stability calcs.

From Fig 4-3 with $d/L = \frac{4.5}{49.2} = .092$, $P_1 = 120 psf$

∴ $Wd + P_1$ = pressure @ top of ground

$.064 \times 4.5 + 120 = 280 + 120 = 400 psf$



Use this wave pressure with pressure to top of wall for wall stability

CLIENT	JOB NUMBER		
NUS	5J -0382-008		
SUBJECT	Retaining Wall Check		
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
CF			3-9-92

Mom overturning in stability calculation

Use $\ell = 10.5'$

Shear = $\frac{10.5}{2} \times .400 = 2.1^{K}/ft$

Mom = $3.5' \times 2.1^{K} = 7.35^{'K}$ @ ground level

Mom due to $2.1^{K}/ft$ wave force at bot of slab = $2.1^{K} \times 4.25' = 10.1^{'K}$

VOID VOID

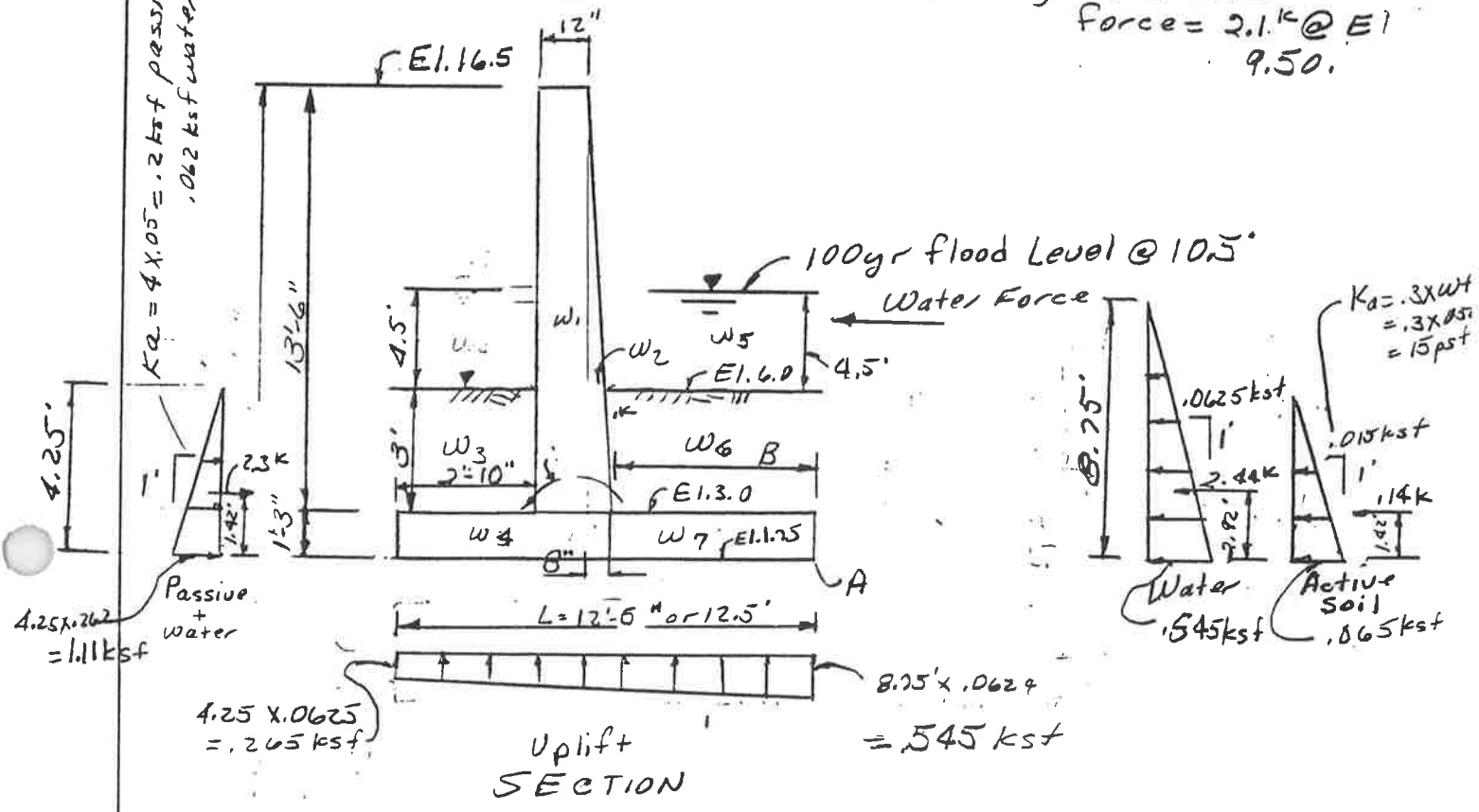
Resultant is $\frac{45.15^{'K}}{4.7'} = 9.6'$

$e = 9.6 - 8.33 = 1.27'$

Try Base with $B = 8'$

CLIENT	JOB NUMBER
NUS	SJ-0382-008
SUBJECT: Retaining Wall Check	
BASED ON	DRAWING NUMBER
BY: CE / CHECKED BY	APPROVED BY / DATE: 3-9-92

Check stability without Impact, mom from wave force = 2.1^K @ El 9.50.



ΣM@ A try B = 8' & L = 12'-6"

Item	Area	X Unit Wt	= Wt	X dist	=	Mom
W_1	1 X 13.5	X .150 kcf	= 2.00^K	X 9.16'	=	18.32^{IK}
W_2	.67 X 13.5 ÷ 2	X .150 kcf	= .67^K	X 8.44'	=	5.65^{IK}
W_3	3 X 2.89	X .12 kcf	= 1.04^K	X 11.08'	=	11.50^{IK}
W_4	1.25 X 4.5	X .15 kcf	= .84^K	X 10.25	=	8.60^{IK}
			4.55^K ↓		=	44.07^{IK} ↑
Sub Totals						
W_5	4.5 X 8.2	X .0624	= 2.31^K	X 4.1'		9.45^{IK} ↑
W_6	8 X 3	X .12 kcf	= 2.88^K	X 14.0'	=	11.50^{IK} ↑
W_7	8 X 1.25 X .150 kcf		= 1.50^K	X 4.0	=	6.00^{IK} ↑
Sub Totals			11.24 ↓			71.02^{IK} ↑
Uplift = .265 ksf X 12.5'			= 3.32 ↑	X 12.5/2	=	20.70^{IK} ↑
= .285 ksf X 12.5'/2			1.78 ↑	X 12.5/3		7.40^{IK} ↑
		Total	6.14^K ↓			42.92^{IK} ↑

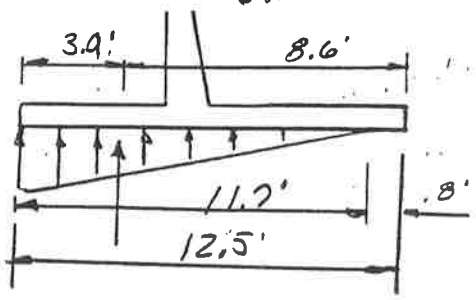
CLIENT NUS	JOB NUMBER SJ-0382-009
SUBJECT Retaining Wall Check	
BASED ON	DRAWING NUMBER
BY CE / CHECKED BY / APPROVED BY / DATE 3-9-92	

Total OT Mom@A = 2.1^{K} × 7.5' − 1.42 × 2.3^{K} + 52.92$^{'K}$ + 2.44^{K} × 2.92' + 1.14^{K} × 1.42'
(wave; soil + H_2O)

= 15.75$^{'K}$ − 3.26$^{'K}$ + 42.92$^{'K}$ + 7.15$^{'K}$ + .2$^{'K}$

= 52.76$^{'K}$

resultant is $\frac{52.76^{'K}}{6.14^{K}}$ = 8.6' from A or 3.9' from edge



Say OK, soil pressure result well within middle ¼

To size Reinf in stem

M = 15.75$^{'K}$ = 2.1 × 7.5' = 15.75$^{'K}$

$A_s = \frac{M}{1.33ad} = \frac{15.25^{'K}}{1.33 \times 1.76 \times 17} = \frac{15.25^{'K}}{39.8} = .4\ \square''/ft$

NUS's design had #5@3½" or 1.05"/ft

Don't change it.

But there is a moment in top of slab in heel

$M = \frac{wl^2}{2} - \frac{wl^3}{6}$

$= \frac{(\text{Soil Down} + \text{Slab Down} - \text{uplift})l^2}{2} - \frac{.017 \times l^3}{6}$

$= \frac{(.36 + .18 - .33).8^2}{2} - \frac{.017 \times 8^3}{6} = \frac{64 \times .21}{2} - 1.33 = 6.73 - 1.33 = 5.4^{'K}$

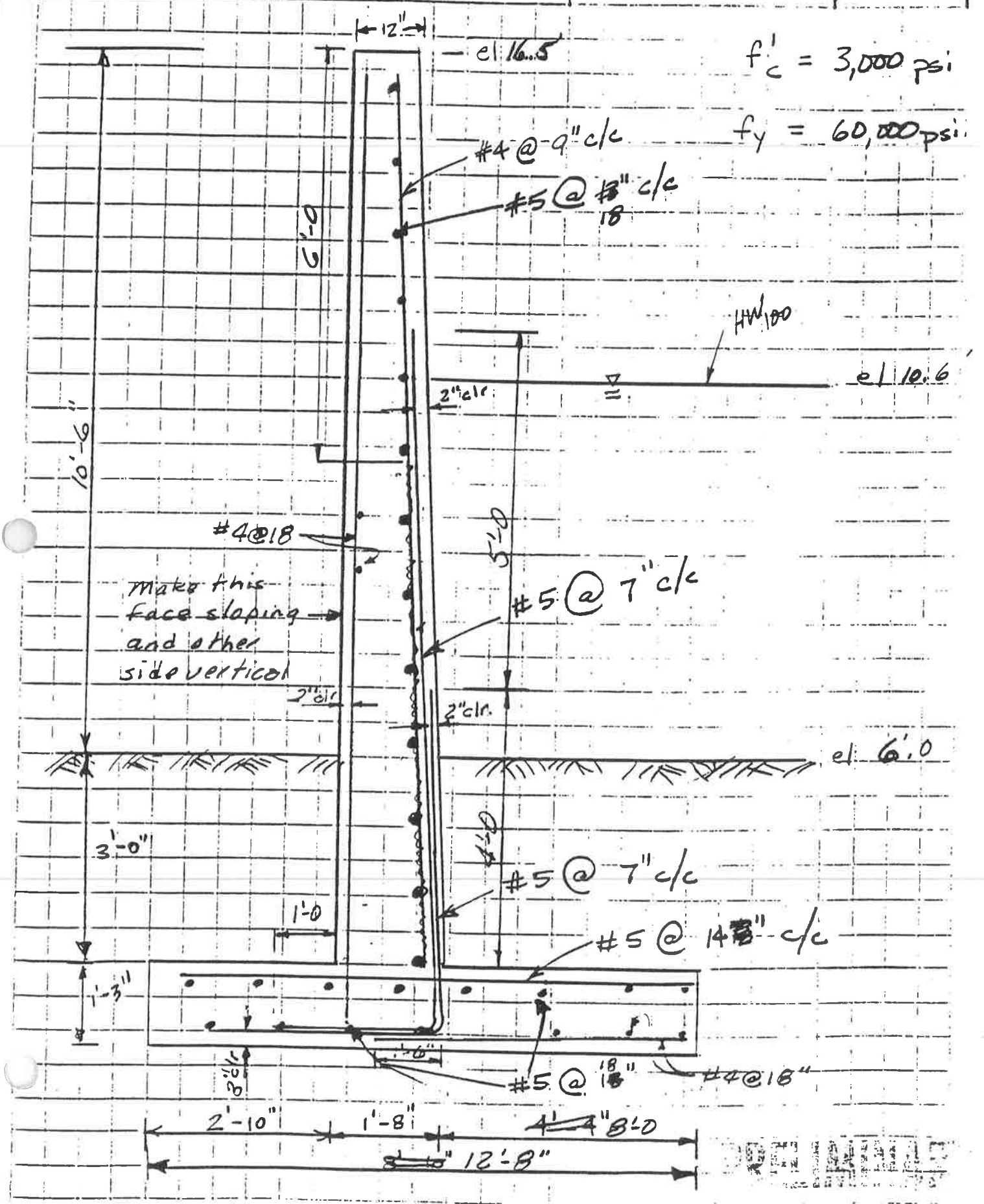
$A_s\ req'd = \frac{5.4}{1.33 \times 1.76 \times 12} = \frac{5.4}{28.1} = .19\ \square''$

CLIENT:

SUBJECT:

NOT FOR CONSTRUCTION

CHECKED BY:



CLIENT	JOB NUMBER
Halliburton NUS-Bird	SJ-0382
SUBJECT	
FLOOD GATE DESIGN	
BASED ON	DRAWING NUMBER
BY: CF / CHECKED BY: / APPROVED BY: / DATE: 3-10-92	

FLOOD GATE DESIGN
for
BIRD ENVIRONMENTAL GULF COAST INC, PROJ.
3-10-92

CONTENTS

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Removable Support	9
Support Fdn	10
Road Profile	13
Gate Ftg	14

Carl L. Fick
3-19-92

CLIENT NUS		JOB NUMBER	
SUBJECT Flood Gate Design			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

INTRODUCTION

SWING FLOOD gates are to be designed that are about 20' long X 8.5' high. The customer did not want stop log type gates that would require a crane to install, hence the hinged swing gates. The gates will be exposed to wave forces when closed.

PURPOSE

The purpose of these calculations is to;

a) Formulate gate features
b) Size structural parts for gates and
c) Provide details to be used by Halliburton NUS to develope dwgs to be used to construct gates.

WAVE FORCES

Wave forces were developed for the retaining wall check. The top of soil for the retaining wall was at elevation 6.0. For the gates, the soil is 2' higher or at El. 8.0. Therefore depth of water at bottom of wall is only 2.5 or El. 10.5 − minus (Wave Height) El. 8.0 = 2.5.

With $d = 2.5$, $d < 1.3H$ or $2.5 < 1.3 \times 3.43$

or $2.5 < 4.5$

∴ Breaking wave pressures to be used, see p. 247 of "Shore Protection & Planning."

CLIENT NJS		JOB NUMBER	
SUBJECT FLOOD GATE			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

Using Minikin Method Due to Breaking Waves, p. 255, eq. 4-8

$$P_m = \frac{101 H_b w}{L_D} \times \frac{d}{D}(D+d)$$

Where: H_b height of wave = 3.43'
w = unit wt of water = 62.4 pcf
d = depth of water at structure = 2.5'
D = deeper water depth = 4.5'
L_D = Length of wave = 49.2'

$$P_m = \frac{101 \times 3.43 \times 62.4}{49.2} \times \frac{2.5}{4.5}(4.5+2.5)$$

$= 440 \times 3.9 = 1530$ psf

= 1530 psf @ still water level or @ El. 10.5 or 2.5' above bottom of gate

$$P_s = \frac{wH_b}{2} = \frac{62.4 \times 3.43}{2} = 110 \text{ psf}$$

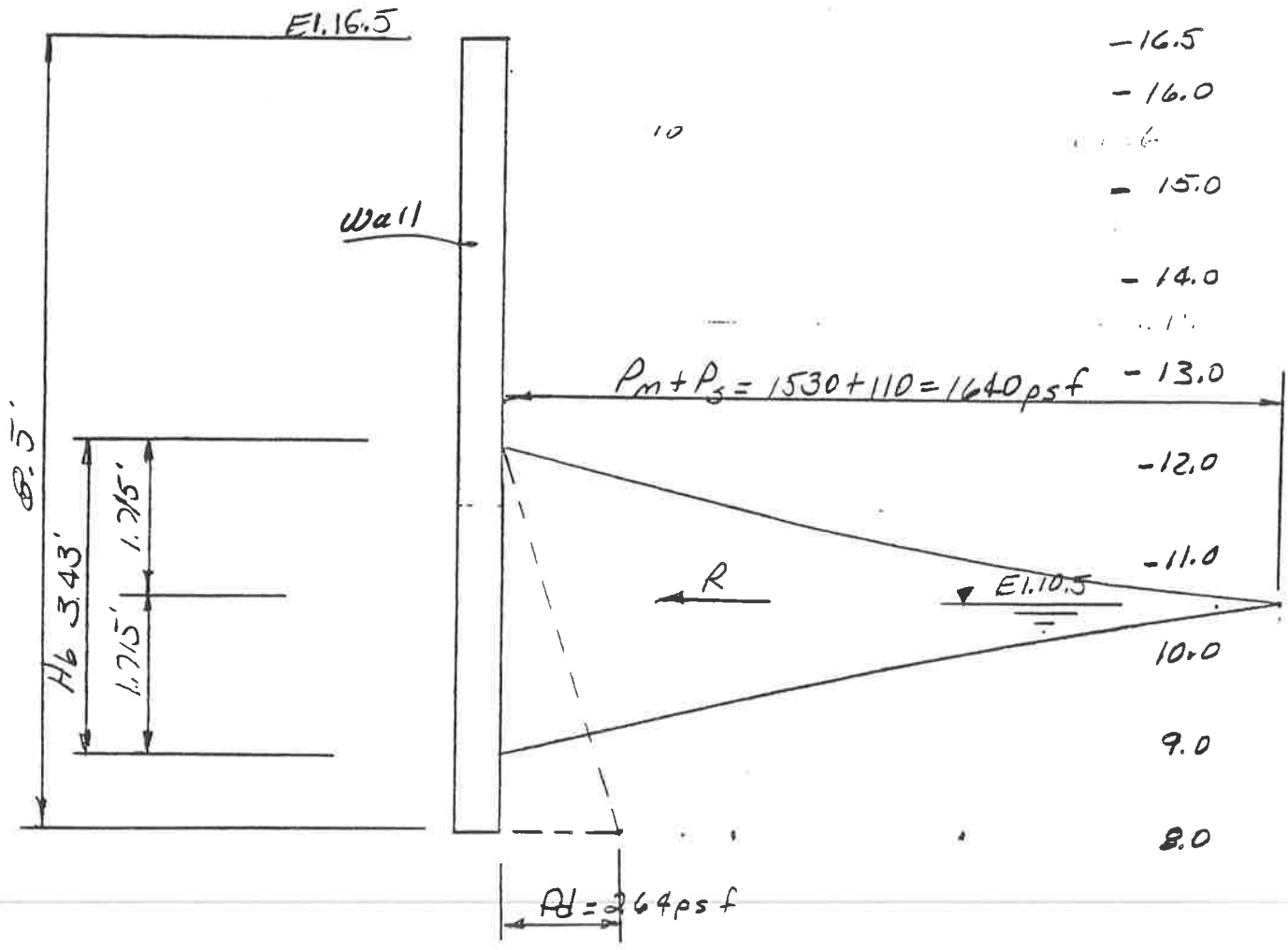
$$P_d = w\left(d + \frac{H_b}{2}\right) = 62.4\left(2.5 + \frac{3.43}{2}\right)$$

$= 62.4\,(4.23') = 264$ psf

See Figure 4-5, p 257

CLIENT		JOB NUMBER	
SUBJECT			
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE 3-10-92

Load on Gate as follows:



SECTION SHowing loads

$$R \text{ per eq 4-14} = \frac{P_m H_b}{3} + \frac{P_d}{2}\left(d + \frac{H_b}{2}\right)$$

$$= \frac{1530 \times 3.43}{3} + \frac{264}{2}\left(2.5 + \frac{3.43}{2}\right)$$

$$= 1750^{\#} + 563^{\#}$$

$$= 2313^{\#}/ft = \text{Thrust}$$

CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0382-008		
SUBJECT: Gates			
BASED ON	DRAWING NUMBER		
BY: C F	CHECKED BY	APPROVED BY	DATE: 3-10-92

Check what forces may be using Ret. Wall calcs. From Retaining Wall calculation containing wave forces, the impact forces due to breaking waves with impact was found to be 4050 psf. However, that pressure lasts only .01 to .001 of a second and is also questionable

The non breaking wave pressure was found to be 400 psf at a depth of 8.9' with still water elevation at 10.5 or 4.5' deep. Still water water elevation of 10.5' and ground surface at 6.0,

When the ground surface is raised to 8.0' the

$\frac{d}{D}(D+d)$ factor in calculation of P_m

changes to $\frac{2.5}{4.5}(4.5+2.5)$ or 3.9 from 9 as for concret wall.

If non breaking wave pressure

From Fig 4-3 with $\frac{d}{L} = \frac{2.5}{49.2} = .051$, $P_1 = 300$ psf

for $H = 5'$

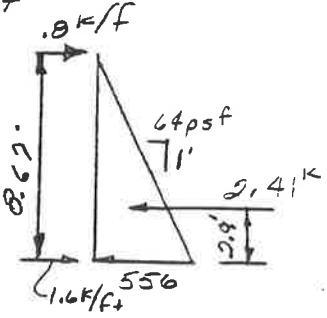
wet P_1 = pressure at top of ground =

$= 300\text{ psf} + 62.5 \times 2.5 =$

$= 300 + 156$

$= 556$ psf

with Wall 8.67' high,



m per ft = 2.41 x 2.9
= 7 K/ft

The 2.41 K/ft is very nearly the 2.31 K on previous page

CLIENT	JOB NUMBER		
NUS	SJ-0382-008		
SUBJECT	Gates		
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
CF			3-10-92

∴ Use the 64psf/ft of depth value

Using load of 64psf/ft of depth, Size 1/4" skin plate

Assume 7 spaces for tee, ∴ Tees are $\frac{20.25}{7} = 2.9'$ oc

Using pressure of $P_m + P_s$ of 1640psf at el 10.5, which includes impact and is concentrated at a point is not practical for the skin plate. If overstressed, it will act as washline in tension

∴ Size skin plate based on M with feasible pressure of 473psf

Mom in skin plate @ 1' from bottom

$w = 7.67 \times 64 = 473$ psf

$$M = \frac{wl^2}{12} = \frac{.473 \times 2.9^2}{12} = \frac{3.98}{12} = .332^{1k}$$

$$S \text{ for } 1/4" \text{ plate} = \frac{bd^2}{3} = \frac{12 \times .25^2}{3} = .25$$

$$f_s = \frac{M}{S} = \frac{.332 \times 12}{.25} = 16 \text{ ksi} < 22 \text{ ksi} \quad \therefore \text{Increase span}$$

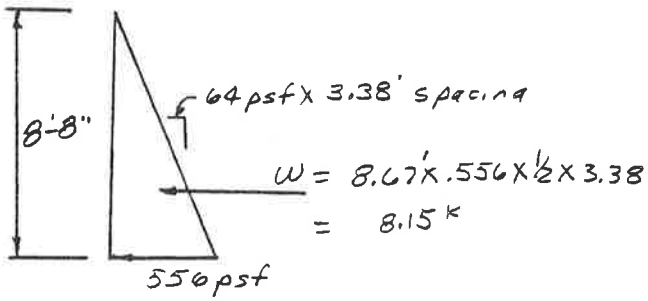
Try 6 spaces, $l = \frac{20.25'}{6} = 3.38'$

$$M = \frac{wl^2}{12} = \frac{.473 \times 3.38^2}{12} = .465^{1k}$$

$$f_s = \frac{M}{S} = \frac{.465 \times 12}{.25} = 22.3 \text{ ksi} \approx 22 \text{ ksi Sag Ok}$$

∴ Use 6 space & 5 tee

Mom in Tee with



$M = .1283\,wl$

$= .1283 \times 8.15 \times 8.67'$

$= 9.1'^{k}$

Try WT 5x7.5, About like a S 5x14 with $S = 6.09 \text{ in}^3$

$f_s = \frac{9.1 \times 12}{6.09} = 18.0 \text{ ksi}$. ∴ Use WT 5 x 7.5 $w_{allowable} = 22$ ksi

CLIENT		JOB NUMBER	
NUS		SJ-0382-008	
SUBJECT			
Gates			
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
CF			3-10-92

To size top member

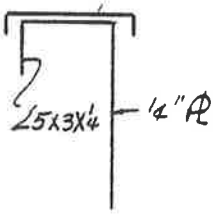
Length = 20'

$w =$ $8.67 \times .556 \times \frac{1}{2} = 2.41$ kef total Horiz Force/ft

reaction at Top $= \frac{1}{3} \times 2.4 = .8$ k.

$$M = \frac{wl^2}{8} = \frac{.8 \times 20^2}{8} = 40^{1k}$$

An angle L 5X3'4X'4 is used as frame around gate. It forms a section much like S5X14.75 $S = 6.09$



$$f_s = \frac{M}{S} = \frac{40 \times 12}{6.09} = 130 \text{ ksi}$$ N.G.

Try C 15X33.9, S = 42

$$f_s = \frac{M}{S} = \frac{12 \times 40}{42} = \frac{480}{42} = 11.4 \text{ ksi} < 22$$

Try C 12X20.7, S = 21.5

$$f_s = \frac{480}{21.5} = 23.4 \text{ ksi} > 22.0$$

The C 15X33.9 gives lots for small money.

Cost = $14' \overset{\text{Long}}{\times} \$1.00 \times 12.2\#/ft = 172^{\#} @ 1^{00}$. Buy the C15 for #172.00 for safety.

CLIENT NUS		JOB NUMBER	
SUBJECT Gates			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

To size Restel for S.W. corner gate col.

Force at top = .8k/ft × 10' = .8'

Mom @ 13.5' down = .8 × 13.5 = 10.8 'k

Try 1'-0" × .36' " = 12" × 36

Try d = 32" b × d = 12" × 32"

$$A_s = \frac{10.8}{1.76 \times 32} = 2.0\ \square'',\ \text{Use } 4\text{-}\#7$$

To size steel in sill beam

$$M = \frac{wl^2}{8} = \frac{1.6 \times 20^2}{8} = 80'^k$$

with 14" × 30" beam

$$A_s = \frac{M}{Ad} = \frac{80}{1.76 \times 27} = 1.67\ \square'',\ 3\text{-}\#7 = 3 \times .6 = 1.8\ \square''$$

Use 3-#7 on downstream face

For upstream face at SE corner

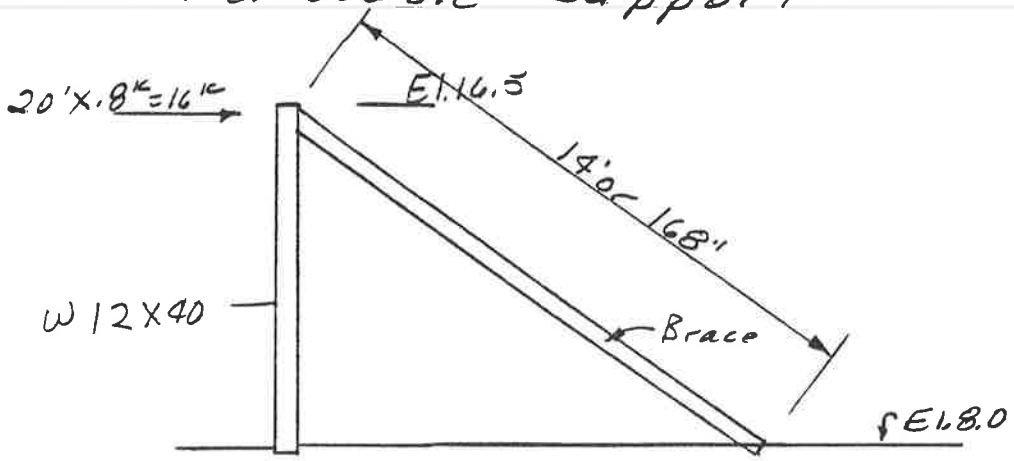
$$M = \frac{wl^2}{12} = \frac{1.6 \times 21^2}{12} = 56.6'^k$$

$$A_s = \frac{56.6'^k}{1.76 \times 27} = 1.19\ \square'',\ \therefore \text{Use } 3\text{-}\#6$$

$A_s = 3 \times .44 = 1.32\ \square''$

CLIENT NUS		JOB NUMBER	
SUBJECT Flood Gate			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

To Size Removable Support



SECTION

The vertical beam must have flange with of at least .8 to accomodate the seals. ∴ Use W12x40.

The load in Brace is $\frac{14}{11} \times 16 = 20.4^K$

Keep L/r below 150

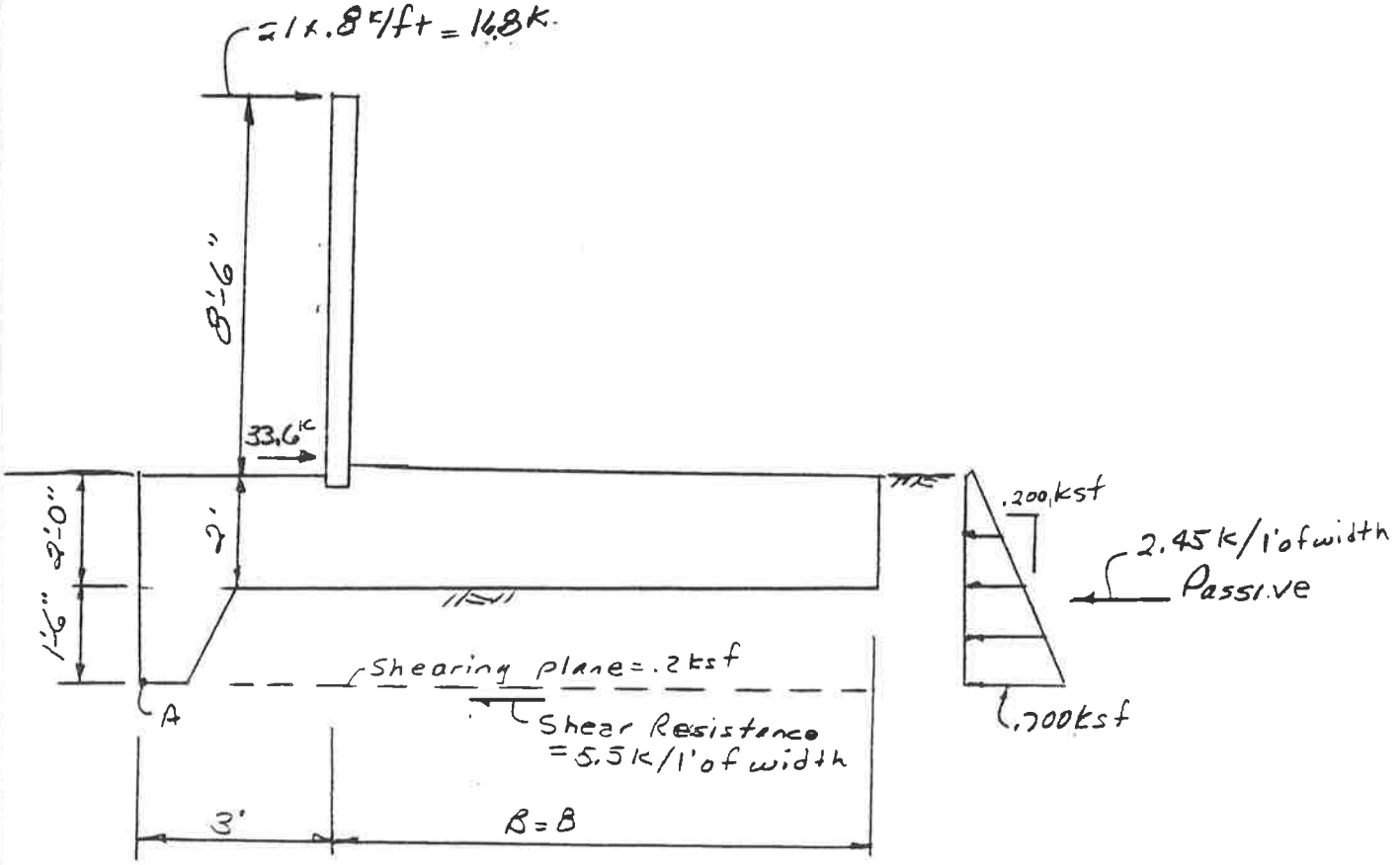
∴ Use W6X15.5

$$L/r = \frac{168}{1.46} = 115$$

$$f_a = \frac{P}{A} = \frac{20.4^K}{4.56^{0"}} = 4.4 ksi \quad OK$$

CLIENT NUS		JOB NUMBER	
SUBJECT GATES			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

To size ftg for removable support



If force is 50.4K, width req'd to prevent sliding = $\frac{50.4^K}{5.5}$ = 9', bad! try spanning 40'

If sill beam is fixed supported on both ends,

$M = \frac{wl^2}{12} = \frac{2.52 \times 40^2}{12} = 336^{1K}$, worse

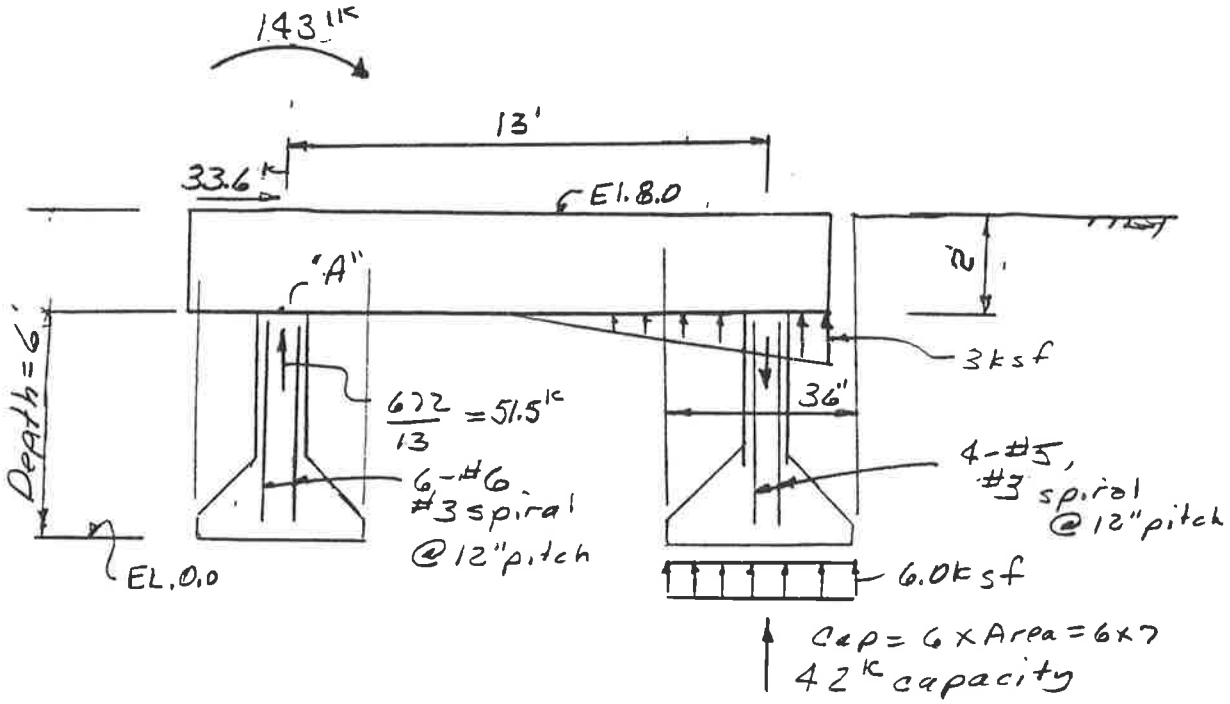
Check Overturning

$M_{@A} = 16.8^K \times 12' + 33.6^K \times 4.5' = 210 + 151 = 361^{1K}$

Can not get there with spread ftg.

CLIENT NUS		JOB NUMBER	
SUBJECT Gates			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

Use Bell Ftgs



Mom@"A" = 143 IK + (33.6 + 16.8)² = 143 + 100.8
= 343.8 IK

Tension Cap req'd = 343.8 ÷ 13 = 26.8 K, If 2 ftg use, cap req'd = 13.4 IK

Tension Capacity of drilled Bell ftg = Wt + cA

Try 36" bell, 6' deep. assume c = 200 psf

Ten. Capacty of wt = $3^2 \times .785 \times 6 \times .060$ (subwt)
= $9 \times .785 \times 6 \times .060$
2.52 K

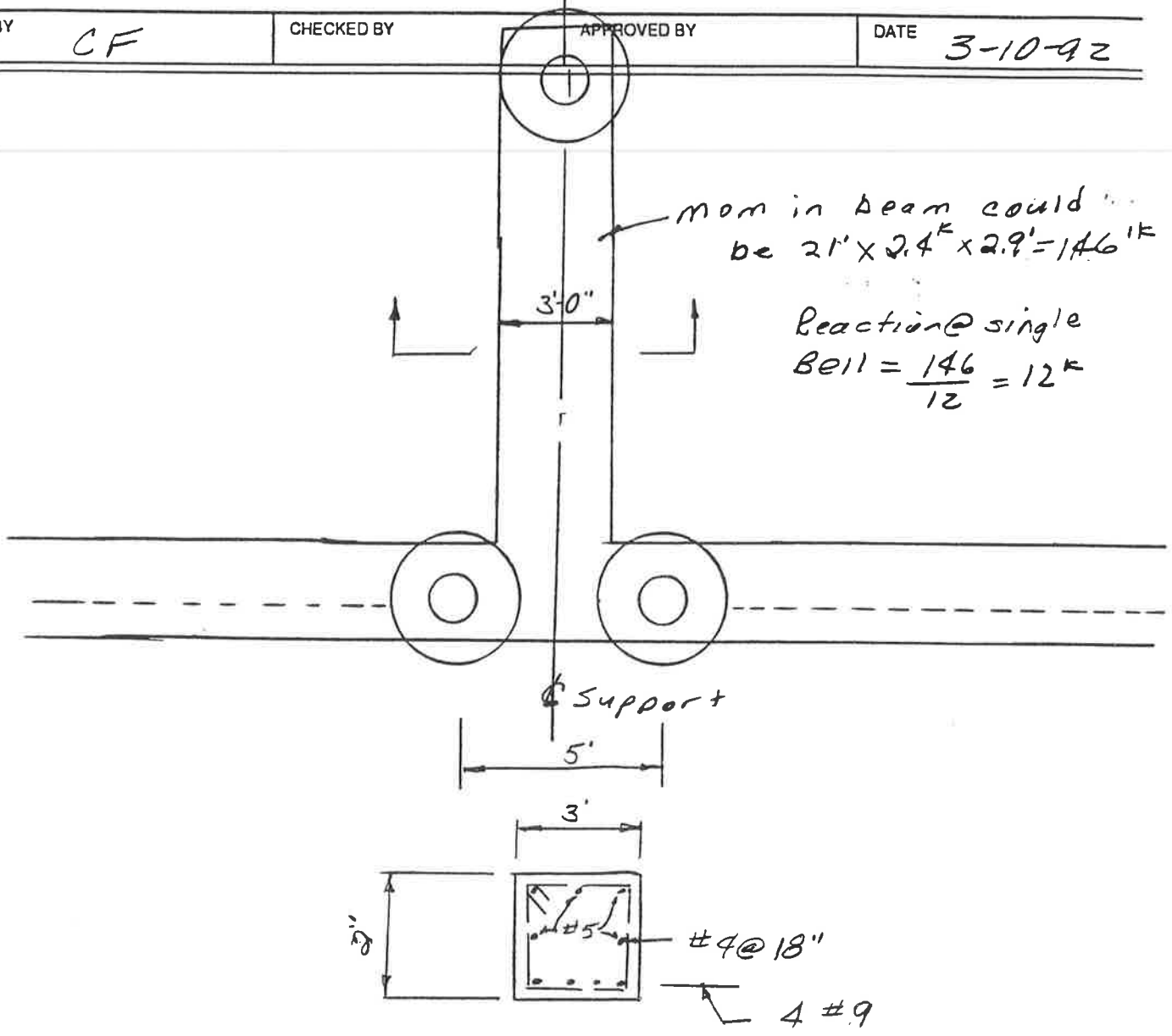
cA = .2 x 6 x 3.14 x 3
= 11.3 K

Total Cap = 13.58 IK, Req'd = 13.4 IK

∴ Use 2 - 36" Bells In Tension w/ depth = 6'

Use 1 - 36" Bell Ftg in Comp.

CLIENT NUS		JOB NUMBER	
SUBJECT Gates			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92



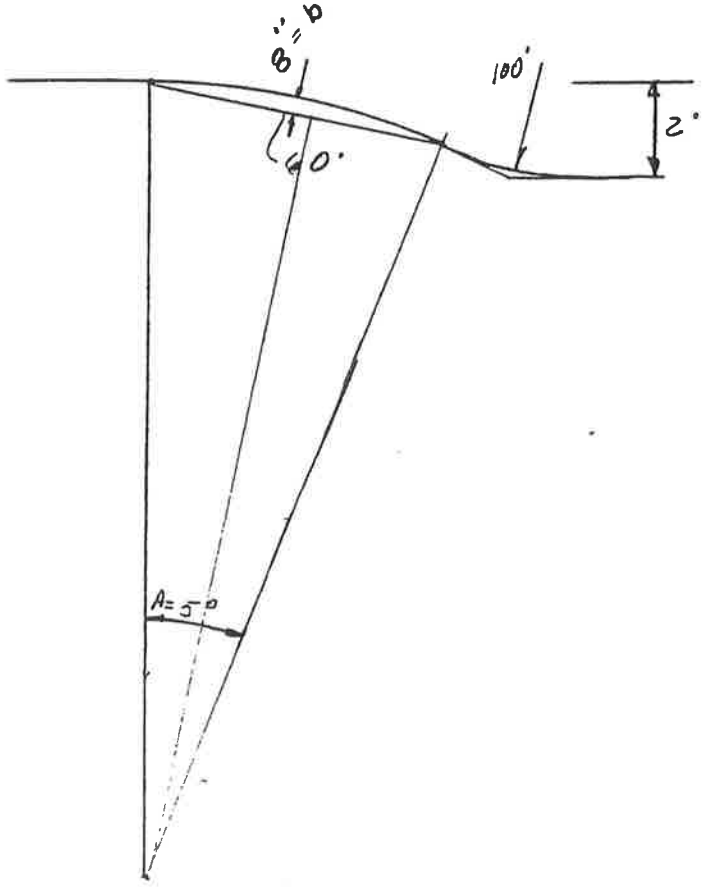
Section

$$A_s = \frac{M}{ad} = \frac{146^{'K}}{1.76 \times 21} = 3.94^{\square''}, \quad 4-\#9 = 4.0$$

$$v = \frac{V}{bd} = \frac{12{,}000}{33 \times 21} = 17 psi = 17 \text{ psi OK}$$

CLIENT NUS		JOB NUMBER	
SUBJECT GATES			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

To calculate road profile -
Assume a lowboy with 8" clear & wheels 60' o.c.



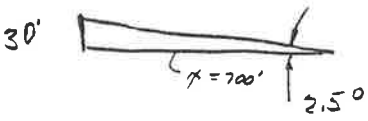
$$b = \frac{c}{2} \tan \frac{A}{4}$$

$$.67 = \frac{60}{2} \tan \frac{A}{4}$$

$$\tan \frac{A}{4} = \frac{2 \times .67}{60} = \frac{1.33}{60} = \tan \frac{A}{4} = .0222$$

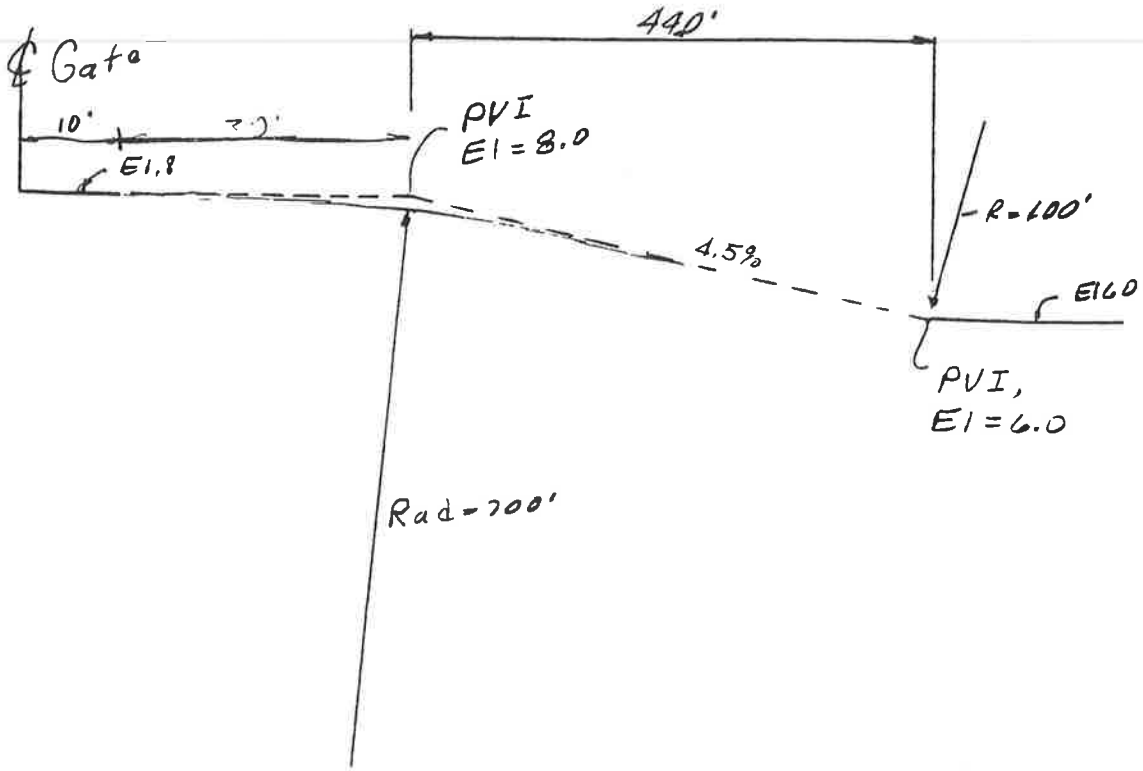
5% = 4.5° slope

$$\therefore \tan A = 4 \times .0222$$
$$= .0888$$
$$A = 5^\circ =$$



$$\tan 2.5^\circ = \frac{30}{x} = .0436, \quad \therefore x = \frac{30}{.0436} = 700'R$$

CLIENT	NUS	JOB NUMBER	
SUBJECT	GATES		
BASED ON		DRAWING NUMBER	
BY	CF	CHECKED BY	APPROVED BY	DATE	3-10-92



CLIENT NUS		JOB NUMBER	
SUBJECT Gates			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

Wt of Gate SE Corner

21'-4" x 8'-8"

1/4" plate = 21.33 x 8.67 x 10.3 = 1900 # = 1900

L5 x 3½ x 1/4 = L x Wt = 2x(8.67+21.33) wt

= 60' x 7 = 420

WT5X7.5 = 5 x 8.75 x 5.75 = 252

C15X33.9 = 14 x 33.9 = 474

3,046 #

Hinge Design

Horizontal force from dead load on hinge

$= \frac{10.67 \times 3.046^{k}}{8.67} = 3.77^{k}$

Vertical load on each hinge $= \frac{3.046^{k}}{2} = 1.523^{k}$

Min plate thicknesses of ½" and ¼" OK by inspection

CLIENT NUS		JOB NUMBER	
SUBJECT Gates			
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

The gates put extra load on retaining walls,

The mom per foot of wall from wall calcs is 16.25 ᵏ

The .8 ᵏ/ft reaction from gate at el 165 causes a moment at top of retaining wall base of $.8 \times 13.5 \times 10 = 108$ ᵏ

∴ Retain wall stem must be made large.

If wall is made 12" × 36"

$$A_s = \frac{M}{a \times d} = \frac{108}{1.76 \times 32"} = \frac{108^{k}}{54.5} = 2.0\square"$$

4-#7 = 2.40"

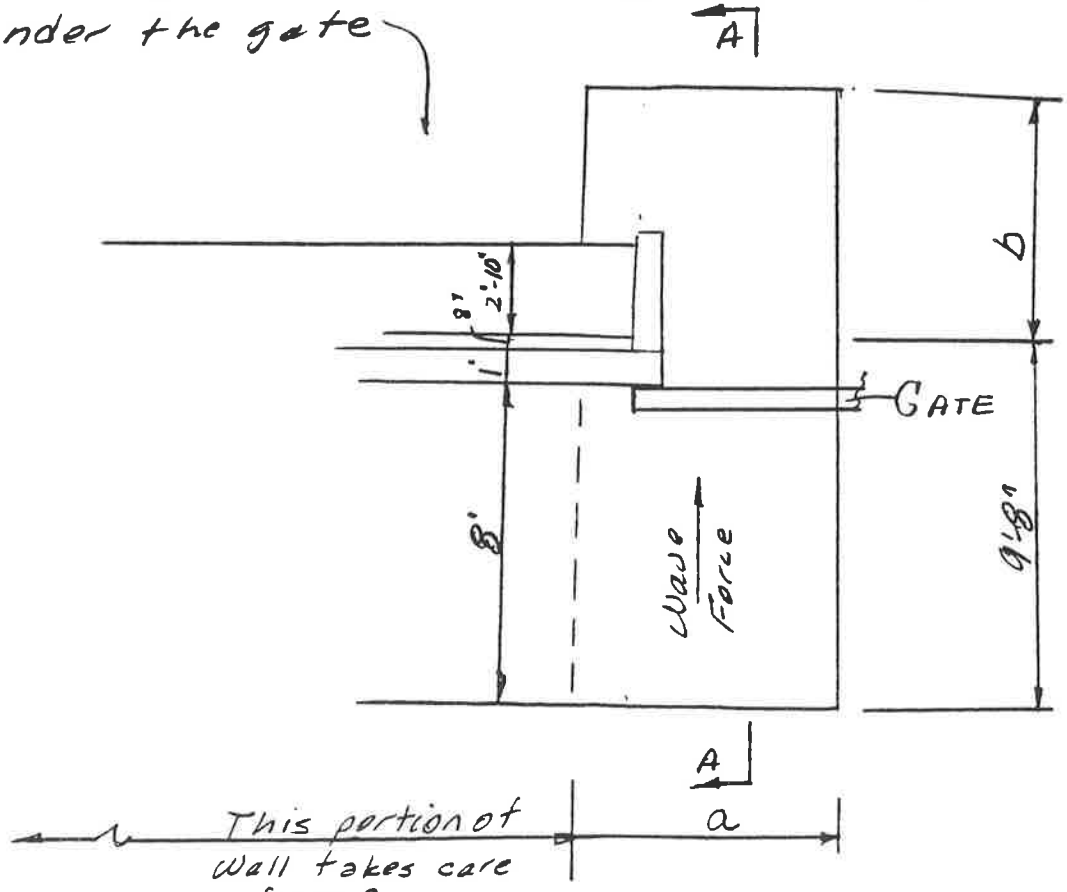
Use 4-#7

Determine how wall footing must be increased to accomodate added moment from wall.

Try larger footing per next page

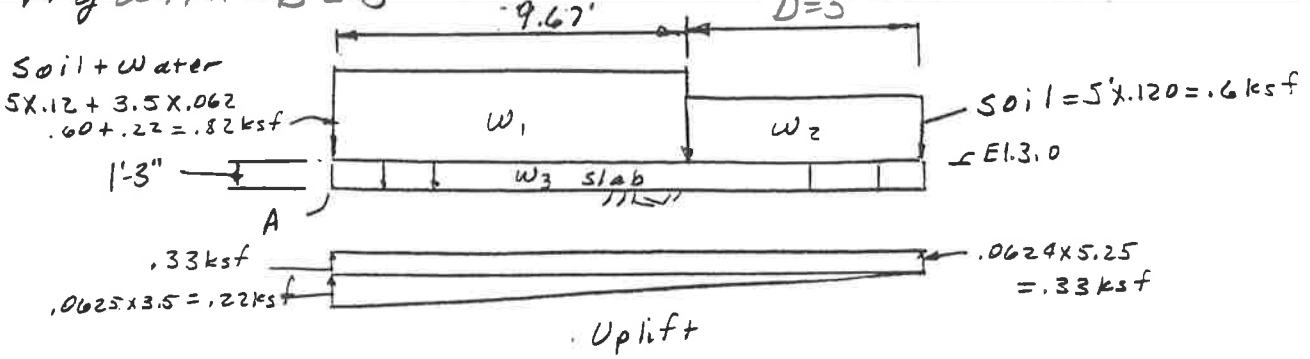
CLIENT	JOB NUMBER		
NUS			
SUBJECT	Flood Gates		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

The larger wall footing will extend to under the gate



Find what "a" & "b" need to be to resist wave force from gate

Try with b = 5'



CLIENT NUS	JOB NUMBER		
SUBJECT Flood Gates			
BASED ON	DRAWING NUMBER		
BY CF	CHECKED BY	APPROVED BY	DATE 3-10-92

$\Sigma M@A$ for 1 foot

Item	Area	× Pressure	= Wt	× dist	= mom
1	9.67 ×	.82 ksf	= 7.92 k	× 4.83'	= 38.2 ik
2	5 ×	.6 ksf	= 3.0 k	× 12.17'	= 36.6 ik
3	14.67 ×	.187 ksf	= 2.74 k	× 7.33'	= 20.1 ik
	Sub Totals		13.66 k ↓		94.9 ik
Uplift	14.67 × .33 ksf		= 4.84 k ↑	× 7.33'	= 35.4 ik
	14.67 ÷ 2 × .22		= 1.61 ↑	× 4.9'	= 7.9 ik
	Sub totals		7.21 k ↑		51.6

The gate force = 16 k applied at 15' above base
or 240 ik

If a = 4', gate moment = 60 ik/ft

$\Sigma M@A$ = 51.6 + 60 = 111.6 ik

Resultant is $\frac{111.6 \text{ ik}}{7.21}$ or 15.3' to right of A,
No Good

If a = 8' gate mom = 30 ik

$\Sigma M@A$ = 51.6 + 30 ik = 81.6 ik

Resultant is $\frac{81.6 \text{ ik}}{7.21}$ = 11.3' to right of A

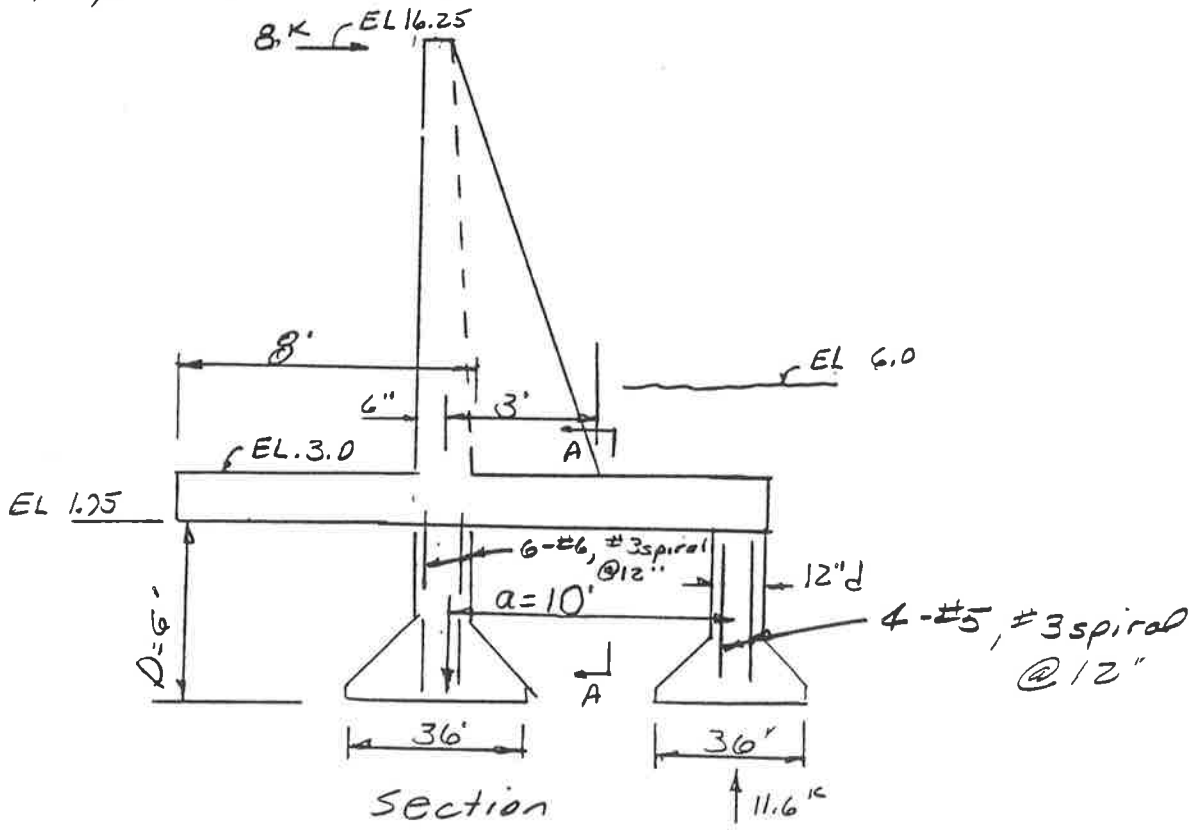
In wall, soil Reaction is 8.6' from "A"

The spread footing approach is proving difficult. . . Consider Bell Ftgs.

CLIENT	NUS	JOB NUMBER	
SUBJECT	Flood Gates		
BASED ON		DRAWING NUMBER	
BY	CF	CHECKED BY	APPROVED BY	DATE 3-10-92

Bell - Ftg would have to resist the wave force of 8^K causing a moment of 8^K X 14.5' = 116^{IK} @ el 1.75

*36.60



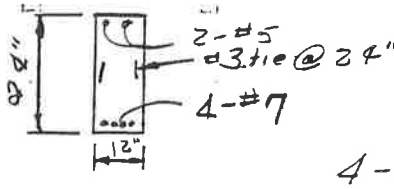
Section

If a = 13', Tension Cap req'd = $\frac{116}{10}$ = 11.6^{IK}

Tension capacity = 11.3^K @ D = 6'

Wt offsets tension req'd, so D of 6' is acceptable

Make Section A-A



Mom = 7 X 11.6 = 81.5^{IK}

4-#7 = 2.40"

$A_s = \frac{M}{a\,d} = \frac{81.5^{IK}}{1.76 \times 21} = 2.2\,\square"$, Use 4-#7 from wall

CLIENT		JOB NUMBER	
Halliburton NUS		SJ-0981	
SUBJECT			
Retaining Wall Design @ Gates			
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
CF			2 June '92

RETAINING WALL DESIGN at Gates

Bird Environmental

2 June '92

INFORMATION COPY

JUN 10 1992

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CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0481		
SUBJECT: Retaining Wall Design @ Gates			
BASED ON	DRAWING NUMBER		
BY: CF	CHECKED BY	APPROVED BY	DATE: 2 June '92

Introduction

The retaining walls at the gates are to retain dike fill and keep road way low. at elevation 8.00. Top of dike elevation is 16.0. Plant grade at 6.00

Purpose

The purpose of these calculations is to size the walls and reinforcing.

Loading Conditions

CONDITION I - Usual

Soil pressure with no water in soil. $\gamma = 120$ pcf
Assume at-rest-pressure in soil $K_R = 1.0$
∴ Soil pressure = .120 psf/ft of depth.
Assume passive pressure $K_p = 3.0$

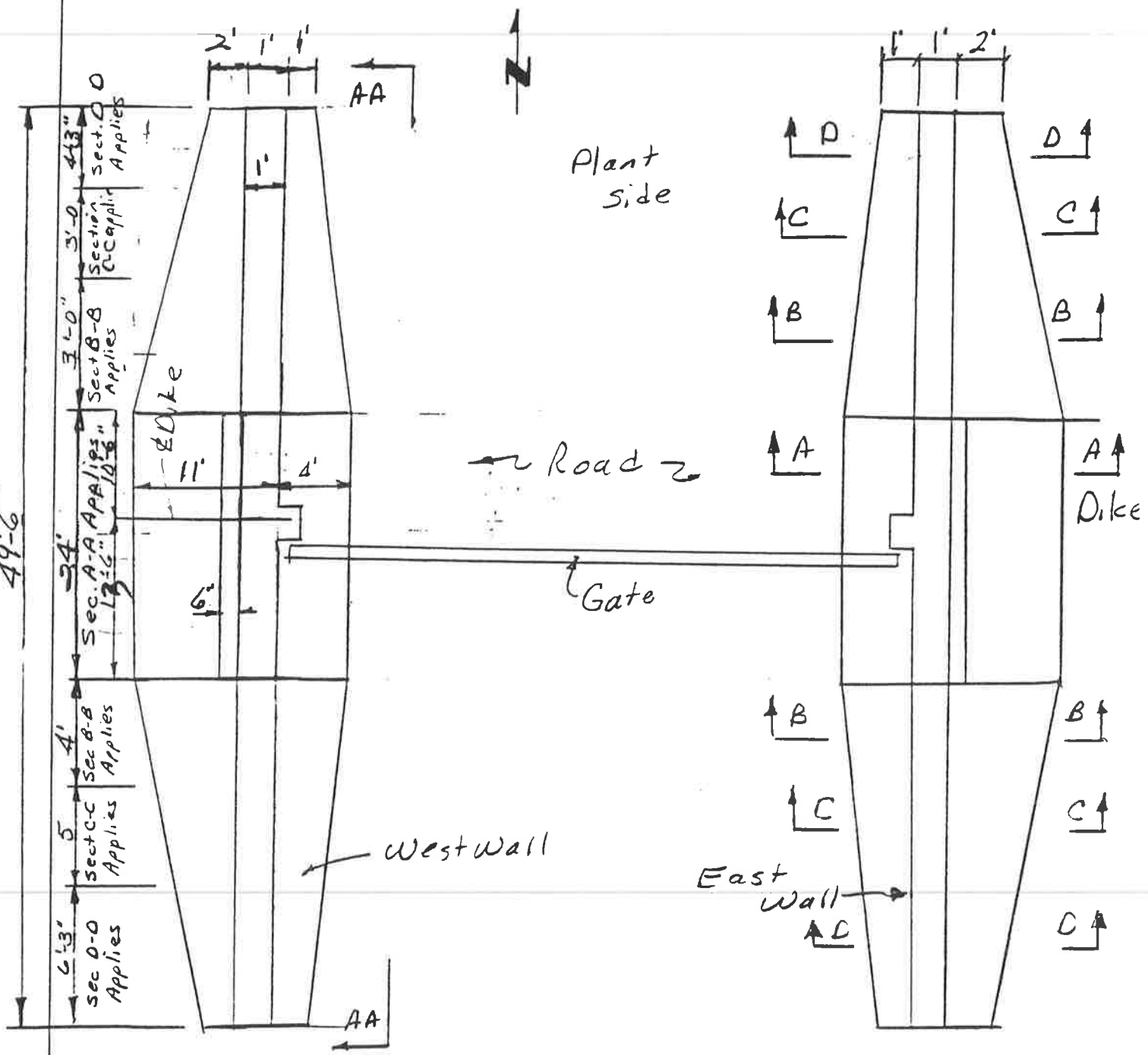
CONDITION II - WET

Water level in soil at ground or fill surface.
Submerged wt of soil = 120. - 62. = 58.0 pcf
Assume At Rest $K_{AT} = 1.0$, soil p = .058 ksf

Water pressure = .062 psf
Total Horiz = .180 psf/ft/depth, Base Pres. to be on 75% of base

CLIENT	JOB NUMBER
Halliburton NUS	SJ-0481
SUBJECT: Retaining Wall Design @ Gates	
BASED ON	DRAWING NUMBER

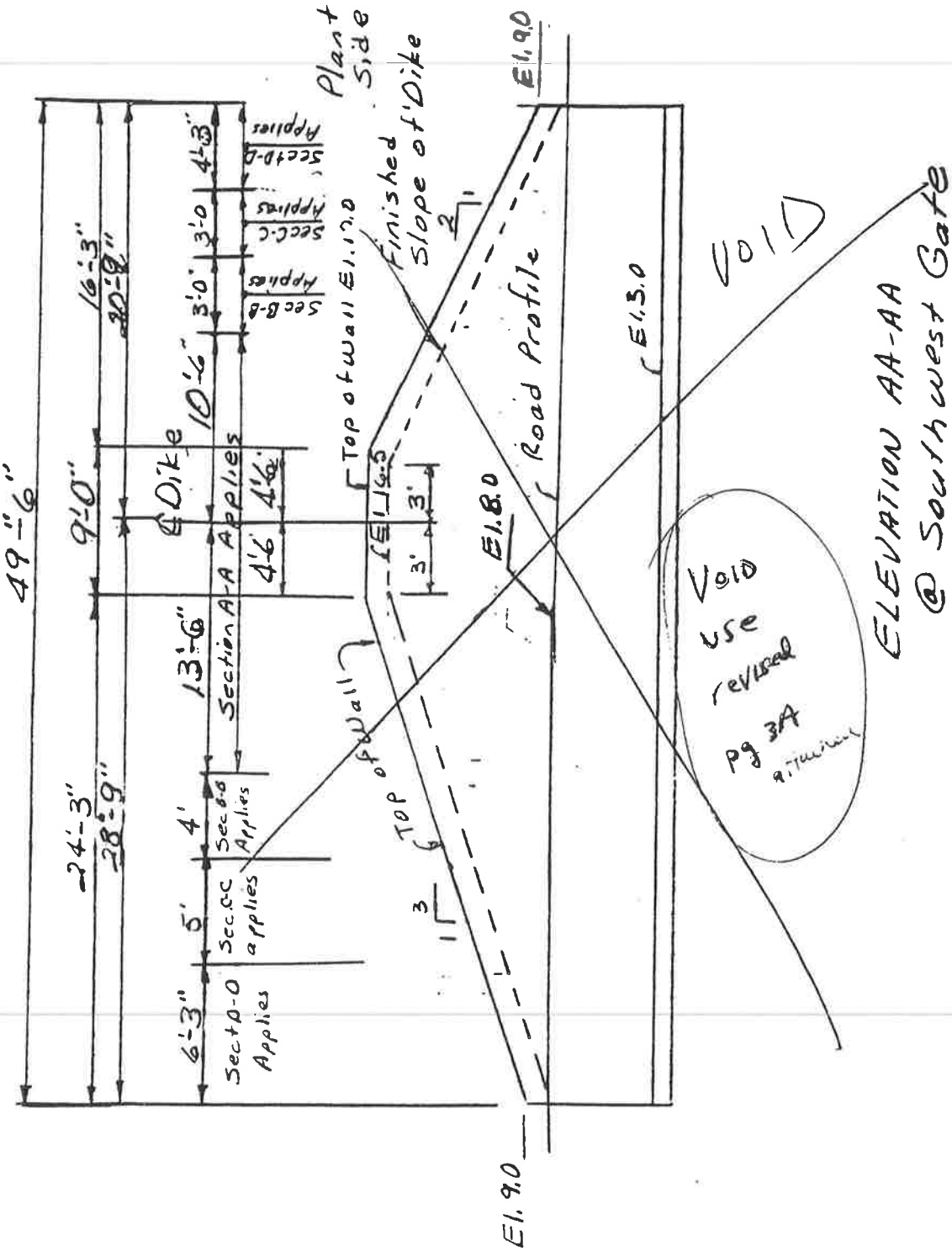
BY	CHECKED BY	APPROVED BY	DATE
CF			2 June



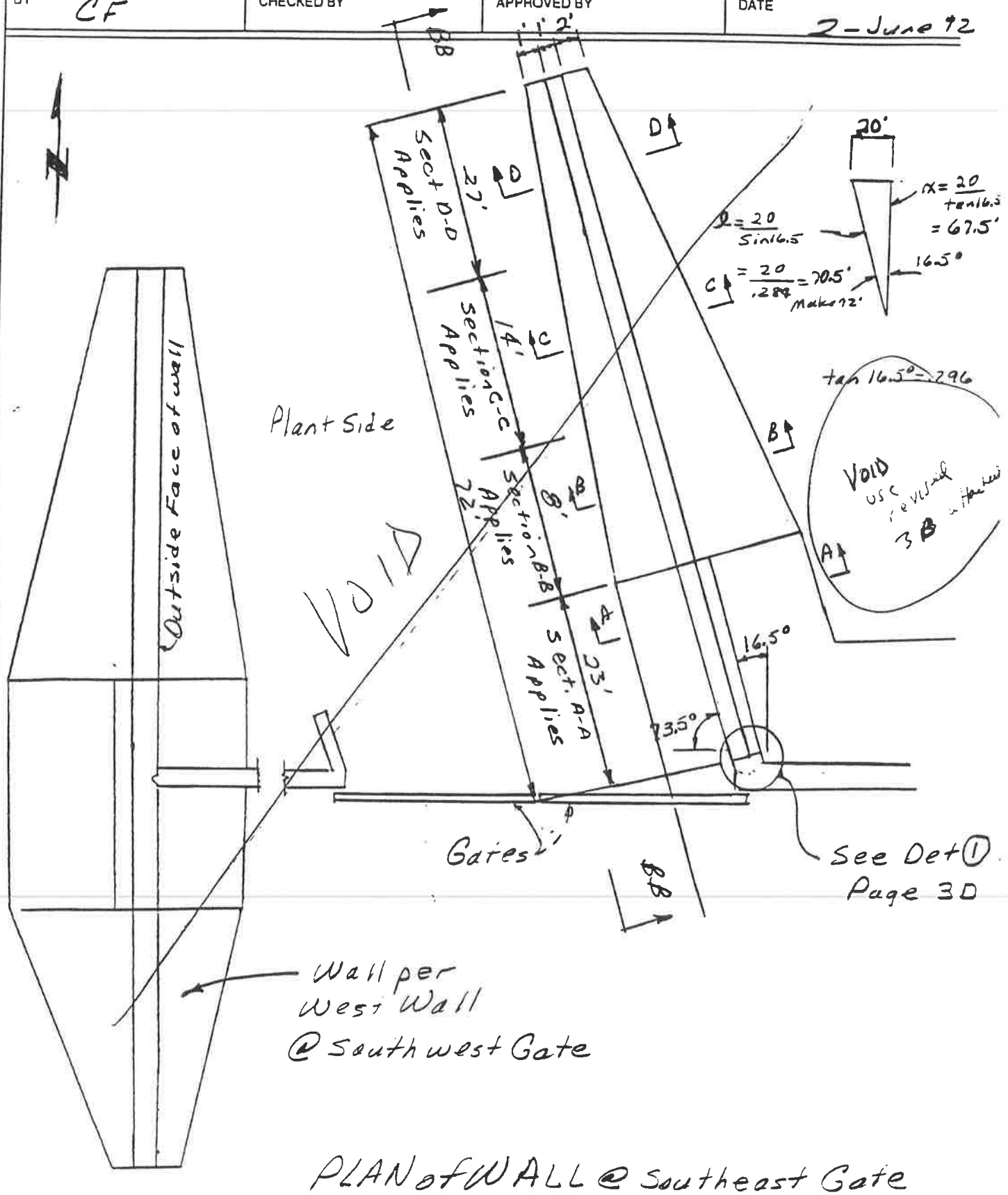
PLAN of Wall @ Southwest Gate

No Scale

CLIENT	JOB NUMBER
Halliburton NUS	SJ-0481
SUBJECT: Retaining Wall @ Gates	
BASED ON	DRAWING NUMBER
BY / CHECKED BY	APPROVED BY / DATE: 2 June 92



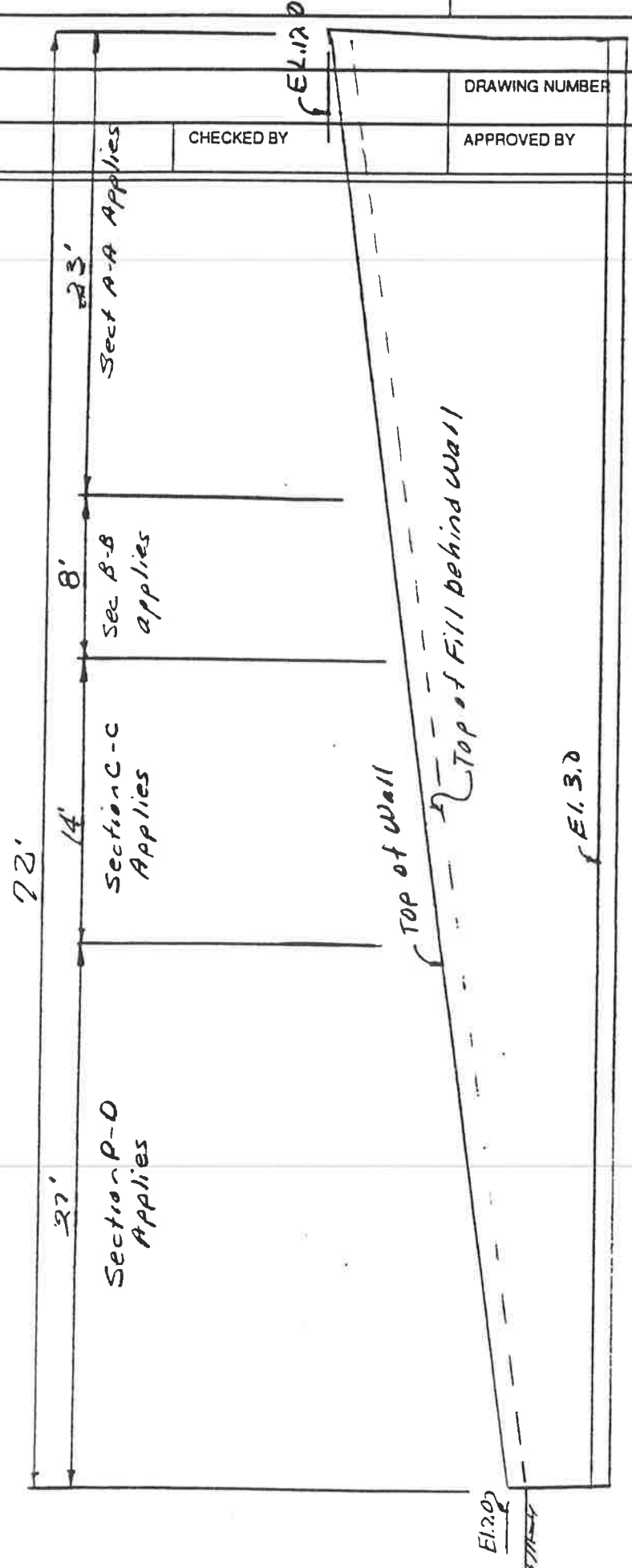
CLIENT	JOB NUMBER
Halliburton NUS	SJ-0481
SUBJECT: Retaining Wall @ Gates	
BASED ON	DRAWING NUMBER
BY: CF / CHECKED BY / APPROVED BY	DATE: 2-June 92



PLAN of WALL @ Southeast Gate

No Scale

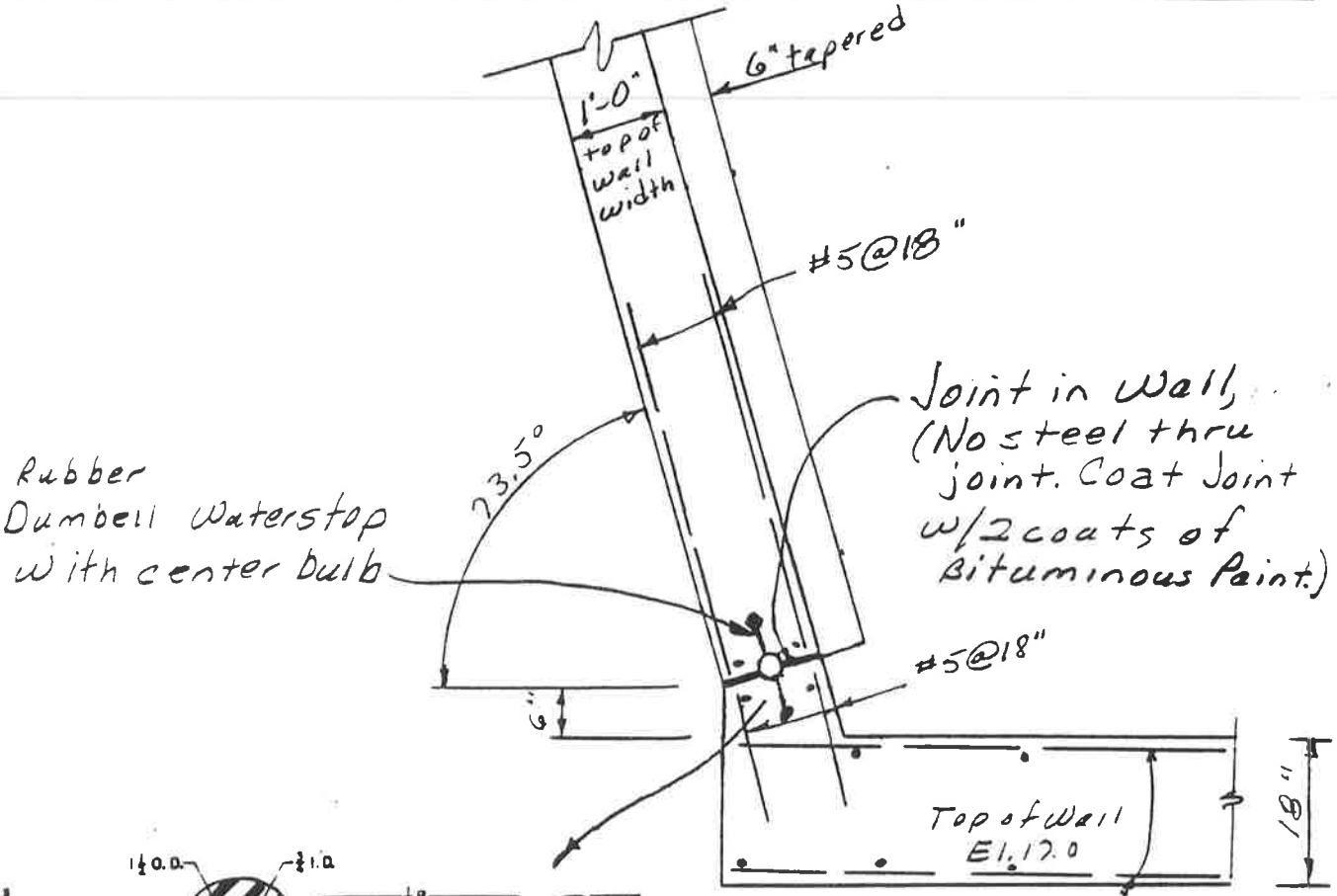
CLIENT		JOB NUMBER	
SUBJECT			
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE 5 June 92

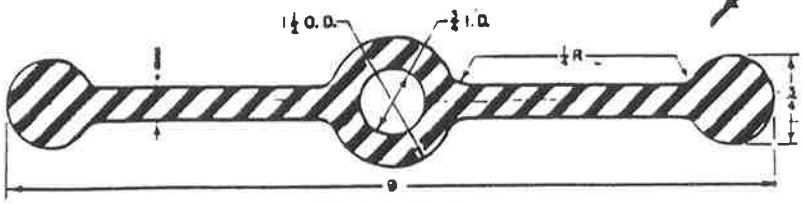


ELEVATION BB-BB

Scale: 1/8" = 1'-0"

CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0421		
SUBJECT	Retaining Wall @ Gate		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 5 June 92





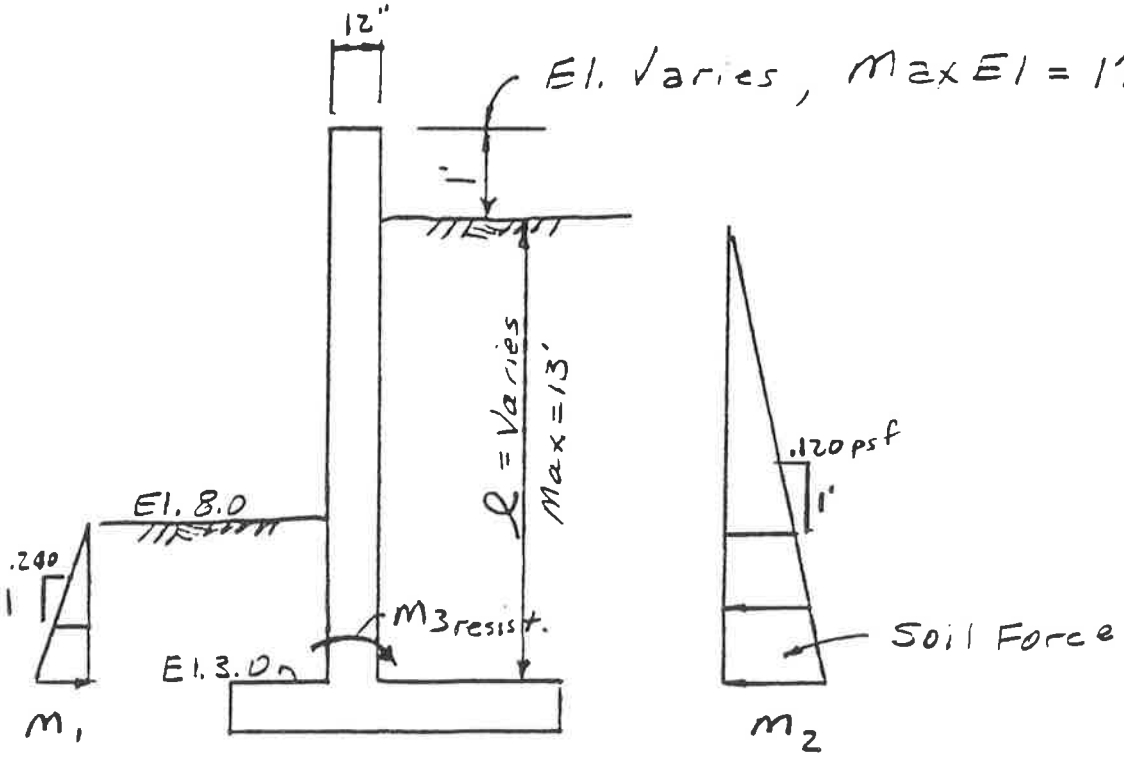
CROSS SECTION
(CAN BE EITHER MOLDED OR OPEN-STEAM-CURED)

DETAIL (1)

Note: Joint in wall made a non shear joint to permit wall to deflect.

CLIENT	JOB NUMBER
Halliburton NUS	SJ-0481
SUBJECT: Retaining Wall @ Gates	
BASED ON	DRAWING NUMBER
BY: CF / CHECKED BY	APPROVED BY / DATE: 2 June '92

First consider stem thickness req'd



SECTION A-A

Find where 12" thick wall can resist moment with reasonable amount of steel, d = 9½"

$$A_s = \frac{M}{ad} = \frac{M}{1.76 \times 9.5}$$

Say a = #6@4" = 1.32 □"/ft = Reasonable amount of steel

$$M_3 = a \times d \times A_s$$

$$M_3 = 1.76 \times 9.5 \times 1.32$$

$$M_3 = 22.1^{1K}$$

assume on 3' effective

$$M_1 = \frac{wl^3}{6} = \frac{.240 \times l^3}{6} = \frac{.240 \times 3^3}{6} = .04 \times 27 = 1.1^{1K}$$

CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0481		
SUBJECT: Retaining Wall at Gates			
BASED ON	DRAWING NUMBER		
BY: CF	CHECKED BY	APPROVED BY	DATE: 6-2-92

M_2, the resisting capacity of stem + M_1 must be greater than M_2

or $22.1^{k} - 1.1^{k} = 21.0^{k}$ or max mom to be applied by soil ℓ in height

$$M_2 = 21.0 = \frac{w\ell^3}{6}$$

$$\ell^3 = \frac{6 \times 21.0}{w} = \frac{6 \times 21}{.120} = 1050$$

$$\ell_{Limit} = \sqrt[3]{1050} = 10.1' < 13' \text{ actual}$$

∴ 12" wall not adequate at base of wall

Try 18" inch wall for bot 5' ft + #6@12"

$d = 15.0"$ #8@12" + #8@12" + Cap of Conc.

$M_3 = 1.76 \times 15.0 \times 2.02 = 53.4^{k}$ (a, d, A_s)

$\therefore M_2 = 53.4 - 1.1 = 52.3^{k}$

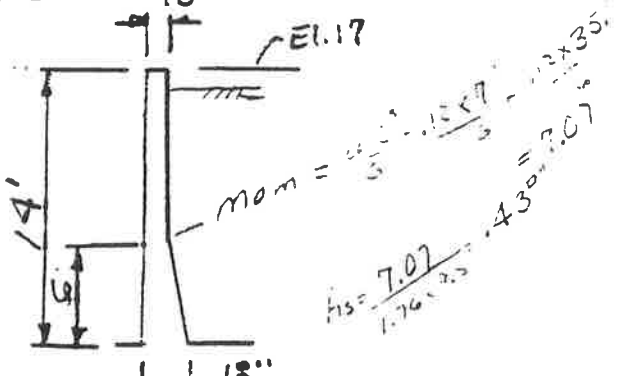
$\ell^3 = \frac{6 \times 52.3}{.120} = 50 \times 52.3 = 2620$

$\ell = 13.8 > 13$ Actual ∴ OK

$k F = 214 \times 225 = 52.3^{k} \simeq 47.4^{k}$

∴ 18" wall OK

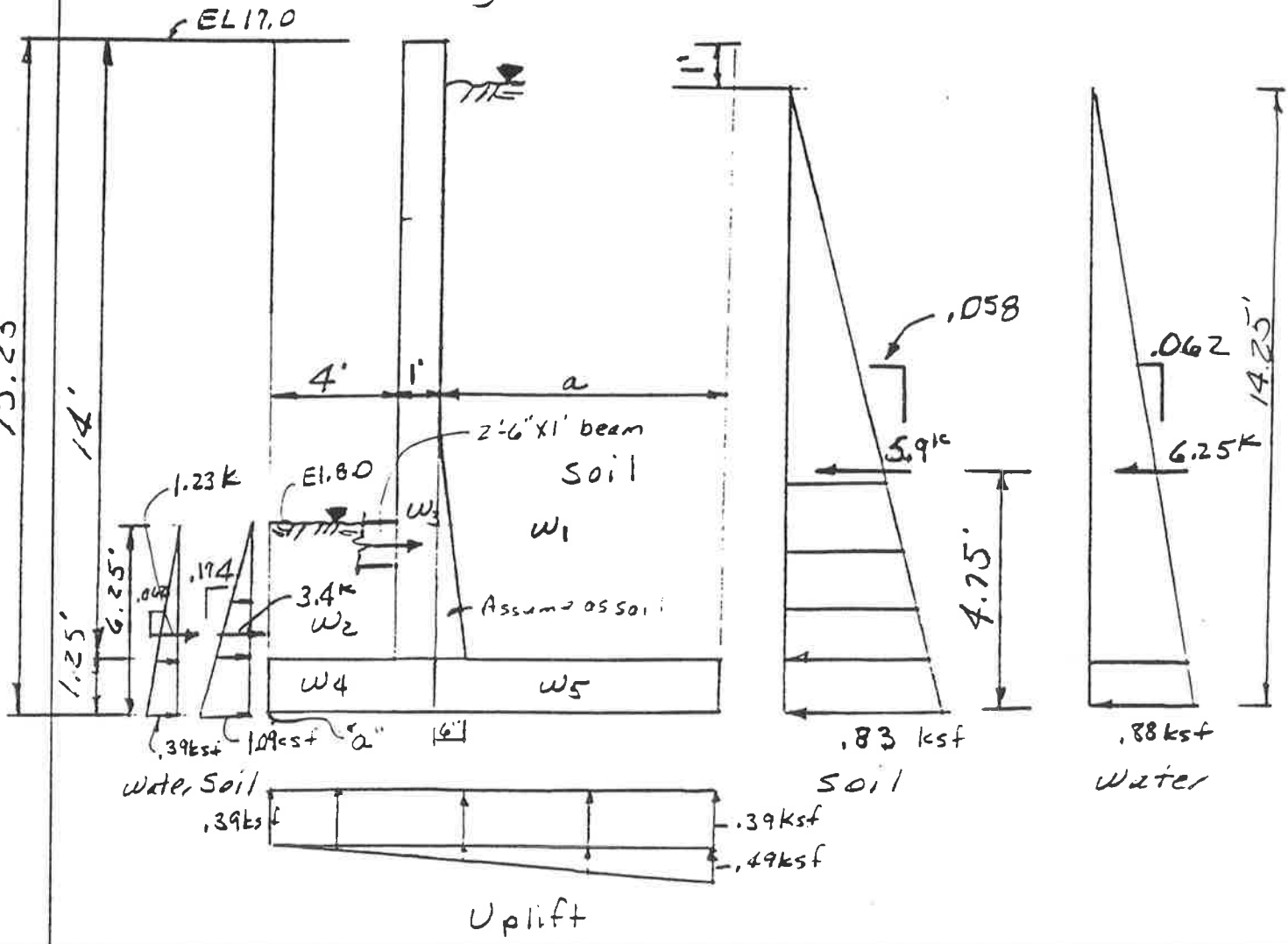
∴ Make Wall stem —



CLIENT	JOB NUMBER
Halliburton NUS	SJ-9491
SUBJECT: Retaining Wall Design @ Gates	
BASED ON	DRAWING NUMBER
BY: CF / CHECKED BY	APPROVED BY / DATE: 2 June 92

The wall stability will be controlled by Condition II

Check Stability as below



SECTION

Note: 2'-6"x1' Beam @ El. 8.0 will resist sliding.

CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0481		
SUBJECT	Retaining Wall		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 2 June '92

Taking moments about point "a".

Try "a" = 10', Total = 15'

Item	Area	× Unit wt =	wt	× dist =	Mom
W_1(soil)	10 × 13 = 130 □'	× .120 k	= 15.6 k	× 10'	= 156.0 ft-k
W_2(soil)	4 × 5 = 20 □'	× .120	= 2.4	× 2'	= 4.8 ft-k
W_3(conc)	1 × 14 = 14	× .150	= 2.1	× 4.5	= 9.45 ft-k
W_4(conc)	5 × 1.25 = 6.25	× .150	= .94	× 2.5	= 2.25 ft-k
W_5(conc)	10 × 1.25 = 12.5	× .150	= 1.88	× 10	= 18.8 ft-k
	Sub Totals		22.92 k ↓		191.3 ft-k ↷
Uplift	.39 × 15 =		5.85 k ↑	× 7.5	44.0 ft-k ↶
	.49 × 15/2 =		3.68 ↑	× 10	36.8 ft-k ↶
	Sub Total		9.53 k ↑		80.8 ft-k ↶
	Total		13.39 ↓ k		110.5 ft-k ↷

Mom = 2.08'(1.23 k + 3.4 k) − 4.75(5.9 k + 6.25 k)

From Horiz. Forces = 2.08(4.63) − 4.75(12.15)

= 9.6 − 57.6 = 48 ft-k

∴ Total Mom about a = 110.5 − 48 = 62.5

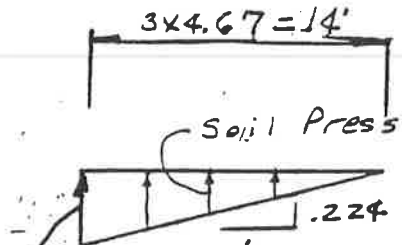
Resultant Soil P = $\frac{62.5 \text{ ft-k}}{13.39 \text{ k}}$ = 4.67' from point "A"

e = 7.5 − 4.67 = 2.83', $\frac{b}{6} = \frac{15}{6} = 2.5' < 2.83'$, Say OK

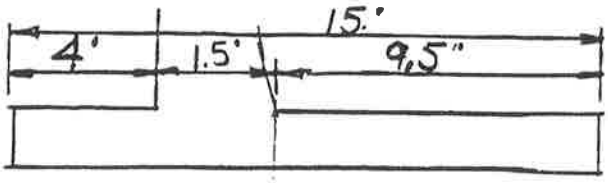
92% in Compression

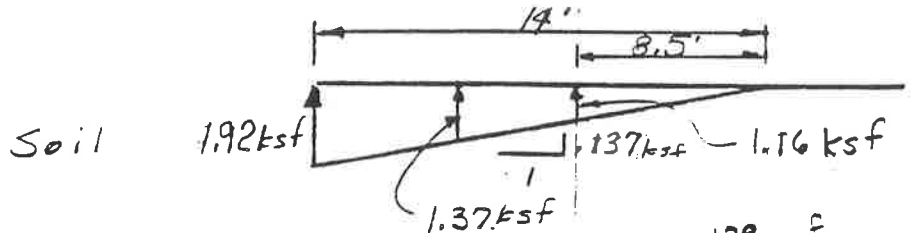
CLIENT		JOB NUMBER	
Halliburton NUS		SJ-0481	
SUBJECT	Retaining Wall		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 4 June 92

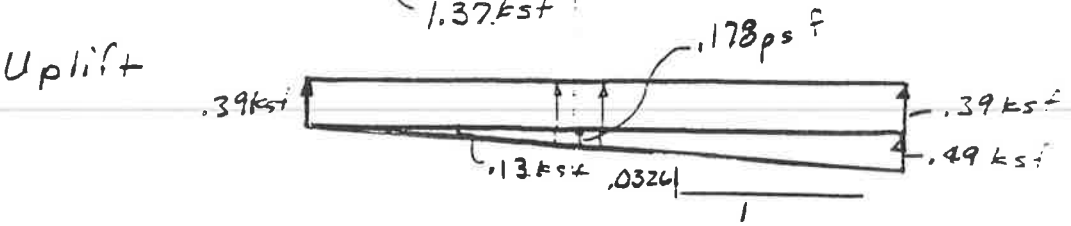
Soil pressure =

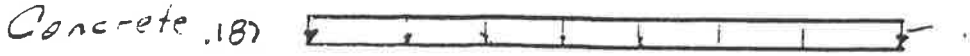


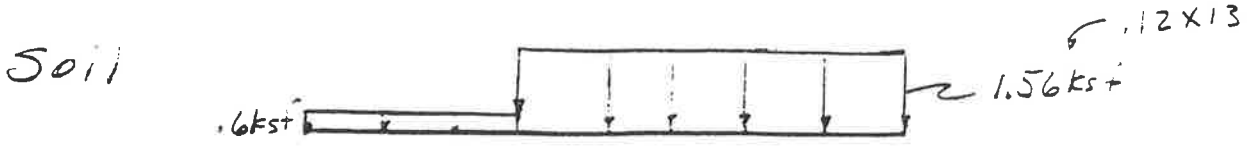
$$P = \frac{P}{A} = \frac{13.39}{.5 \times 14} = 1.92 \text{ksf}$$











CLIENT		JOB NUMBER	
Halliburton NUS		SJ-0481	
SUBJECT			
Retaining Wall			
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
CF			4 June 92

Mom in Toe

Soil P $= \frac{wl^2}{2} + \frac{wl^3}{3}$

$= \frac{1.32 \times 4^2}{2} + \frac{.137 \times 4^3}{3}$

$= 10.95^{1K} + 2.92^{1K}$ → 13.87^{1K}

Uplift $= \frac{wl^2}{2} + \frac{wl^3}{6}$

$= \frac{.39 \times 4^2}{2} + \frac{.0326 \times 4^3}{6}$

$= 3.12 + .348$ → 3.61^{1K}

Conc $= \frac{.187l^2}{2} = \frac{.187 \times 4^2}{2} =$ ← 1.5^{1K}

Soil $= \frac{wl^2}{2} = \frac{.6 \times 4^2}{2} =$ 4.8

$17.48^{1K} - 6.3^{1K}$

Σm

Mom in Toe $= 11.18^{1K}$

CLIENT		JOB NUMBER	
Halliburton NUS			
SUBJECT			
Retaining Wall			
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
CF			2 June '92

Mom in heel @ 9.5

Soil Pressure Up $M = \frac{wl^3}{6}$

$= \frac{.737 \times 8.5^3}{6} = 14.0^{11c}$

Uplift $\frac{wl^2}{2} + \frac{wl^3}{3}$

$(.178 + .39)\frac{9.5^2}{2} + \frac{.0326 \times 9.5^3}{3}$

$25.63 + 9.4 = 35.03$

Concrete $\frac{wl^2}{2} = \frac{.187 \times 9.5^2}{2} = 8.45$

Soil $\frac{wl^2}{2} = \frac{1.56 \times 9.5^2}{2} = 49.03^{1K}$ (1.56 = .12 × 13)

70.4

78.85^{1K}

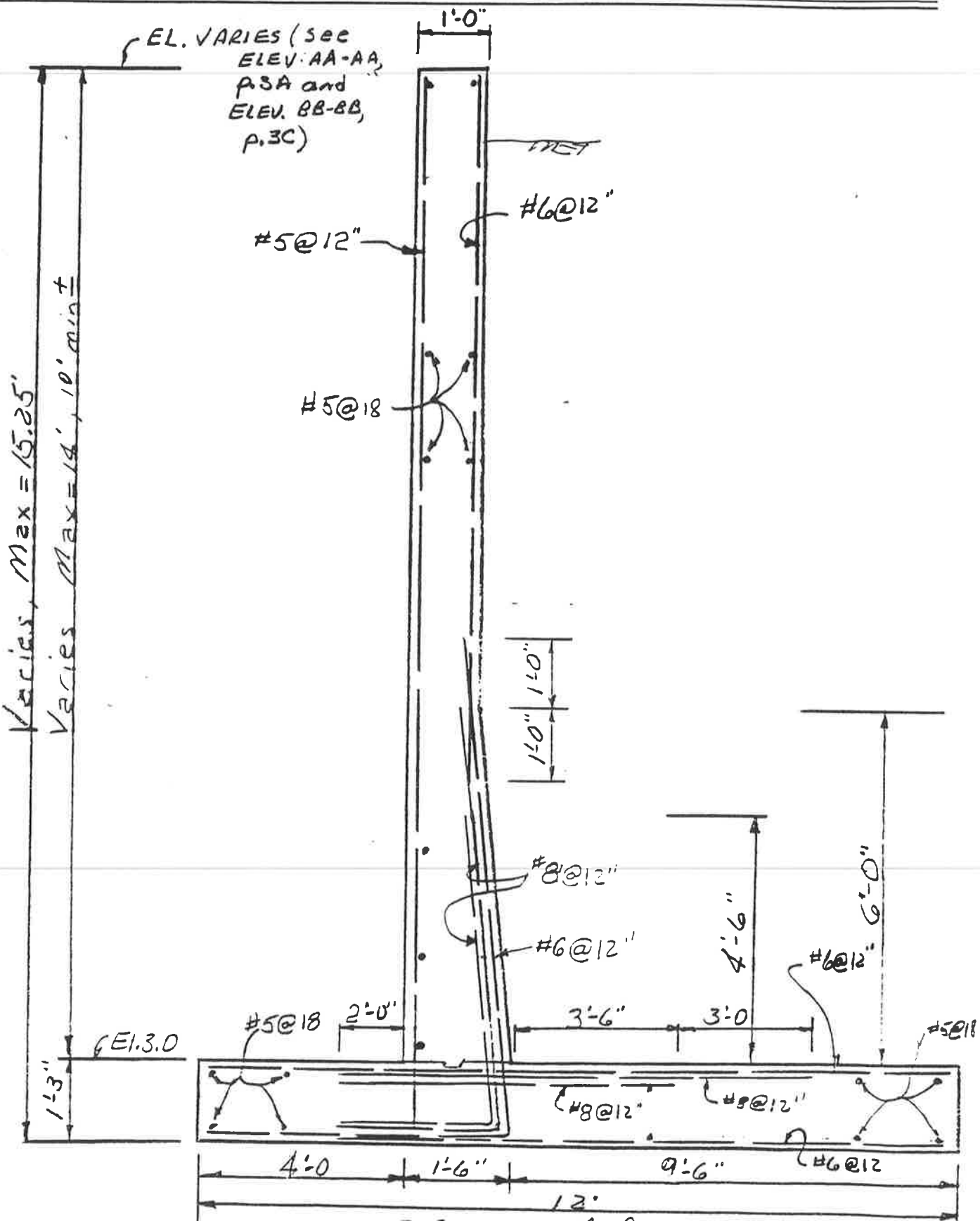
$M = 78.85 - 49.03 = 29.82^{1K}$

$A_s = \frac{29.82^{1K}}{1.76 \times 12.5} = \frac{29.82}{22} = 1.54^{a''}$

Use # 8@12" + # 8@12" + #6@12" in top of slab

$= .79 + .79 + .44 = 2.02^{a''} > 1.54^{a''}$ req'd

CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0481		
SUBJECT	Retaining Wall		
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
CF			2 June '92



CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0481		
SUBJECT: Retaining Wall			
BASED ON	DRAWING NUMBER		
BY: CF	CHECKED BY	APPROVED BY	DATE: 6-5-92

Discontinue Section B-B with 1'-6" stem thickness where $\ell = 10'$ (see page 5 for 10' determination).

The ℓ of 10' occures @ $\frac{1}{2}$ X Crest width + 2 X 3' (slope)

$= \frac{1}{2} \times 6 + 2 \times 3$

$= 9'$ on upstream side.

With 3:1 slope on downstream side, ℓ of 10' occures $\frac{1}{2}$ X Crest + 3 X 3

$= 3' + 9' = 12'$ from centerline.

∴ Make center section $9' + 12' = 21'$ long (see sheet 3)

Make a & b in plan on page 3 minimal.

Mak a = 1' & b = 3' because no moment on wall.

CLIENT		JOB NUMBER	
Halliburton NUS		SJ-0481	
SUBJECT	Retaining Wall		
BASED ON		DRAWING NUMBER	
BY	CF	CHECKED BY	APPROVED BY	DATE 6-5-92

Next find ℓ where 2-#6@12" or .88□"/ft is adequate

$$A_s = \frac{M}{ad}$$

$M_3 = A_s \times a \times d$ (See page 4)

$= .88 \times 1.76 \times 9.5$

$= 14.7^{1K}$

$M_1 = 1.1$

$M_2 = 14.7 - 1.1 = 13.6^{1K}$

$$M = \frac{w\ell^3}{6}$$

$$\ell^3 = \frac{6 \times 13.6}{.12} = 680$$

$\ell = 8.8'$ ∴ Reduce steel to #6@6" at $\ell = 9'$

Next find ℓ where 1-#6@12" or .44□"/ft is adequate

$M_3 = .44 \times 1.76 \times 9.5$

$= 7.3$

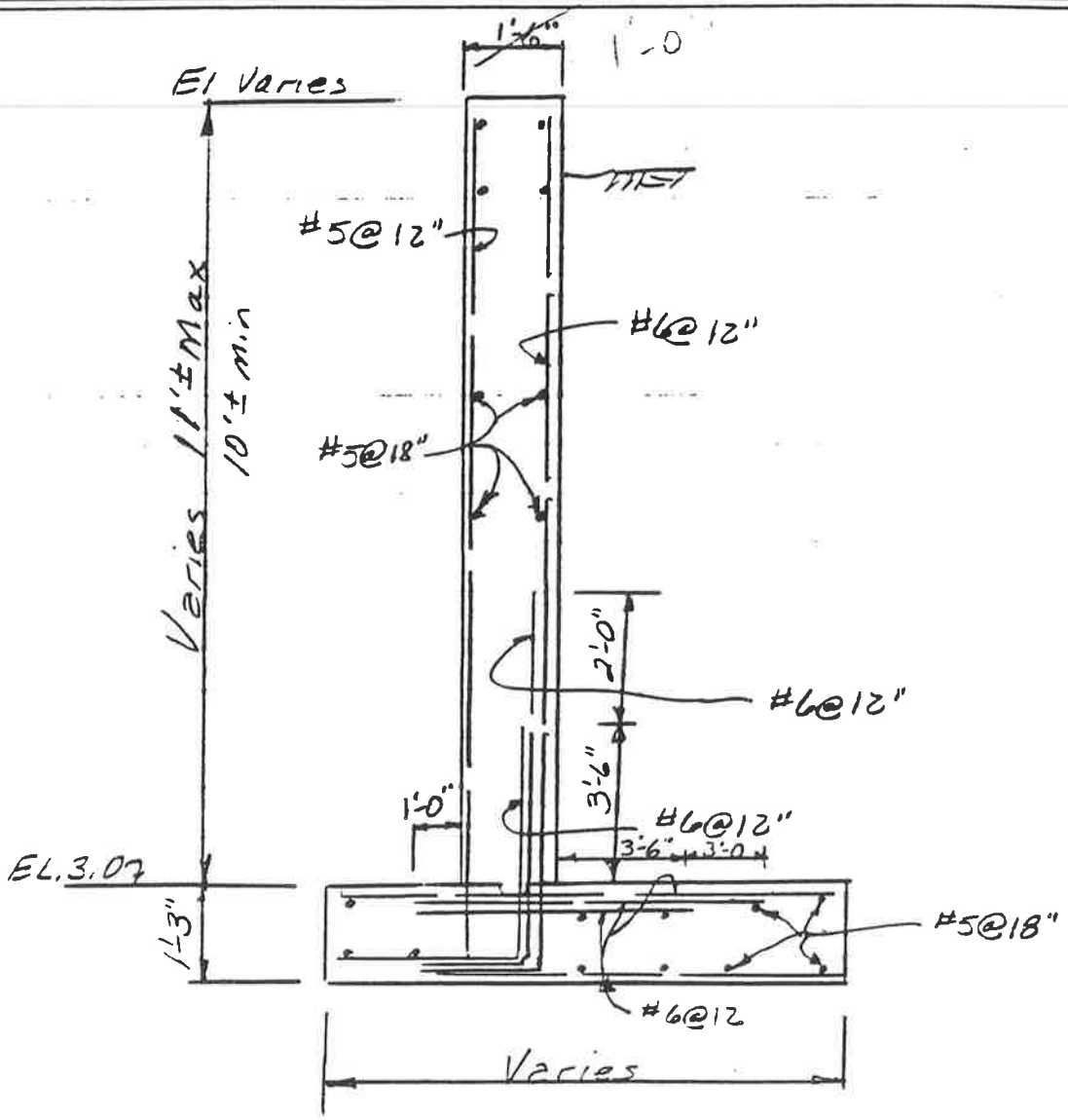
$M_1 = 1.1^{1K}$

$M_2 = 7.3 - 1.1 = 6.2^{1K}$

$$\ell^3 = \frac{6 \times 6.2}{.12} = 310$$

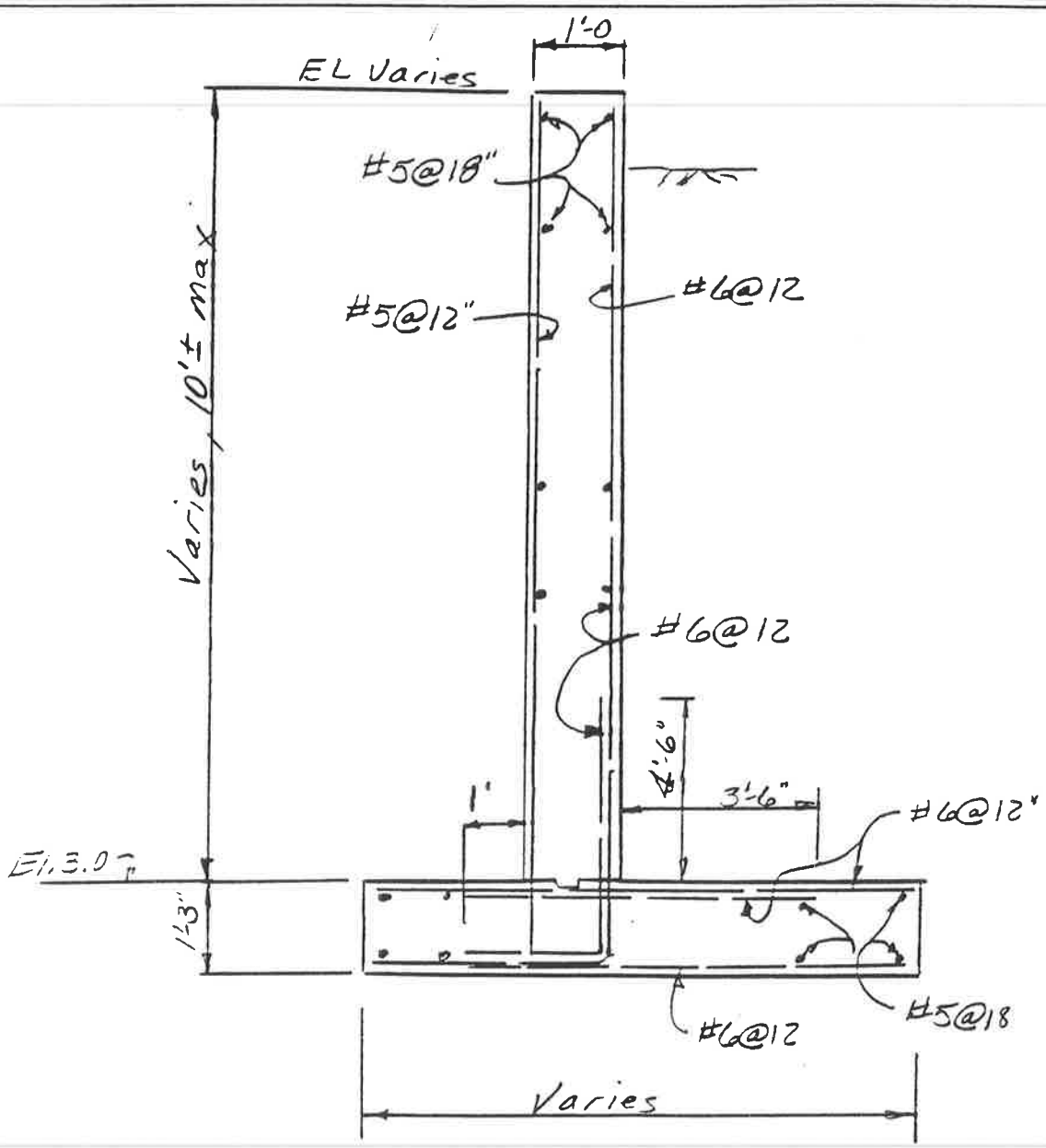
$\ell = \sqrt[3]{310} = 6.7'$ ∴ Reduce steel to #6@12' at $\ell = 7'$

CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0481		
SUBJECT	Retaining Wall		
BASED ON		DRAWING NUMBER	
BY CF	CHECKED BY	APPROVED BY	DATE 6-5-92



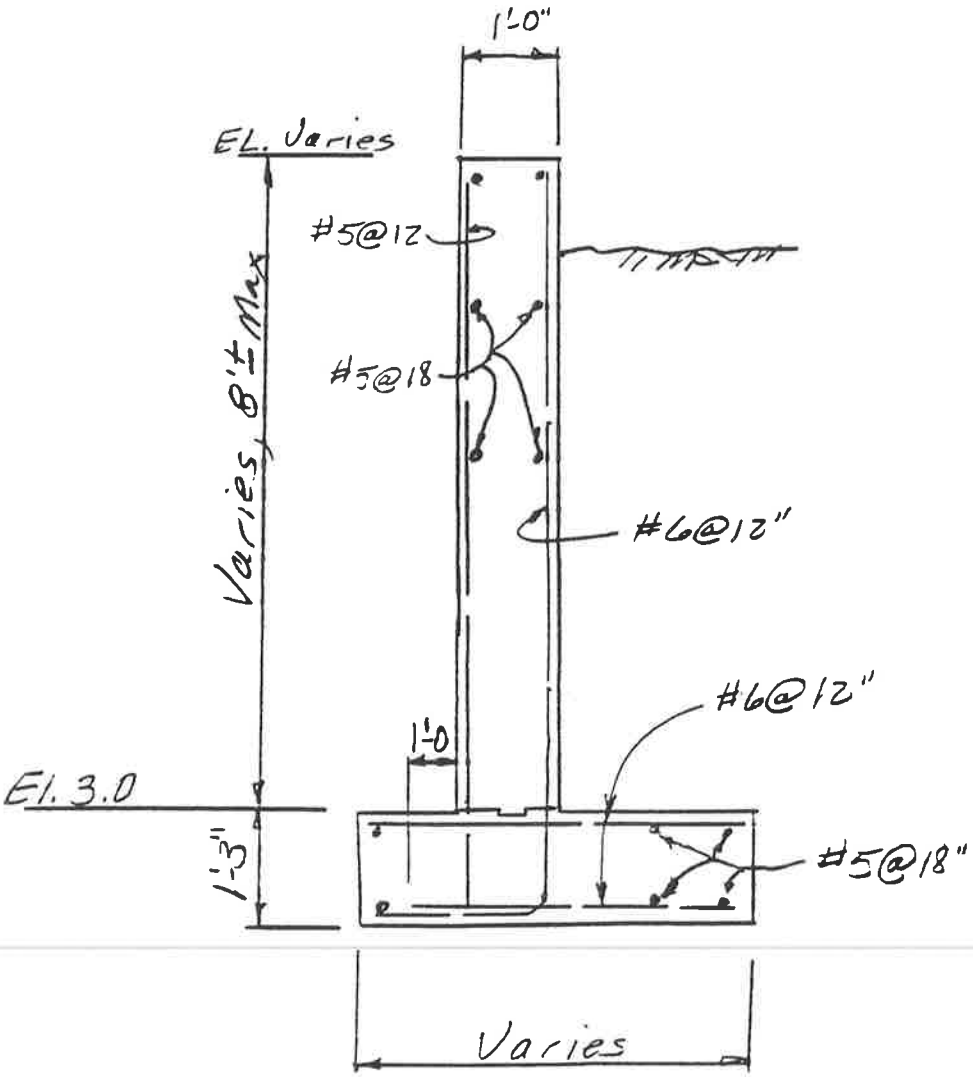
SECTION B-B

CLIENT	JOB NUMBER
Halliburton NUS	SJ-0481
SUBJECT: Retaining Wall	
BASED ON	DRAWING NUMBER
BY: CF / CHECKED BY	APPROVED BY / DATE: 6-5-92



SECTION C-C

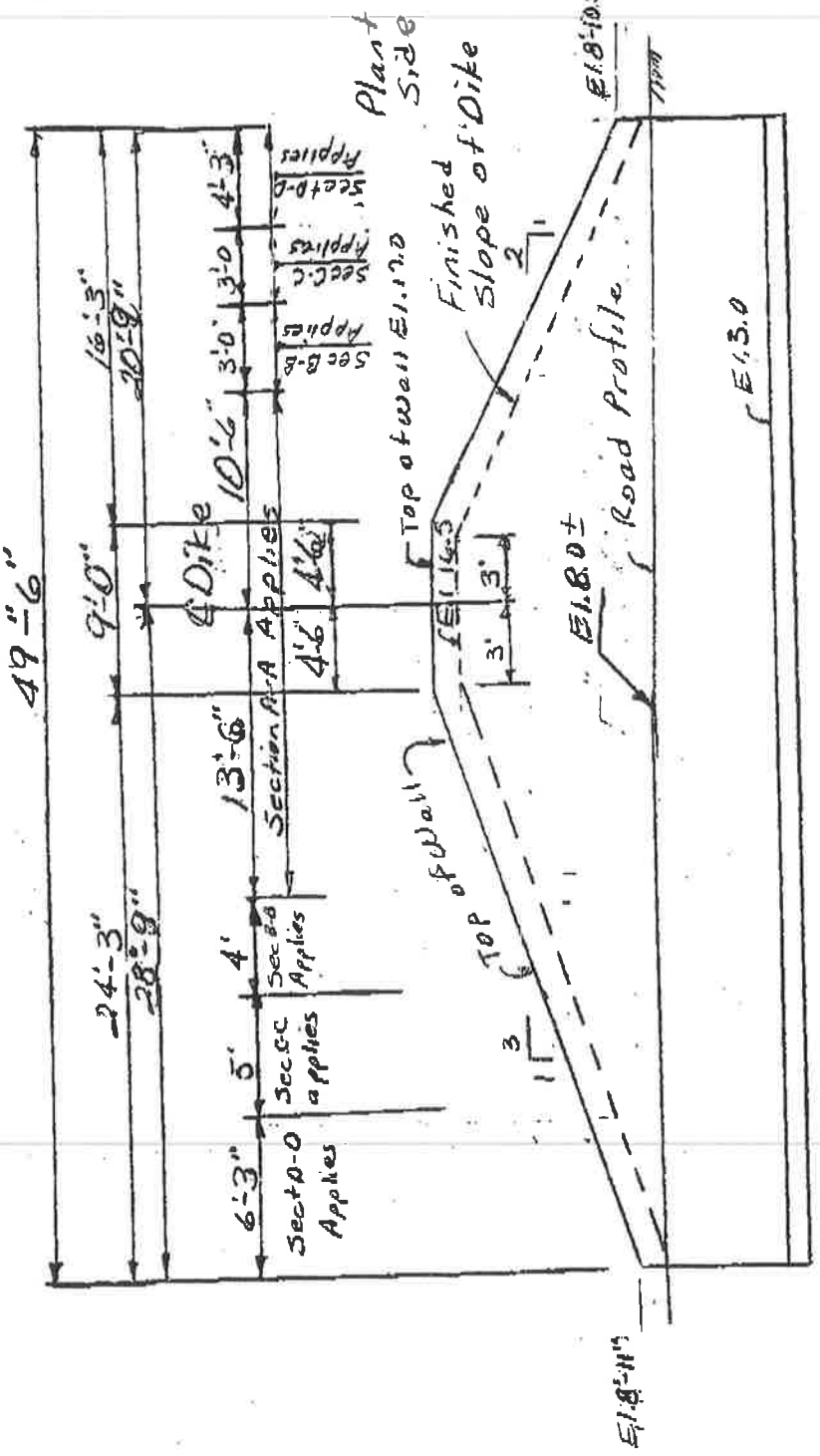
CLIENT	JOB NUMBER		
Halliburton NUS	SJ-0481		
SUBJECT: Retaining Wall			
BASED ON	DRAWING NUMBER		
BY: CF	CHECKED BY	APPROVED BY	DATE: 6-5-92



SECTION D-D

CALCULATION WORKSHEET Order No. 10115 (01-91)

CLIENT Halliburton NUS	JOB NUMBER SJ-0481
SUBJECT Retaining Wall @ Gates	
BASED ON	DRAWING NUMBER
BY / CHECKED BY	APPROVED BY / DATE 2 June 92



ELEVATION AA-AA
@ Southwest Gate

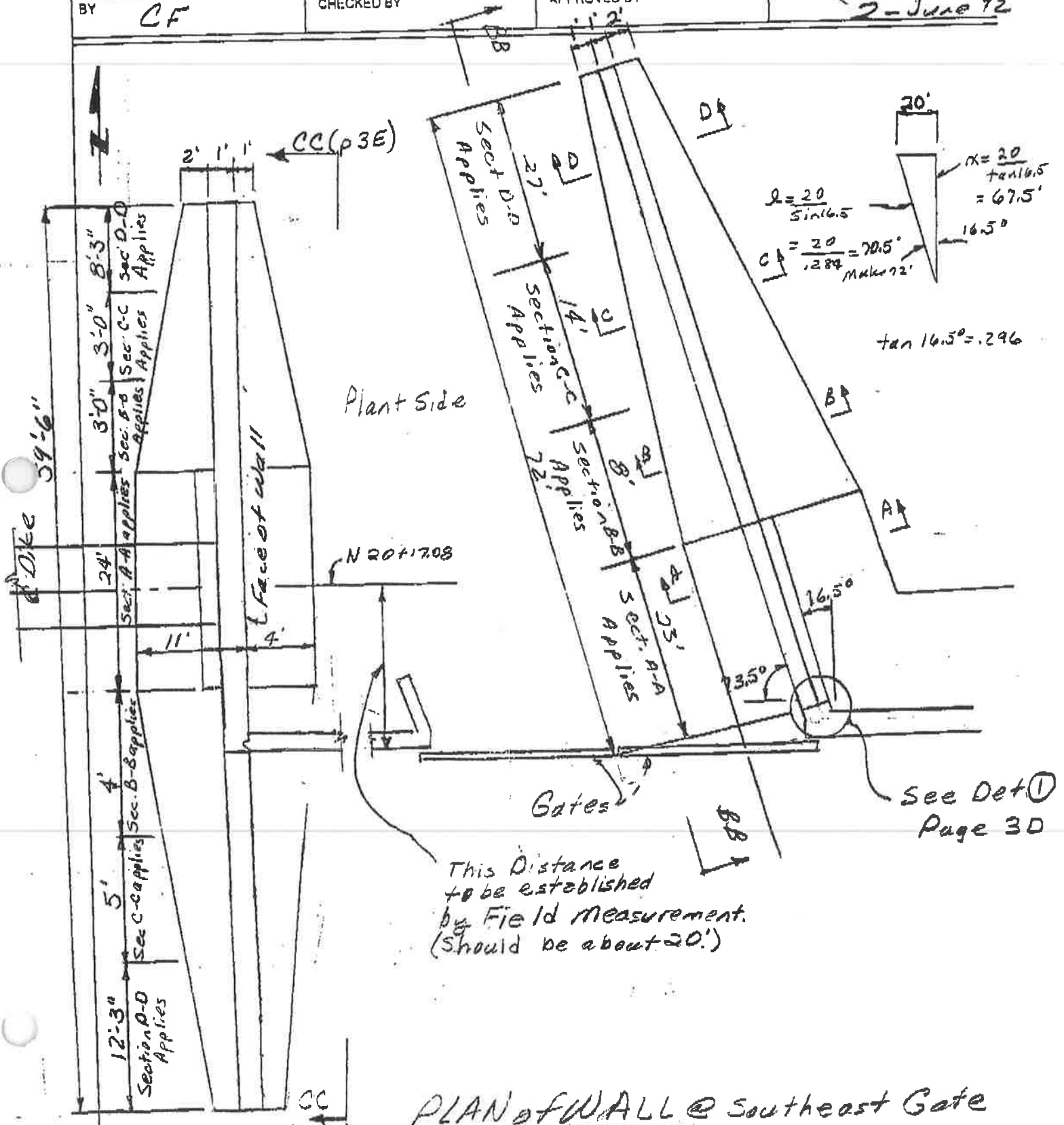
FAX 1 of 5 pages

PAGE *3B OF 16*

CALCULATION WORKSHEET Order No. 19116 (01-91)

CLIENT	JOB NUMBER
Halliburton NUS	SJ-0481
SUBJECT: Retaining Wall @ Gates	
BASED ON	DRAWING NUMBER
BY: CF	CHECKED BY / APPROVED BY / DATE: 2-June 92

*Revised 11 June 92

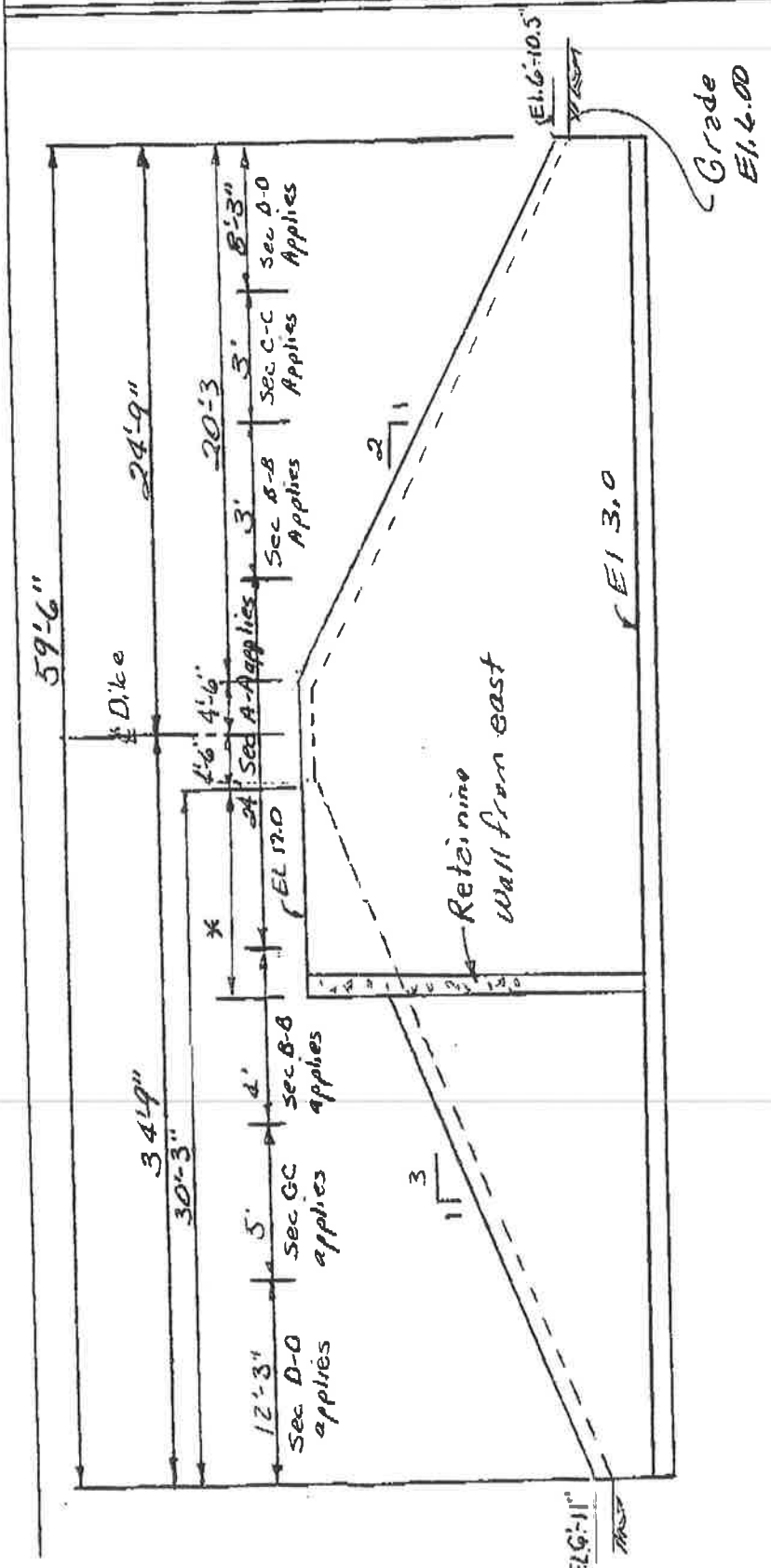


PLAN of WALL @ Southeast Gate

No Scale

CALCULATION WORKSHEET Order No. 19116 (01-81)

CLIENT Halliburton NUS	JOB NUMBER SJ-0481
SUBJECT Retaining Wall at Gates	
BASED ON	DRAWING NUMBER
BY CF / CHECKED BY / APPROVED BY	DATE 11 June 92



ELEVATION CC-CC

No Scale

* Distance to be field measured.