Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: 6/19/2024
Facility Name: BASF Beaumont Argo Plant
Permit or Registration No.: 50219

Nature of Correspondence:
☐ Initial/New
☒ Response/Revision to TCEQ Tracking No.: 29714498 (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: R**esponse to ANOD**	

Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: April 8, 2024
Facility Name: BASF Beaumont Agro Plant
Permit or Registration No.: 50219

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

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☐ Temporary Authorization	☐ Soil Boring Plan
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☐ 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
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☐ Class 1 Modification	☐ Trial Burn Plan/Result
☐ Endorsement	☐ Unsaturated Zone Monitoring Report
☐ Temporary Authorization	☐ Waste Minimization Report
☐ Voluntary Revocation	☐ Other:
☐ 335.6 Notification	
☐ Other:	

6878

Class 3 Hazardous Waste Permit Modification

BASF Corporation Agro Plant, Beaumont, Texas
Hazardous Waste Permit No. 50219

Issued: 8 April 2024

Prepared for: BASF Corporation

GSI Environmental Inc.
2211 Norfolk, Suite 1000, Houston, Texas 77098-4054 tel. 713.522.6300

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part A Application

Contents

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part A Application Form with Signature Page

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, as well as other Industrial and Hazardous Waste documents, is available on the Internet World Wide Web, Industrial and Hazardous Waste home page at address https://www.tceq.texas.gov/permitting/waste_permits/ihw_permits]

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

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 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

[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.

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.)

Table of Contents

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: **BASF Corporation**

(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: **30053** EPA I.D. No.: **TXD067261412**

Street Address (If Available): **14385 West Port Arthur Road**

City: **Beaumont**, State: **TX** Zip Code: **77705**

County: **Jefferson**

Telephone Number: **409-981-5052** Charter Number: **4205406**

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.

   Kendra Derrick - EHS Specialist
   BASF Corporation
   14385 West Port Arthur Road
   Beaumont, TX 77705
   Phone: 409-981-5184
   Email: [redacted]

2. 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.

   C.T. Corporation
   1999 Bryan Street, Suite 900
   Dallas, TX 75201-3136
   214-979-1172

C. Operator[2]: Identify the entity who will conduct facility operations.

Operator Name: **BASF Corporation**

Address: **100 Campus Drive**

[2] 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].

City: **Florham Park**, State: **NJ** Zip Code: **07932**

Telephone Number: **973-245-6000** Charter Number: **4205406**

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: **BASF Corporation**

Address: **100 Campus Drive**

City: **Florham Park**, State: **NJ** Zip Code: **07932**

Telephone Number: **973-245-6000**

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	**SWR 30053**	**TCEQ**
2.	Wastewater disposal under the Texas Water Code	**WQ0001169000**	**TCEQ**
3.	Underground injection under the Texas Water Code	**WDW-155, WDW-201 WDW-301, WDW-302 WDW-433, WDW-434 PIU-30053**	**TCEQ**
4.	Texas Clean Air Act	**20057, 978B, 113174, 151935, 152562, 157151, 157585, 158173, 158481, 164582, 173963, JE0113D**	**TCEQ**
5.	Texas Uranium Surface Mining & Reclamation Act	**None**	
6.	Texas Surface Coal Mining & Reclamation Act	**None**	
7.	Hazardous Waste Management program under the Resource Conservation and Recovery Act	**50219** **TXD067261412**	**TCEQ** **EPA**
8.	UIC program under the Safe Drinking Water Act	**None**	
9.	TPDES program under the Clean Water Act	**TX0003671**	**EPA**
10.	PSD program under the Clean Air Act	**None**	
11.	Nonattainment program under the Clean Air Act	**None**	
12.	National Emission Standards for Hazardous Pollutants (NESHAP) Pre-construction	**None**	

approval under the Clean Air Act

13. Ocean dumping permits under the Marine Protection Research and Sanctuaries Act **None**

14. Dredge or fill permits under section 404 of the Clean Water Act **None**

15. Other relevant environmental permits **None**

*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.

Manufacture of agricultural chemicals.

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.

The Core Data Form is attached to this Class 3 Permit Modification.

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: 4/5/24

Name and Official Title (type or print): **Elizabeth Monroe, Site Director**

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, _____ hereby designate _____
(operator) (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.

_____
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 **Elizabeth Monroe** on this
5th day of April, 2024.

My commission expires of the 12th day of February, 2028

Madonna Ann Johnson
Notary Public in and for Jefferson County, Texas

MADONNA ANN JOHNSON
MY COMMISSION EXPIRES
FEBRUARY 12, 2028
NOTARY ID: 124689328

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.

Approximately two miles northwest of the Jefferson County Airport on West Port Arthur Road.

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

Entry to the facility is off of the west side of West Port Arthur Road approximately 2.5 miles north of the intersection of Highway 365 and West Port Arthur Road.

3. Enter the geographical coordinates of the facility:

Latitude: **29** deg **58** min **11** sec

Longitude: **94** deg **03** min **33** 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.

There are no changes to the existing legal description of the facility, which was provided in the October 2020 Class 2 permit modification that was approved by TCEQ on January 28, 2021; therefore, Attachment B is not provided in this Class 3 permit modification.

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
2869	Industrial Organic Chemicals
2879	Pesticides and Agricultural Chemicals

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.

III. 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).

   Table III-1 is provided and has not changed from the version submitted in the Class 2 permit modification submitted in October 2020 and approved

by TCEQ on January 28, 2021.

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).

   Table III-2 is provided as it was submitted in the Class 2 permit modification submitted in October 2020 and approved by TCEQ on January 28, 2021.

   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.

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: **There are no changes to the facility map, which was provided in the October 2020 Class 2 permit modification that was approved by TCEQ on January 28, 2021; therefore, Attachment C is not provided in this Class 3 permit modification.**

   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;

   c. All on-site injection wells where liquids are injected underground;

   d. All known monitor wells and boreholes within the property boundaries of the facility; and

   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.).

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. **There are no new units proposed in this Class 3 permit modification; therefore, Attachment D is not provided in this Class 3 permit modification**

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.

There are no proposed changes to the process flow diagram, which was provided in the October 2020 Class 2 permit modification that was approved by TCEQ on January 28, 2021; therefore, Attachment E is not provided in this Class 3 permit modification

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.

IV. 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 for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Acute Lab Packs	0001004H	D001, D003, P005, P024, P030, P106, P119, P120				X			<0.1 T
Contaminated Xylene-DCP Process Stream	1004203H	D001, F003				X			<1000 T
Methanol and TCB	1004203H	D001				X			<1000 T
Flammable mixture containing DEK, Methanol, MEK, HMP, Propanic Acid	2001203H	D035, D001				X			0
MPP Lab Waste	2020201H	D001, F003, F005				X			0
MPP Organic Waste	3025201H	D001, D002, D003, F003, F005				X			0
Toluene Contaminated Absorbents	3027403H	F005, U161, U220				X			0

[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 for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Waste Corrosive Chemicals	4001105H	D002				X			<1T
Frontier Liquid Organic Waste	5001219H	D001, U122				X			0
HMP/DMTA Tars	5010219H	D001				X			0
Lab Packs	6012003H	D001, D002, D003, D008, D018, U001, U188				X			<1T
Sample Waste (lab analytical waste)	6027201H	D001, D002, D018, D022, F003, F005				X			<1 T
Flammable Liquids, including haz. Tank bottoms	9036219H	D001, D018, F003, F005				X	X		<100 T
Other Waste Inorganic Solids	9037319H	D009				X			<0.1 T
Elemental Mercury	9042319H	D009				X			<0.1 T
Out-Dated Chemicals	9045203H	D001				X			<0.1 T
Waste Gas Cylinders	9046801H	D001				X			<0.1 T
Aerosols	9047219H	D001, D003				X			<1000 T
Old Akzo Nobel C5809	9048219H	D001				X			<0.1 T
MPP Organic Wastewater	9063219H	D001				X			0
Hydrogen Peroxide	9096105H	D001, D002				X			<0.1 T
Thionic waste from DMTA Unit	9087204H	D001				X			<100 T
Waste Dimethylamine	9121219H	D001, D002				X			<100 T
Waste Neutral Oils	9125609H	D001, D002				X			<10 T

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Hazardous DCP Production Waste	9128208H	D041, D042				X			<2000 T
Hazardous Contaminated Soil from Spill Cleanup	9129409H	D018				X			<100 T
Waste Diesel Material	9156219H	D001				X			<10 T
MPP and DMTA High TDS Wastewater	113H	D001, D002, F003, F005				X			<1000 T
DMTA and Dicamba Acidic Wastewater	105H	D001, D002				X			<1000 T
DCP Isomers	1001208H	U081				X (inactive)	X (inactive)		0
Heptane / Dienochlor Organic Waste	2017219H	D001, U130				X (inactive)			0
Chlorinated Acrylonitrile Waste	2018219H	D001, U009				X (inactive)			0
Aqueous Waste with Cyanides	2019102H	D003				X (inactive)			0
Discarded Chemicals	2021207H	D001, D002				X (inactive)			0
Toluene	2023203H	D001, U220				X (inactive)			0
Sulfuric Acid	3001104H	D002				X (inactive)			0
Solvent Mixture Contaminated with Pesticides & Herbicides	3026204H	D001, D002, U220				X (inactive)			0
Organic Mixture from MPP Line Clean Out	3034219H	D001				X (inactive)			0
Methyl Tert Butyl Ether and Methanol	3039219H	D001				X (inactive)			0

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Fiber Filters Containing Hydrazinehydrate	3040405H	D002, D003				X (inactive)			0
Used Hydrazine Hydrate Solution	3041119H	D002, U133				X (inactive)			0
MPP Filter Socks	3042108H	D002				X (inactive)			0
Contaminated Water	4002102H	D035, F003, F005, U002, U081, U159, U220, U226, U239				X (inactive)	X (inactive)		0
HMK Waste	5002219H	D001				X (inactive)			0
Storage Tank Rinse Water	5009219H	D018				X (inactive)			0
Treatment Chemicals	7009110H	D001, D002				X (inactive)			0
Paint Thinner or Petroleum Distillates	8013211H	D001, D035, F003, F005				X (inactive)			0
Non-Halogenated Solvents	8036203H	D001				X (inactive)			0
Paint – Ink Remover	8038112H	D007				X (inactive)			0
Halogenated / Non-Halogenated Solvent Mixture	9023204H	D001, D035, F003, F005, U154, U220, U239				X (inactive)			0
Off-Spec Herbicide Product	9040402H	U240				X (inactive)			0
Concrete Piping Debris	9041319H	D009				X (inactive)			0
Out Dated Tetra Methoxypropane	9044203H	D001				X (inactive)			0
DMA Waste	9052219H	D001, D002				X (inactive)			0

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
Tank J-516	032	Closed	20,000 gallons	13	1990 to 2003
Tank J-519	033	Closed	6,000 gallons	10	1993 to 2003
Tank B-521	034	Closed	2,000 gallons	13	1990 to 2003
Tank B-503	035	Closed	1,000 gallons	13	1990 to 2003
Thermal Process Unit H-507	036	Closed	15 x 10^6 BTUs/hr	13	1990 to 2003
Tank F-414A	042	**Active**[3]	196,202 gallons	34	1990 to present
Tank WB-1767	061	**Active**[3]	150,000 gallons	34	1990 to present
Tank F-414B	042	**Active**[3]	197,000 gallons	34	1990 to present
Tank F-414C	069	**Active**[3]	197,000 gallons	34	1990 to present
Tank WB-502A	073	**Active**[3]	1,000,000 gallons	34	1990 to present
Tank WB-502B	074	**Active**[3]	1,000,000 gallons	34	1990 to present
Tank WB-1765	071	**Active**[3]	1,000,000 gallons	34	1990 to present

[1] Indicate only one of the following: Active, Inactive, Closed, or Proposed
[2] Cubic yards, gallons, pounds, gallons/minute, pounds/hour, BTUs/hour, etc.
[3] **Tank is in non-hazardous waste service associated with a UIC pre-injection unit.**

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part A, Attachment A: Core Data Form

TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of 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 600124895		RN 100634922

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:*

BASF CORPORATION

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
4205406	[redacted]	[redacted]	74201658

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ 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
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:							
	14385 West Port Arthur Road						
City	Beaumont	State	TX	ZIP	77705	ZIP + 4	9290

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
N/A	N/A

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(409) 981-5000		( ) N/A-

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (*If 'New Regulated Entity" is selected below this form should be accompanied by a permit application*)

☐ 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 Agency 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.*)

BASF Beaumont Agro Plant

23. Street Address of the Regulated Entity: *(No PO Boxes)*	14385 West Port Arthur Road							
	City	Beaumont	**State**	TX	**ZIP**	77705	**ZIP + 4**	9290
24. County								

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	5 miles South on West Port Arthur Road (TX 93) from the intersection of US Hwy 69 and West Port Arthur Road (TX 93)

26. Nearest City	**State**	**Nearest ZIP Code**
Beaumont	TX	77705

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	58	17	94	3	12

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)
2879	2869	325320	325199

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

Manufacturing Herbicides

34. Mailing Address:	**same as above**						
	City		**State**		**ZIP**		**ZIP + 4**	

35. E-Mail Address:	

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(409) 981-5000		( ) 0-

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
				50219,30053
☐ Municipal Solid Waste	☒ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
	20057, 978B, 113174, 151935, 152562, 157151, 157585, 158173, 158481, 164582, 173963, JE0113D			
☐ Sludge	☒ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
	TXR05DA48			
☐ Voluntary Cleanup	☒ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☒ Other:
	WQ0001169000			WDW-155, WDW-201 TCEQ WDW-301, WDW-302 WDW-433, WDW-434, PIU30053

SECTION IV: Preparer Information

40. Name:	Kendra Derrick	**41. Title:**	Environmental Specialist

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(409) 981-5184		(409) 981-5188	[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:	BASF Corporation	**Job Title:**	Site Director		
Name *(In Print)*:	Elizabeth Monroe			**Phone:**	(409) 981-5139
Signature:				**Date:**	4/5/24

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B Section I – General Information

Contents

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B, Section I: Table I

Table I: General Information

A. Applicant: Facility Operator (or Facility Owner & Operator, if same)

Name[1]	BASF Corporation
Address	14385 West Port Arthur Road
City, State	Beaumont, Texas
Zip Code	77705
Telephone Number	409-981-5052
Alternate Telephone Number	
Fax:	
TCEQ Solid Waste Registration No.	30053
EPA I.D. No.	TXD067261412
Permit No.	50219
County	Jefferson
Regulated Entity Name	BASF Beaumont Agro Plant
Regulated Entity Reference Number (RN)	100634922
Customer Name	BASF Corporation
Customer Reference Number:	600124895
Charter Number[2]	4205406
Previous or Former Names of the Facility (if applicable)	

B. Facility Owner: Identify the Facility Owner if different than the Facility Operator[3]

☒ Same as Facility Operator?

Name	BASF Corporation
Address	14385 West Port Arthur Road
City, State	Beaumont, Texas
Zip Code	77705
Telephone Number	409-981-5052
Alternate Telephone Number	
Fax:	

C. Facility Contact

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

Name, Title:	Kendra Derrick, EHS Specialist
Address	14385 West Port Arthur Road
City, State:	Beaumont, Texas
Zip Code	77705
Telephone Number	409-981-5184
Alternate Telephone Number	409-249-8574
E-mail	[redacted]
Fax:	409-981-5188

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

Name, Title:	Caitlin Wilding, EHS Manager
Address	14385 West Port Arthur Road
City, State:	Beaumont, Texas
Zip Code	77705
Telephone Number	409-981-5271
Alternate Telephone Number	
E-mail	[redacted]
Fax:	

2. Agent in Service or Agent of Service (if you are an out-of-state company)[4]:

Name, Title:	C.T. Corporation
Address	1999 Bryan Street, Suite 900
City, State:	Dallas, Texas
Zip Code	75201

3. Individual responsible for causing notice to be published:

Name:	Kendra Derrick
Address	14385 West Port Arthur Road
City, State:	Beaumont, Texas
Zip Code	77705
Telephone Number	409-981-5184
Alternate Telephone Number	
E-mail	[redacted]
Fax:	409-981-5188

4. Public place in county where application will be made available[5]:

Name	Marion and Ed Hughes Public Library
Address	2712 Nederland Avenue
City, State	Nederland, Texas

Zip Code 77627

D. Application Type and Facility Status

1. Application Type

- ☒ Permit
- ☐ New
- ☐ Interim status
- ☐ Renewal
- ☐ RD&D
- ☒ Compliance Plan

- ☐ Amendment
- ☐ Major
- ☐ Minor

- ☒ Modification
- ☒ Class 3
- ☒ Class 2
- ☐ Class 1[1]
- ☒ Class 1

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

3. Does the application contain confidential material?[6] No

4. Facility Status. Check all that apply

- ☐ Proposed
- ☒ Existing
  - ☒ On-Site
  - ☐ 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 I.1. 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: **490**

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

River Segment Taylor Bayou

River Basin Neches-Trinity Coastal Basin

E. Facility Siting Summary:

Is the facility located or proposed to be located:

1. Within a 100-year floodplain?	No
2. in wetlands?	Yes
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?	Yes
6. Within 0.5 mile (2,640 feet) of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park?[7] [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 county 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?	Yes
If Yes: List WDW Permit No(s):	155, 201, 301, 302, 433, 434
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.

TPDES Permit No.

☐ No

Date TCEQ discharge permit application filed

Date TPDES discharge permit application filed:

G. Information Required to Provide Notice

State Officials List [30 TAC 39]

State Senator

Robert Nichols
PO Box 12068
Austin, TX 78711
[redacted]

Dade Phelan

State Representative	PO Box 2910 Austin, TX 78768 [redacted]
Local Officials List [30 TAC 39]	
Mayor	The Honorable Roy West PO Box 3827 Beaumont, TX 77701 [redacted]
Local Health Authority	Kenneth Coleman, Sr. PO Box 3827 Beaumont, TX 77701 [redacted]
County Judge	The Honorable Jeff Branick 1149 Pearl Street Beaumont, TX 77701 [redacted]
County Health Authority	Ezea Ede 1295 Pearl Street Beaumont, TX 77701 [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?(see Section I Instructions, Item b.)	Yes
Has any information changed on the TCEQ Core Data Form since the last submittal?	No
Signature on Application Submitted? (see Section I Instructions, Item c)	Yes

1. Individual, Corporation, or Other Legal Entity Name - must match the Secretary of State's database records for the Facility)
2. 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.
3. 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].
4. 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.
5. 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.

6. 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".

7. Use only for a new commercial hazardous waste management facility or areal expansion of an existing commercial hazardous waste management facility or unit of that facility as defined in 30 TAC 335.202

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B, Section I: Table I.1

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 A	Update site contact and other informational updates	Class 1	30 TAC 305.69(k)(a)(1)
Part B, Section I	Update site contact information	Class 1	30 TAC 305.69(k)(a)(1)
Part B, Section III	Remove requirements for inspections of Ponds 1A through 2B	Class 2	30 TAC 305.69(k)(B)(4)
Part B, Section IX	Update the Preliminary Review Facility and Unit Checklists	Class 1	30 TAC 305.69(k)(a)(1)
Part B, Section XI - Compliance Plan	Remove all requirements for the Compliance Plan and Corrective Action Groundwater monitoring and include the Response Action Completion Report, documenting achievement of GWPS and completion of Corrective Action monitoring.	Class 3	30 TAC 305.69(k)(C)(8)

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B, Section I: Signature Page

Signature Page

I, Elizabeth Monroe, Site Director,
(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: 6/11/24

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.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

SUBSCRIBED AND SWORN to before me by the said Elizabeth Monroe
On this 11th day of June, 2024
My commission expires on the 12th day of February, 2028

MADONNA ANN JOHNSON
MY COMMISSION EXPIRES
FEBRUARY 12, 2028
NOTARY ID: 124689328

Notary Public in and for Jefferson County, Texas
*[**Note**: Application Must Bear Signature & Seal of Notary Public]*

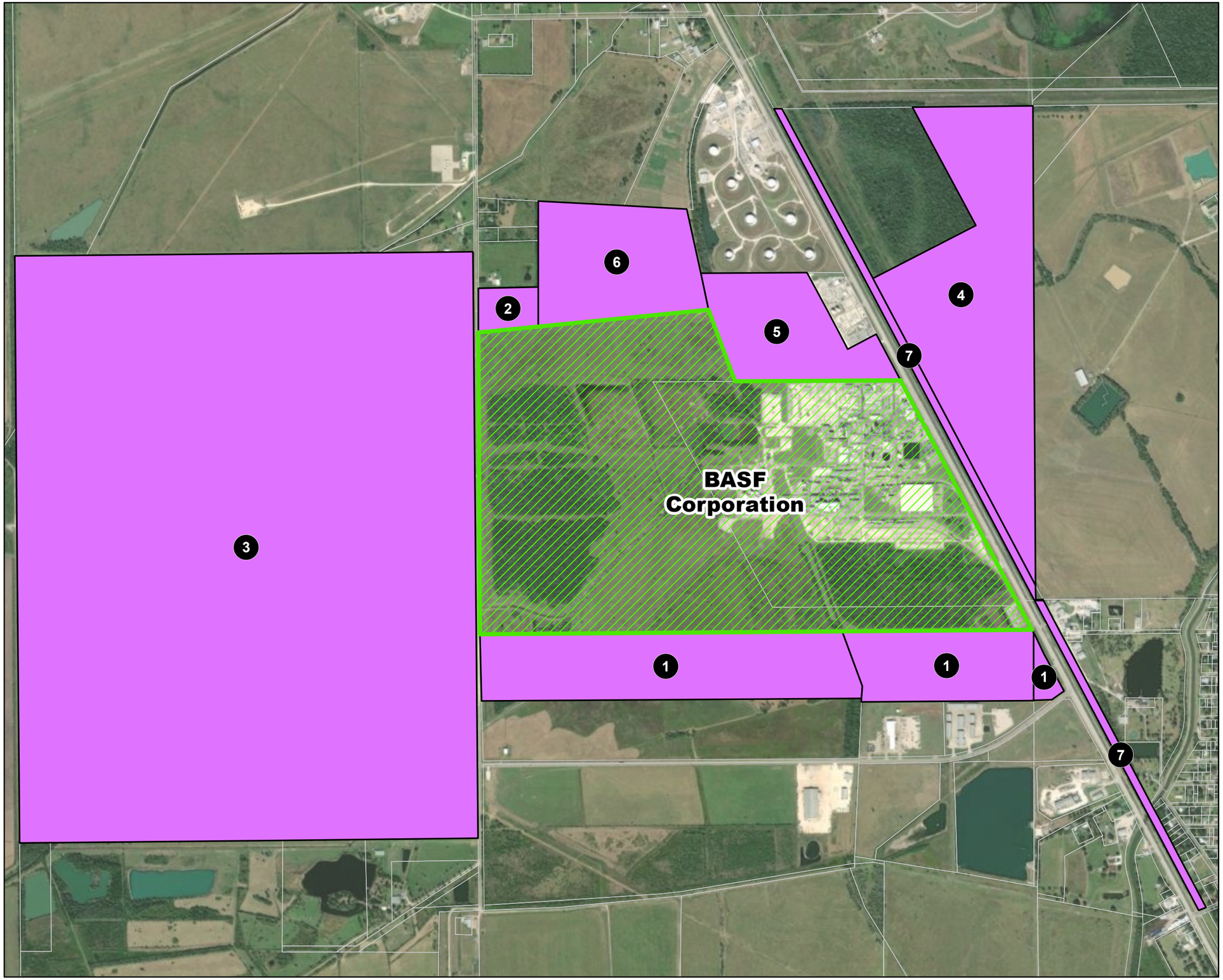
Madonna Ann Johnson

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B, Section I: Figure and Adjacent Property Owner Mailing Labels



LEGEND

- BASF Corporation, Beaumont Facility Property Boundary
- Adjacent Landowners
- 1 — Landowner ID, see attached table

Notes

1. Parcel data provided by ERSI Online: 2019 Texas Parcels StratMap (feature service by TPWD_LawEnforcement - 2/16/2022).
2. Background Imagery: ESRI World Imagery - 1m Color InfraRed NAIP imagery last modified 8/16/2023. Source: Esri, DigitalGlobe, USGS, and the GIS User Community, et al.

Feet
0 600 1,200

Projected Coordinate System
Datum: NAD 1983
UTM: Zone 15N (meters)

GSI ENVIRONMENTAL

ADJACENT LANDOWNERS MAP

Hazardous Water Permit - Class 3 Modification
BASF Corporation, Beaumont, Texas
Hazardous Waste Permit No. 50219

GSI Job No.	6878	Drawn By:	CDM
Issued:	8-Apr-2024	Chk'd By:	JMM
Map ID:	**002_01**	Appv'd By:	JMM

ATTACHMENT I.G

ATTACHMENT I.G
ADJACENT LANDOWNERS LIST

Hazardous Waste Permit Class 3 Modification Application

BASF Corporation Agro Facility, Beaumont, Texas
Hazardous Waste Permit No. 50219

Map ID	Property Owner	Address	City	State	Zip
1	Roy L Breaux	665 W Kitchen Dr	Port Neches	TX	77651
2	Gary W Collins	PO Box 876	Nederland	TX	77627
3	Department of Justice - Federal Bureau of Prisons	320 1st Stree NW #754	Washington	DC	20534
4	Diamond M Cattle & Exotics LP	PO Box 1112	Nederland	TX	77627
5	Exxon Mobil Corporation	PO Box 64106	Spring	TX	77387
6	Martin R & Beverly B Hebert III	2395 Hebert Rd	Beaumont	TX	77705
7	Valero Partners Lucas LLC	1 Valero Way	San Antonio	TX	78249

Notes:
1. Property owners listed above were obtained from the Jefferson County Appraisal District website, accessed on 25 March 2024.

ROY L BREAUX
665 W KITCHEN DR
PORT NECHES TX 77651

GARY W COLLINS
PO BOX 876
NEDERLAND TX 77627

DEPARTMENT OF JUSTICE
FEDERAL BEUREAU OF PRISONS
320 1ST STREET NW #754
WASHINGTON DC 20534

DIAMOND M CATTLE & EXOTICS LP
PO BOX 1112
NEDERLAND TX 77627

EXXONMOBIL CORPORATION
PO BOX 64106
SPRING TX 77387

MARTIN R & BEVERLY B HERBERT
2395 HEBERT RD
BEAUMONT TX 77705

VALERO PARTNERS LUCAS LLC
1 VALERO WAY
SAN ANTONIO TX 78249

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B Section III – Facility Management

Contents

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B, Section III: Table III.D

Table III.D- Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Fence integrity	damaged or broken fencing	Weekly
Sign appearance, integrity	Missing or illegible signs	Weekly
Gates - integrity, operations, locks	Gates fail to close or lock	Weekly
Alarms and Telephone operation	Alarms and telephones not functioning	Weekly
Radio operations	Radios not functioning	Weekly
Spill control equipment	Missing or deteriorated condition	Weekly
Fire control equipment	Equipment missing or not working properly	Weekly

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B Section IX – Releases from Solid Waste Units and Corrective Action

Contents

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B, Section IX: Preliminary Review Facility Checklist

Preliminary Review Facility Checklist

Facility:	BASF Corporation Agro Plant	City	Beaumont
ISW Reg. No:	30053	Date	Apr 8, 2024
Permit No.	50219	Reviewer:	BASF Corporation
EPA ID No.	TXD067261412		

A. Waste Management Units:

RCRA Regulated Units:

NOR. No.	Description	Status
	Remove Last Row	Add Row

Solid Waste Management Units:

NOR. No.	Description	Status
010	Non-hazardous Solid Waste Management Area (Ponds 1A, 1B, 2A, 2B)	Closed
	Remove Last Row	Add Row

B. Reviewed Documents

RCRA:

Part A ☒

Part B ☒

Permit ☒

CERCLA:

Inspection Reports:	Not applicable
Enforcement Actions	Not applicable
Exposure Infomation	None
Other Infomation:	TCEQ Notice of Registration, Aerial Photographs, BASF files and reports

C. Summary:

Wastewater treatment ponds 1A, 1B, 2A, and 2B received non-hazardous waste when in operation. The area near the former wastewater ponds was initially investigated in the mid-1980s and a groundwater compliance plan application was submitted on March 20, 1987. Recovery operations began in 1988 and ran more or less continuously for over 20 years. The area of the plume and the concentrations of COCs have been reduced and there has been no indication of plume expansion since 2006. The SWMA was in Corrective Action groundwater monitoring under the RCRA Permit Compliance Plan. A plume management zone (PMZ) was established, institutional controls (deed restriction) filed noting the area of the PMZ, and

groundwater monitoring for natural attenuation has been conducted through January 2024. In February 2023, BASF submitted a report demonstrating achievement of the Groundwater Performance Standards, and TCEQ concurred in a letter dated December 7, 2023.

D. Recommended Action::

As discussed with TCEQ based on the December 7, 2023, letter approving achievement of the Groundwater Performance Standards, this Class 3 Permit Modification and Response Action Completion Report are being submitted to document that the SWMA has been investigated, remediation to prevent any future releases has been completed, and no further action is required. BASF proposes that the Compliance Plan (Corrective Action) is no longer needed and should be removed from the facility's Hazardous Waste Permit No. 50219.

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B, Section IX: Preliminary Review Units Checklist

Preliminary Review Unit Checklist

Facility:	BASF Corporation Agro Plant	City	Beaumont
ISW Reg. No:	30053	Date	Apr 8, 2024
Permit No.	50219	Reviewer:	BASF Corporation
EPA ID No.	TXD067261412		

Waste Management Unit(s):

A. NOR No.:	010
B. Description:	Solid Waste Management Area (Ponds 1A, 1B, 2A, 2B); Surface Impoundment (Surge Pond associated with RCRA-exempt Wastewater Treatment Unit NOR Unit No. 06)
C. Dates of Operation:	Inactive
Wastes Managed:	Wastewater associated with RCRA-exempt Wastewater Treatment Unit (NOR Unit No. 06)
Evidence of Release:	Shallow groundwater (i.e., the upper-most aquifer) was impacted by petroleum hydrocarbons and chlorinated phenols (i.e., constituents of concern; COCs) in the area of the former surface impoundments. The groundwater was impacted due to infiltration of water from one or more of the ponds, which were remediated to prevent any future releases. The impacted groundwater was limited to an on-site location within the chemical plant, and there are no affected or threatened receptors. The chlorinated compounds detected in groundwater above the Protective Concentration Levels (PCLs) are chlorobenzene, 1,4-Dichlorobenzene, 2,4-Dichlorophenol, and 2,6-Dichlorophenol.
Pollutant Dispersal Pathways:	The direction of groundwater flow does not present any particular issues (e.g., discharge of COCs to surface water will not occur). The contaminated groundwater does not discharge to the land surface and thus there is no complete exposure pathway to wildlife. There are no crops or physical structures located within the PMZ boundary and there is no indication that vegetation overlying the area is in any way stressed due to the presence of the COCs.
	The area near the former wastewater ponds was initially investigated in the mid-1980s and a groundwater compliance plan application was submitted on March 20, 1987. Groundwater recovery operations began in 1988 and operated for 20 years. As the area of the plume and the concentrations of COCs were reduced, the number of recovery and monitoring wells were reduced in 2006 and completely shut down

Summary:	in 2009. In 2004, analyses for additional constituents (beyond those required for compliance monitoring in the Compliance Plan) indicated there are only a limited number of COCs that have concentrations above the Texas Risk Reduction Program (TRRP) Tier 1 PCLs. Remedial actions for the SWMA were conducted under a Corrective Action Program in the Compliance Plan that incorporated a plume management zone (PMZ) and groundwater monitoring for natural attenuation. In February 2023, BASF submitted a report documenting achievement of PCLs (i.e., Groundwater Performance Standards), and TCEQ concurred in a letter dated December 7, 2023.
Recommended Action:	No further action and removal of the Compliance Plan requirements from Hazardous Waste Permit No. 50219.

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B Section XI – Compliance Plan

Contents

- Part B Application Form, Section XI
- Part B Application Tables

(note that BASF is proposing to discontinue the requirements of the Compliance Plan in this Class 3 permit modification)

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B Application Form, Section XI

XI. Compliance Plan

Provide all Part B responsive information in Appendix XI. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

Groundwater Monitoring and Corrective Action Requirements for Regulated Units

Owners or operators of facilities that process, store, or dispose of hazardous waste may be required to establish groundwater monitoring and response programs in accordance with the provisions of 30 TAC 335.157. There are three types of groundwater monitoring programs which may be addressed in a Compliance Plan Application for Regulated Units: i) detection monitoring, ii) compliance monitoring, and iii) corrective action monitoring. The applicability of these various monitoring programs and the associated application requirements are illustrated in Figure 2 of the Compliance Plan Application instructions and further outlined below. A Compliance Plan Application will be required to be submitted when establishing a new compliance plan or incorporating changes in an existing compliance plan.

Detection Monitoring: An owner/operator required to conduct detection monitoring per the requirements of 30 TAC 335.164 must monitor for indicator parameters, such as specific conductance, total organic carbon, and total organic halogen, as well as chemical parameters and hazardous constituents specified in the facility permit. If a statistically significant increase in any parameter or hazardous constituent specified in the facility permit is detected in any monitoring well down gradient of the compliance point, the owner/operator must sample the groundwater in all monitoring wells and analyze the samples for the presence of 40 CFR Part 264 Appendix IX hazardous constituents. As shown in the accompanying Flow Diagram (see Figure 2), if the analytical results confirm the presence of Appendix IX constituents down gradient of the compliance point, the owner/operator must submit a Compliance Plan Application to establish a compliance monitoring program or corrective action program.

Compliance Monitoring: The requirements for compliance monitoring programs are detailed in 30 TAC 335.165. Owners/operators required to establish a compliance monitoring program must monitor the groundwater to determine whether Regulated Units are in compliance with the Groundwater Protection Standard (GWPS) specified in the compliance plan (see 30 TAC 335.158 .160). If a statistically significant increase above the GWPS in any chemical parameter or hazardous constituent specified in the compliance plan is confirmed, the owner/operator must submit a application to modify the compliance plan to establish a corrective action program in accordance with 30 TAC 335.166 (see Figure 2). If no such exceedance of the GWPS is detected for three consecutive years and the applicable compliance period has expired, the owner/operator must apply for modification of the compliance plan to re-establish a detection monitoring program for the unit. No further monitoring may be needed if the applicable post-closure care period for the unit is complete.

Regulated Unit Corrective Action Program: Owners/operators required to implement a corrective action program in accordance with the provisions of 30 TAC 335.166 must remove the hazardous waste constituents found in the groundwater or treat the groundwater in-place to levels equal to or less than the GWPS down gradient of the compliance point. The owner/operator must also establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. Corrective action measures may be terminated once the concentrations of hazardous constituents are reduced to levels equal to or below their respective concentration limits. After termination of the corrective action measures, the owner/operator must submit an application for modification of the compliance plan to re-establish a compliance monitoring program for the duration of the

compliance period (see Figure 2).

Groundwater Corrective Action Requirements for Solid Waste Management Units (SWMUs)

HSWA Solid Waste Management Unit (SWMU) Corrective Action Program: An owner/operator of a Permitted facility or an applicant applying for a hazardous waste permit is required to submit a Compliance Plan Application if hazardous constituents have been released from a SWMU and/or Area of Concern (AOC) to the groundwater and exceeds background or Practical Quantitation Limit (PQL) values, if under Risk Reduction Rules 30 TAC 335 and/or appropriate Protective Concentration Limits (PCLs), if under Texas Risk Reduction Program Rules 30 TAC 350. The Permitted facility must implement a corrective action program for SWMUs and/or AOCs in accordance with provisions 30 TAC 335.167 (see Figure 3, page 122 of the instructions for example of process-alternate, but equivalent process may be authorized by the Executive Director).

Compliance Plan Application Form Structure:

The Compliance Plan Application consists of Sections XI.A. through E.

Application Information Form:

This section contains detailed information necessary for the application and regulatory requirements needed to put in the final compliance plan.

The application form contains the following subsections:

A. Site Specific Information

B. Groundwater Protection Standard (GWPS)

C. Compliance Monitoring Program

D. Corrective Action Program

E. Cost Estimates for Financial Assurance

1. Table XI.E.1 Corrective Action Program Cost Estimate
2. Table XI.E.2.e Groundwater Monitoring Cost Estimate
3. Table XI.E.3. Financial Assurance Summary

CP Attachments:

A. Maps

B. Well Design and Construction Specifications

C. Sampling and Analysis Plan

Compliance Plan Site Specific Tables:

This section includes the following tables which are to be completed by the applicant, as applicable, and shall be incorporated as part of the final draft Compliance Plan. [Note: include a CD disk with the application providing an electronic copy of the files supporting the compliance plan tables, as applicable, in MS Word format]:

CP Table I - Waste Management Units and/or Areas Subject to Groundwater Corrective Action and Compliance Monitoring

CP Table II - Solid Waste Management Units and/or Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167.

CP Table III - CORRECTIVE ACTION PROGRAM Table of Detected Hazardous and Solid

Waste Constituents and the Groundwater Protection Standard

CP Table IIIA - CORRECTIVE ACTION PROGRAM Table of Indicator Parameters and the Groundwater Protection Standard

CP Table IV - COMPLIANCE MONITORING PROGRAM Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring

CP Table IVA - COMPLIANCE MONITORING PROGRAM Table of Detected Hazardous Constituents and the Groundwater Protection Standard for Compliance Monitoring

CP Table V - Designation of Wells by Function

CP Table VI - Compliance Period for RCRA-Regulated Units

CP Table VII - Reporting Requirements

CP Table VIII - Compliance Schedule

CP Table IX - Description of Uppermost Aquifer

Note to the Permittee: All responses to each item in Section XI of the application form should be submitted under Appendix XI- Compliance Plan. The applicant should use the PDF formatted Tables provided in the Part B application to include site-specific information that will become part of the final draft permit. For consistency, the PDF tables provided in the application are formatted to be accessible, and the agency will no longer accept site-specific tables created by the applicant. Do not delete any areas of the application form that are not applicable, submit answers to these areas with a response of either 'Reserved' or 'Not Applicable' in the Appendix XI. In addition, if material supporting a response is located elsewhere in the application, the response should provide details as to the specific location within the referenced material.

One of the primary goals of the performance based Compliance Plan is the wells listed in, CP Table V - Designation of Wells by Function (to be included in the final Compliance Plan) are the wells in which the GWPS must be met to verify compliance with Compliance Monitoring program or corrective action objectives, and to change the table would require a modification. On the other hand, the following types of wells Corrective Action Observation Wells, Corrective Action System well, etc., that are included in "Attachment A" maps of the final draft Compliance Plan, should be flexible. The purpose is to provide the permittee with the authority to alter the groundwater monitoring system and Corrective Action System designs, as necessary, to proactively address changing environmental conditions without modifying or amending the Compliance Plan. An application to modify/amend the compliance plan is only required if wells listed in CP Table V are changed; consequently, Corrective Action Observation and Corrective Action System Wells are not listed in CP Table V of the compliance plan so they may be added or removed without modifying/amending the compliance plan. Notification of proposed changes to the groundwater monitoring system and Corrective Action System designs can be included in the semiannual or annual report required by CP Table VIII - Compliance Schedule (to be included in the final Compliance Plan).

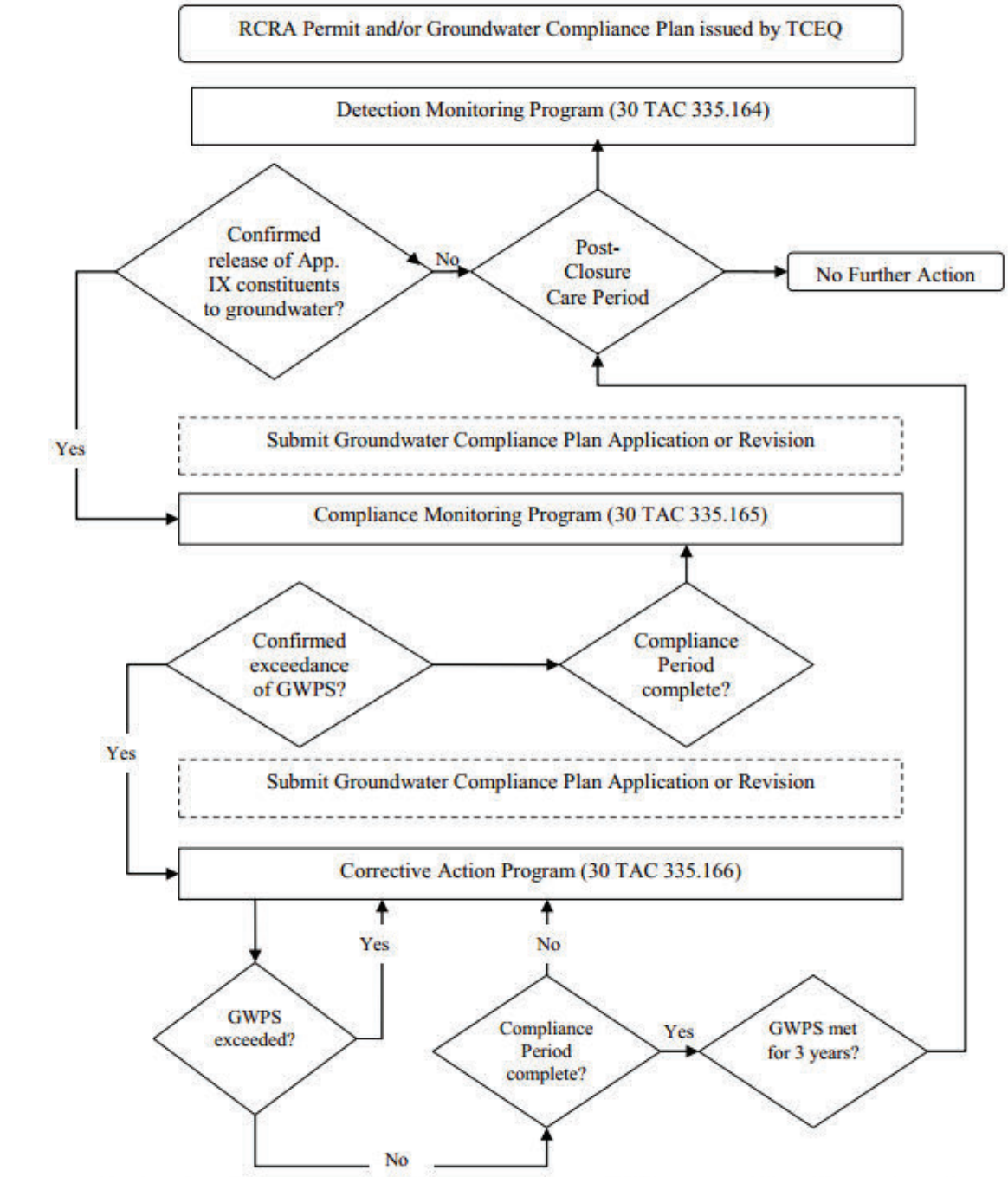
Figure 1 - Overview of Required Submittals And Revisions Associated with TCEQ Groundwater Compliance Plan Application

Type of Compliance Plan Application or Revision	Minimum Required Submittals				Additional Application Submittals Or Revisions					
	Description of Modification	Public Notification Evidence	Fee Payment Evidence	Part B, Section I General Information	Section XI. A. Site-Specific Information	Section XI.B Groundwater Protection Standard	Section XI.C Compliance Monitoring Program	Section XI.D Corrective Action Program	Section XI.E Financial Assurance Cost Estimates	Attachment A Alternate Concentration Limits
RCRA Permitted Units										
Compliance Monitoring Program, Commencement or modification per 30 TAC 335.165.	•	•	•	•	•	•	•	○	•	■
Corrective Action Program, commencement or modification per 30 TAC 335.166.	•	•	•	•	•	•	○	•	•	■
Compliance Period, termination or extension per 30 TAC 335.162.	•	•	•	•	■	○	•	○	■	○
Solid Waste Management Units										
Corrective Measure Implementation (CMI), per 30 TAC 335.167.	•	•	•	•	•	•	■	•	•	○
Corrective Action Program termination.	•	•	•	•	■	○	•	○	○	○

Note:

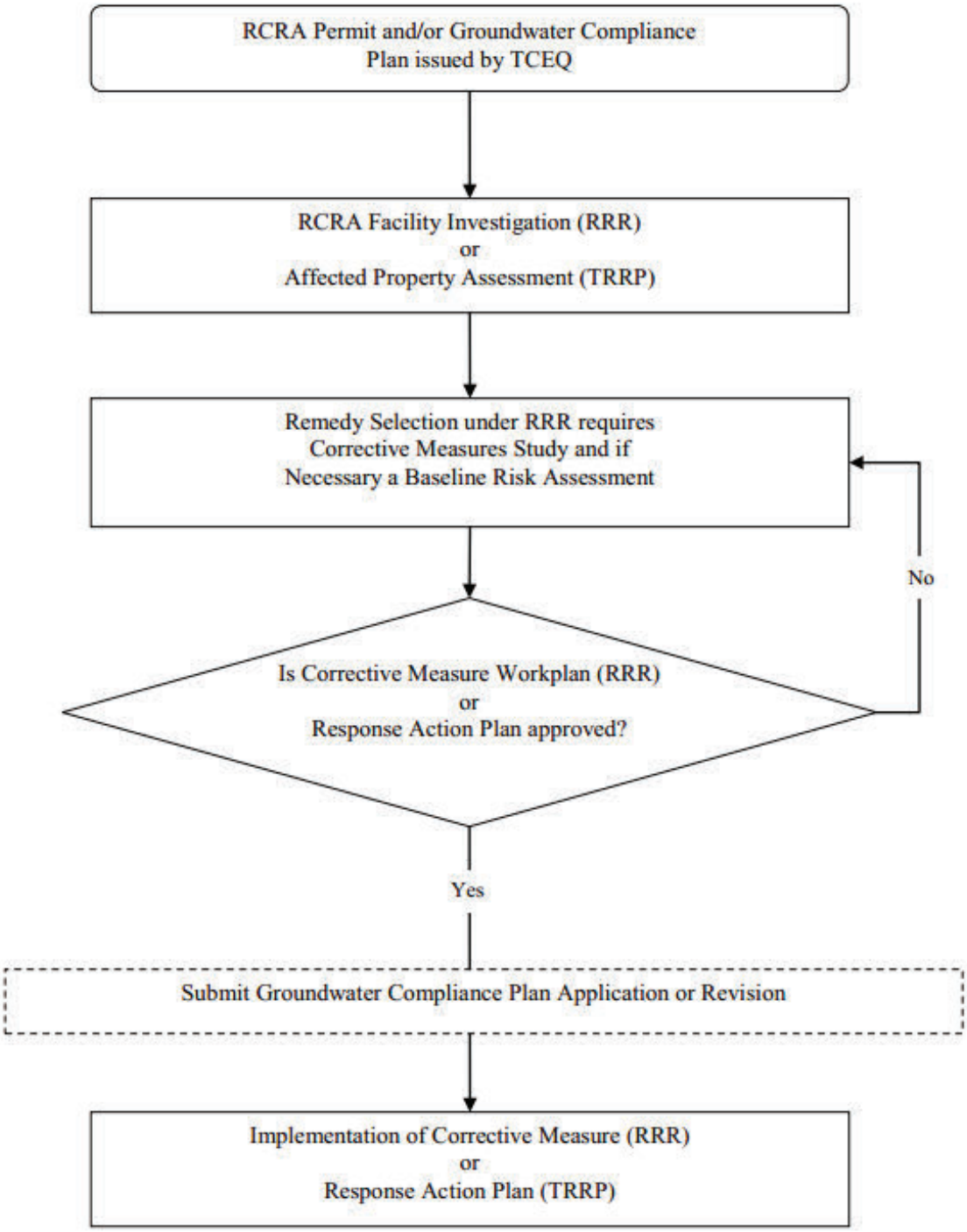
- • Submittal of additional or revised information required.
- ○ No submittal of additional or revised information required.
- ▪ Possible submittal of additional or revised information required

Figure 2 - Summary of Groundwater Monitoring and Compliance Plan Application Requirements for Regulated Waste Management Units (30 TAC 335 Subchapter F)



Note:
- GWPS = Groundwater Protection Standard (See Section XI.B. of this document, and 30 TAC 335.158 – 160)
- App. IX = Groundwater Monitoring List, 40 CFR 264 Appendix IX.
- Compliance Period = See Section XI.E. of this application, and 30 TAC 335.162.

Figure 3 - Summary of Compliance Plan Applications Requirements for Solid Waste Management Units (SMMUS) (30 TAC 335.167)



Note:
(RRR) – Risk Reduction Rules, 30 TAC 335
(TRRP) – Texas Risk Reduction Program, 30 TAC 350

A. Site Specific Information

1. General Site Information (provide the following information):

   a. An overall plan view map of the entire facility delineating the facility's property boundary, Facility Operations Area (FOA) boundaries, as applicable, and the plume management zone (PMZ) boundaries as applicable;

   All CP Attachment A Maps should be provided in Appendix XI of the application.

   b. A 7.5 minute U.S.G.S. quadrangle topographic map showing the entire facility;

      NOTE: This information is supplemental only and is not intended to be included as figures in the final draft permit.

   c. All oversized (larger than 8.5" by 11") drawings submitted in accordance with A, above, should be accompanied with legible photocopies of the reduced drawing on 8.5" by 11" sheet(s) of paper which shall be used as "CP Attachment A" maps in the final draft Permit/Compliance Plan. The applicant should title the map(s) accordingly as "CP Attachment A, Sheet 1 of xx - Facility Site Map"; "CP Attachment A, Sheet xx of xx, FOA Lateral Boundary Map"; "CP Attachment A, Sheet xx of xx, PMZ Boundary Location Map"; and

   d. Aerial photographs through time depicting changes in the land use, if available.

      NOTE: This information is supplemental only and is not intended to be included as figures in the final draft permit

2. Waste Management

   Provide a complete list and a plan view drawing(s) locating and identifying the following waste management units at the scale of 2.5 centimeters (1 inch) equal to not more than 61.0 meters (200 feet). All oversized (larger than 8.5" by 11") drawings should be accompanied with legible photocopies of the reduced drawing on 8.5" by 11" sheet(s) of paper. Please provide information for each waste management unit listed below on CP Table XI.A.1. - Facility History for Waste Management Units.

   All CP Attachment A Maps should be provided in Appendix XI of the application.

   a. All hazardous waste management units regulated under the Industrial Solid Waste and Municipal Hazardous Waste Rules (Chapter 335) required to be monitored in accordance with 30 TAC 335.164 (Detection Monitoring), 335.165 (Compliance Monitoring Program) and 335.166 (Corrective Action Program);
   b. All solid waste management units (SWMUs) and Areas of Concern (AOCs) regulated under 335.167 which are recommended for further investigation and/or corrective action in the RCRA Facility Assessment (RFA) shall include those identified in accordance with the permit requirements subsequent to the initial RFA.
   c. All on site wastewater treatment units.

3. Facility History

   Based on the information provided in CP Table XI.A.1., complete CP Table I - Waste Management Units and Areas Subject to Groundwater Corrective Action

and Compliance Monitoring accordingly in the format provided.

For the SWMUs or AOCs listed in CP Table XI.A.1. regulated under 30 TAC 335.167 which are recommended for further investigation and/or corrective action in the RCRA Facility Assessment (RFA), including those identified in accordance with permit requirements subsequent to the initial RFA, complete CP Table II - Solid Waste Management Units and Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167. CP Table II will become part of the Compliance Plan.

4. Site Geology, Hydrogeologic Conditions, and Relationship to Surface Water

For New, modified/amended Compliance Plan, please provide a Geology Report as required by Section VI.B of this application containing updated site geologic information including the following descriptions, maps and tables with appropriate supporting documentation [All maps should be at the scale of 1 inch equal to not more than 200 feet and legible when reduced to 8.5" by 11" letter size paper]:

a. A description of the site geology for the facility. The geologic description should include a site geology map and sufficient cross sections (see Item h. below) to describe the uppermost aquifer and any confining stratigraphic unit(s) beneath the site.

b. A description of the site soils and subsurface lithologies using the Unified Soil Classification System. For those soil units which do not extend beneath the entire site area, the soil description should include a plan view map designating the soil's areal extent;

c. Where a soil remedy is required in a corrective action program of Section XI.D.1. of this application for a Regulated Unit, SWMU and/or AOC, the applicant shall submit a description of contamination in soils of the vadose zone (unsaturated zone above the uppermost aquifer). The soil description should include maps indicating lateral and vertical extent of contamination;

d. A description and designation of the uppermost saturated zone or uppermost aquifer including the name, the type of unit (e.g. perched, confined, etc.,), and groundwater characteristics (flow rates, directions, hydraulic conductivity, etc.). As defined in 40 CFR 260.10, an aquifer is a geologic formation, group of formation, or part of a formation, capable of yielding significant amount of groundwater to wells or springs. Persons using Texas Risk Reduction Program (TRRP) should also consider the definition of a groundwater bearing unit as a saturated geologic formation, group of formations, or part of a formation with a hydraulic conductivity of equal to or greater than 1 x 10 -5 centimeters/second (30 TAC 350.4(a)40).

   Based on the information contained in the Geology Report, complete CP Table IX-Description of Uppermost Aquifer. CP Table IX will be come part of the Compliance Plan.

e. Present the geologic, stratigraphic and hydrogeological information; and

f. Maps indicating the lateral and vertical extent of the contamination for each stratigraphic unit affected, with supporting documentation.

g. Current Contaminant Plume Map(s) Locating and identifying the extent of

contamination as determined from previous monitoring on a separate facility base map(s). Locate and identify all monitor wells and waste management units/areas.

h. Cross section Cross section transect lines should be indicated on the Contaminant Plume Map. The applicant, at a minimum, must submit two (2) stratigraphic cross sections for each waste management unit/area. One cross section should be drawn through all the point of compliance wells and the second cross section should be drawn along the direction of the movement of the contaminant plume released from the unit/area. Cross sections should follow the requirements outlined in the Geologic and Hydrogeologic Report of Parts IV and V of this application. At a minimum, the cross sections should include the following information:

1. the stratigraphic interpretation (e.g., surface grade, uppermost aquifer, aquiclude);
2. lithology/geologic description of the uppermost aquifer and aquiclude;
3. the potentiometric surface;
4. detected non-aqueous phase liquids (NAPLs) and hazardous constituents; and
5. screen length and screen depth for each well in the cross section.

i. Well Construction diagram The report should include a well construction diagram for all wells used in the cross section. The well construction diagram should include the information in "Attachment B" of this (Compliance Plan) application. The well construction diagram information may be included on the geologic cross-section(s).

j. Describe the potential for any surface water bodies to be hydraulically connected to groundwater containing hazardous constituents. Apply the guidance provided in Determining PCLs for Surface Water and Sediment, RG-366/TRRP-24 Revised, December 2002, in order to determine the water body type and applicable surface water criteria for human health, aquatic life and wildlife, as applicable.

B. Hazardous Constituents In Groundwater And Groundwater Protection Standards (GWPSs)

Hazardous Constituents in Groundwater

For each contaminated hydrogeologic unit beneath a waste management unit/area (40 CFR 264.95), provide a list of all 40 CFR Part 264 Appendix IX hazardous constituents that have been detected in groundwater samples above background values, Practical Quantitation Limits (PQLs), or Method Quantitation Limits (MQLs). Please submit for each unit/area the most recent Appendix IX laboratory analysis results showing the constituents, constituent concentrations, methods used for analysis and associated laboratory QA/QC.

The groundwater samples (collected for the purpose of determining whether constituents listed in Appendix IX are present) shall be from each waste management unit/area monitoring well system as required by 30 Texas Administrative Code (TAC) 335.164 (detection monitoring program).

If the waste management unit/area is subject to Corrective Action Program required by 30 TAC 335.166 or 335.167 and/or Compliance Monitoring required by 30 TAC 335.165, then list the unit/area and include the list of hazardous constituents and their principal degradation constituents in:

CP Table III - Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard; and

CP Table IV - Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring.

1. Groundwater Protection Standards (GWPSs)
   The GWPS (30 TAC 335.158) is designed to ensure that hazardous constituents (30 TAC 335.159) identified in groundwater and their principal degradational constituents do not exceed concentrations that pose a present or potential hazard to human health and the environment. Compliance monitoring and corrective action programs for a Regulated Unit (30 TAC 335.165 and 335.166) and a corrective action program for a solid waste management unit (SWMU) (30 TAC 335.167) require human health and the environment to be protected from all releases of hazardous wastes and constituents. These corrective action and monitoring programs are evaluated using the GWPS. The GWPS is based on the following criteria.
   a. Background Levels Background levels authorized under 30 TAC 335.160(a)(1) are defined as constituent concentration values that are naturally occurring or are not influenced by contamination coming from the waste management unit. These values are established by statistical analysis of upgradient well sampling data. Analytical results from a sufficient number of independent samples are required to be utilized with an approved and appropriate statistical method. For guidance on the statistical methods consult, Statistical Analysis of Groundwater Data at RCRA Facilities-Unified Guidance, U.S. EPA, March 2009, and any subsequent updates to this document.
      Practical Quantitation Limits (PQLs) or Method Quantitation Limits (MQLs) are utilized in lieu of background values unless a background demonstration establishes concentrations for naturally occurring constituents. The PQL or MQL is defined in the footnote of CP Tables III and IV.
   b. Primary and Secondary Maximum Contaminant Levels (MCLs) Maximum permissible level of a contaminant in water which is delivered to any user of a public water system (40 CFR Part 141 and 143, Federal Safe Drinking Water Act).
   c. Alternate Concentration Limits (ACLs) determined in accordance with 30 TAC 335.160(b) and are defined in footnote of CP Tables III and IV.

2. Establishing the Groundwater Protection Standard (GWPS)
   a. If background, PQL or MQLs are proposed for the GWPS, the applicant must list all constituents (i.e., detected and degradational constituents) for which a GWPS is being applied for and the appropriate concentration limits. This information shall be submitted in the format of CP Tables III, and IV.
   b. Alternate Concentration Limits (ACLs) ACLs are established at the point of compliance (POC) for a regulated or solid waste management unit (SWMU). All concentration values or limits listed in Section XI.B.1.c. are considered ACLs. ACLs are evaluated in accordance with the provisions of 30 TAC 335.160(b) and other regulations acceptable to the executive director. If an ACL is requested on the basis of Section XI.B.1.c. (MCLs), then no ACL

demonstration is necessary. The ACL demonstration must establish constituent concentrations in groundwater in accordance with regulations acceptable to the executive director. This information shall be submitted in the format of CP Tables III and IV. Note that depending upon the rule employed [i.e., 30 TAC 335 Subchapter S - Risk Reduction Rules (RRR) or 30 TAC 350 - Texas Risk Reduction Program (TRRP)], the applicant should determine the GWPS for the point of compliance and point of exposure, as applicable, in accordance with the remedy standard being utilized.

c. If the contaminant plume discharges or has a potential to discharge into surface water, then the facility must also comply with 30 TAC Chapter 307 (Texas Surface Water Quality Standards) unless other regulatory requirements acceptable to the executive director are requested.

C. Compliance Monitoring Program

As required by 30 TAC 335.165, an owner or operator must monitor the groundwater to determine whether Regulated Units are in compliance with the Groundwater Protection Standard (GWPS) under 30 TAC 335.158. The applicant must provide the following information when proposing a compliance monitoring program.

1. Groundwater Monitoring Program Description

a. Describe the proposed groundwater monitoring system to be used to monitor compliance with the GWPS which includes the following information.

(1) Changes, if applicable, from the current detection monitoring system or compliance monitoring system groundwater monitoring program at the waste management unit that will be required to comply with the compliance monitoring program described in 30 TAC 335.165. This description should address changes concerning:

(a) Geological and/or hydrogeological information differences since the submittal of the previous application [must submit an updated Geologic and Hydrogeologic Report required by Section XI.A.4];
(b) Waste management areas/units;
(c) Construction details for monitor wells to evaluate compliance with "Attachment B" well specification requirements;
(d) The number and locations of additional monitor wells [also see Section XI.C.1.b.(2)];
(e) Sample handling, chain of custody, and analytical procedures (also see "Attachment C");
(f) Frequency of monitoring;
(g) Monitoring parameters;
(h) Evaluation of compliance with GWPS (Statistical Methods);
(i) Other Sampling and Analysis Plan information to be compliant with "Attachment C";
(j) Compliance period as defined in Section XI.E.1.c. of the application;
(k) Financial assurance (see Section XI.E.); and
(l) An ACL variance under 30 TAC 335.160(b), if applicable.

(2) The number, depth and location of all monitor wells (Background Wells, Point of Compliance Wells, Observation Wells, Piezometers,

etc.). Complete CP Table V - Designation of Wells by Function and make changes as applicable to plans referenced in Section XI.C.1.b.

(3) The proposed hazardous constituent monitoring list which is based on constituents that were monitored during detection monitoring (if applicable), constituents detected in accordance with 30 TAC 335.164, and degradational constituents identified in Table CP IV accordingly to develop the constituent list for the Compliance Monitoring Program. Also, list the PQL, MQL, or background concentration for each constituent in CP Table IV. CP Table IV shall become part of the final Compliance Plan to be analyzed at least annually as required by 30 TAC 335.165(7).

(4) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table IV., complete CP Table IVA - Compliance Monitoring Program, Table of Detected Hazardous Constituents and the Groundwater Protection Standard for Compliance Monitoring, accordingly. CP Table IVA shall become part of the final Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.165(6).

(5) Frequency of monitoring should be specified in CP Table VIII

(6) Provisions for reporting groundwater data at least on an annual basis should be specified in CP Table VII).

(7) Annual determination of contamination plume rate and direction of migration.

(8) Compliance period. Calculate the compliance period as required by 30 TAC 335.162 and 335.165(1)(d). Include calculations and complete CP Table VI - Compliance Period for RCRA-Regulated Units which shall become part of the final Compliance Plan.

b. Submit the following plans and reports.

(1) Current Sampling and Analysis Plan The Sampling and Analysis Plan must include information required by 30 TAC 335.163(4) and 335.163(5) and 40 CFR Subpart 270.30(j). For guidance, please see "Attachment C" to the application.

(2) Monitoring System Plan If the applicant is proposing a monitoring well or a monitoring system in the application, the applicable well installation specifications outlined in "Attachment B" of this application should be followed. All new monitoring wells must be installed in accordance with the specifications outlined in "Attachment B", unless an alternative design is approved by the agency prior to installation. If the applicant proposes as part of the monitoring system, any well (existing or proposed) that does not meet or exceed the requirements outlined in "Attachment B", then the proposed alternative design must be described in detail in the Monitoring System Plan and must be submitted with this application. The Monitoring System Plan must include:

(a) Monitoring System Design and Specifications Certified by a qualified engineer and/or geologist which provides detailed plans and specifications on the monitoring system design; and

(b) Well Drilling and Well Casing Specifications Certified by a qualified engineer and/or geologist which provides details on well casing specification, drilling logs and reports.

(3) Current Geologic and Hydrogeologic Report Provide a report per Section X.I.A.4 of this application discussing the geologic and hydrogeologic conditions of the facility and the specific area affected by the waste management areas. This report should include the most up-to-date information from which the design of the groundwater monitoring system was based.

2. Waste Management Units Monitored

a. Delineate and identify the following for each waste management unit in the proposed groundwater monitoring program.

(1) Boundary of the waste management unit and, if applicable, the proposed waste management area which includes more than one waste management unit (identify all waste management units which are included in the waste management area). These waste management units subject to compliance monitoring should be listed in CP Table I - Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring which shall become part of the final Compliance Plan.

(2) The proposed point of compliance (30 TAC 335.161) and point of exposure wells.

(3) Any other proposed monitor wells such as supplemental wells, observation wells, background wells, etc. If appropriate the groundwater monitoring system should have a sufficient number of wells be designated to monitor the downgradient extent of the plume.

(4) Features which may serve as conduits for subsurface contamination.

b. For each waste management unit/area in the proposed groundwater monitoring system, submit the locations of individual waste management unit/area monitor wells (existing or proposed) and any soil borings (plugged and unplugged) specifically drilled for assessment of contamination. These individual monitor wells shall be identified by respective well number on a plan view drawing and only the background, point of compliance and/or point of exposure wells should be indicated in CP Table V - Designation of Wells by Function. The plan view map depicting the location of individual monitoring wells for compliance monitoring should be labeled as "CP Attachment A, sheet xx of xx" in the text box. The title box should also include reference to the facility name, Permit/Compliance Plan Number, Solid Waste Registration Number, Unit Description or name with Notice of Registration (NoR) Unit No. 0000. The "CP Attachment A" map(s) and CP Table V shall also become part of the final Compliance Plan.

3. Implementation Schedule

Itemize and discuss, in detail, the estimated time schedule necessary for any testing and assessments, system design, construction and installation, and final implementation of the groundwater monitoring program for each Regulated

Unit and solid waste management unit. If the schedule of implementation for items are not completed at the time of the application or are not completed at the time of issuance of the final draft Permit/Compliance Plan, then the items should be added to the CP Table VIII - Compliance Schedule of the application.

D. Corrective Action Program

As required by 30 TAC 335.166, the owner or operator must take corrective action to ensure that Regulated Units are in compliance with the Groundwater Protection Standards (GWPS) under 30 TAC 335.158. As required under 30 TAC 335.167, all releases of hazardous constituents from any solid waste management unit at the facility must also be addressed. For existing corrective action programs which have been approved by the TCEQ, the applicant shall provide a copy of the TCEQ corrective action system approval letter, design system specifications and any updates as requested in Section XI.D.3.a.(1) of this section. The applicant must provide the information requested below when proposing a corrective action program which has not been previously approved by the TCEQ including a detailed description of a corrective action or a combination of corrective actions that will remedy the groundwater contamination at the waste management unit and a proposed plan for a monitoring program that will demonstrate the effectiveness of the corrective action.

The owner or operator may also apply for a the Facility Operations Area (FOA) pursuant to the requirements of 30 TAC 350.131 - 350.135 of the Texas Risk Reduction Program (TRRP) rules, provided the applicant meets the FOA pre-approval process steps 1 through 3 approved by the Commission.

Also, the owner or operator may apply for alternative groundwater Corrective Action Program pursuant 30 TAC 335.151, 335.156 and 30 TAC 350, where there are commingled releases from RCRA-regulated unit from one or more SWMUs, PCO, and/or AOC.

1. Type of Corrective Action Proposed
From the list below, indicate the type of groundwater corrective action proposed for each hazardous waste unit/area. Discuss in detail if more than one corrective action is to be used in a waste management area. Submit the discussion and descriptions as an attachment to the application.
    a. Groundwater well recovery with surface treatment
    b. Groundwater well recovery/surface treatment/re injection
    c. Groundwater well recovery and disposal
    d. Vapor extraction system
    e. Interceptor trench recovery and disposal
    f. Interceptor trench recovery and surface treatment
    g. In-situ treatment - bioreclamation
    h. In-situ treatment - chemical reaction
    i. Barrier walls/encapsulation
    j. Permeable treatment beds
    k. Other, please describe

2. Program Description

Attach a technical report providing a detailed description of a complete corrective action system including above and below ground equipment/ facilities. Include discussions on the following concerns for each type of corrective action as applicable.

a. Recovery Wells

(1) Indicate on a plan view of the waste management area the anticipated location of Recovery Well(s) which would optimize the extraction of the groundwater contaminants.
(2) Indicate on a plan view the estimated radius of influence of each Recovery Well.
(3) Indicate the optimum pumping rate of each Recovery Well determined from the aquifer pump test.
(4) Describe the design of the Recovery Wells and pump system including diameter, construction material, gravel packing, screen slot sizes and patterns, type of pumps and maintenance requirements.
(5) Describe the collection and storage of the contaminated groundwater which is classified hazardous waste (on site storage of hazardous waste shall require compliance with the applicable regulations):
    (a) Less than 90-day tanks (see 40 CFR 262.34/40 CFR 265 Subpart J);
    (b) Permitted Tanks (see 40 CFR 264 Subpart J);
    (c) (Less than 90-day Container Storage Area (see 40 CFR 262.34/40 CFR 265 Subpart I);
    (d) Permitted Container Storage Area (see 40 CFR 264 Subpart I); and
    (e) Temporary Units (see CFR 264.553).
(6) Describe the treatment and/or final disposition of the hazardous and nonhazardous contaminated groundwater.

b. Vapor Extraction System
(1) Indicate on a plan view of the waste management area the anticipated location of the vapor extraction system which would optimize the extraction of hazardous constituents from the vadose zone.
(2) Describe the construction design of the vapor extraction system in detail, including all diagrams and drawings.
(3) Describe the emission control equipment used to comply with air quality regulations.
(4) Provide the anticipated volatile contaminants to be remediated along with information on the expected effectiveness of the vapor extraction system at the waste management unit.
(5) Provide established treatability data for the proposed design.
(6) Specify the hazardous constituents affected by this type of treatment.

c. Interceptor Trenches
(1) Indicate on a plan view of the waste management area the anticipated location of the interceptor trench.
(2) Provide the construction design.
(3) Describe the procedure for construction.
(4) Describe the liquid removal and collection system.
(5) Describe the surface storage and/or treatment of the contaminated groundwater.
(6) Describe the final disposition of the contaminated groundwater.

d. In-situ Treatment - Chemical Reaction
   (1) Characterize the chemical agents to treat the contaminated groundwater and/or soils in the vadose zone.
   (2) Provide laboratory treatability data.
   (3) Specify the hazardous constituents affected by this type of treatment.
   (4) Specify the reaction by products produced during the chemical reactions.
   (5) Indicate degradation time for each treated hazardous constituent and any resulting chemical reaction by products.
   (6) Describe the potential health risks caused by human exposure to the reaction by products.
   (7) Describe potential damage to wildlife, crops, vegetation and physical structures caused by exposure to reaction by products.
   (8) Describe the persistence and permanence of the potential effects of the reaction by products.
   (9) Describe the method of chemical reactant injection and other important aspects of the system design.

e. In-situ Treatment Bioreclamation
   (1) Describe the type of bacteria most appropriate for the degradation of the hazardous constituents present in the groundwater and/or soil in the vadose zone.
   (2) Describe the nutrients necessary and application frequency to encourage effective bioreclamation.
   (3) Provide laboratory data from treatability studies utilizing the contaminated groundwater and describe any potential hazardous by products.
   (4) Indicate the degradation time for each hazardous constituent affected by this treatment.
   (5) Describe the method of injecting the bacteria and nutrients and describe the delivery system design.

f. Barrier Walls
   (1) Provide laboratory permeability data using the actual contaminated groundwater.
   (2) Describe the barrier wall materials.
   (3) Summarize construction design and installation procedures.

g. Permeable Treatment Beds
   (1) Provide laboratory data of treatability simulations using actual contaminated groundwater in combination with the material proposed to be used in treatment beds.
   (2) Discuss the properties of the treatment material which would make it effective for use at this site.
   (3) Indicate which hazardous constituents will be affected by this treatment. Indicate the reactions which will take place and the resulting reactant by products. Discuss the anticipated lifetime of the permeable treatment beds.
   (4) Provide the construction design and installation procedures.

h. Other

Discuss in detail, any other corrective action (soils and groundwater) not

included above which is proposed for use at the affected waste management area(s).

3. Groundwater Monitoring and Corrective Action Program Description

   a. Describe the proposed groundwater monitoring system to be used to monitor corrective action and compliance with the GWPS which includes the following information.

      (1) Changes, if applicable, from the current groundwater monitoring program at the waste management unit that will be required to comply with the corrective action monitoring program described in 30 TAC 335.166. This description should address changes concerning:

         (a) Geological and/or hydrogeological information differences since the submittal of the previous application [must submit a Geologic and Hydrogeologic Report in accordance with Section XI.A.4;
         (b) Waste management areas/units;
         (c) Construction details for monitor wells to evaluate compliance with "Attachment B" well specification requirements;
         (d) The number and locations of additional monitor wells [must submit the Monitoring System Plan/Report required by Section XI.D.3.c.(2);
         (e) Sample handling, chain of custody, and analytical procedures (also see "Attachment C");
         (f) Frequency of monitoring;
         (g) Monitoring parameters;
         (h) Evaluation of compliance with GWPS (statistical methods);
         (i) Other Sampling and Analysis Plan information to be incompliant with "Attachment C";
         (j) Compliance period as defined in Section XI.E.1.c. of the application;
         (k) Financial assurance; and
         (l) An ACL variance under 30 TAC 335.160(b), if applicable.

      (2) The number, depth and location of all monitor wells (Background Wells, Point of Compliance Wells, Corrective Action Observation Wells, Supplemental Wells, piezometers, etc.) and all Recovery Wells and complete CP Table V - Designation of Wells by Function. Also, make revisions as applicable to plans referenced in Section XI.D.3.c.

      (3) The proposed hazardous constituent monitoring list which is based on constituents that were monitored during detection monitoring (if applicable), constituents detected in accordance with 30 TAC 335.164, and degradational constituents identified in CP Table III accordingly to develop the constituent list for the Corrective Action Monitoring Program. CP Table III shall become part of the final Compliance Plan.

      (4) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table III complete CP Table IIIA - Corrective Action Program Table of Indicator Parameters and the Groundwater Protection Standard,

accordingly. CP Table IIIA shall become part of the Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.166(7).

(5) Frequency of monitoring should be specified in CP Table VIII

(6) Provisions for reporting groundwater data at least on an annual basis should be specified in CP Table VII)

(7) Annual determination of contamination plume rate and direction of migration.

(8) Compliance period. Calculate the compliance period as required by 30 TAC 335.162 and 335.165(1)(d). Include calculations and complete CP Table VI - Compliance Period for RCRA-Regulated Units which shall become part of the final Compliance Plan

b. Proposed methods of evaluating the effectiveness of the corrective action in the saturated and vadose zone.

c. Submit the following plans and reports.

(1) Current Sampling and Analysis Plan The Sampling and Analysis Plan must include information required by 30 TAC 335.163(4) and 335.163(5) and 40 CFR Subpart 270.30(j). For guidance, please see "Attachment C" to the application.

(2) Groundwater Recovery and Monitoring System Plan At a minimum, the plan must include:

(a) Recovery System Plan The applicant should propose a recovery system design that will achieve the performance requirement to protect human health and the environment. The plan should provide detailed plans, information and specifications on the recovery system's design and well installation specifications. All new recovery wells must be installed in accordance with applicable specifications outlined in "Attachment B", unless an alternative well design is approved by the agency prior to installation of the well. The Recovery System Plan must include Recovery System Design and Specifications Certified by a Texas Registered Professional Engineer. The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.;

(b) Monitoring System Plan If the applicant is proposing a monitoring well or a monitoring system in the application, the applicable well installation specifications outlined in "Attachment B" of this application should be followed. All new monitoring wells must be installed in accordance with the specifications outlined in "Attachment B", unless an alternative design is approved by the agency prior to installation. If the applicant proposes as part of the monitoring system, any well (existing or proposed) that does not meet or exceed the requirements outlined in "Attachment B", then the proposed alternative design must be described in detail in the Monitoring System Plan and must be submitted with this application. The

Monitoring System Plan must include:

(i.) Monitoring System Design and Specifications Certified by a qualified engineer and/or geologist which provides detailed plans and specifications on the monitoring system design; and

(ii.) Well Drilling and Well Casing Specifications Certified by a qualified engineer and/or geologist which provides details on well casing specification, drilling logs and reports.

(3) Current Geologic and Hydrogeologic Report - Provide a report per Section XI.A.4 of this application discussing the geologic and hydrogeologic conditions of the facility and the specific area affected by the waste management areas. This report should include the most up-to-date information from which the design of the groundwater monitoring system was based.

4. Waste Management Units/Areas Monitored Under Corrective Action Programs

a. Delineate and identify the following for each waste management unit/area in the proposed groundwater monitoring and corrective action programs.

(1) Boundary of the waste management unit and, if applicable, the proposed waste management area which includes more than one waste management unit (identify all waste management units which are included in the waste management area). These waste management units/areas subject to corrective action pursuant to 30 TAC 335.166 and 335.167 should be listed in CP Table I - Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring. CP Table I shall become part of the final Compliance Plan.

(2) The proposed point of compliance (30 TAC 335.161), point of exposure wells, or alternate point of exposure wells.

(3) Any proposed monitor wells such as supplemental wells, observation wells, background wells, etc. If appropriate the groundwater monitoring system should have a sufficient number of wells to monitor the downgradient extent of the plume.

(4) Features which may serve as conduits for subsurface contamination.

(5) Corrective action system.

b. For each waste management unit/area in the proposed groundwater monitoring system, submit the locations of individual waste management unit/area monitor wells (existing or proposed) and any soil borings (plugged and unplugged) specifically drilled for assessment of contamination. These individual monitor wells shall be identified by respective well number on a plan view drawing and only the background, point of compliance, point of exposure wells and/or alternate point of exposure wells should be indicated in CP Table V - Designation of Wells by Function. The plan view map depicting the location of individual monitoring wells for corrective action monitoring should be labeled as "CP Attachment A, sheet xx of xx" in the text box. The title box should also include reference to the facility name, Permit/Compliance Plan Number, Solid Waste Registration Number, Unit

Description or name with Notice of Registration (NoR) Unit No. 0000. The "CP Attachment A" map(s) and CP Table V shall also become part of the final Permit/Compliance Plan.

5. Waste Management Units/Areas Addressed Under Other Corrective Action Programs -Facility Operations Area (FOA), specific to the requirements of 30 TAC 350.131 - 350.135. The Permittee should also complete Sections XI.D.4. for other units not addressed by the FOA that may require corrective action outside the FOA boundary. For other units not addressed by the FOA, either within the FOA or outside the FOA which may require compliance monitoring, the Permittee should complete Section XI.C. of this application accordingly.

   a. Provide an approved version of the FOA Qualifying Criteria Checklist and evidence that Steps 1 through 3 of the FOA pre-approval process has been approved by the Commission.

   b. Provide a discussion on exceptions to the TRRP rule requested.

   c. Provide a summary of the SWMUs/AOCs that will be addressed within the FOA boundary and a discussion of the multiple sources of COCs present and how FOA will better address these sources.

   d. Provide maps of appropriate scale depicting the following (maps may be combined where appropriate):

      (1) The number, location and type of monitoring points in each stratigraphic unit to be monitored individual monitoring wells should be identified by respective well number on a plan view drawing, to include the background, Point of Compliance (POC), Point of Exposure (POE), FOA Boundary of Compliance wells, FOA piezometers or supplemental wells, Corrective Action Observation ((CAO), Corrective Action System (CAS) wells that are applicable for FOA monitoring program should be labeled as "CP Attachment A, sheet no xx of xx" in the title box. The title box should also include reference to the facility name, Permit/ Compliance Plan Number (00000), TCEQ Solid Waste Registration Number and Unit Description or Name. The "CP Attachment A" map(s) shall become part of the final Permit/Compliance Plan.
      (2) HWMUs/SWMUs/AOCs addressed
      (3) Surrounding land use
      (4) FOA lateral boundaries
      (5) Potential source areas
      (6) Potentiometric surface of all relevant transmissive units
      (7) Surrounding water wells
      (8) Extent of known contamination in each transmissive unit
      (9) Areas of potential ecological impact
      (10) Known occurrences of NAPL or DNAPL in each transmissive units
      (11) FOA access control components

   e. Provide cross-sections in accordance with Section XI.A.4. depicting the following (maps may be combined where appropriate);

      (1) The vertical boundaries of the FOA;
      (2) The vertical extent of contamination;
      (3) Groundwater level elevations for each transmissive unit.

f. Provide tabulated information for;
    (1) Results of Appendix IX GW sampling.
    (2) Proposed PCLs for each hazardous constituent and principal degradational constituent for each monitoring point with supporting documentation (including a discussion of exposure pathways) should be listed in CP Table III - CORRECTIVE ACTION PROGRAM Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard. CP Table III shall become part of the final Compliance Plan.
    (3) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table IIIA. CP Table IIIA shall become part of the Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.166(7).
    (4) Only the background, POC, POE, FOA Boundary of Compliance wells should be listed in CP Table V which shall become part of the final Permit/Compliance Plan.

g. Provide a discussion of the types of corrective action that will be employed to address contaminated media.
h. Provide detailed descriptions of GW recovery and other remedial technologies such as vapor extraction, interceptor trenches, hydraulic containment, barrier walls, etc., including radius of influence, estimated optimum recovery rates, location of collection, storage or disposal facilities.
i. Provide a detailed description of the ground water monitoring system including placement of monitoring wells, hydrogeologic characteristics of monitored units and well completion details.
j. Provide a Sampling and Analysis plan for the proposed FOA that includes development of COCs to be monitored, sampling methodology, sample handling procedures, sampling frequency and statistical procedures for evaluating analytical results (Appendix C).
k. Propose a methodology for evaluating the effectiveness of remedial measures and potential remedial system enhancements.
l. Propose a reporting schedule to provide updated information on the installation and operation of remedial and monitoring systems.
m. Provide Financial Assurance in accordance with Section XI.E.
n. Provide draft language intended to comply with the deed notification requirements of 30 TAC 350.111 and 350.135(a)(11).
o. Provide a summary of the approved workers protection plan.
p. Provide a discussion of areas of ecological impact, if any, and development of associated Protective Concentration Limits (PCLs).
q. Provide a discussion of how NAPL occurrences, if any, will be addressed inside and outside the FOA.
r. Provide a schedule of implementation for items not completed at the time of application See also Section XI.D.8.

6. Waste Management Units/Areas Monitored Under Corrective Action Programs - Plume Management Zone (PMZ)
    a. Please provide a summary of the HWMUs and SWMUs/AOCs that will be addressed within the PMZ boundary.
    b. Please provide a discussion of the multiple sources of COCs present and how PMZ will better address these sources.
    c. Please provide maps of appropriate scale depicting the following (maps may be combined where appropriate);
        (1) HWMUs/SWMUs/AOCs addressed

(2) surrounding land use
(3) PMZ lateral boundaries
(4) potential source areas
(5) Potentiometric surface of all relevant transmissive units
(6) Surrounding water wells
(7) extent of known contamination in each transmissive unit
(8) number, location and type of monitoring points in each stratigraphic unit to be monitored
(9) Areas of potential ecological impact
(10) known occurrences of LNAPL or DNAPL in each transmissive unit

d. Please provide sufficient cross-sections depicting the following (maps may be combined where appropriate);
   (1) The vertical boundaries of the PMZ;
   (2) The vertical extent of contamination;
   (3) potentiometric surfaces for each transmissive unit.

e. Please provide tabulated information for;
   (1) history of all relevant units or AOCs;
   (2) summary of hydrogeologic data for each affected transmissive unit;
   (3) results of Appendix IX GW sampling;
   (4) proposed PCLs for each constituent for each monitoring point (Point of Exposure wells, alternate point of exposure wells, etc.) with supporting documentation (including a discussion of exposure pathways). This should also include the designation/ establishment of sufficient number of Attenuation Monitoring Points (AMPs) beginning at an appropriate hydraulically upgradient location within the groundwater protective concentration level exceedance (PLCE) zone and continuing down the approximate central flow path of the constituent of concern (COC) in the downgradient extent of the Plume Management Zone(s) in accordance with 30 TAC 350.33(f)(4)(D).
   (5) Establish/Calculate Attenuation Action Levels (AALs) (critical PCLs) for each attenuation monitoring point in accordance with 30 TAC 350.33(f)(4)(D)(ii). The established AALs (critical PCLs) for each AMP well should be graphically presented in table format on the plan view map depicting the location of individual monitoring wells (including AMP wells) for corrective action monitoring labeled "CP Attachment A, Sheet xx of xx", referenced in XI.D.4.b.

f. Please provide a discussion of the types of corrective action that will be employed to address contaminated media.
g. Please provide detailed descriptions of GW recovery and other remedial technologies such as vapor extraction, interceptor trenches, hydraulic containment, barrier walls, etc., including radius of influence, estimated optimum recovery rates, location of collection, storage or disposal facilities.
h. Please provide a detailed description of the groundwater monitoring system including placement of monitoring wells, hydrogeologic characteristics of monitored units and well completion details.
i. Please provide a Sampling and Analysis plan for the proposed PMZ that includes development of COCs to be monitored, sampling methodology, sample handling procedures, sampling frequency and statistical procedures

for evaluating analytical results.

j. Please propose a methodology for evaluating the effectiveness of remedial measures and potential remedial system enhancements.
k. Please propose a reporting schedule to provide updated information on the installation and operation of remedial and monitoring systems.
l. Please provide a thorough detailed description of an estimate of all costs that will be incurred by implementing, operating, and maintaining the corrective action and monitoring systems addressed by the compliance plan.
m. Please provide draft language intended to comply with the deed notification requirements of 350.111, and schedule to verify compliance with institutional control requirements in accordance with 30 TAC 350.31(g) which provides notice of the existence and location of the PMZ and which prevents exposure to groundwater from this zone until such a time as constituents of concern may be reduced to below the GWPS.
n. Schedule for notification requirements if an unexpected event occurs, or a condition is detected, during post-response action care period which indicates that additional response actions will be required at an affected property pursuant to 30 TAC 350.33(k).
o. Please provide a summary of the approved soil response action plan.
p. Please provide a discussion of areas of ecological impact, if any, and development of associated PCLs.
q. Please provide a discussion of how NAPL occurrences, if any, will be addressed inside the PMZ.
r. Please provide a schedule of implementation for items not completed at the time of application {See also Section XI.D.8.}

7. Waste Management Units/Areas Monitored Under Alternative Corrective Action Program for Co-mingled plumes Alternative groundwater Corrective Action Program apply, pursuant 30 TAC 335.151, 335.156 and 350, for commingled release from RCRA-regulated unit and from one or more SWMUs and/or AOC.

   a. Complete Sections XI.D.1. through 4.;
   b. In addition to the CP Attachment A maps in Section XI.D.4.b., CP Attachment A maps should clearly depict those waste management unit or areas of the facility which have commingled plumes and the alternative corrective action applies.
   c. Please provide a schedule of implementation for items not completed at the time of application {See also Section XI.D.8.}

8. Implementation Schedule
   Itemize and discuss, in detail, the estimated time schedule necessary for any testing and assessments, system design, construction and installation, and final implementation of the groundwater monitoring program for each Regulated Unit and solid waste management unit. If the schedule of implementation for items are not completed at the time of the application or are not completed at the time of issuance of the final draft Compliance Plan, then the items should be added to the CP Table VIII - (Compliance Schedule) of the application.

E. Cost Estimates For Financial Assurance

As required by 30 TAC 335.156 and 335.167, the applicant must provide cost estimates for groundwater monitoring and corrective action to determine the amount of financial assurance. Please complete the applicable parts of this form. Cost estimates should be filled out for each proposed corrective action/monitoring system at the site; or any additional corrective action system not covered in this Part. Please note, the Executive

Director may request from the applicant documentary evidence for cost estimates.

If an item is not applicable, please mark it NA. Please Complete the following tables, as applicable:

1. CP Table XI.E. - General Infomation
2. CP Table XI.E.1. - Corrective Action Program Cost Estimate
3. CP Table XI.E.2.e - Groundwater Monitoring Cost Estimate
4. CP Table XI.E.3. - Financial Assurance Summary

Attachment A

Alternate Concentration Limits

Alternate Concentration Limits (ACLs) must be submitted by hazardous waste facility owners or operators who seek ACLs for any hazardous constituent as provided by 30 TAC 335.160(b) as a part of a compliance monitoring or corrective action program. An ACL demonstration should follow the guidance provided in this attachment. Compliance Plan Application, Section XI.B.2.b. outlines when an ACL demonstration must be conducted. Where possible in "Attachment A", the applicant may copy information previously submitted to the Commission and reference the information submitted in other Sections (Sections I and XI.B. through E.) of this Compliance Plan Application.

Alternate Concentration Limit Demonstration

An ACL petition is based on a demonstration that hazardous constituents detected in the groundwater will not pose a substantial present or future threat to human health or the environment at the ACL levels. Potential adverse effects on both groundwater quality and hydraulically connected surface water quality must be addressed. Using Environmental Protection Agency published lists of 40 CFR Part 264 Appendix IX hazardous constituents, the applicant must submit a list of all contaminants in the groundwater. For all the petitioned ACL constituents, the applicant must address all known synergistic and additive effects on human health and the environment to develop appropriate ACL levels.

Required Information for Alternate Concentration Limits

In addition to rule specific requirements (i.e., 30 TAC Chapter 335 Subchapter S RRR, or 30 TAC Chapter 350 TRRP), the following items must be addressed for each hazardous constituent for which an alternate concentration is sought (CP Tables III and IV, XII.B.). If the information required in this part has been furnished in other parts of Compliance Plan Application, please provide an adequate reference.

1. Potential adverse effects on groundwater quality, considering:
    a. The physical and chemical characteristics of the waste in the Regulated Unit, Solid Waste Management Unit(SWMU) or Area of Concern (AOC), including its potential for migration;
    b. The hydrogeological characteristics of the facility and surrounding land;
    c. The quantity of groundwater r and the direction of groundwater flow;
    d. The proximity and withdrawal rates of groundwater users;
    e. The current and future uses of groundwater in the area;
    f. The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;
    g. The potential for health risks caused by human exposure to waste constituents;
    h. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and,
    i. The persistence and permanence of the potentially adverse effects.

2. Potentially adverse effects on hydraulically connected surface water quality, considering:
    a. The volume and physical and chemical characteristics of the waste in the Regulated Unit, Solid Waste Management Unit (SWMU) or Area of Concern (AOC);

b. The hydrogeological characteristics of the facility and surrounding land;
c. The quantity and quality of groundwater, and the direction of groundwater flow;
d. The patterns of rainfall in the region;
e. The proximity of the Regulated Unit to surface waters;
f. The current and future uses of surface waters in the area and any water quality standards established for those surface waters;
g. The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;
h. The potential for health risks caused by human exposure to waste constituents;
i. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and,
j. The persistence and permanence of the potentially adverse effects.

Attachment B

Well Design And Construction Specifications

The following well design and construction specifications should be used as guidance when designing a groundwater Compliance Monitoring Program (Section XI.C.) or a Corrective Action Program (Section XI.D.). This guidance is provided to establish minimum well design and construction specifications for the Compliance Plan.

1. Well drilling methods that minimize potential adverse effects on the quality of water samples withdrawn from the well and that minimize or eliminate the introduction of foreign fluids into the borehole must be utilized.

2. All wells shall be constructed such that the wells can be routinely sampled with a pump, bailer, or alternate sampling device. Piping associated with recovery wells should be fitted with sample ports or an acceptable alternative sampling method to facilitate sampling of the recovered groundwater on a well by well basis.

3. Above the saturated zone the well casing may be two (2) inch diameter or larger schedule 40 or 80 polyvinyl chloride (PVC) rigid pipe or stainless steel or polytetrafluoroethylene (PTFE or "teflon") or an approved alternate material. The PVC casing must bear the National Sanitation Foundation logo for potable water applications (NSF pw). Solvent cementing compounds shall not be used to bond joints and all connections shall be flush threaded. In and below the saturated zone, the well casing shall be stainless steel or PTFE.

   PVC or fiberglass reinforced resin may be used as an alternate well casing material in and below the saturated zone provided that it yields samples for groundwateruality analysis that are unaffected by the well casing material.

4. Any well that has deteriorated due to incompatibility of the casing material with the groundwater contaminants or due to any other factors must be replaced.

5. Well casings and screens shall be steam cleaned prior to installation to remove all oils, greases, and waxes. Well casings and screens made of fluorocarbon resins shall be cleaned by detergent washing.

6. Screen length shall not exceed ten (10) feet within a given transmissive zone unless otherwise approved by the executive director. Screen lengths exceeding ten (10) feet may be installed in groundwater recovery or injection wells to optimize the groundwater remediation process in accordance with standard engineering practice.

7. The intake portion of a well shall be designed and constructed so as to allow sufficient water flow into the well for sampling purposes and minimize the passage of formation materials into the well during pumping. The intake portion of a well shall consist of commercially manufactured stainless steel or PTFE screen or approved alternate material. The annular space between the screen and the borehole shall be filled with clean siliceous granular material (i.e., filter pack) that has a proper size gradation to provide mechanical retention of the formation sand and silt. The well screen slot size shall be compatible

with the filter pack size as determined by sieve analysis data. The filter pack should extend no more than three (3) feet above the well screen. A silt trap, no greater than one (1) foot in length, may be added to the bottom of the well screen to collect any silt that may enter the well. The bottom of the well casing shall be capped with PTFE or stainless steel or approved alternate material.

Groundwater recovery and injection wells shall be designed in accordance with standard engineering practice to ensure adequate well production and accommodate ancillary equipment. Silt traps exceeding one (1) foot may be utilized to accommodate ancillary equipment. Well heads shall be fitted with mechanical wellseals, or equivalent, to prevent entry of surface water or debris.

8. A minimum of two (2) feet of pellet or granular bentonite shall immediately overlie the filter pack in the annular space between the well casing and borehole. Where the saturated zone extends above the filter pack, pellet or granular bentonite shall be used to seal the annulus. The bentonite shall be allowed to settle and hydrate for a sufficient amount of time prior to placement of grout in the annular space. Above the minimum two (2) foot thick bentonite seal, the annular space shall be sealed with a cement/bentonite grout mixture. The grout shall be placed in the annular space by means of a tremie pipe or pressure grouting methods equivalent to tremie grouting standards.

   The cement/bentonite grout mixture or TCEQ approved alternative grout mixture shall fill the annular space to within two (2) feet of the surface. A suitable amount of time shall be allowed for settling to occur. The annular space shall be sealed with concrete, blending into a cement apron at the surface that extends at least two (2) feet from the outer edge of the monitor well for above ground completions. Alternative annular space seal material may be proposed with justification and must be approved by the executive director prior to installation.

   In cases where flush to ground completions are unavoidable, a protective structure such as a utility vault or meter box should be installed around the well casing and the concrete pad design should prevent infiltration of water into the vault. In addition, the following requirements must also be met 1) the well/cap juncture is watertight; 2) the bond between the cement surface seal and the protective structure is watertight; and 3) the protective structure with a steel lid or manhole cover has a rubber seal or gasket.

9. Water added as a drilling fluid to a well shall contain no bacteriological or chemical constituents that could interfere with the formation or with the chemical constituents being monitored. For groundwater recovery and injection wells, drilling fluids containing freshwater and treatment agents may be utilized in accordance with standard engineering practice to facilitate proper well installation. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

10. Upon completion of installation of a well, the well must be developed to remove any fluids used during well drilling and to remove fines from the formation to provide a particulate free discharge to the extent achievable by accepted completion methods and by commercially available well screens. Development

shall be accomplished by reversing flow direction, surging the well or by air lift procedures. No fluids other than formation water shall be added during development of a well unless the aquifer to be screened is a low yielding water bearing aquifer. In these cases, the water to be added should be chemically analyzed to evaluate its potential impact on in-situ water quality, and to assess the potential for formation damage.

For recovery and injection wells, well development methods may be utilized in accordance with standard engineering practice to remove fines and maximize well efficiency and specific capacity. Addition of freshwater and treatment agents may be utilized during well development or re development to remove drilling fluids, inorganic scale or bacterial slime. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

11. Each well shall be secured and/or designed to maintain the integrity of the well borehole and groundwater.

12. The above ground portion of the well must be protected by bumper guards and/ or metal outer casing protection when wells are located in traffic areas or outside the secured plant area.

13. The attached Table of Well Construction Details (Item 13) is to be completed or updated for each well installed and kept on site. Items in the table that require a yes or no answer indicate diagrams plans, or procedures that shall be kept on site and made available to inspection. The completed table and other records shall include all the following information:

    - name/number of well (well designation);
    - intended use of the well(sampling, recovery, etc.);
    - date/time of construction;
    - drilling method and drilling fluid used;
    - well location (+ 0.5 ft.);
    - bore hole diameter and well casing diameter;
    - well depth (+ 0.1 ft.);
    - drilling and lithologic logs;
    - depth to first saturated zone;
    - casing materials;
    - screen materials and design;
    - casing and screen joint type;
    - screen slot size/length;

- filter pack material/size;
- filter pack volume (how many bags, buckets, etc.);
- filter pack placement method;
- sealant materials;
- sealant volume (how many bags, buckets, etc.);
- sealant placement method;
- surface seal design/construction;
- well development procedure;
- type of protective well cap;
- ground surface elevation (+ 0.01 ft. MSL);
- top of casing elevation (+ 0.01 ft. MSL); and,
- detailed drawing of well (include dimensions).

14. Construction or plugging and abandonment of each well shall be completed in accordance with the requirements of 16 TAC Chapter 76 and must be reported/ certified to the TCEQ that such proper construction or plugging and abandonment has occurred following installation or plugging and abandonment. Well completion logs for each newly installed or replaced well shall be included with the report. The certification shall be prepared by a qualified geologist or geotechnical engineer. Each well certification shall be accompanied by a certification report, including an accurate log of the soil boring, which thoroughly describes and depicts the location, elevations, material specifications, construction details, and soil conditions encountered in the boring for the well. A copy of the certification and certification report shall be kept on site, and a second copy shall be submitted to the executive director.

15. The well number must be clearly marked and maintained on each well at the site.

16. The elevation of the top of each well casing must be measured in feet above mean sea level to the nearest 0.01 foot.

17. Wells must be replaced at any time the well integrity or materials of construction or well placement no longer enable the well to yield samples representative of groundwater quality.

18. Soil test borings shall be plugged and wells removed from service with a cement/bentonite grout mixture so as to prevent the preferential migration of fluids in the area of the borehole. Certification of each plugging shall be reported in accordance with Provision 14. The plugging of wells shall be in accordance with 16 TAC Chapter 76 dealing with Well Drilling, Completion, Capping and Plugging.

19. A well's screened interval shall be appropriately designed and installed to meet the well's specific objective (i.e., either DNAPL, LNAPL, both, or other objective of the well). All wells designed to detect, monitor, or recover DNAPL must be drilled to intercept the bottom confining layer of the aquifer. The screened interval to detect DNAPL should extend from the top of the lower confining layer to above the portion of the aquifer saturated with DNAPL. The screened interval for all wells designed to detect, monitor, or recover LNAPL must extend high enough into the vadose zone to provide for fluctuations in the seasonal water table. In addition, the sandpacks for the recovery or monitoring well's screened interval shall be coarser than surrounding media to ensure the movement of NAPL to the well.

Attachment C - Sampling And Analysis Plan

Introduction and Purpose

This Attachment was prepared for the purpose of providing guidance for the preparation of a Groundwater Sampling and Analysis Plan (SAP) to meet the requirements of 30 Texas Administrative Cod (TAC) 335.163(4) and (5) and also 40 CFR 270.30(j). This guidance is based on the publication, RCRA Groundwater Monitoring: Draft Technical Guidance (TEGD Update) (November 1992, USEPA), and its updates, and is not intended to be rule or policy, or include all acceptable practices.

When preparing the SAP, the applicant may insert copies of areas of the Compliance Plan Application already completed which provides any necessary information for completion of the SAP. The SAP should include the information described in the following sections. When certain sections are not applicable, please provide justification for omission from the SAP.

1. Pre Field Activity
    a. The log book format should be outlined in the SAP and should contain at a minimum:
        - the names of those conducting the sampling event;
        - the purpose and provision(s) of the compliance plan requiring the sampling event;
        - weather conditions at time of sampling;
        - date and time of collection;
        - well identification;
        - integrity of well;
        - monitoring well measurements, including: total well depth; static water level depth; measurement techniques; height of water column; well volume; and, notation of the presence or absence of accumulated silt (including thickness and measurement procedures);
        - notation of the presence or absence of NAPLs (including thickness and detection method);
        - well purging procedures, including equipment, purge volume, pumping rate, and well purge time;
        - sampling methods, including well sampling sequence, sampling equipment and withdrawal procedures;
        - visual and measured water quality parameters required for analysis, such as appearance, pH, conductivity, temperature and turbidity; and,
        - sample preservation and handling procedures, including types of sample bottles, sample identification numbers, preservatives used, and internal temperature of field and shipping containers.
    b. The SAP should reference the Provisions or Tables within the Compliance Plan regarding monitor well designations, parameters to be monitored, and sampling frequency, rather than utilizing detailed lists.
    c. The SAP should include examples of the log book format, chain of custody, and information to be included on the container labels and seals.
    d. The SAP should reference both the Health and Safety Plan, and Field Emergency Contingency Plan. These Plans should be checked to determine if they adequately address health and safety issues that may occur during a sampling event.
2. Prior to Purging Well

a. A. Procedures for evaluating the physical condition and integrity of the well should include:
   - inspecting the casing and cap for cracks, signs of deterioration or tampering;
   - determination if the cap and monitoring well are secure;
   - inspecting the well pad for cracks, or signs of deterioration, erosion, settling, and/or animal and insect burrowing; and,
   - where appropriate, inspect any dedicated equipment for signs of cleanliness, structural integrity and deterioration.

b. Procedures and equipment used for measuring groundwater elevations, well depths, silt accumulation, and Non Aqueous Phase Liquids (NAPLs) should be included in the SAP. Water levels should be measured from the surveyed datum on the top of the well casing, with a precision of ±0.01 foot. If present, accumulated silt and light/dense NAPLs should be measured for thickness.

c. Procedures for monitoring site specific weather conditions at the time of sampling should be incorporated into the SAP, including precipitation (when applicable), temperature, and approximate wind speed and direction.

3. Sampling Preparation Activity

a. Well purging methods:

(1) A sampling contingency plan should be developed for wells which are purged to dryness or purged such that full recovery exceeds two hours. In such instances, samples should be taken as soon as a sufficient volume of groundwater has entered the well to enable the collection of the necessary groundwater samples.

(2) In all instances of purging, the SAP should describe in detail the equipment used (dedicated or non dedicated), purging rate, and the method for determining volume purged.

(3) Although purging and sampling by bailers is acceptable, the EPA recommends the use of dedicated pumping equipment designed for low flow rates.

(4) When utilizing micropurging methods, the purge rate may range between 0.1 to 0.5 liter/minute. During micropurging, drawdown should not exceed 0.1 meter. The applicant should provide justification for any alternate sampling procedure. The SAP should also specify the well screen interval at which the pump intake is placed and a copy of the boring log for each well utilizing micropurging. In line measurements of redox, dissolved O2 and turbidity during purging of groundwater should stabilize within 10% over at least two measurements prior to sampling.

b. Field filtering of groundwater samples should not be conducted unless the applicant has provided a justification and field filtration is approved by the TCEQ. If samples are field filtered, a 10 micron filter should be used while still fulfilling the data quality objectives for the groundwater monitoring program.

c. The container type, size, and labeling method for each procedure performed should be referenced and/or tabulated in the SAP.

d. Sample blanks, field blanks, trip blanks and split sampling procedures, including frequency and preservation should be specified in the SAP as quality control checks for each sampling event. The preparation, analysis,

and evaluation of replicates, duplicates and spikes should also be included.

4. Well Sampling
   a. Well sampling equipment, collection procedures, and sampling sequence of wells, should be specified in the SAP. The SAP should include sampling equipment that is constructed of inert material, which should not alter analyte concentration due to loss of analyte via absorption, or gain via desorption, degradation or corrosion.
   b. Field QA/QC and sample preservation methods used to control pH, chemical addition and refrigeration of samples should be described in the SAP and follow the methods described in the current editions of EPA Report SW 846, "Test Methods for Evaluating Solid Waste" and American Society for Testing and Materials (ASTM) Standard Test Methods or other methods accepted by the TCEQ. The SAP should indicate that chemical preservatives are to be added to samples in the field and not in the laboratory. The SAP should indicate that coolants used for refrigerating samples need to be contained (e.g. blue ice).
   c. Procedures for sampling inorganics and volatile/semi volatile organics should be described in the SAP and follow the methods of SW 846 and ASTM or other methods accepted by the TCEQ.
5. Post Sampling Activity
   a. Decontamination procedures should be included in the SAP when dedicated equipment is not used for purging and sampling, or when dedicated equipment is stored outside the well. The procedures should include disassembly, cleaning of equipment, packaging and storage of equipment when not in use.
   b. Analytical methods and holding times should be tabulated in the SAP in accordance with SW 846 and ASTM or other methods accepted by the TCEQ.
   c. Chain of custody and shipping procedures should be described and intended to prevent misidentification of samples, to identify and prevent tampering of the samples during shipping and storage, and allow easy tracking of the shipment from the field to final analyses. A Chain of Custody Form should accompany each sample shipment and include the following information:
      - sample identification number;
      - signature of collector;
      - date and time of collection;
      - sample type (e.g. groundwater);
      - identification of sampling point (well);
      - number of containers;
      - parameters requested for analysis;
      - preservatives used;
      - signature(s) of person(s) involved in the chain of possession;
      - inclusive dates and time of possession;
      - internal temperature of shipping container when samples were sealed into the container for shipping; and,
      - internal temperature of container upon opening in the laboratory.

Samples should be shipped in coolers or similar containers designed to keep samples at a constant 4˚C and prevent breakage. Containers used for sample shipment should be

sealed with the seal signed and dated by the sampler.

d. Disposal methods of contaminated equipment, wash water and purged groundwater should be described.

e. Laboratory QA/QC procedures should include control samples as defined in Chapter I of SW 846. An appropriate statistical method/procedure should be used to monitor and document performance and to implement an effective program to resolve testing problems (instrument maintenance). Data from the control samples (i.e. spiked samples, duplicates and blanks) should be used as a measure of performance or as an indicator of potential source of cross contamination (i.e. from instrumentation). QA/QC documentation for reporting values should be tabulated on laboratory data sheet and include: target analyte; unit of measure (e.g. ppm); method analyses; and, time/dates of sample collection and analyses.

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B Application Section XI Tables

Table XI.A.1. - Facility History for Waste Management Units

Name of Waste Management Unit(1)	Type of Waste Management Unit	Notice of Registration Unit Number	Date Waste Was *First* Placed in Unit	EPA Waste Code	Estimated Capacity of Unit	Quantity of Waste Left in Place	Date Waste Was Last Placed in Unit(2)	Date of Unit Closure Or Projected Closure	Date Unit Certified Closed(3)	Is There Evidence of a Release of Hazardous Constituent(s)(4) to Groundwater? (Yes, No, or Unknown)
Solid Waste Management Area - Ponds 1A, 1B, 2A, and 2B	Closed Surface Impoundments	010	1/1/1968	Non-Haz	Not Applicable	0	1/1/1987	1/1/1988	12/7/2023	Yes
2.		B								
3.		C								
		D								

1 Indicate by asterisk (*) those waste management units that have received any hazardous waste constituent listed in Appendix VIII of 40 CFR Part 261.
2 For the purposes of this Compliance Plan Application, a waste management unit receiving hazardous waste after July 26, 1982 shall be considered a Regulated Unit. A waste management unit that ceased receiving hazardous waste on or before that date shall be considered a Solid Waste Management Unit (SWMU).
3 Date the applicant submitted certification of closure to the Commission.
4 Hazardous constituents are those hazardous constituents listed in Appendix IX of 40 CFR Part 264.

Table XI.E.2.e - Groundwater Monitoring Cost Estimate	
1. Annual Sampling and Analysis Cost:	
A. Background Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
B. Point of Compliance Wells	
(1) Number of wells	
2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
C. Recovery Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
D. Corrective Action Observation Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
E. Point of Exposure Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
F. Supplemental Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well

Table XI.E.2.e - Groundwater Monitoring Cost Estimate	
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
G. Field Quality Control Sampling	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
H. Sampling Analysis Cost (1.A+1.B+1.C+1.D+1.E+1.G)	
2. Sampling Labor Cost:	
A. Hours of sampling per well	hrs/well
B. Number of sampling technicians per well	/yr
C. Charge per hour	$/hr
D. Total number of wells to be sampled annually	
E. Total number of wells sampled semi-annually	
F. Total number of wells sampled quarterly	
G. Total number of wells sampled monthly	
H. Total number of wells sampled per year (2D) + (2E x 2) + (2F x 4) + (2G x 12)	0
I. Sampling Labor Cost (2A x 2B x 2C x 2H)	$0.00
***Annual Groundwater Monitoring Cost**	$0.00
3. Well Installation (typical cost):	
A. Monitor well installation cost per well	$/well
B. Number of monitor wells to be installed	
C. Cost of monitor well system (A x B)	
D. Recovery well installation cost per well	$/well
E. Number of Recovery Wells to be installed	
F. Cost of Recovery well system (D x E)	
***Total Well Installation Cost (3C + 3F)**	
4. Administrative Cost:	

Table XI.E.2.e - Groundwater Monitoring Cost Estimate	
A. Annual cost for record-keeping and report preparation	
***Annual Administrative Cost (4A)**	$
5. Inspection and Maintenance Cost for the Monitoring Program:	
A. Operator's time (hours) on-site for inspections and maintenance per year	$/hr
B. Charge or salary per hour	$/hr
C. Annual cost of labor (4A x 4B)	$/hr
D. Replacement of parts and equipment per year	$/hr
***Annual Inspections / Maintenance Cost for the Groundwater Monitoring Program (5C + 5D)**	

Table XI.E.3. - Financial Assurance Summary

Task	Cost
Annual Off-Site Liquid Treatment / Disposal Cost	$0.00
Annual On-Site Treatment / Disposal Cost	$0.00
Annual Inspection / Maintenance / Operation Cost For The Corrective Action Program	$0.00
Annual Groundwater Monitoring Cost	$0.00
Annual Administrative Cost	$0.00
Annual Inspection And Maintenance Cost For The Groundwater Monitoring Program	$0.00
Annual Sub Total	**$0.00**
Total Years Used For Calculating Financial Assurance for Corrective Action and/or Compliance Monitoring Program	**0** Years
Remediation Cost (Annual Sub Total x Total Years Used)	$0.00
On-Site Waste Water Treatment System Capital Cost Total Well Cost	$0.00
10% Contingency	$0.00
Total Cost	$0.00
Grand Total Cost (round to nearest $1000)	**$0.00**

CP Table I - Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring

A. Corrective Action[1] (30 TAC Section 335.166)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]

B. Compliance Monitoring[1] (30 TAC Section 335.165)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]

C. Corrective Action[2] (30 TAC Section 335.167)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]

D. Alternative Corrective Action[3] (30 TAC Section 335.151)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]

E. Facility Operations Area (FOA)[4] (30 TAC Section 335.156 and Chapter 350)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]

Foot Note:

1. Program applies to RCRA-regulated units only.

2. Program applies to releases from solid waste management units (SWMUs) and/or areas of concern (AOCs).
3. Program applies to commingled releases from RCRA-regulated unit and from one or more SWMUs and/or AOCs.
4. List SWMUs, additional units/areas of Investigation, AOCs, RCRA-regulated units within the FOA that are subject to corrective action. For RCRA units, SWMUs and/ or AOC outside the FOA boundary for which compliance monitoring and/ or corrective action applies should be listed separately in Items A, B or C as appropriate.

5. For the purpose of maintaining a historical record to verify the units/areas have met the program requirements in accordance with Permit Provisions XI.A.2, XI.A.3., XI.A.4. and/or XI.A.5., the permittee shall update CP Table I to reflect the new status of the unit/area to include the remedy standard achieved for all media of concern and the date of the Commission's No Further Action (NFA) approval letter. The units/area shall not be deleted from CP Table I until the program objectives have been completed and no further action has been approved through modification or amendment to the Permit.

CP Table II: Solid Waste Management Units and/or Areas of Concern Addressed in Permit Section XI.H. for which Corrective Action Applies Pursuant to 30 TAC Section 335.167

Unit Name	NOR Number, if applicable	SWMU or AOC	Affected Media[1]	Date Program Requirement and Remedy Standard Completed[2]
1. [*unit name*]				

SWMU= Solid Waste Management Units

AOC= Area of Concern

Foot Note:

1. Specify the affected media [i.e. soil, groundwater (GW), surface water (SW), sediment (SED)].
2. For each SWMU or AOC, specify the Remedy Standard that was completed and the date of the Commission's No Further Action (NFA) letter for the media of concern.
3. For sites with FOA authorization, list the SWMUs and/or AOCs that are subject to corrective action at the site. Please separate the SWMUs and/or AOCs that are located within the FOA boundary from the SWMUs and/or AOCs that are located outside of the FOA boundary.

Note:

CP Table II lists SWMUs and/or AOCs which have been identified in the RCRA Facility Assessment (RFA) Report as having a release(s) or a potential release(s) of hazardous waste, hazardous constituents, or other constituents of concern. The permittee is thus required to meet Corrective Action Objectives for the SWMUs and/or AOCs in accordance with Permit Section XI.H. and 30 TAC Section 335.167.

The permittee shall update CP Table II when a new SWMU and/or AOC that requires corrective action is identified. The permittee shall also update CP Table II as outlined in Footnote 2 when the corrective action status of a media for a SWMU or AOC has changed.

SWMUs and/or AOCs shall not be deleted from this table when the Corrective Action Objectives have been completed and a No Further Action (NFA) determination has been approved for the SWMU and/or AOC. In accordance with Permit Section XI.H., CP Table II is intended to be a historical record of the facility's corrective actions and to reflect when the Corrective Action Objectives have been met for each SWMU/AOC.

There may be cases in which the permittee fulfills the Corrective Action Objectives for soils at a SWMU/AOC, but long-term groundwater monitoring and corrective action may be necessary to meet the groundwater Corrective Action Objectives. In such instances, the SWMU/AOC would be listed in CP Table I, Item C, and would be subject to all applicable provisions of this Compliance Plan. If a release from a SWMU/AOC is commingled with a RCRA-regulated unit, then the unit and the SWMU/AOC would be listed in CP Table I, Item D. In accordance with

Permit Section XI.H., once the Corrective Action Objectives for groundwater are completed, the permittee shall modify or amend the Compliance Plan to reassign the SWMU/AOC in CP Table I, Item C or Item D, to CP Table II. CP Table II should reflect the new status of the SWMU/AOC. It should include the Remedy Standard achieved for all media of concern and the date of the Commission's NFA approval letter for each SWMU/AOC.

CP Table III: Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/l) at the POC [2]		**Column C** Groundwater Protection Standards (mg/l) at the POE or APOE, or FBOC[1,2]	
1. [*unit name*]	*parameter*	0.00		0.00	
	parameter	0.00		0.00	
	parameter	0.00		0.00	
	parameter	0.00		0.00	
	parameter	0.00		0.00	
	parameter	0.00		0.00	

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, mark "Reserved" next to the CP Table III heading.

b) CP Table III represents the long list of hazardous constituents that are reasonably expected to be in, or derived from, the waste placed in each RCRA-regulated unit, SWMU, and/or AOC listed in the table. CP Table III also lists the hazardous constituents that have been historically detected in the groundwater for each RCRA-regulated unit, SWMU, and/or AOC. These hazardous constituents are monitored in accordance with Provision XI.F.3.c.(1).

c) In accordance with Provision XI.D.6., the Groundwater Protection Standards (GWPS) must be met before the RCRA-regulated unit, SWMU, and/or AOC can exit the Corrective Action Program.

d) If applicable, "Appendix IX" can be used in Column A for a unit instead of listing each chemical of concern (COC). The permittee may petition the Executive Director for the deletion of a specific COC from the Appendix IX analysis if the permittee can demonstrate that the COC was never used in the facility's operations nor was disposed of in the waste management area.

e) Attenuation monitoring point (AMP) wells, corrective action system (CAS) wells, and corrective action observation (CAO) wells should not be listed in CP Table III. These wells should only be depicted in the CP Attachment A maps. Once an AMP, CAS, or CAO well meets its respective attenuation action levels (AALs) or GWPS, then the Permittee may propose to discontinue monitoring that well without modification to the Permit. If the AMP, CAS, or CAO well is listed in CP Table III, then any proposed change to the well would require modification to the Permit. Changes to the wells depicted in the CP Attachment A maps can be approved in the Groundwater Monitoring Report required by CP Table VII and become a part of the Permit by reference.

Footnotes:

1. Use Column C to specify the GWPS assigned at a POE or APOE (i.e. for sites with MNA or PMZ proposals as applicable under TRRP), or FBOC for those sites with FOA authorization. Put "N/A" if a specific program or column item is not applicable.
2. For each COC, select the appropriate GWPS designation and definition to demonstrate that the corrective action program objectives are being achieved either under the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP GWPS designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

CP Table IIIA: Corrective Action Program Table of Indicator Parameters and the Groundwater Protection Standard

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/l) at POC [2]		**Column C** Groundwater Protection Standards (mg/l) at the POE or APOE, or FBOC[1,2]	
1. [*unit name*]	*parameter*	0.00		0.00	
	parameter	0.00		0.00	
	parameter	0.00		0.00	
	parameter	0.00		0.00	
	parameter	0.00		0.00	
	parameter	0.00		0.00	

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, mark "Reserved" next to the CP Table III heading.

b) CP Table III represents the long list of hazardous constituents that are reasonably expected to be in, or derived from, the waste placed in each RCRA-regulated unit, SWMU, and/or AOC listed in the table. CP Table III also lists the hazardous constituents that have been historically detected in the groundwater for each RCRA-regulated unit, SWMU, and/or AOC. These hazardous constituents are monitored in accordance with Provision XI.F.3.c.(1).

c) In accordance with Provision XI.D.6., the Groundwater Protection Standards (GWPS) must be met before the RCRA-regulated unit, SWMU, and/or AOC can exit the Corrective Action Program.

d) If applicable, "Appendix IX" can be used in Column A for a unit instead of listing each chemical of concern (COC). The permittee may petition the Executive Director for the deletion of a specific COC from the Appendix IX analysis if the permittee can demonstrate that the COC was never used in the facility's operations nor was disposed of in the waste management area.

e) Attenuation monitoring point (AMP) wells, corrective action system (CAS) wells, and corrective action observation (CAO) wells should not be listed in CP Table III. These wells should only be depicted in the CP Attachment A maps. Once an AMP, CAS, or CAO well meets its respective attenuation action levels (AALs) or GWPS, then the Permittee may propose to discontinue monitoring that well without modification to the Permit. If the AMP, CAS, or CAO well is listed in CP Table III, then any proposed change to the well would require modification to the Permit. Changes to the wells depicted in the CP Attachment A maps can be approved in the Groundwater Monitoring Report required by CP Table VII and become a part of the Permit by reference.

Footnotes:

1. Use Column C to specify the GWPS assigned at a POE or APOE (i.e. for sites with MNA or PMZ proposals as applicable under TRRP), or FBOC for those sites with FOA authorization.

   Put "N/A" if a specific program or column item is not applicable.

2. For each COC, select the appropriate GWPS designation and definition to demonstrate that the corrective action program objectives are being achieved either under the Risk Reduction Rules

(RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP GWPS designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

ACL = alternative concentration limit; PQL = practical quantitation limit; PCL = protective concentration level; RSA = Remedy Standard A; RSB = Remedy Standard B

CP Table V: Designation of Wells

Point of Compliance Wells
Unit Name:
Well Numbers:
Point of Exposure Wells
Unit Name:
Well Numbers:
Alternate Point of Exposure Wells
Unit Name:
Well Numbers:
Background Wells
Unit Name: Sludge Disposal Area
Well Numbers:
FOA Boundary of Compliance Wells
Exposure Pathway: (e.g. SWGW - Groundwater to surface water PCL for Brazos River or Barge Canal, etc)
Unit Name: OW-6
Well Numbers:

Wells that are not listed in this table, but are required by Permit Section XI.B.2 (e.g. AMP wells, CAO wells, etc.,) and depicted only in CP Attachment A are subject to change, upon approval by the Executive Director, without modification to the Compliance Plan.

CP Table VI: Compliance Period for RCRA-Regulated Units

[*Unit Name*]	Year or Number of Years
Year Waste Management Activities Initiated	20**
Year Closed	20**
Compliance Period (years)	Ex. 30 years
Compliance Period Began	20**
Remove Last Unit	Add Unit

CP Table VII: Reporting Requirements

Item	Program	Reporting Frequency	Requirements
1.	All programs		Each report shall be certified by a qualified engineer and/or geoscientist.
2.	Corrective Action and/or Compliance Monitoring		A table of all modifications and amendments made to this Compliance Plan with their corresponding approval dates by the Executive Director or the Commission and a brief description of each action;
3.	Corrective Action and/or Compliance Monitoring		A summary of any activity within an area subject to institutional control.
4.	Corrective Action and/or Compliance Monitoring		Tabulation of well casing elevations in accordance with CP Attachment C;
5.	Corrective Action and/or Compliance Monitoring		Certification and well installation diagram for any new well installation or replacement and certification for any well plugging and abandonment;
6.	Corrective Action and/or Compliance Monitoring		Recommendation for any changes to the program;
7.	Corrective Action and/or Compliance Monitoring		Any other items requested by the Executive Director;
8.	Corrective Action and/or Compliance Monitoring		Water table maps shall be prepared from the groundwater data collected pursuant to Permit Provision XI.G. and shall be evaluated by the permittee with regard to the following parameters: a. Development and maintenance of a cone of depression during operation of the system; b. Direction and gradient of groundwater flow; c. Effectiveness of hydrodynamic control of the contaminated zone during operation; and d. Estimation of the rate and direction of groundwater contamination migration.

Item	Program	Reporting Frequency	Requirements
9.	Corrective Action and/or Compliance Monitoring		The permittee shall submit a report to each recipient listed in Provision XI.J.3., which includes the all applicable information listed in this table (CP Table VII: Reporting Requirements), determined since the previously submitted report, if those items are applicable. If both Corrective Action and Compliance Monitoring Programs are authorized, then the Groundwater Monitoring Report required by CP Table VII shall contain information required for both programs.
10.	Corrective Action and/or Compliance Monitoring		The Corrective Action System(s) authorized under Provision XI.B.3. in operation during the reporting period and a narrative summary of the evaluations made in accordance with Permit Sections XI.E., XI.F., and XI.G. for the preceding reporting period. The reporting periods shall be January 1 through June 30 and July 1 through December 31 for Corrective Action Monitoring, unless an alternative semiannual schedule is approved by the Commission. The period for Compliance Monitoring shall be based on the calendar year.
11.	Corrective Action and/or Compliance Monitoring		The method(s) utilized for management of recovered/purged groundwater shall be identified in accordance with Provision XI.B.8. The permittee shall maintain this list as part of the facility operating record and make it available for inspection upon request.

Item	Program	Reporting Frequency	Requirements
12.	Corrective Action and/or Compliance Monitoring		An updated table and map of all monitoring and corrective action system wells. The wells to be sampled shall be those wells proposed in the Compliance Plan Application referenced in Provision I.B. and any changes subsequently approved by the Executive Director pursuant to Provision XI.B.3. Provide in chronological order, a list of those wells which have been added to, or deleted from, the groundwater monitoring and remediation systems since original issuance of the Compliance Plan. Include the date of the Commission's approval for each entry;
13.	Corrective Action and/or Compliance Monitoring		The results of the chemical analyses, submitted in a tabulated format acceptable to the Executive Director which clearly indicates each parameter that exceeds the Groundwater Protection Standard (GWPS). Copies of the original laboratory report for chemical analyses showing detection limits and quality control and quality assurance data shall be provided if requested by the Executive Director;
14.	Corrective Action and/or Compliance Monitoring		Tabulation of all water level elevations required in Provision XI.F.3.d.(1), depth to water measurements, and total depth of well measurements collected since the data that was submitted in the previous monitoring report;
15.	Corrective Action and/or Compliance Monitoring		Potentiometric surface maps showing the elevation of the water table at the time of sampling, delineation of the radius of influence of the Corrective Action System, and the direction of groundwater flow gradients outside any radius of influence;
16.	Corrective Action and/or Compliance Monitoring		Tabulation of all data evaluation results pursuant to Provision XI.F.4. and status of each well with regard to compliance with the Corrective Action objectives and compliance with the GWPS;
17.	Corrective Action and/or Compliance Monitoring		An updated summary as required by CP Table VIII;

Item	Program	Reporting Frequency	Requirements
18.	Corrective Action and/or Compliance Monitoring		Summary of any changes made to the monitoring/ corrective action program and a summary of well inspections, repairs, and any operational difficulties;
19.	Corrective Action and/or Compliance Monitoring		A notation of the presence or absence of non-aqueous phase liquids (NAPLs), both light and dense phases, in each well during each sampling event since the last event covered in the previous monitoring report and tabulation of depth and thickness of NAPLs, if detected;
20.	Corrective Action only		Quarterly tabulations of quantities of recovered groundwater and NAPLs, and graphs of monthly recorded flow rates versus time for the Recovery Wells during each reporting period. A narrative summary describing and evaluating the NAPL recovery program shall also be submitted;
21.	Corrective Action only		Tabulation of the total contaminant mass recovered from each recovery system for each reporting period;
22.	Corrective Action only		Maps of the contaminated area where GWPSs are exceeded depicting concentrations of CP Table IIIA constituents and any newly detected CP Table III constituents as isopleth contours or discrete concentrations if isopleth contours cannot be inferred. Areas where concentrations of constituents exceed the GWPS should be clearly delineated. Depict the boundary of the plume management zone (PMZ), if applicable;
23.	Corrective Action only		Maps and tables indicating the extent and thickness of the NAPLs both light and dense phases, if detected;

Item	Program	Reporting Frequency	Requirements
24.	Corrective Action only		Corrective Measures Implementation (CMI) Progress Report or Response Action Effectiveness Report or Response Action Completion Report to be submitted as a section of the Compliance Plan report in accordance with Provision XI.H.6., if necessary. The permittee will include a narrative summary of the status of the approved final corrective measures conducted in accordance with the approved CMI Workplan or RAP, and that the requirements of Provision XI.H.7. are being met.
25.	Corrective Action only		The permittee will include a narrative summary of the status of each Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) subject to the requirements of Permit Provision XI.H. and ICM Program for a SWMU and/or AOC which documents that the objectives of Provision XI.H.8.b. are being achieved. This summary shall be included as a section of the Compliance Plan groundwater monitoring report.
26.	PMZ		A summary evaluating the effectiveness of the corrective action system in controlling migration beyond the downgradient boundary and vertical limit of the PMZ to achieve the GWPS. The summary shall include an evaluation of whether the attenuation action levels are not exceeded at their respective attenuation monitoring points pursuant to 30 TAC Sections 350.33(f)(4)(A) and 350.33(f)(4)(D)(ii), if applicable;
27.	PMZ		An estimate of the percentage of the response action which has been completed within the PMZ, if applicable;
28.	PMZ		An estimate in years of the additional time necessary to complete the response actions for the PMZ, if applicable;
29.	PMZ		A determination whether sufficient progress is being made to achieve the selected remedy standard within a reasonable time frame given the circumstance of the affected property in the PMZ, if applicable.

Item	Program	Reporting Frequency	Requirements
30.	Facility Operations Area (FOA)		The following additional reporting requirements to fulfill requirements of 30 TAC Section 350.134 and 30 TAC Section 350.135. These include but are not limited to: a. Provide an average of both lost workday injury case rates and injury incidence rates for the most recent three (3) year period compared to the most recent specific industry national average published by the Bureau of Labor Statistics. (continued on next page)

Item	Program	Reporting Frequency	Requirements
30. (contd.)	Facility Operations Area (FOA)		b. Document that the worker health and safety program meets the requirements of the Occupational Safety and Health Administration (OSHA) by providing records of the OSHA compliance history or the results of the most recent audit of the health and safety programs by the OSHA or a third party certified professional industrial hygienist and safety specialist. An audit is required anytime there is a significant change to the health and safety program, or at a minimum every three (3) years, the results of which indicate the program is satisfactory c. Document a compliance history ranking of average or better for the TCEQ. d. Document the pollution prevention program that has a goal of prevention of releases of COCs to environmental media within the FOA. e. Provide a statement that the program required in 30 TAC Section 350.134(a)(7) to protect workers within the FOA from environmental media having concentrations of COCs greater than PCLs or action levels based on the health and safety program is still in effect. In addition, the permittee shall provide, for the preceding year, an updated map delineating areas where the Soil Response Action Plan has been implemented pursuant to 30 TAC Section 350.135(a)(5). f. Document there have not been any significant outstanding non_compliance issues resulting from inspections for compliance with the RCRA permit or order, if any.

Item	Program	Reporting Frequency	Requirements
30. (contd.)	Facility Operations Area (FOA)		g. Document areas of ecological impact identified within the FOA and procedures for responding to these identified ecologically impacted areas on a continual basis. Review any ecologically impacted areas annually and report any new ecological impacts within thirty (30) days of verification of impact. h. Document activity associated with tracking and responding to releases to soil and groundwater above reportable quantities, which occur within the FOA after the issuance of the Compliance Plan, in accordance with 30 TAC Section 350.135(a)(7). i. Document any NAPL occurrences and any procedure(s) used to address known NAPLs and any NAPLs identified during the operational life of the FOA. This should include any previously discovered NAPL occurrences. j. Provide documentation that access is restricted to the FOA.

CP Table VIII: Compliance Schedule

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
A.	60	Compliance Plan	Submit to the Executive Director a schedule summarizing all activities required by the Compliance Plan. The schedule shall list the starting dates of all routine activities. The permittee shall include an updated schedule in the groundwater monitoring report required by Provision XI.G.3. The schedule shall list the activity or report, the Compliance Plan Section which requires the activity or report and the calendar date the activity or report is to be completed or submitted (if this date can be determined.)
B.	60	30 TAC §335.163(4) and Provision XI.F.2.	Submit to the Executive Director for review and approval a Sampling & Analysis Plan (SAP) unless the SAP has been submitted with the application and referenced in Provision I.B.
C.	During the first thirty (30) days	30 TAC §350.31(g)	Corrective action monitoring shall be conducted on a semiannual basis for any RCRA-regulated units subject to corrective action program, listed in CP Table I.A program.
D.	During the first thirty (30) days	30 TAC §350.33(k)	Compliance monitoring shall be conducted on a semiannual basis for any RCRA-regulated units subject to corrective action program listed in CP Table I.B.
E.	During the first thirty (30) days	30 TAC §335.167	For SWMUs and/or AOCs subject to alternative corrective monitoring, corrective action monitoring shall be conducted on a semiannual basis for the solid waste management units (SWMUs) and/or areas of concern (AOC) listed in CP Table I.C.

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
F	During the first thirty (30) days	30 TAC §335.151	For units subject to alternative corrective action, alternative corrective action shall be conducted on a semiannual basis for those units listed in CP Table I.D.
G.	During the first thirty (30) days	30 TAC Section 335.156 and Chapter 350	Corrective action monitoring shall be conducted on a semiannual basis for the RCRA Units, solid waste management units (SWMUs) and/or areas of concern (AOC) listed in CP Table I.E. located within the FOA Boundary
H.	120	30 TAC §350.31(g)	If a PMZ has been authorized, submit to the Executive Director proof of compliance with institutional control requirements which provides notice of the existence and location of the Plume Management Zone (PMZ) which prevents exposure to groundwater from this zone until such a time as constituents of concern may be reduced to below the GWPS of CP Table III.
I.	Notify within 30 days	30 TAC §350.33(k)	If a PMZ has been authorized, after an unexpected event occurs, or a condition is detected, during post-response action care period which indicates that additional response actions will be required at an affected property.
			See Note 2
			See Note 2

[1]Note: Please note that Corrective action monitoring is conducted on semiannual basis unless a less frequent monitoring schedule is approved based on plume stability and achievement of

corrective action objectives.

[2]Note: Add other site specific activities listed in the implementation schedule of the application that are not completed at the time of application submittal or issuance of the final draft compliance plan. Otherwise, delete requirement if no additional items necessary}. Some common examples are listed below..*

Example (PMZ-specific items that haven't been completed):

Within sixty (60) days of issuance of the Compliance Plan (or other specified time frame), the Permittee shall submit a schedule for completion of the following activities:

Designation/establishment of Attenuation Monitoring Point (AMP) well locations, AMP-xx, AMP-xx that provides appropriate hydraulically upgradient location within the groundwater protective concentration level exceedance (PLCE) zone and continuing down the approximate central flow path of the constituent of concern (COC in the downgradient extent of (unit/area) in accordance with 30 TAC Section 350.33(f)(4)(D).

Establishment/calculate Attenuation Action Levels (AALs) for AMP, AMP-xx, AMP-xx, in accordance with 30 TAC Section 350.33(f)(4)(D)(ii).

Example (installation of additional monitor wells):

Within sixty (60) days of issuance of the Compliance Plan (or other specified time frame), the Permittee shall submit a schedule for completion of the following activities:

The installation of additional wells MW-xx, MW-xx, POE-xx, etc., as depicting in CP Attachment A-monitor well location map. All newly installed wells must meet the requirements of XI.C and CP Attachment C.

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B Section XII – Hazardous Waste Permit Application Fee

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Part B, Section XII: Tables

Contents

Table XII.B. - Hazardous Waste Permit Application Fee Worksheet

Name of Facility: BASF Corporation Agro Facility

Solid Waste Registration Number: 30053

1.Process Analysis - $1,000..... $ 0

2.Facility Management Analysis - $500..... $ 500

3.Unit Analysis - _____1 units @ $500 per unit..... $ 500

4.Site Evaluation - _____0 acres @ $100 per acre..... $ 0

(Maximum of 300 acres)

5.Minor amendment, Class 1, or Class 1[1] modification - $100..... $ 100

6.Cost of Providing Notice - $50 (+ $15 for a renewal) ..... $ 50

Pay This Amount **Total** $ $1,150.00

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
ePay Vouchers 699975, 699976	4/4/2024	$1100.00, $50.00

GSI Job No. 6878

Hazardous Waste Permit Class 3 Modification Application
BASF Corporation Agro Plant, Beaumont, Texas

Hazardous Waste Permit No. 50219

Response Action Completion Report – SWMA Ponds 1A, 1B, 2A, and 2B

Texas Commission on Environmental Quality

Remediation Division Correspondence Identification Form

SITE & PROGRAM AREA IDENTIFICATION					
SITE LOCATION			**REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION**		
Site Name: **BASF Corporation**			Is This Site Being Managed Under A State Lead Contract? ☐ Yes ☑ No		
Address 1: **14385 W Port Arthur Road**			Program Area: **IHW CORRECTIVE ACTION**		
Address 2:			Mail Code: **MC-127**		
City: **Beaumont**	State: **Texas**		Is This A New Site To This Program Area? ☐ Yes ☑ No		
Zip Code: **77705**	County: **Jefferson**		**TCEQ Facility ID No.:**	**SWR No. 30053**	
TCEQ Region: **Region 10 - Beaumont**			**--Leave This Field Blank--**	**--Leave This Field Blank--**	

DOCUMENT(S) IDENTIFICATION		
	PHASE OF REMEDIATION	**DOCUMENT NAME**
1.	**CLOSURE**	**RESPONSE ACTION COMPLETION REPORT (RACR) FOR REMEDY STANDARD B**
2.		
3.		
4.		
5.		

CONTACT INFORMATION

RESPONSIBLE PARTY/APPLICANT/CUSTOMER

Name: **Kendra Derrick**
Company: **BASF Corporation** Phone Number: **409-981-5184** Fax Number: **409-981-5188**
Address 1: **14385 W Port Arthur Road** City: **Beaumont** State: **Texas** Zip Code: **77705**
Address 2: Email Address: [redacted]

ENVIRONMENTAL CONSULTANT/REPORT PREPARER/AGENT

Name: **Mr. Jim McDade, P.E.**
Company: **GSI Environmental Inc.** Phone Number: **713-522-6300** Fax Number: **713-522-8010**
Address 1: **2211 Norfolk, Suite 1000** City: **Houston** State: **Texas** Zip Code: **77098**
Address 2: Email Address: [redacted]

TCEQ INTERNAL USE ONLY			
Document No.	TCEQ Database Term	Document No.	TCEQ Database Term
1.	**RACR B**	4.	
2.		5.	
3.			

6878

RESPONSE ACTION COMPLETION REPORT (RACR) – SWMA Ponds 1A, 1B, 2A, & 2B

BASF Corporation Agro Plant, Beaumont, Texas
Solid Waste Registration No. 30053

Issued: 8 April 2024

Prepared for: BASF Corporation

GSI Environmental Inc.
2211 Norfolk, Suite 1000, Houston, Texas 77098-4054 tel. 713.522.6300

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Response Action Completion Report

Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc) SWR 30053
check one: X Initial RACR submittal for this on-site property ___ Subsequent RACR submittal
Report date: 8 April 2024 TCEQ Region No.: 10

TCEQ Program (check one)

X Corrective Action (Mail Code 127)
___ Voluntary Cleanup Program (Mail Code 221)
___ Petroleum Storage Tank Program (Mail Code 137)
___ Superfund PRP Lead (Mail Code 143)
___ Municipal Solid Waste Permits (Mail Code 124)

On-Site Property Information

On-Site Property Name: BASF Corporation Agro Plant (BASF)
Street no. 14385 Pre dir: W Street name: Port Arthur Street type: Road Post dir: ___
City: Beaumont County: Jefferson County Code: 123 Zip: 77705
Nearest street intersection or location description: ___

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North 29.971389
Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West 94.053333

Off-Site Affected Property Information

Off-Site Affected Property Name: None
Street no. ___ Pre dir: ___ Street name: ___ Street type: ___ Post dir: ___
City: ___ County: ___ County Code: ___ Zip: ___

____ Check if there are no off-site properties affected

Contact Person Information and Acknowledgement

Person (or company) Name: BASF Corporation
Contact Person: Elizabeth Monroe Title: Site Director
Mailing Address: 14385 West Port Arthur Road
City: Beaumont State: TX Zip: 77705 E-mail address Elizabeth.Monroe@basf.com
Phone: 409-981-5139 Fax: ___

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person [signature] Name, print: Elizabeth Monroe Date: 4/5/24

Check the reports/forms submitted:

Remedy Standard A

___ Self-Implementation Notice Submittal date: _____

___ Response Action Plan - Approval date: _____

Remedy Standard B

X Response Action Plan - Approval date: 4 September 2009

List all media (surface soil, subsurface soil, groundwater, sediment, surface water, air) that contained or contains a PCLE zone and specify the response action taken for each media. Indicate the type of removal, decontamination, physical control, or institutional control action that was used in the response action. If a media with a PCLE zone was not addressed in the response action, provide an explanation below.

Media	COCs[1]	Removal	Decontamination	Physical Control	Institutional Control	Modified Response Objective[2]		
						PMZ	WCU	TI
Groundwater	VOCs and SVOCs				X	X		

Note: VOCs: Benzene, Chlorobenzene, 1,4-Dichlorobenzene; SVOCs: 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,6-Dichlorophenol, Phenol; in addition, Silvex (2,4,5-T) and barium have also been sampled as part of the Compliance Plan.

Is there a media that contains a PCLE zone that was not addressed in the response action? yes ___ no x

If yes, provide justification for not addressing the PCLE zone in the response action.

Current land use of the on-site affected property: ___ Residential X Commercial/industrial

Projected future land use of the on-site property (if known): ___ Residential X Commercial/industrial

Explain why you believe the response action to be complete.

BASF Corporation Agro Plant (BASF) implemented the response actions specified in the Response Action Plan (RAP; BASF, 2008) as approved by the TCEQ-issued Major Compliance Plan Amendment (TCEQ, 2009), subsequently updated in the Compliance Plan renewal (incorporated as Section XI of Hazardous Waste Permit No. 50219) on 10 September 2015 (TCEQ, 2015). The response actions consisted of i) establishing a Plume Management Zone (PMZ) around the PCLE zones identified in previous compliance monitoring reports associated the former Waste Management Area (SWMA) consisting of former Ponds 1A, 1B, 2A, and 2B; ii) conducting post-response action care groundwater monitoring on a semiannual basis to establish constituent of concern (COC) concentration trends and iii) filing an institutional control (deed restriction) on the affected property to restrict groundwater use within the PMZ. The overall response action objective of these activities was to control groundwater in accordance with 30 TAC 350.33 (Remedy Standard B). Note that the SWMA was closed in 1987 (i.e., no wastes were received after 1987), and BASF installed and operated a groundwater extraction system from 1988 to 2008, prior to implementation of the RAP.

Semiannual groundwater monitoring data collected by BASF from 2011 to 2024 has demonstrated that

[1] Specify either a specific COC or, if the response action is the same for all COCs in one type, specify the type of COC (for example, VOCs, SVOCs, metals).

[2] If a modified groundwater response objective was used, check the type(s) of modifications.

control of the groundwater plume has been achieved. During this time period there have been no detections of the COCs identified in the RAP (benzene, chlorobenzene, and 2,4-dichlorophenol) at any of the Alternate Monitoring Point (AMP) or Alternate Point of Exposure (POE) monitoring wells with the exception of low-level detections of benzene and phenol in January 2022 at Alternate POE well MW-30 at concentrations well below their Groundwater Water Protection Standards (GWPS's). Additionally, of the other COCs identified in the Compliance Plan (i.e., barium, 1,4-dichlorobenzene, 2,6-dichlorophenol, phenol, silvex, and 2,4-dimethylphenol), only naturally-occurring barium has been detected at the AMP and POE monitoring wells. The barium concentrations at AMP and POE monitoring wells have been detected at concentrations well below the GWPS of 2.0 mg/L (equivalent to the Protective Concentration Level; PCL). As a result, there are currently no PCLE zones present at the site within the established PMZ.

Based on the information summarized above and detailed within this report, BASF believes site conditions meet the following condition based on 30 TAC 350.33(i)(3):

> *"The demonstration of no threat to human health or the environment shall be made by adequately documenting one of the following conditions:*
>
> > *(3) an affected property contains only a groundwater PCLE zone and such groundwater PCLE zone has been demonstrated to be reducing in size and to have boundaries which are sufficiently smaller than the boundaries of an institutional control so as to preclude any potential for the groundwater PCLE zone to migrate beyond the boundaries of the institutional control considering both natural hydrogeologic conditions and changes to hydraulic gradients by off-site activities;"*

BASF respectfully requests to discontinue post-response action care monitoring at the Solid Waste Management Area, as there is currently no PCLE zone within the established PMZ, concentration trends are generally stable or decreasing, and all AMP and Alternate POE wells have never had a detection and/or exceedance of the GWPS or PCLs for any of the site-specific COCs.

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BASF Corporation Agro Plant, Beaumont, Texas

Date of Report or Event(s)	Title of Report / Activity	By	Summary of Environmental Assessment and/or Correspondence
18 & 19 January 2024	Semiannual groundwater sampling	GSI	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
7 December 2023	Conditional Approval Request to Discontinue the Compliance Plan	TCEQ	TCEQ stated "The historical groundwater data provides adequate supporting documentation that the ground water protection standard (GWPS) has been achieved… BASF's request to discontinue the compliance plan, is conditionally approved; however, a modification of the IHW permit is required to be submitted to IHW Permits for review."
12 July 2023	July 2023 Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program. MW-6 not used due lack of updated survey data.
19 January 2023	Semiannual groundwater sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 July 2022	July 2022 Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program. MW-6 not used due lack of updated survey data.
26 April 2022	MW-6 Repaired	BASF	A new survey is anticipated prior for January sampling to get an updated elevation.
27 January 2022	Semiannual groundwater sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
20 January 2022	January 2022 Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
28 July 2021	Semiannual groundwater sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 July 2021	July 2021 Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.

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BASF Corporation Agro Plant, Beaumont, Texas

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29 January 2021	Semiannual groundwater sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 January 2021	January 2021 Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
November 2020	Soil excavation in Dicamba unit	BASF	BASF excavated and properly disposed of impacted soil in the Dicamba area.
26 October 2020	Monitoring well location survey	Arceneaux Wilson & Cole LLC	Top of casing broken at MW-6.
14 August 2020	Semiannual groundwater sampling	RSP	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 July 2020	July 2020 Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
29 & 30 January 2020	Semiannual groundwater sampling	RSP	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 July 2019	Semiannual Corrective Action Report, 1H 2019	DiSorbo	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
21 January 2019	Semiannual Corrective Action Report, January 2019	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
9 January 2019	Semiannual groundwater sampling	DiSorbo	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
9 August 2018	Discovery of new area of concern	BASF	BASF notified the TCEQ of the new area of concern (AOC) inside the boundary of the Beaumont Chemical Plant. Pursuant to Provision XI,A.6 of the Permit/compliance Plan, a RCRA Facility Assessment RFA) report was submitted to the TCEQ on September 12,2OL4, within 45 days of the discovery. The APAR identified two Dicamba protective

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			concentration level exceedance (PCLE) zones with Dicamba concentrations above the Tier 1 commercial/industrial PCL of 4.4 mg/kg in surface soils adjacent to facility rail spurs on the eastern interior of the site.
24 July 2018	Semiannual groundwater sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
July 2018	Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
19 January 2018	Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
9 January 2018	MW-6 first noted as damaged	RPS	First noted as damaged in the July 2018 Semiannual report.
9 January 2018	Semiannual groundwater sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
July 2017	Semiannual Corrective Action Report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
24 January 2017	Semiannual sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
8 December 2016	Semiannual Corrective Action Report, January 2017	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
12 July 2016	Semiannual sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
12 July 2016	Semiannual Corrective Action Report, July 2016	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.

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Date of Report or Event(s)	Title of Report / Activity	By	Summary of Environmental Assessment and/or Correspondence
6 January 2016	Semiannual sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 January 2016	Semiannual Corrective Action Report, January 2016	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
22 July 2015	Semiannual sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
10 September 2015	Hazardous waste permit/ compliance plan renewal and major amendment application issued	TCEQ	There were no changes in the PMZ and groundwater monitoring program between the 2009 major amendment and the 2015 Compliance Plan renewal.
21 July 2015	Semiannual Corrective Action Report, July 2015	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
21 April 2015	Semiannual sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 January 2015	Semiannual Corrective Action Report, January 2015	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
21 July 2014	Semiannual Corrective Action Report, July 2014	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
23 June 2014	Semiannual sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 January 2014	Semiannual sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
21 January 2014	Semiannual Corrective Action Report, January 2014	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
18 July 2013	Semiannual sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.

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Date of Report or Event(s)	Title of Report / Activity	By	Summary of Environmental Assessment and/or Correspondence
17 July 2013	Semiannual Corrective Action Report, July 2013	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
22 January 2013	Semiannual groundwater sampling	RPS	Sampled MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, R-8, and a DUP.
20 January 2012	Semiannual Groundwater report	RPS	The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the SWMA as evidenced by the results of the groundwater monitoring program.
September 2011	MW-30 Modified to a flush mount.	RPS	
27 January 2011	Commencement of semi-annual sampling post closure	RPS	Includes the sampling of MW-8, MW-9, MW-10, MW-11, MW-12, MW-30, and R-8.
29 June 2010	Class 1 modification application issued	TCEQ	Corrected typographical errors and adjusted amount of financial assurance.
17 November 2009	Submittal of Deed Notice		A deed notice documenting the plume management zone (PMZ) and restricting groundwater use within the PMZ was filed into the Real Property Records of Jefferson County Clerk's Office.
24 September 2009	Groundwater recovery system shut down	BASF	As issued by the major amendment.
4 September 2009	Major Amendment issued for the compliance plan	TCEQ	Discontinued active groundwater recovery, incorporated PMX with POE and AMO wells, modified groundwater monitoring program.
14 January 2009	Interagency memo	BASF	Responded to TCEQ notice of deficiency with comments and included a revised sampling plan
13 July 2008	Semiannual Ground Water Report	BASF	The overall groundwater recovery was satisfactory as indicated by the reduction in the total dissolved solids The cone depression created by pumping exceeds the area of the plume and it is recovering and controlling contaminated ground water.
May 2008	Response Action Plan	BASF	Report to TCEQ documenting the response action plan. It was concluded that a plume management zone with semi-annual sampling was the most appropriate response action.

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BASF Corporation Agro Plant, Beaumont, Texas

Date of Report or Event(s)	Title of Report / Activity	By	Summary of Environmental Assessment and/or Correspondence
19 January 2008	Semiannual Ground Water Report	BASF	The overall groundwater recovery was satisfactory as indicated by the reduction in the total dissolved solids The cone depression created by pumping exceeds the area of the plume and it is recovering and controlling contaminated ground water.
19 July 2007	Semiannual Ground Water Report	BASF	The overall groundwater recovery was satisfactory as indicated by the reduction in the total dissolved solids The cone depression created by pumping exceeds the area of the plume and it is recovering and controlling contaminated ground water.
2006	Number of recovery and monitoring wells used reduced	BASF	The number of recovery and monitoring wells were reduced due to the reduction of the area of the plume and the concentration of constituents of concern. The wells are MW-13, MW-19, MW-29, R-1, R-2, R-8, and R-9
8 September 2004	Compliance plan renewed	TCEQ	The sampling frequency for the recovery and supplemental wells was changed to the first and third quarters only. Wells were previously sampled every quarter.
January 2003	Semi-Annual Report For The Third And Fourth Quarters 2002	BASF	The cone of depression from pumping exceeds the area of the plume and it is recovering and controlling contaminated groundwater. However, some recovery wells encountered difficulties with pumping due to mechanical problems. TDS results show the overall area of the plume has been reduced,
11 December 2000	Inspection report	Texas Natural Resource Conservation Commission	TNRCC conducted a Comprehensive Ground-Water Monitoring evaluation inspection. Sampling event from October included split samples.
July 1998	Semi-Annual Report For The First And Second Quarters 1998	RMT Inc	Analytical data exhibits significant levels of contamination. Concluded that the flow directions of all parts of the plume is to recovery wells and given enough time will recover the contaminants. The groundwater recovery system worked as designed with the following exceptions. Wells 4,5 and 6 were down intermittently in January due to pump problems. Well 10 had to be restarted on the 27th of January. Well 5 had a priming problem on the 6th of February. Wells 4 and 6 had

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Date of Report or Event(s)	Title of Report / Activity	By	Summary of Environmental Assessment and/or Correspondence
			priming problems the first two weeks of March. Well 5 had its switch replaced this month. Wells 3 and 4 had pump motors replaced in April and well 1 had priming problems this month. Furin May there were problems with the motor on well 1. In June, there were leaks in well 1 and 3, the wastewater volume counter broke and was repaired.
November 1995	MW-6 replaced	BASF	
8 November 1988	Compliance plan first issued	TCEQ	Quarterly sampling commenced.

Checklist for Report Completeness

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.

			Report Contents	
		Required	**Cover Page**	☒
		Required	**Executive Summary**	☒
		Required	**Checklist for Report Completeness**	☒
		Required	**Worksheet 1.0** Confirmation of Response Action Objectives	☒
		Required	**Attachment 1A*** Maps and Cross Sections	☒
		Required	**Attachment 1B*** Graphs	☒
		Required	**Attachment 1C*** Response Action Diagrams	☒
No ☐	Was a plume management zone used as part of the response action?	☒ Yes	**Worksheet 2.0** Plume Management Zone	☒
			Attachment 2A* Map of Plume Management Zone	☒
No ☒	Was an area of technical impracticability approved for use as part of the response action?	☐ Yes	**Worksheet 3.0** Technical Impracticability	☐
			Attachment 3A* Map of Technical Impracticability Area	☐
No ☐	Were institutional controls used or required as part of the response action?	☒ Yes	**Worksheet 4.0** Institutional Controls	☒
		Required	**Worksheet 5.0** Performance Measures and Problems	☒
No ☒	Did the response action require any operation and maintenance activities?	☐ Yes	**Worksheet 6.0** Operation and Maintenance	☐
No ☒	Has there been any change to the plans for post-response action care from that submitted in the RAP?	☐ Yes	**Worksheet 7.0** Post-Response Action Care	☒
No ☐	Was any information for this report obtained from outside sources?	☒ Yes	**Appendix 1*** References	☒
No ☒	Was an ESA and/or Compensatory Restoration used as part of the response action?	☐ Yes	**Appendix 2*** ESA and Compensatory Restoration	☐
No ☐	Were institutional controls or landowner concurrence required in the response action?	☒ Yes	**Appendix 3*** Institutional Controls and Landowner Concurrence	☒

Checklist for Report Completeness

ID No. SWR No. 30053

Report Date: 8 April 2024

				Report Contents
No ☐	Is there data or boring/monitor well information not previously submitted?	☒ Yes →	**Appendix 4*** Data Tables, Boring Logs, and Well Completions	☒
No ☒	Did sampling procedures differ from those described in the RAP?	☐ Yes →	**Appendix 5*** Sampling Procedures	☐
No ☐	Has any sampling been conducted for which the analytical results were not previously submitted?	☒ Yes →	**Appendix 6*** Laboratory Data Packages	☒
No ☐	Were statistics or geostatistics used in the response action?	☒ Yes →	**Appendix 7*** Statistical Methodology	☒
No ☒	Were any wastes generated that were not reported through STEERS?	☐ Yes →	**Appendix 8*** Waste Disposition	☐

Use this worksheet to describe the attainment of the response action objectives in each media.

Response Action Objectives

What was the selected remedy standard for this affected property? ___ A X B

List the environmental media to which this applies Shallow groundwater
Repeat this section for each medium that had a different response action objective.

Provide a detailed description of the response action. Describe the removal actions, decontamination actions, treatment system(s), physical or institutional control actions, and any actions for ecological considerations (ecological services analysis and compensatory restoration plans) that were conducted in each media and indicate if there were any differences between the actions taken and the actions proposed in the SIN or RAP.

Response actions consisted of the following two components:

Plume Management Zone: A PMZ encompassing the historical groundwater PLCE zones identified in the previous groundwater monitoring reports under Compliance Plan CP-50219 for the former SWMA was established in the RAP (BASF, 2008; see Attachment 1A.1). The PMZ consists of seven wells including two AMP and five Alternate POE wells. AALs were established for the two AMP wells for benzene, chlorobenzene, and 2,4-dichlorophenol and were equal to the PCL for each COC. Additionally, Groundwater Protection Standards (GWPSs) were established in accordance with Compliance Plan CP-50219 to ensure the concentrations at the Alternate AMP and POE wells are protective of human health and environment. The GWPSs are based on the groundwater ingestion PCL in accordance with 30 TAC 350 calculated in November 2014 (TCEQ, 2015), and updated PCLs (May 2023 Tier 1 Residential PCL for groundwater ingestion) have not changed since the November 2014 PCLs. Therefore, the GWPSs established in the Compliance Plan CP-50219 are still applicable. The GWPSs have not been exceeded at any wells for any COC within or at the PMZ boundary. As discussed in the Executive Summary, the PMZ boundaries were recorded in the institutional controls filed with Jefferson County in Texas in November 2009.

Institutional Control: Institutional controls have been filed with the Jefferson County property records to restrict groundwater use within the PMZ in November 2009.

While not specifically mentioned in the RAP, semiannual groundwater monitoring conducted from January 2011 through January 2024 was used in this Response Action Completion Report (RACR) to establish COC concentration trends and confirm the efficacy of monitored natural attenuation (MNA) for control of affected groundwater plume and migration. As noted previously, BASF installed and operated a groundwater extraction system from 1988 to 2008, prior to implementation of the RAP. The RAP submitted in 2008 demonstrated that the groundwater conditions at former SWMA were favorable to degrading or impeding the migration of the COCs beyond the boundary of the PMZ (BASF, 2008). Concentration trends for barium, the only COC detected in any well from 2011 to 2024, were evaluated in this RACR using the Mann-Kendall statistical analysis (see Appendix 7 for description of the statistical analysis). Concentration versus time graphs and results of the trend analyses are provided in Attachments 1B.1 and 1B.2. A groundwater potentiometric surface map for January 2024 is provided in Attachments 1A.2 and Attachment 1A.3 summarizes groundwater monitoring results for barium in January 2024. Note that potentiometric surface maps and groundwater monitoring results from 2011 to 2023 have been submitted in previous reports, including semiannual groundwater monitoring reports.

Describe how the response action achieved the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33, as applicable.

Explain how the response action was appropriate based on the hydrogeologic and COC characteristics. Describe any unprotective conditions that continued or resulted from the remedial actions and the actions taken to mitigate unprotective conditions.

Response Objective and Approach

The response action objectives for the affected groundwater-bearing unit were control of the plume in accordance with Remedy Standard B as specified by 30 TAC 350.33(a)(1). Control of the plume was achieved primarily via a PMZ and MNA in accordance with 30 TAC 350.33(f)(4), which maintained the COCs concentrations below the applicable action levels, prevented any affected groundwater from migrating beyond the boundaries of the established PMZ and prevented exposure to affected groundwater within the limits of the PMZ.

COC Characteristics

The primary COCs at the former SWMA are barium, benzene, chlorobenzene, 1,4-dichlorobenzene, 2,4-dichlorophenol, 2,6-dichlorophenol, phenol, silvex (2,4,5-TP), 2,4-dimethylphenol. Primary attenuation processes for these COCs include biodegradation (both aerobic and anaerobic), sorption, and/or dispersion.

Hydrogeologic Characteristics

The shallow groundwater bearing unit is classified as a Class 2 groundwater resource. There are no current uses of the groundwater in the vicinity of the affected property and there is no information to suggest any future uses of groundwater from the affected zone. The groundwater from the affected property does not discharge to the land surface, and thus there is no complete exposure pathway to wildlife. Additionally, there are no crops or physical structures located within the PMZ boundary and there is no indication that vegetation overlying the area is in any way stressed due to the presence of the COCs. Therefore, the risk for human exposure to the COCs in the shallow ground water is very low as there are no uses of the shallow groundwater in the vicinity of the site and COC concentrations in groundwater are below the GWPS and $^{Air}GW_{Inh\text{-}V}$ PCLs.

Unprotective Conditions

There were no unprotective conditions that continued or resulted from the response actions.

If different from the information provided in the RAP, explain how the COCs were handled, treated, disposed, or transferred to another media and document that the response action did not result in any additional exposure conditions due to response action activities.

Not applicable.

Explain how the response action achieved the objectives within the reasonable time frame.

As proposed, the post-response action care consisting of semiannual groundwater monitoring for MNA has been conducted for a period of 13 years out of the 30 years. As noted previously, the SWMA was closed in 1987 (i.e., no wastes were received after 1987), and BASF installed and operated a groundwater extraction system from 1988 to 2008, prior to implementation of the RAP. The groundwater concentrations results obtained between 2011 and 2024 demonstrate the COC concentrations have been below the applicable action levels, and any affected groundwater within the PMZ has not migrated beyond its boundary in the past 13 years of groundwater monitoring. Therefore, BASF believes that they have achieved the response action objectives with a reasonable timeframe.

As a result, no further action is requested for the affected groundwater associated with the former SWMA.

Were physical controls used as part of the response action? ___ Yes _X_ No
If yes, describe the type and purpose of the physical control and discuss how the physical control has proved effective.

Not applicable.

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate that the physical control or combination of measures reliably contained COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

There are no soil PCLE zones identified within the affected property.

Explain how the removal or decontamination action reduced the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevented COC concentrations above the critical soil PCLs from migrating beyond the original boundary of the soil PCLE zone.

Not applicable.

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies: Upper-Most Ground Water-Bearing Unit

Repeat this section for each groundwater-bearing unit for which a different response action was conducted.

Groundwater classification	1	X 2	3
	___	___	___

Was a modified groundwater response action used for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? X ___ Yes ___ No
If yes, complete the appropriate portions of this report.

Explain how the removal or decontamination actions reduced the concentration of COCs to the critical groundwater PCL throughout the groundwater PCLE zone and prevented COC concentrations above the critical groundwater PCL from migrating beyond the original boundary of the groundwater PCLE zone. If COC concentrations above the critical groundwater PCL ever migrated beyond the original boundary of the groundwater PCLE zone, explain the actions taken to address the increase in the PCLE zone.

The groundwater concentrations results obtained between 2011 and 2024 demonstrate the effectiveness of the natural attenuation process (i.e., biodegradation, sorption, and/or dispersion) coupled with the relatively low groundwater seepage velocity to maintain the COC concentrations below the respective action levels and prevent the migration of COC beyond original boundary of the groundwater PCLE zone at concentrations above the GWPSs. As such, the COC concentrations have been below the applicable action levels, demonstrate stable or decreasing concentration trends for recent data (see Attachments 1B.1 and 1B.2), and any affected groundwater within the PMZ has not migrated beyond its boundary in the past 13 years of groundwater monitoring.

Explain how the response action prevented COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh\text{-}V}$) were exceeded.

Not applicable. As documented in the previous groundwater monitoring reports associated with the

former SWMA (e.g., semiannual progress reports, and RAP) and this RACR, maximum COC concentrations in groundwater are well below $^{Air}GW_{Inh\text{-}V}$ PCLs. On this basis, the groundwater-to-air pathway is not a concern at the site.

Explain how the response action prevented COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water was a factor.

Not applicable. The nearest surface water body is approximately 0.9 miles away from the affected property, and groundwater monitoring data demonstrate that the affected groundwater plumes, if any, are of limited extent and do not pose a threat to surface water discharge.

Explain how the response action prevented human and ecological receptor exposure to the groundwater PCLE zone.

Any groundwater PCLE zone is entirely located on-site and within the Affected Property boundary where groundwater is currently not used, and future use of groundwater is restricted by establishment of the PMZ and institutional controls. Site access is restricted since the site is located on an active chemical manufacturing facility. There is no potential for impact to surface water or sediments, since the nearest surface water body is approximately 0.9 mile from the PMZ. Accordingly, there is no risk of human or ecological receptor exposure to the groundwater PLCE zone.

Waste Management

Describe the volume and final disposition or reuse location of waste or environmental media that was removed from the affected property during the response action, if not previously reported under STEERS. Provide copies of all manifests, other documentation of disposition, and landowner consent for reuse of soil in Appendix 8.

The only waste generated during PMZ and MNA response action activities has been purge water collected during semiannual monitoring events. All purge water removed during the MNA activities is disposed in the on-site wastewater treatment system.

GSI Job No. 6878
Issued: 8 April 2024

GSI ENVIRONMENTAL

2024 RESPONSE ACTION COMPLETION REPORT

Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

SECTION 1.0 – ATTACHMENTS

Attachment 1A.1 Affected Property Map

Attachment 1A.2 Potentiometric Surface Map: 18 January 2024

Attachment 1A.3 Summary of Barium Groundwater Test Result: January 2024

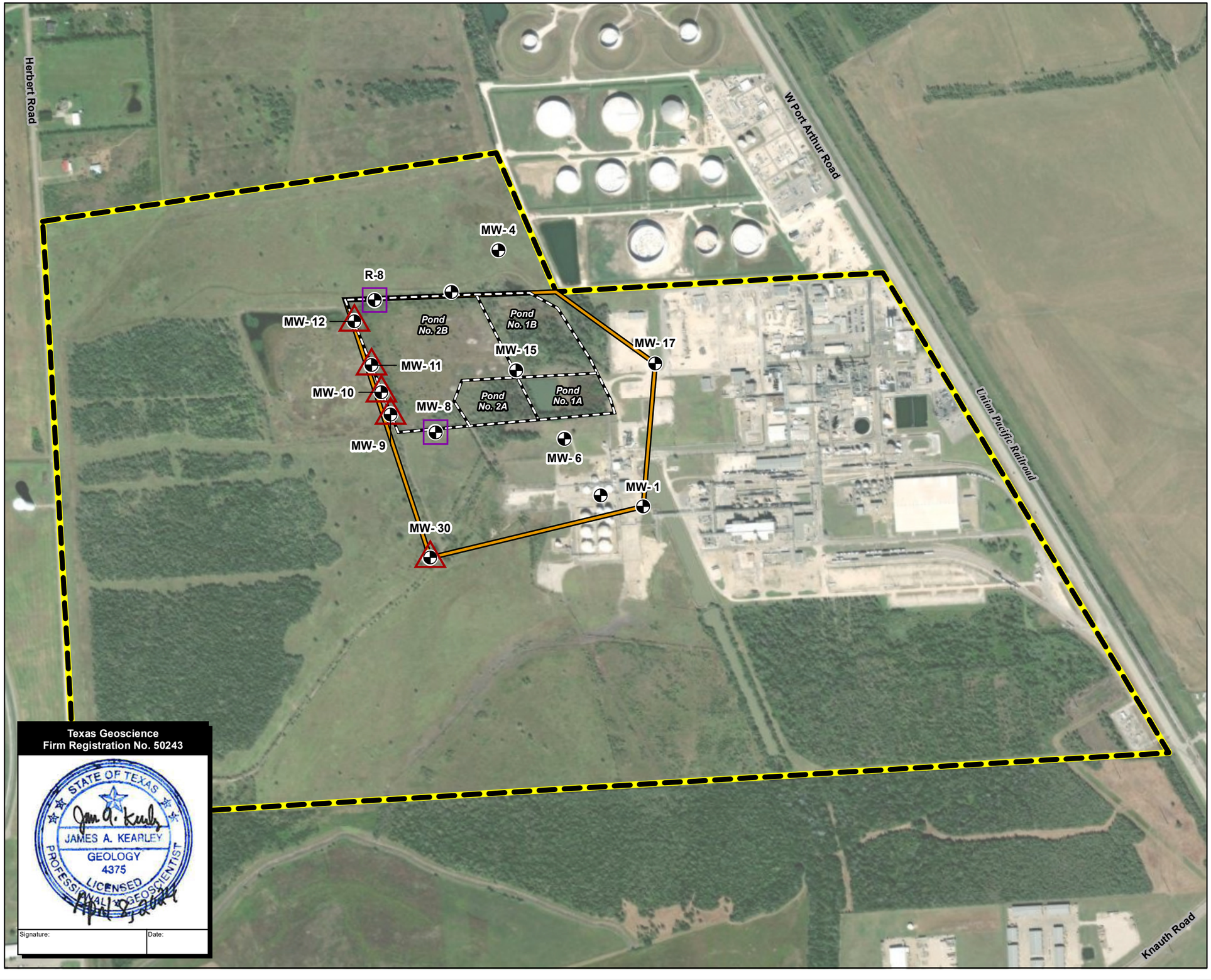
Attachment 1A.4 Cross-Section B-B’

Attachment 1A.5 Cross-Section D-D’

Attachment 1B.1 Results of Mann-Kendall Trend Analysis for Barium: 2011 – 2024

Attachment 1B.2 Results of Mann-Kendall Trend Analysis for Barium: 2019 - 2024

Attachment 1C Response Action Diagram



Texas Geoscience
Firm Registration No. 50243

STATE OF TEXAS
JAMES A. KEARLEY
GEOLOGY
4375
LICENSED
PROFESSIONAL GEOSCIENTIST

Signature: | Date:

N

LEGEND

- Supplemental Monitoring Well
- Alternate Monitoring Point Monitoring Well
- Point of Exposure Monitoring Well
- BASF Corporation Property Boundary
- Solid Waste Management Area PMZ
- Former Pond Boundary

Note

Background Imagery: ESRI World Imagery (Clarity) - 1m Color InfraRed NAIP imagery last modified 12/14/2018: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

Feet
0 300 600

Projected Coordinate System
Datum: NAD 1983
STP: Texas South Central
FIPS 4204 (ft)

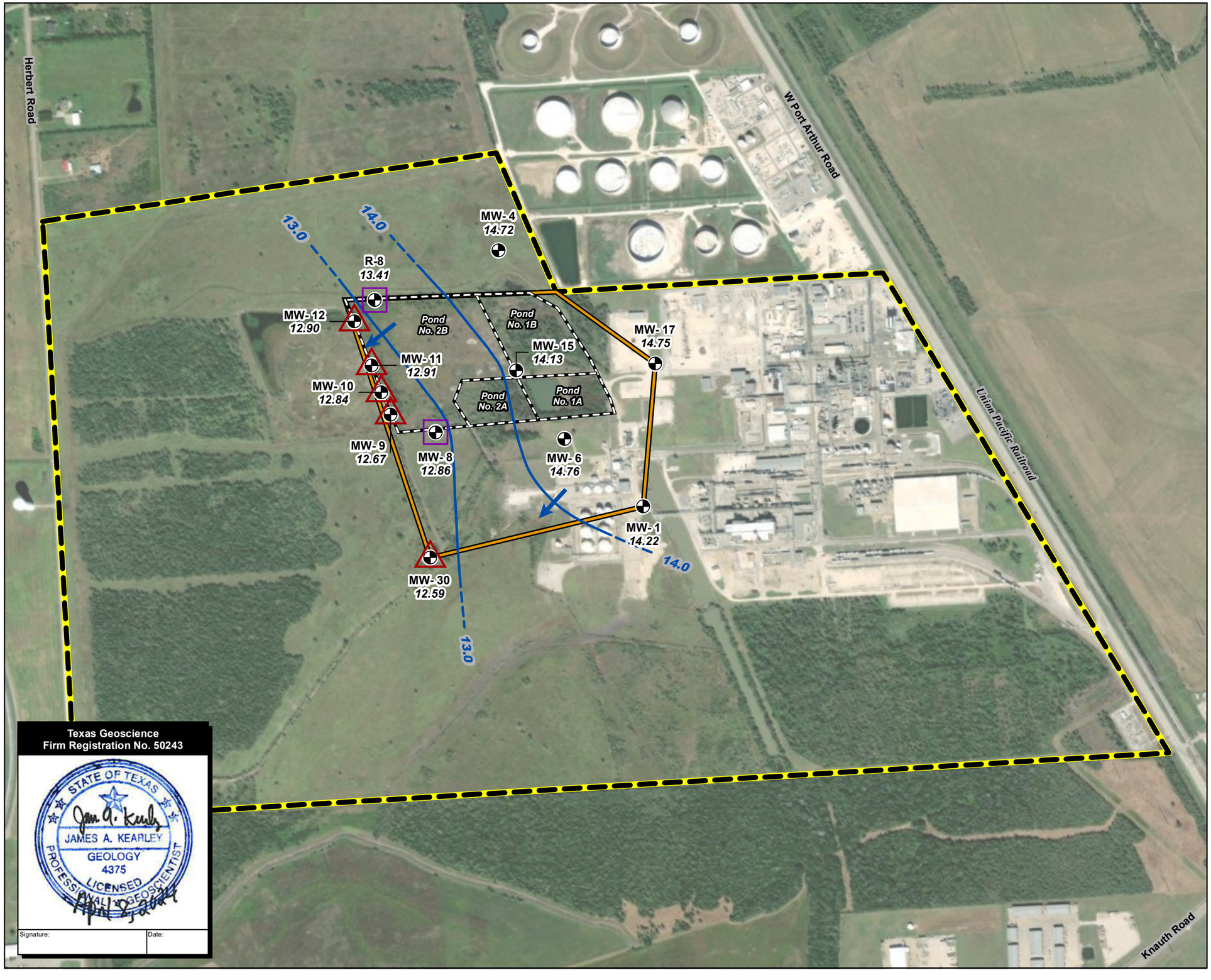
GSI ENVIRONMENTAL

AFFECTED PROPERTY MAP

2024 Response Action Completion Report
Solid Waste Registration No.: 30053
BASF Corporation Agro Plant, Beaumont, Texas

GSI Job No.	6878	Drawn By:	CDM
Issued:	8-Apr-2024	Chk'd By:	KCN
Map ID:	**001_01**	Appv'd By:	JAK

ATTACHMENT 1A.1



Texas Geoscience
Firm Registration No. 50243

STATE OF TEXAS
JAMES A. KEARLEY
GEOLOGY
4375
LICENSED
PROFESSIONAL GEOSCIENTIST

Signature: | Date:

LEGEND

- Supplemental Monitoring Well
- Alternate Monitoring Point Monitoring Well
- Point of Exposure Monitoring Well
- BASF Corporation Property Boundary
- Solid Waste Management Area PMZ
- Former Pond Boundary
- 14.22 — Water elevation used for contouring (ft,MSL)
- 14.0 — Potentiometric surface contour (ft,MSL)
- Inferred groundwater flow direction

Notes

1. MSL= Mean Sea Level.
2. Background Imagery: ESRI World Imagery - 1m Color InfraRed NAIP imagery Last modified: 3/12/2024: Source: Esri, DigitalGlobe, etal., and the GIS User Community.

Feet
0 300 600

Projected Coordinate System
Datum: NAD 1983
STP: Texas South Central
FIPS 4204 (ft)

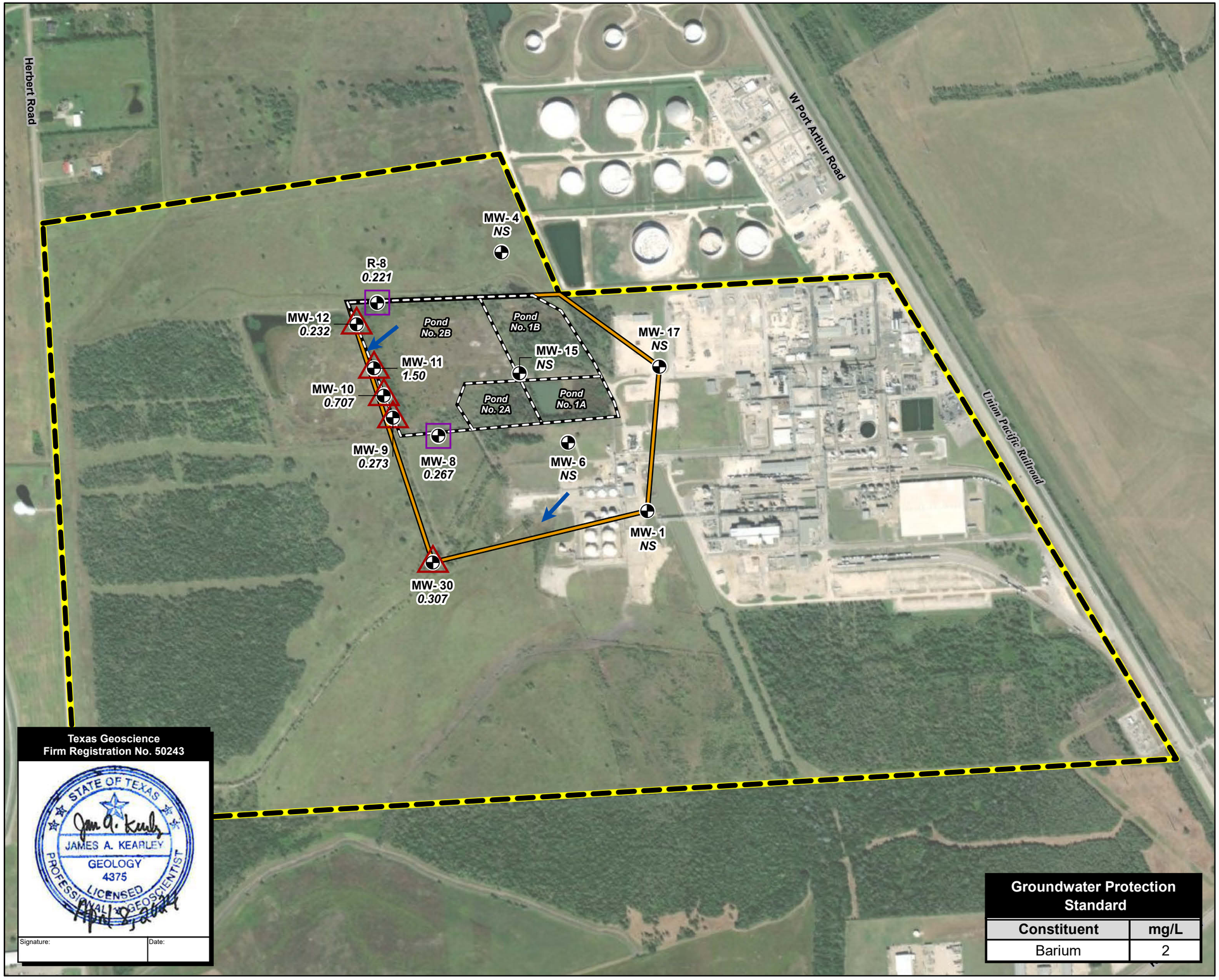
GSI ENVIRONMENTAL

POTENTIOMETRIC SURFACE MAP: 18 JANUARY 2024

2024 Response Action Completion Report
Solid Waste Registration No.: 30053
BASF Corporation Agro Plant, Beaumont, Texas

GSI Job No.	6878	Drawn By:	CDM
Issued:	8-Apr-2024	Chk'd By:	KCN/LCM
Map ID:	**001_02**	Appv'd By:	JAK

ATTACHMENT 1A.2



LEGEND

- Supplemental Monitoring Well
- Alternate Monitoring Point Monitoring Well
- Point of Exposure Monitoring Well
- ***1.50*** Barium concentration (mg/L) in January 2024
- ***NS*** Well not sampled in January 2024
- BASF Corporation Property Boundary
- Solid Waste Management Area PMZ
- Former Pond Boundary
- Inferred groundwater flow direction

Notes

1. All concentrations are reported in mg/L.
2. Groundwater Protection Standard is defined in the renewed Compliance Plan issued 10 September 2015.
3. Concentrations at MW-12 are an average of duplicate samples for the January 2024 monitoring event.
4. Background Imagery: ESRI World Imagery - 1m Color InfraRed NAIP imagery Last modified: 3/12/2024: Source: Esri, DigitalGlobe, etal., and the GIS User Community.

Feet
0 300 600

Projected Coordinate System
Datum: NAD 1983
STP: Texas South Central
FIPS 4204 (ft)

Groundwater Protection Standard

Constituent	mg/L
Barium	2

Texas Geoscience Firm Registration No. 50243

STATE OF TEXAS
JAMES A. KEARLEY
GEOLOGY
4375
LICENSED
PROFESSIONAL GEOSCIENTIST

Signature: Date:

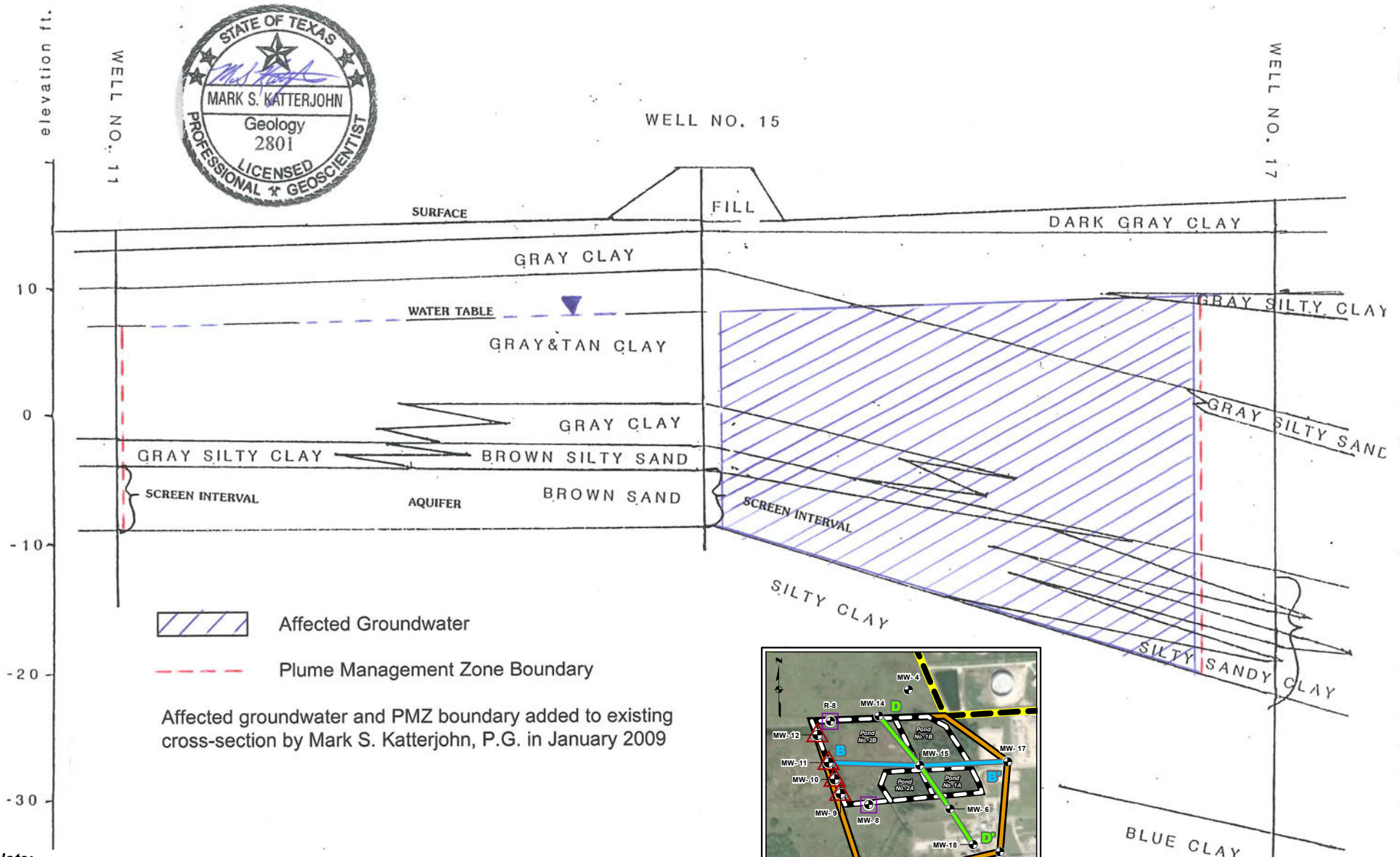
GSI ENVIRONMENTAL

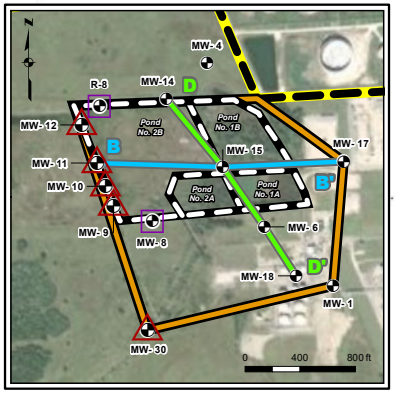
SUMMARY OF BARIUM GROUNDWATER TEST RESULTS: JANUARY 2024

2024 Response Action Completion Report
Solid Waste Registration No.: 30053
BASF Corporation Agro Plant, Beaumont, Texas

GSI Job No.	6878	Drawn By:	CDM
Issued:	8-Apr-2024	Chk'd By:	KCN/LCM
Map ID:	**001_03**	Appv'd By:	JAK

ATTACHMENT 1A.3





Note:

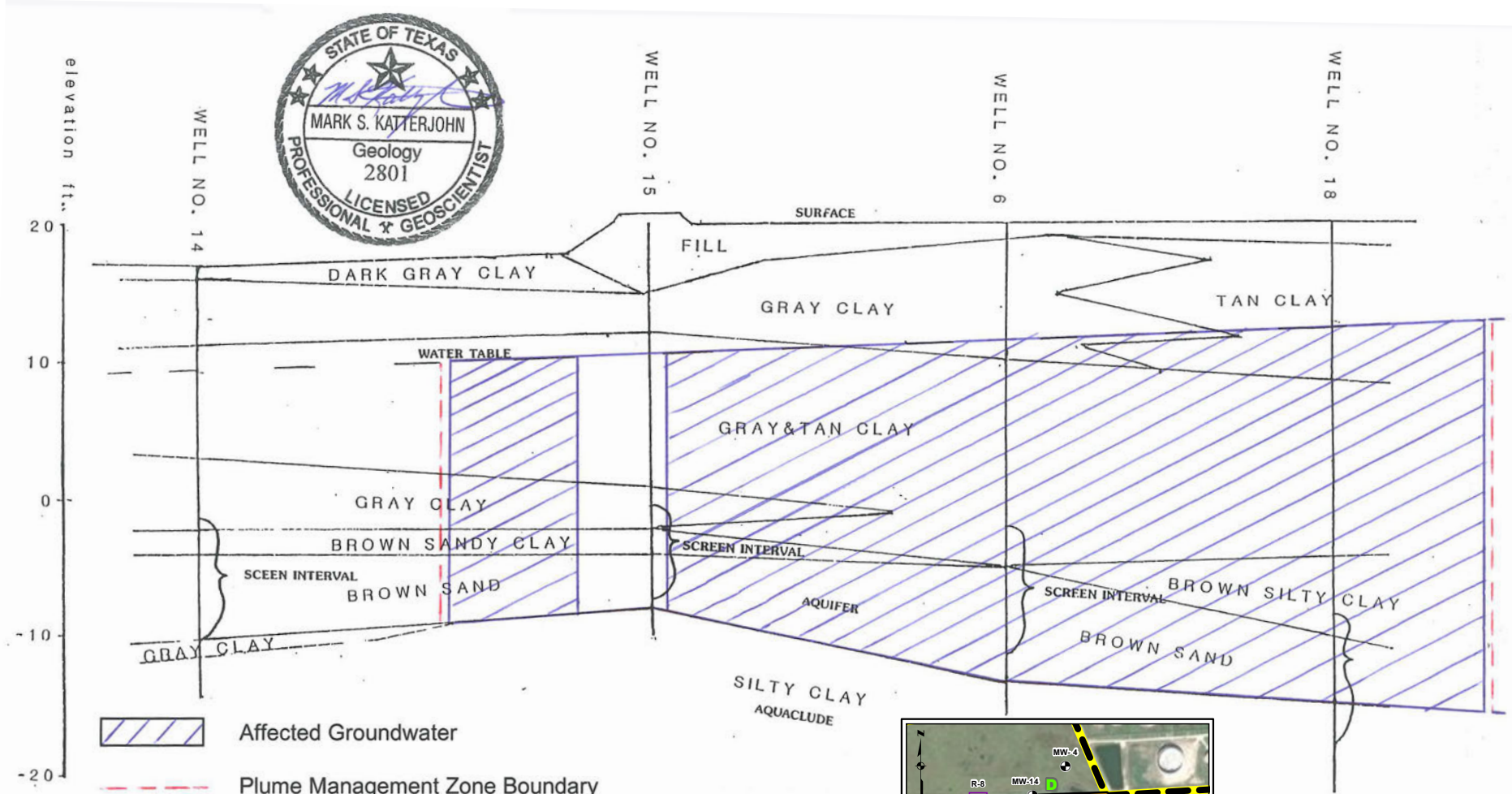
This cross-section was previously submitted to the TCEQ in the 2009 permit renewal application and was sealed by a Professional Geologist in January 2009. The cross-section has not been altered and is being submitted in the same format as provided in the 2009 permit renewal application.

GSI ENVIRONMENTAL

GSI Job No.	6878	Drawn By:	CDM
Map ID:	001_04	Chk'd By:	WMC
Issued:	8-Apr-2024	Aprv'd By:	JMM
Scale:	Not to Scale	**ATTACHMENT 1A.4**	

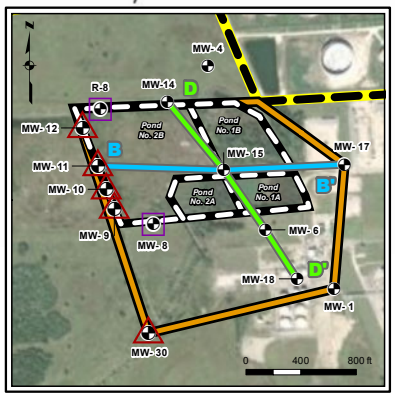
CROSS SECTION B-B'

2024 Response Action Completion Report
Soild Waste Registration No.: 30053
BASF Corporation Agro Plant, Beaumont, Texas



Affected groundwater and PMZ boundary added to existing cross-section by Mark S. Katterjohn, P.G. in January 2009

STATE OF TEXAS
MARK S. KATTERJOHN
Geology
2801
LICENSED
PROFESSIONAL GEOSCIENTIST



Note:

This cross-section was previously submitted to the TCEQ in the 2009 permit renewal application and was sealed by a Professional Geologist in January 2009. The cross-section has not been altered and is being submitted in the same format as provided in the 2009 permit renewal application.

GSI ENVIRONMENTAL

GSI Job No.	6878	Drawn By:	CDM
Map ID:	001_05	Chk'd By:	WMC
Issued:	8-Apr-2024	Aprv'd By:	JMM
Scale:	Not to Scale	**ATTACHMENT 1A.5**	

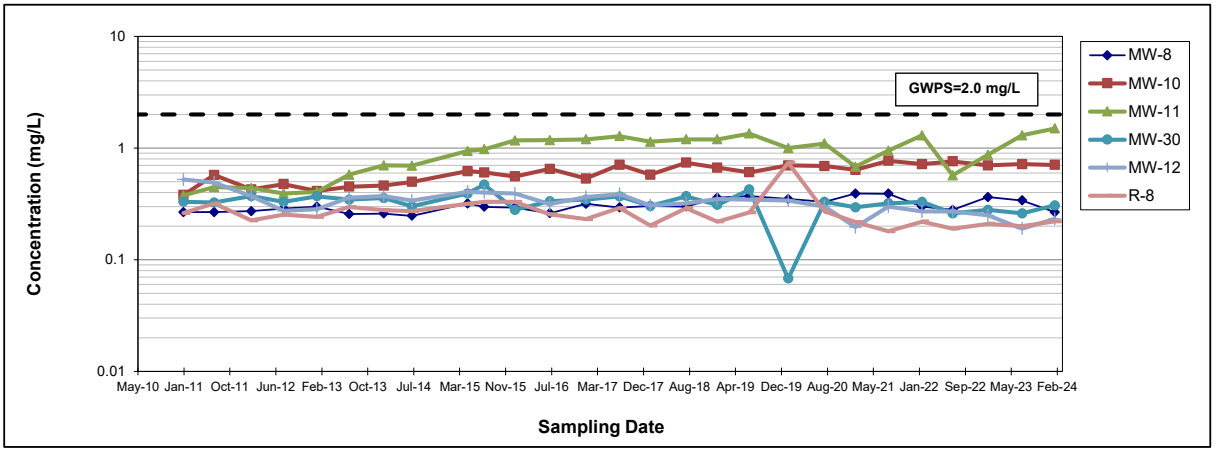
CROSS SECTION D-D'

2024 Response Action Completion Report
Soild Waste Registration No.: 30053
BASF Corporation Agro Plant, Beaumont, Texas

ATTACHMENT 1B.1
RESULTS OF MANN-KENDALL TREND ANALYSIS FOR BARIUM: 2011 - 2024
2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

Date Analyzed: March 21 2024
Facility: BASF Agriculture Products Group
Constituent: Barium
Concentration Units: mg/L
GWPS: 2.0 mg/L

	Well Type:	AMP	POE	POE	POE	POE	POE	AMP
	Well Identification:	MW-8	MW-9	MW-10	MW-11	MW-12	MW-30	R-8
Sampling Event	Date	BARIUM CONCENTRATION (mg/L)						
1	Jan-11	0.267	0.223	0.380	0.376	0.523	0.331	0.262
2	Jul-11	0.267	0.227	0.574	0.447	0.492	0.326	0.319
3	Jan-12	0.273	0.226	0.426	0.439	0.373	0.372	0.225
4	Jul-12	0.288	0.237	0.476	0.392	0.274	0.330	0.254
5	Jan-13	0.299	0.237	0.412	0.406	0.284	0.370	0.242
6	Jul-13	0.257	0.242	0.451	0.579	0.360	0.346	0.297
7	Jan-14	0.259	0.254	0.462	0.699	0.372	0.357	0.278
8	Jun-14	0.248	0.250	0.498	0.696	0.339	0.301	0.273
9	Apr-15	0.319	0.339	0.621	0.941	0.406	0.392	0.317
10	Jul-15	0.298	0.316	0.606	0.978	0.401	0.471	0.330
11	Jan-16	0.294	0.322	0.557	1.17	0.391	0.280	0.330
12	Jul-16	0.261	0.299	0.652	1.18	0.315	0.335	0.255
13	Jan-17	0.317	0.345	0.533	1.20	0.365	0.345	0.231
14	Jul-17	0.294	0.353	0.710	1.28	0.388	0.369	0.291
15	Jan-18	0.304	0.302	0.577	1.14	0.307	0.303	0.202
16	Jul-18	0.30	0.31	0.74	1.2	0.32	0.37	0.29
17	Jan-19	0.36	0.33	0.67	1.2	0.35	0.31	0.22
18	Jul-19	0.372	0.343	0.607	1.35	NS	0.425	0.265
19	Jan-20	0.35	0.34	0.70	1.0	0.34	0.068	0.74
20	Aug-20	0.33	0.33	0.69	1.1	0.30	0.33	0.27
21	Jan-21	0.392	0.337	0.637	0.681	0.196	0.295	0.218
22	Jul-21	0.39	0.33	0.77	0.95	0.30	0.32	0.18
23	Jan-22	0.30	0.28	0.72	1.3	0.27	0.33	0.22
24	Jul-22	0.28	0.27	0.76	0.57	0.27	0.26	0.19
25	Jan-23	0.37	0.20	0.70	0.87	0.25	0.28	0.21
26	Jul-23	0.34	0.17	0.72	1.30	0.19	0.26	0.20
27	Jan-24	0.267	0.273	0.707	1.500	0.232	0.307	0.221
	Coefficient of Variation:	0.14	0.18	0.19	0.37	0.24	0.21	0.38
	Mann-Kendall Statistic (S):	146	79	233	173	-185	-113	-119
	Confidence Factor:	99.9%	94.8%	>99.9%	>99.9%	>99.9%	99.1%	99.4%
	Concentration Trend:	Increasing	Prob. Increasing	Increasing	Increasing	Decreasing	Decreasing	Decreasing

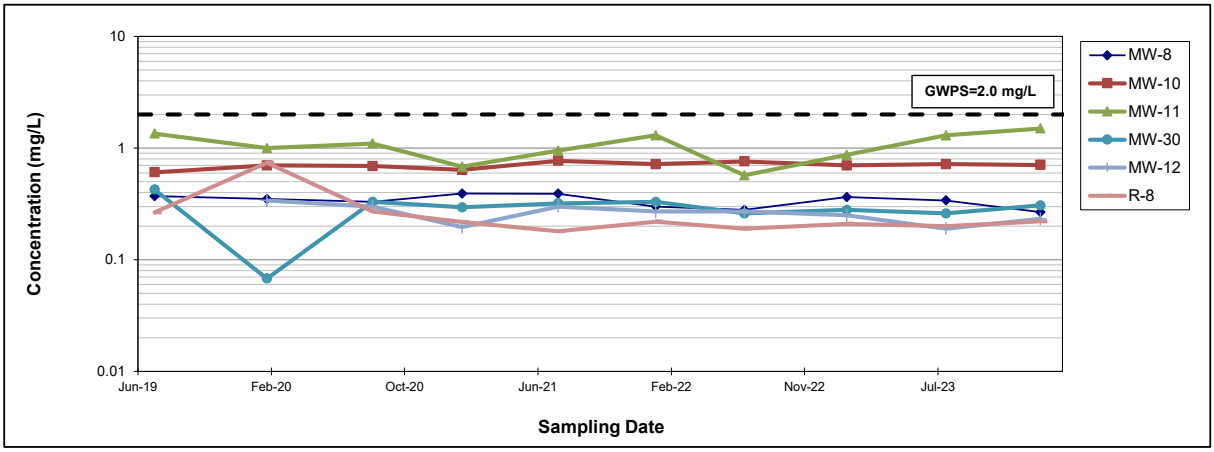


Notes:
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is only valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0).
   ≥ 90% = Probably Increasing or Decreasing; >95% = Increasing or Decreasing.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Concentrations in **BOLD** are detected above the Tier 1 PCL.
5. Non-detect concentrations (**blue bold**) are quantified as one-half of the lowest historical detection limit for a particular well for calculation of Mann-Kendall statistics.
6. AMP = Attenuation Monitoring Report POE = Point of Exposure

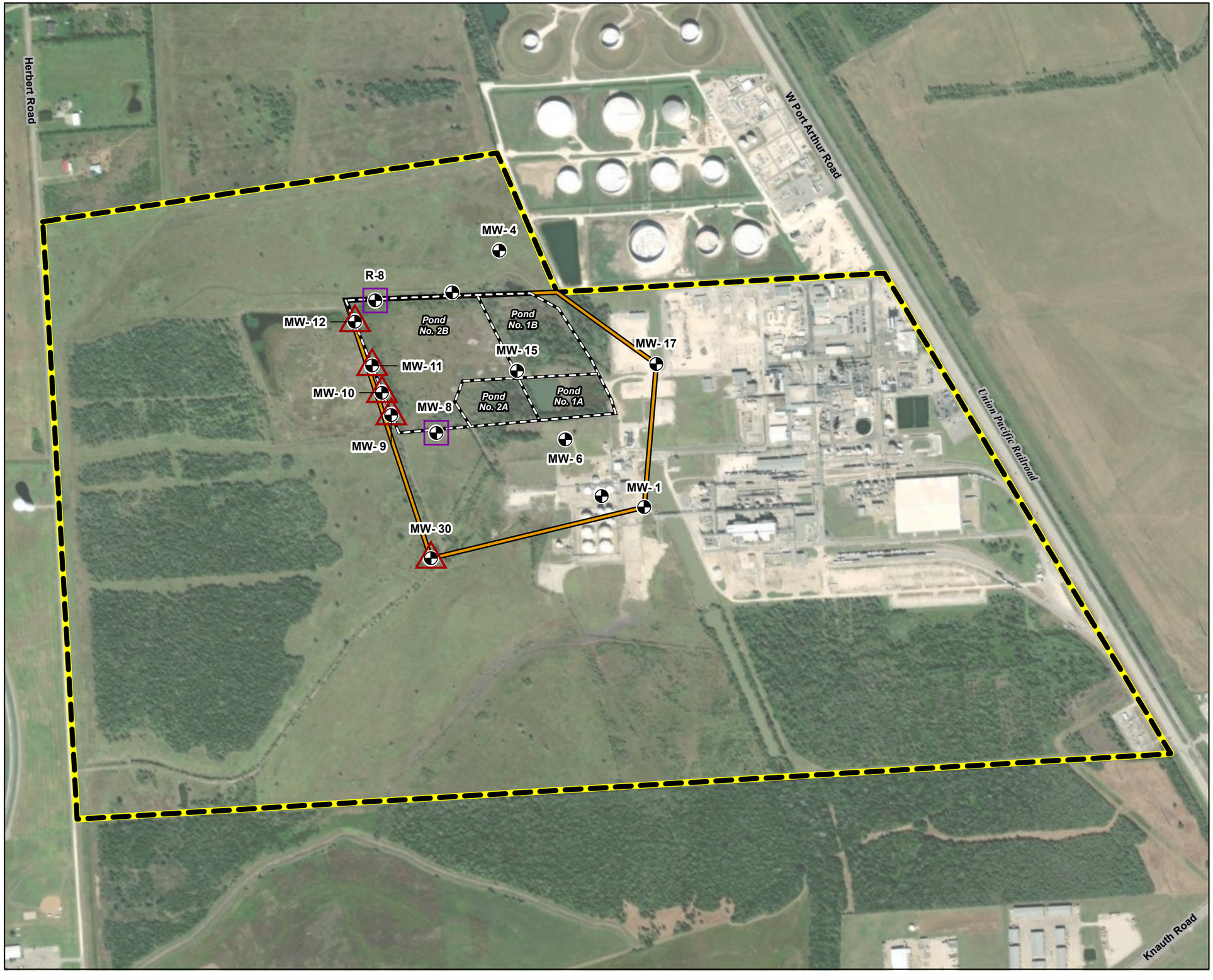
ATTACHMENT 1B.2
RESULTS OF MANN-KENDALL TREND ANALYSIS FOR BARIUM: 2019 - 2024
2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

Date Analyzed: March 21 2024
Facility: BASF Agriculture Products Group
Constituent: Barium
Concentration Units: mg/L
GWPS: 2.0 mg/L

	Well Type:	AMP	POE	POE	POE	POE	POE	AMP
	Well Identification:	MW-8	MW-9	MW-10	MW-11	MW-12	MW-30	R-8
Sampling Event	Date	BARIUM CONCENTRATION (mg/L)						
1	Jul-19	0.372	0.343	0.607	1.35	NS	0.425	0.265
2	Jan-20	0.35	0.34	0.70	1.0	0.34	0.068	0.74
3	Aug-20	0.33	0.33	0.69	1.1	0.30	0.33	0.27
4	Jan-21	0.392	0.337	0.637	0.681	0.196	0.295	0.218
5	Jul-21	0.39	0.33	0.77	0.95	0.30	0.32	0.18
6	Jan-22	0.30	0.28	0.72	1.3	0.27	0.33	0.22
7	Jul-22	0.28	0.27	0.76	0.57	0.27	0.26	0.19
8	Jan-23	0.37	0.20	0.70	0.87	0.25	0.28	0.21
9	Jul-23	0.34	0.17	0.72	1.30	0.19	0.26	0.20
10	Jan-24	0.267	0.273	0.707	1.500	0.232	0.307	0.221
	Coefficient of Variation:	0.13	0.21	0.07	0.29	0.19	0.31	0.62
	Mann-Kendall Statistic (S):	-19	-36	15	2	-22	-11	-15
	Confidence Factor:	94.6%	>99.9%	89.2%	53.5%	98.8%	81.0%	89.2%
	Concentration Trend:	Prob. Decreasing	Decreasing	No Trend	No Trend	Decreasing	Stable	Stable



Notes:
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is only valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0).
   ≥ 90% = Probably Increasing or Decreasing; >95% = Increasing or Decreasing.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. Concentrations in **BOLD** are detected above the Tier 1 PCL.
5. Non-detect concentrations (**blue bold**) are quantified as one-half of the lowest historical detection limit for a particular well for calculation of Mann-Kendall statistics.
6. AMP = Attenuation Monitoring Report POE = Point of Exposure



LEGEND

- Supplemental Monitoring Well
- Alternate Monitoring Point Monitoring Well
- Point of Exposure Monitoring Well
- BASF Corporation Property Boundary
- Solid Waste Management Area PMZ
- Former Pond Boundary

Note

Background Imagery: ESRI World Imagery (Clarity) - 1m Color InfraRed NAIP imagery last modified 12/14/2018: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

Feet
0 300 600

Projected Coordinate System
Datum: NAD 1983
STP: Texas South Central
FIPS 4204 (ft)

GSI ENVIRONMENTAL

RESPONSE ACTION DIAGRAM

2024 Response Action Completion Report
Solid Waste Registration No.: 30053
BASF Corporation Agro Plant, Beaumont, Texas

GSI Job No.	6878	Drawn By:	CDM
Issued:	8-Apr-2024	Chk'd By:	KCN
Map ID:	**001_06**	Appv'd By:	JAK

ATTACHMENT 1C

Complete this worksheet when a PMZ was used as part of the response action. Include in Attachment 2A a map of the PMZ with alternate POE(s) and attenuation monitoring points identified and the current groundwater PCLE zone (if applicable). If a PMZ was not used, do not submit this worksheet.

Groundwater-bearing unit Shallow Groundwater
Repeat this worksheet for each groundwater-bearing unit for which a PMZ was used.
Groundwater classification X 2 ___ 3

Is/was NAPL present? ___ Yes X No
If so, describe how the response action achieved the performance criteria in §350.33(f)(4)(E).

Not applicable.

If this is a Class 2 groundwater, explain how the response action ensured that leachate from the surface soil and subsurface soil PCLE zones did not increase concentration of COCs greater than the measured concentrations at time of RAP submittal. (§350.33(a)(2))

Not applicable.

Provide documentation that the COCs did not migrate beyond the downgradient boundary of the PMZ at concentrations above the critical PCL. Include supporting documentation in Attachments 1A, 1B, and 2A.

As shown on Attachment 1A.1, there is currently no PCLE zone within the established PMZ and historical groundwater concentration data collected during the post-response action care period (i.e., since 2011, see Table 4.7 in Appendix 4) indicate that COC concentrations have never been detected and/or exceeded their PCLs at any of the AMP and Alternate POE wells.

List the attenuation action level determined for each attenuation monitoring point. Illustrate the attenuation monitoring points, initial, maximum, and final groundwater PCLE zones (or groundwater concentrations if less than the critical PCL) on the map in Attachment 2A.

COC	Attenuation Monitoring Point (well number)	Attenuation Action Level [1] (mg/L)	Maximum concentration measured at the attenuation monitoring point: **January 2024 Results** (mg/L)
Barium	MW-8	2.0	**0.267**
	R-8	2.0	**0.221**
Benzene	MW-8	0.005	<0.00046
	R-8	0.005	<0.00046
Chlorobenzene	MW-8	0.1	<0.000455
	R-8	0.1	<0.000455
1,4-Dichlorobenzene	MW-8	0.075	<0.000449
	R-8	0.075	<0.000449

2,4-Dichlorophenol	MW-8	0.073	<0.000115
	R-8	0.073	<0.000115
2,6-Dichlorophenol	MW-8	0.024	<0.000126
	R-8	0.024	<0.000126
Phenol	MW-8	7.3	<0.000202
	R-8	7.3	<0.000202
Silvex (2,4,5-TP)	MW-8	0.05	<0.0000402
	R-8	0.05	<0.0000402
2,4-Dimethylphenol	MW-8	0.49	<0.000148
	R-8	0.49	<0.000148

Note:

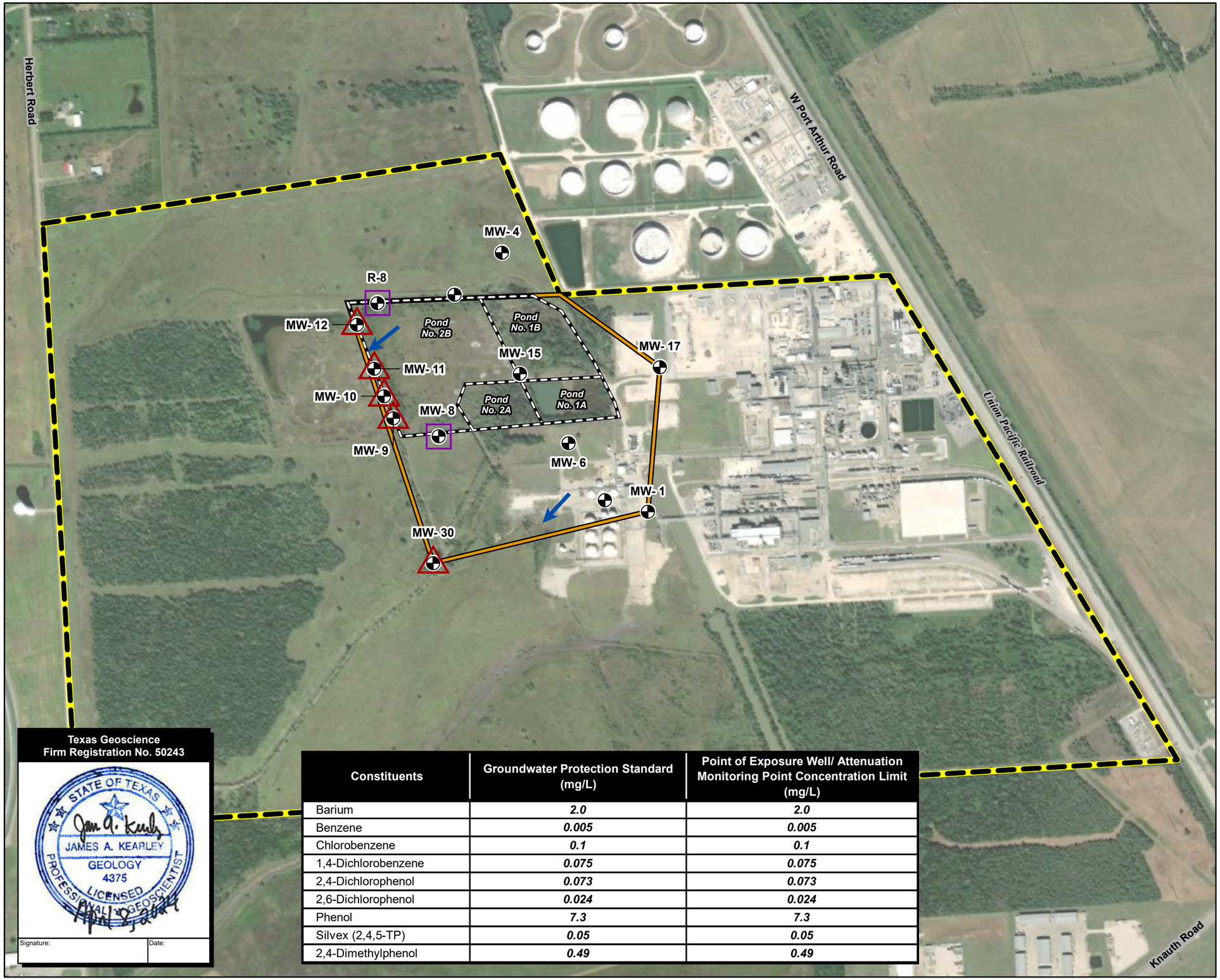
1. Attenuation Action Levels (AALs) for Benzene, Chlorobenzene, 2,4-Dimethylphenol were developed in the 2008 RAP for this plume management zone (PMZ). Additionally, Groundwater Protection Standards are used in accordance with Compliance Plan CP-50219 and are based on Class 1 or Class 2 Groundwater ingestion Protective Concentration Level of 30 TAC 350 from November 2014.

2024 RESPONSE ACTION COMPLETION REPORT

Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

SECTION 2.0 – ATTACHMENTS

Attachment 2A Plume Management Zone Map



LEGEND

- Supplemental Monitoring Well
- Alternate Monitoring Point Monitoring Well
- Point of Exposure Monitoring Well
- BASF Corporation Property Boundary
- Solid Waste Management Area PMZ
- Former Pond Boundary
- Inferred groundwater flow direction

Notes

1. Attenuation Action Levels (AALs) for Benzene, Chlorobenzene, 2,4-Dimethylphenol were developed in the 2008 RAP for this plume management zone (PMZ). Additionally, Groundwater Protection Standards are used in accordance with Compliance Plan CP-50219 and are based on Class 1 or Class 2 Groundwater ingestion Protective Concentration Level of 30 TAC 350 from November 2014.
2. Background Imagery: ESRI World Imagery (Clarity) - 1m Color InfraRed NAIP imagery last modified 12/14/2018: Source: Esri, DigitalGlobe, etal., and the GIS User Community.

Feet
0 300 600

Projected Coordinate System
Datum: NAD 1983
STP: Texas South Central
FIPS 4204 (ft)

GSI ENVIRONMENTAL

Constituents	Groundwater Protection Standard (mg/L)	Point of Exposure Well/ Attenuation Monitoring Point Concentration Limit (mg/L)
Barium	***2.0***	***2.0***
Benzene	***0.005***	***0.005***
Chlorobenzene	***0.1***	***0.1***
1,4-Dichlorobenzene	***0.075***	***0.075***
2,4-Dichlorophenol	***0.073***	***0.073***
2,6-Dichlorophenol	***0.024***	***0.024***
Phenol	***7.3***	***7.3***
Silvex (2,4,5-TP)	***0.05***	***0.05***
2,4-Dimethylphenol	***0.49***	***0.49***

Texas Geoscience
Firm Registration No. 50243

STATE OF TEXAS
JAMES A. KEARLEY
GEOLOGY
4375
LICENSED
PROFESSIONAL GEOSCIENTIST

Signature: Date:

PLUME MANAGEMENT ZONE MAP

2024 Response Action Completion Report
Solid Waste Registration No.: 30053
BASF Corporation Agro Plant, Beaumont, Texas

GSI Job No.	6878	Drawn By:	CDM
Issued:	8-Apr-2024	Chk'd By:	KCN
Map ID:	**001_07**	Appv'd By:	JAK

ATTACHMENT 2A

Use this worksheet to document the use of technical impracticability to modify the groundwater response objectives. Also complete Worksheet 2.0 to document the plume management zone for the area of technical impracticability. Include a map of the groundwater PCLE zone and area of technical impracticability in Attachment 3A. If technical impracticability was not used as part of the response action, do not submit this worksheet.

If additional information beyond that provided in the RAP is available, describe how it was determined that it was technically impractical to reduce the COC concentrations in groundwater to the critical PCLs. Describe the response actions taken that did not prove effective. Provide graphs in Attachment 1B to illustrate COC concentrations over time and with distance from the source for each response action that did not prove effective. Describe in Worksheet 1.0 the removal/decontamination actions that were conducted for any PCLE zone outside the area of technical impracticability.

Not applicable.

Did COCs above the critical PCL migrate beyond the area of technical impracticability and/or beyond the initial boundary of the PCLE zone?

___ yes ___ no

If yes, explain the actions taken to mitigate the migration of COCs.

Not applicable.

Complete this worksheet if an institutional control will be or has been used as part of the response action. Include in Appendix 3 copies of filed institutional controls and drafts of the proposed institutional controls, copies of landowner concurrences, and a list of landowners from whom landowner concurrence will be requested.

Specify the property for which this applies. BASF Corporation, Beaumont, Texas

Repeat this worksheet for each different property for which an institutional control will be used.

Institutional Control	Type of Institutional Control[3]				Property Ownership		Anticipated or actual filing date[4]
	Deed notice	Restrictive covenant	VCP Certificate of Completion	Equivalent zoning or governmental ordinance	Check if pertinent tract of land is owned by the person	Check if the pertinent tract of land is owned by an innocent owner or operator	
Document use of commercial/industrial land use (§350.31(g))							
Document use of physical or institutional control under Remedy Standard B §350.31(g))	X				X		Filed on 17 Nov 2009
Document notice of on-going long term response action (§350.31(h))							
Document use of occupational inhalation criteria as RBELs (§350.74(b)(1))							
Document variance from the default exposure factors (§350.74(j)(2)(L))							
Document the use of a non-default soil exposure area (§350.51(l)(3)&(4))							
Document WCU exclusion area (§350.33(f)(2))							
Document establishing a PMZ (§350.33(f)(4)(C)(I))	X				X		Filed on 17 Nov 2009
Document the demonstration of technical impracticability (§350.33(f)(3)(F))							
Relocation of soils containing COCs for reuse (§350.36(b)(4) and (c)(4))							
Other (specify)							

[3] Check the appropriate box(es) to indicate the type of institutional control required for the response action.

[4] Specify date or amount of time after RAP approval.

Performance Measures

List and describe the performance measures for each environmental medium containing a PCLE zone that were used to determine if reasonable progress is being made by the response action in a timely manner. Provide documentation that these performance measures were met. Attach additional information if necessary.

The limited potential for any exposure at this site, the biodegradable nature and/or low mobility of the COCs make the use of a PMZ at this site a viable response action. The performance of the PMZ and MNA response action were measured in the following two ways: i) direct comparison of groundwater sample results to the GWPSs as approved in the Compliance Plan CP-50219; and ii) concentration versus time statistical evaluation of plume trends .

Concentration Evaluation: As previously mentioned, all AMP and Alternate POE wells have never had a detection of benzene, chlorobenzene, 1,4-dichlorobenzene, 2,4-dichlorophenol, 2,6-dichlorophenol, phenol, Silvex (2,4,5-T), 2,4-dimethylphenol in the 13-year monitoring history, with the exception of low detections of benzene and phenol in January 2022 at Alternate POE well MW-30 at concentrations well below their GWPSs. Additionally, barium has never been detected at any AMP and Alternate POE wells at concentrations above the GWPS. Therefore, current and historical groundwater concentrations do not evidence the potential for migration of COCs beyond the PMZ, and the response action objectives outlined in the RAP have been achieved.

Concentration vs. Time Analysis: Results from the groundwater sampling conducted from January 2011 to January 2024 were statistically evaluated using the Mann-Kendall Test. Mann-Kendall Test (a non-parametric test) was used to evaluate the stability conditions of the groundwater plumes (i.e., stable, decreasing, or increasing) based on concentration trends in individual wells during two time periods (i.e., 2011-2024, representing the full data set and 2019-2024, representing the last 5-years of data). Details of the Mann-Kendall statistical methods are presented in Appendix 7, and results of the Mann-Kendall evaluation for barium, which was the only COC consistently detected, are provided on Attachments 1B.1 and 1B.2. Mann-Kendall concentration trend analysis was not computed for the other COCs since Mann-Kendall trend analyses are not meaningful if the majority of the results for a well are non-detect.

Trend analyses for barium at AMP wells MW-8 and R-8 indicate increasing and decreasing trends, respectively, when considering the full data set between January 2011 and January 2024. However, the barium concentration trends at those AMP wells show probably decreasing and stable trends, respectively, when considering data for the last five years (i.e., 2019 through 2024). Furthermore, all barium concentrations detected at MW-8 and R-8 were well below the GWPS of 2.0 mg/L. Similarly, trend analyses for barium at the five alternate POE wells indicate mostly increasing for MW-9, MW-10, and MW-11 and decreasing concentration trends at MW-12 and MW-30 for the full data set. When considering the last five years (i.e., 2019 through 2024) of data, the barium concentration trends at those POE wells show probably decreasing or stable trends. Again, all barium concentrations detected at the five alternate POE wells were well below the GWPS of 2.0 mg/L, thus demonstrating that COCs are not migrating beyond the PMZ, and the response action objectives outlined in the RAP have been achieved.

Problems

Complete the table for the response action. When the response action consisted of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: PMZ with Institutional Controls

List the problems that were encountered during the response action, describe the impact of each problem, and the response to the problem.

Description of the Problem	Impact	Did this cause a response action failure?		Corrective Response
		Yes	No	
Not applicable.				

Use this worksheet to describe the operation and maintenance (O&M) activities conducted for each response action.

Response Action Name/Designation: Not applicable.
List all portions of the response action to which this information applies. Repeat this worksheet for each major component or operation.

Describe the O&M and inspection activities that were conducted to operate and maintain response action components.

Not applicable.

Complete this worksheet only if the information has changed from that submitted in the RAP. If the information does not apply or if the RAP contains the most current information, do not submit this worksheet.

What is the proposed initial post-response action care period? (default 30 yr.) 0 years

If the proposed initial post-response action care period is less than 30 years, provide a technical justification in accordance with §350.33(h).

Migration of the plume, if present, beyond the boundaries of the PMZ will not occur due to the effective natural attenuation processes (i.e., biodegradation, sorption, and dispersion) present in shallow groundwater at the former SWMA and the relatively low groundwater seepage velocity. Establishment of the PMZ and institutional controls prevent groundwater use and further protect human and ecological receptors. In addition, the affected groundwater is contained wholly on the BASF property, which is an active chemical manufacturing facility and is more than 0.9 mile from the nearest surface water body. Finally, COCs have never been detected and/or exceeded the GWPS at the Alternate POE wells; therefore, confirming that further migration of affected groundwater is highly unlikely.

What is the foreseeable land use during the post-response action care period? Commercial/Industrial

Describe how the future use of the property will not compromise the integrity of the physical controls, will not interfere with the function of the monitoring systems, will not pose a threat to human health or the environment, and will be in accordance with any institutional controls.

Future land use will continue to remain as a commercial/industrial property, and the institutional controls establishing the PMZ will remain in place. Therefore, there is no threat to human health or the environment.

Describe the proposed post-response action care activities. Describe the type of monitoring and/or inspections to be performed. Discuss the rationale for not including any COC(s) analyzed during the response action, monitoring or sampling point location, frequency of monitoring and/or inspections, and the duration of the monitoring program.

As discussed in the Executive Summary of this RACR, BASF respectfully requests that no further post-response action care be required for the affected groundwater plume at the former SWMA, as BASF believes that the groundwater data collected from the semiannual groundwater monitoring program since January 2011 (i.e., 13 years of data) confirm that the response action objectives have been met.

Will PRAC sampling procedures be the same as those as previously documented for monitoring and/ or confirmation sampling? **Not applicable.** ____ Yes ____ No
If no, provide in Appendix 6 a description of the monitoring or sampling collection procedures to be conducted during the post-response action care period.

Cost Estimate
Complete this portion of the form only if this information has changed from that submitted in the RAP.

Specify the physical control to which this information applies: Groundwater monitoring
Complete this worksheet for each physical control that will be used as part of the response action.

What is the total estimated annual cost of O&M for the PRAC period? $0 per year

What is the total estimated cost for a third party to perform PRAC activities? $0 per year

Identify the type of financial assurance mechanism to be used, and the contact person managing fiduciary responsibility, if known.

Financial assurance for post-closure monitoring is required by the Compliance Plan associated with Hazardous Waste Permit No. 50219. BASF is proposing to discontinue post-closure monitoring; therefore, BASF is requesting that the financial assurance associated with the Compliance Plan is no longer required.

Does the person meet the criteria and definition of a small business? (see §350.33(n)) ___ Yes _X_ No
If yes and the person desires to pursue the reduced amount of financial assurance, attach a legally binding affidavit. Include in the affidavit the information requested in 30 TAC §350.33(l), (m), and (n).

GSI Job No. 6878
Issued: 8 April 2024

GSI ENVIRONMENTAL

2024 RESPONSE ACTION COMPLETION REPORT

Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

APPENDICES

APPENDIX 1

REFERENCES

2024 Response Action Completion Report

Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

APPENDIX 1
REFERENCE LIST

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

BASF, 2008. Response Action Plan. May 2008

TCEQ, 2009. Major Compliance Plan Amendment. 4 September 2009.

TCEQ, 2015. Hazardous Waste Permit No. 50219; EPA ID. No. TXD067261412; ISWR No. 30053. Issued 10 September 2015.

APPENDIX 3

INSTITUTIONAL CONTROLS AND LANDOWNER CONCURRENCE

2024 Response Action Completion Report

Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

NOT 2009043572
6 PGS

Texas Risk Reduction Program

Deed Notice

STATE OF TEXAS §
§
COUNTY OF JEFFERSON §

This Notice is filed to provide information concerning certain environmental conditions and/or use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

> Tract 1 (200.00 acres) and Tract 2 (290.577 acres) as conveyed by deed dated December 24, 1996 from Sandoz Agro, Inc. to BASF Corporation, recorded in Clerk's File No. 96-9639343 of the Official Public Records of Real Property, County Clerk's Office, Jefferson County, Texas, as situated in and a part of the W.H. Sigler Survey, Abstract No. 48 of said County.

Portions of the groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described as follows:

> Attached hereto and incorporated herein by reference is Exhibits A and B, which contains a metes and bounds description and survey, respectively, of the Affected Property.

This Notice is required for the following reasons:

The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern (e.g., barium, benzene, chlorobenzene, ethylbenzene, 1,4-dichlorobenzene, and 2,6-dichlorophenol) exceeding the TCEQ-approved protective concentration levels for a site, plus any additional area allowed by the TCEQ in accordance with 30 TAC §350.33(f)(4). The undersigned has established a plume management zone at the Property so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and that other groundwater resources are protected. The TCEQ-approved Response Action Plan, which is on-file at the TCEQ, provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring is required until TCEQ approves some modification of those requirements. Exposure to groundwater within the plume management zone for any purpose is not advised until such time when all chemicals of concern no longer exceed the respective protective concentration levels. This deed notice must not be removed or modified without prior approval from TCEQ.

As of the date of this Notice, the record owner of fee title to the Property is BASF Corporation with an address at 14385 West Port Arthur Road, Beaumont, Texas 77705.

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building E

Mail: TCEQ - MC 199
P O Box 13087
Austin, Texas 78711-3087

Austin, Texas 78753

TCEQ Program and Identifier: SWR No. 30053

This Notice may be rendered of no further force or effect only by a superseding deed notice executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Deed Notice is filed.

Executed this 12 day of November 2009.

BASF Corporation

By: John Smoter

Name: John Smoter

Title: Site Manager

STATE OF TEXAS
JEFFERSON COUNTY

BEFORE ME, on this the 12 day of November, 2009 , personally appeared John Smoter, Site Manager, of BASF Corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and in the capacity herein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 12 day of November, 2009.

MADONNA ANN JOHNSON
Notary Public, State of Texas
My Commission Expires
November 14, 2011

Madonna Ann Johnson
Notary Public in and for the State of Texas,
County of Jefferson

My Commission Expires:

After recording, return to:

BASF Corporation
Attention: Ryan Yoes
14385 West Port Arthur Road
Beaumont, Texas 77705

ARCENEAUX & GATES
Consulting Engineers, Inc.
Engineers • Surveyors • Planners

EXHIBIT "A"

METES AND BOUNDS DESCRIPTION OF 54.57 ACRES OF LAND SITUATED IN THE W.H. SIGLER SURVEY, ABSTRACT NO. 48, JERFFERSON COUNTY, TEXAS

SOLID WASTE MANAGEMENT AREA PLUME MANAGEMENT ZONE

Being a 54.57 acre tract or parcel of land, a portion of those certain two tracts of land (called Tract 1 – 200.00 acres, Tract 2 – 290.577 acres) as conveyed by deed dated December 24,1996 from Sandoz Agro, Inc. to BASF Corporation, recorded in Clerk's File No. 96-9639343 of the Official Public Records of Real Property, County Clerk's Office, Jefferson County, Texas, as situated in and a part of the W.H. Sigler Survey, Abstract No. 48 of said County and being more particularly described by metes and bounds as follows;

FOR LOCATIVE PURPOSES, commence at a copper rod found located on the Westerly Right of Way line of West Port Arthur Road (a.k.a. Spur 93) marking the Northeast corner of said Tract 1 and the Southeast corner of a called 210.6 acres now or formerly owned by Louis M. Hebert, recorded in Volume 142, Page 279 of the Deed Records of said County, said commencing point having a coordinate value of North 13,934,482.49 and East 3,534,019.28;

THENCE South 86 deg. 44 min. 55 sec. West (North 89 deg. 59 min. West deed) along the common line of said Hebert tract and Tract 1 a distance of 2061.51 feet to a fence post found marking the Northeast corner and **POINT OF BEGINNING** of the herein described tract of land, this point having a coordinate value of North 13,934,365.57 and East 3,531,961.08;

THENCE South 53 deg. 58 min. 31 sec. East a distance of 764.96 feet to a monitor well found (called MW17) marking an angle point for corner, this point having a coordinate value of North 13,933,915.67 and East 3,532,579.76;

THENCE South 04 deg. 45 min. 14 sec. West a distance of 904.22 feet to a monitor well found (called MW1) marking the Southeast corner of the herein described tract of land, this point having a coordinate value of North 13,933,014.56 and East 3,532,504.82;

THENCE South 76 deg. 30 min. 57 sec. West a distance of 1380.79 feet to a monitor well found (called MW30) marking the Southwest corner of the herein described tract of land, this point having a coordinate value of North 13,932,692.59 and East 3,531,162.09;

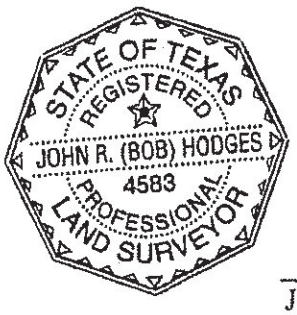
One Turtle Creek Square 3501 Turtle Creek Drive, Suite 102 Port Arthur, Texas 77642 (409) 724-7888 FAX (409) 724-1447

EXHIBIT "A"

THENCE North 17 deg. 49 min. 50 sec. West a distance of 1707.47 feet to a fence post found marking the Northwest corner of the herein described tract of land, this point having a coordinate value of North 13,934,318.04 and East 3,530,639.26;

THENCE North 87 deg. 56 min. 26 sec. East a distance of 1322.68 feet to the Northeast corner and **POINT OF BEGINNING** and containing in area 54.57 acres of land, more or less.

Surveyed: October, 2009



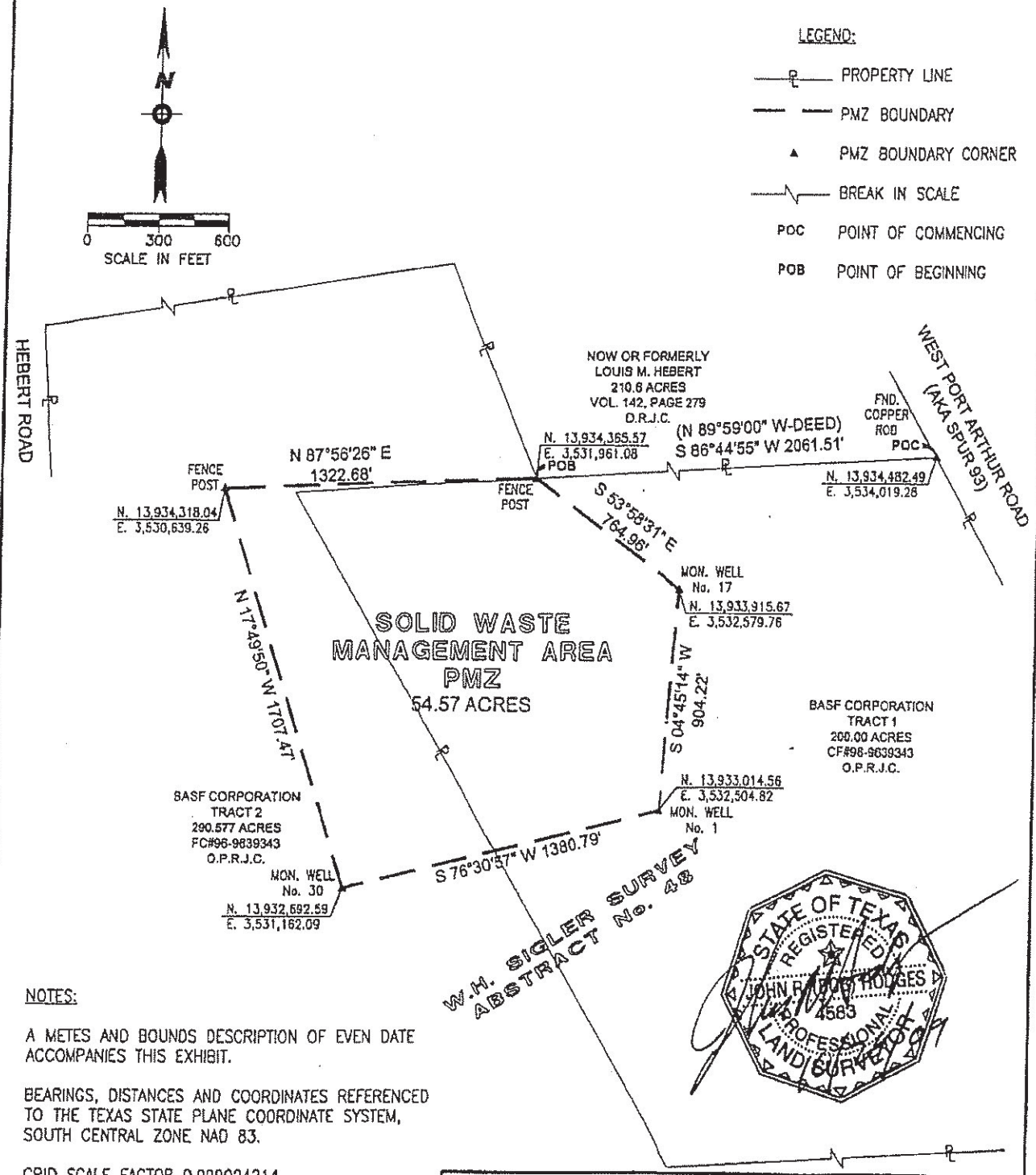
John R. (Bob) Hodges R.P.L.S. #4583

10/29/09

Notes:
Bearings, distances and coordinates, referenced to the Texas State Plane Coordinate System, South Central Zone, NAD 83. Grid Scale Factor = 0.999924214

An Exhibit of even date is being submitted with this metes and bounds description.
Acreage expressed in Surface Area.

EXHIBIT "B"



NOTES:

A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

BEARINGS, DISTANCES AND COORDINATES REFERENCED TO THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE NAD 83.

GRID SCALE FACTOR 0.999924214

ACREAGE EXPRESSED IN SURFACE AREA.

ARCENEAUX & GATES
CONSULTING ENGINEERS, INC.
PORT ARTHUR, TEXAS

ARCENEAUX & GATES
Consulting Engineers, Inc.
Engineers Surveyors Planners
3501 Turtle Creek Drive, Suite 102
Port Arthur, Texas 77642
(409) 724-7688

EXHIBIT SHOWING
SOLID WASTE MANAGEMENT AREA
PLUME MANAGEMENT ZONE
LOCATED AT THE
BASF CORP. FACILITY
WEST PORT ARTHUR ROAD
BEAUMONT, JEFFERSON COUNTY, TEXAS

PAGE 1 OF 1

DATE: OCTOBER, 2009	SCALE: 1"=600'	DRAWN: TMR
PROJ. No.: JOC-180	VER.: AutoCAD 2010	CHECKED: JRH

FILED AND RECORDED

OFFICIAL PUBLIC RECORDS

Carolyn L Guidry

2009 Nov 17, 09:36 AM 2009043572

WILLIAMSD: $32.00

CAROLYN L. GUIDRY, COUNTY CLERK

JEFFERSON COUNTY, TEXAS

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APPENDIX 4

DATA TABLES, BORING LOGS, AND WELL COMPLETIONS

2024 Response Action Completion Report

Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

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TABLE 4.1
GROUNDWATER MONITORING AND CORRECTIVE ACTION SYSTEM WELLS

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

WELL ID	Former[1] Well Designation	Current[3] Well Designation	Effective Date[3]
MW-1	SUP[2]	SUP[2]	9/10/2015
MW-4	SUP[2]	SUP[2]	9/10/2015
MW-6	SUP[2]	SUP[2]	9/10/2015
MW-8	AMP	AMP	9/10/2015
MW-9	POE	POE	9/10/2015
MW-10	POE	POE	9/10/2015
MW-11	POE	POE	9/10/2015
MW-12	POE	POE	9/10/2015
MW-15	SUP[2]	SUP[2]	9/10/2015
MW-17	SUP[2]	SUP[2]	9/10/2015
MW-30	POE	POE	9/10/2015
R-8	AMP	AMP	9/10/2015

Notes

1. Major Compliance Plan Amendment issued September 4, 2009
2. Supplemental wells for water level measurements not specifically indentified within the Compliance Plan or application.
3. Per Compliance Plan issued September 10, 2015
4. POE = Point of Exposure Well
   AMP = Attenuation Monitoring Point Well
   SUP = Supplemental Well
   -- = No Specific Designation

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TABLE 4.2
WATER LEVEL MEASUREMENTS

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

WELL ID	Ground Elevation (FT MSL)	Concrete Pad Elevation (FT MSL)	TOC Elevation (FT MSL)	Depth to Water (ft BTOC)	Water Elevation (FT MSL)
MW-1	17.42	17.27	19.11	4.89	14.22
MW-4	16.38	16.67	18.36	3.64	14.72
MW-6	17.96	18.12	18.22	3.46	14.76
MW-8	14.36	14.64	15.92	3.06	12.86
MW-9	14.11	14.68	15.78	3.11	12.67
MW-10	15.06	15.47	16.42	3.58	12.84
MW-11	15.07	15.42	16.13	3.22	12.91
MW-12	13.60	14.01	15.11	2.21	12.90
MW-15	16.34	17.06	21.41	7.28	14.13
MW-17	18.72	18.99	18.51	3.76	14.75
MW-30	15.68	15.75	15.63	3.04	12.59
R-9	14.67	14.81	16.73	3.32	13.41

Notes
1. All measurements are in feet
2. Elevation readings are from October 2020 Acreneaux, Wilson & Cole, LLC Survey
3. TOC = Top of Casing
   BTOC = Below Top of Casing
   MSL = Mean Sea Level

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TABLE 4.3
TOTAL WELL DEPTH MEASUREMENTS

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

WELL ID	Current Well Designation	Reported Well Depth (feet)	Measured Well Depth (feet)	Difference in Depths (feet)	Length of Screen	% of Screen Blocked
MW-1	SUP	37.01	37.03	-0.02	10	-0.2
MW-4	SUP	25.32	25.34	-0.02	10	-0.2
MW-6	SUP	37.83	35.15	2.68	10	26.8
MW-8	AMP	30.55	30.56	-0.01	10	-0.1
MW-9	POE	30.58	30.60	-0.02	10	-0.2
MW-10	POE	22.21	21.95	0.26	5	5.2
MW-11	POE	25.52	25.51	0.01	5	0.2
MW-12	POE	30.63	30.62	0.01	10	0.1
MW-15	SUP	30.42	30.25	0.17	5	3.4
MW-17	SUP	40.73	40.43	0.30	10	3.0
MW-30	POE	28.52	28.37	0.15	10	1.5
R-8	AMP	28.17	27.92	0.25	10	2.5

Notes

1. Measured well depths from January 18 2024.
2. Depths measured from top of casing.
3. The length of screen in MW-1 and MW-4 is assumed. MW-6 was reported to be damaged and will to be repaired and resurveyed.
4. Reported well depth established from hard bottom measurement survey coducted December 12, 2010. MW-30 reported well depth reestablished after well was modified to flush mounth completion in September 2011.
5. POE = Point of Exposure Well
   AMP = Attenuation Monitoring Point Well
   SUP = Supplemental Well

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TABLE 4.4
FIELD PARAMETER MEASUREMENTS

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

WELL ID	Current Well Designation	Temperature (°C)	pH	Specific Conductance (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Redox (mv)	Field Observations
MW-8	AMP	19.85	7.44	1.12	0.62	1.94	222.0	Clear, No odor
MW-9	POE	19.29	7.17	1.12	0.76	0.18	218.8	Clear, No odor
MW-10	POE	20.38	6.74	2.72	3.40	0.33	217.7	Clear, No odor
MW-11	POE	20.25	6.28	5.59	1.67	0.02	182.9	Clear, No odor
MW-12	POE	19.30	6.59	1.19	0.45	0.15	223.3	Clear, No odor
MW-30	POE	20.60	6.83	1.17	1.57	1.06	85.7	Clear, No odor
R-8	AMP	18.80	7.17	0.84	0.63	0.13	220.8	Clear, No odor

Notes
1. Measurments taken January 18-19, 2024
2. POE = Point of Exposure Well
   AMP = Attenuation Monitoring Point Well
   SUP = Supplemental Well
3. mg/L = milligram per liter.
   NTU = Nephelometric Turbidity Units
   mv = millivolts
   mS/cm = milliSiemens per centimeter

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TABLE 4.5
COMPLIANCE PLAN TABLE III - ANALYTICAL RESULTS AND COMPLIANCE STATUS

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

WELL ID: **WELL TYPE:** **SAMPLE DATE:**		**MW-8** **AMP** 01/18/24	**MW-9** **POE** 01/18/24	**MW-10** **POE** 01/19/24	**MW-11** **POE** 01/19/24	**MW-12** **POE** 01/19/24	**MW-30** **POE** 01/18/24	**R-8** **AMP** 01/18/24	**DUP** **(MW-12)** 01/18/24
Parameters	***GWPS***	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Volatile Organic Compounds - Method 8260C									
Benzene	***0.005***	<0.00046	<0.00046	<0.00046	<0.00046	<0.00046	<0.00046	<0.00046	<0.00046
Chlorobenzene	***0.1***	<0.000455	<0.000455	<0.000455	<0.000455	<0.000455	<0.000455	<0.000455	<0.000455
1,4-Dichlorobenzene	***0.075***	<0.000449	<0.000449	<0.000449	<0.000449	<0.000449	<0.000449	<0.000449	<0.000449
Semi-Volatile Organic Compounds - Method 8270E LL									
2,4-Dichlorophenol	***0.073***	<0.000115	<0.000115	<0.000115	<0.000115	<0.000115	<0.000115	<0.000115	<0.000115
2,4-Dimethylphenol	***0.49***	<0.000148	<0.000148	<0.000148	<0.000148	<0.000148	<0.000148	<0.000148	<0.000148
2,6-Dichlorophenol	***0.024***	<0.000126	<0.000126	<0.000126	<0.000126	<0.000126	<0.000126	<0.000126	<0.000126
Phenol	***7.3***	<0.000202	<0.000202	<0.000202	<0.000202	<0.000202	<0.000202	<0.000202	<0.000202
Herbicides - Method 8151A									
Silvex (2,4,5-TP)	***0.05***	<0.0000402	<0.0000402	<0.0000403	<0.0000402	<0.0000402	<0.0000402	<0.0000402	<0.0000399
Metals - Methods 6010D									
Barium	***2.0***	**0.267**	**0.273**	**0.707**	**1.50**	**0.231**	**0.307**	**0.221**	**0.232**
Compliance Status		**Compliant**	**Compliant**	**Compliant**	**Compliant**	**Compliant**	**Compliant**	**Compliant**	**Compliant**

Notes
1. GWPS = Groundwater Protection Standard, as defined in the renewed Compliance Plan issued 10 September 2015.
2. POE = Point of Exposure Well
   AMP = Attenuation Monitoring Point Well
3. mg/L = milligram per liter.

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TABLE 4.6
GROUNDWATER FLOW RATE CALCULATION

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

		Velocity=	0.096 ft/day
		Velocity=	35 ft/yr
Where:			
	V	= (K x i) / n	Average groundwater flow velocity (ft/day)
	K	19 ft/day	Maximum hydraulic conductivity calculated from March 1998 Compliance Plan application pump test results on MW-5 and MW-7
	i	0.00151 ft/ft	Hydraulic gradient between MW-15 and MW-10
	n	0.3	Effective porosity (unitless)

Notes
1. Based on groundwater elevations from January 18, 2024

GSI ENVIRONMENTAL

TABLE 4.7
HISTORICAL CONCENTRATIONS FOR ANALYTES TESTED

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

				Metals - Methods 6010D			*Volatile Organic Compounds- Method 8260C*									*Semi-Volatile Organic Compounds - Method 8270E LL*												*Herbicides - Method 8151A*		
		Analyte:		Barium			Benzene			Chlorobenzene			1,4-Dichlorobenzene			Phenol			2,4-Dimethylphenol			2,4-Dichlorophenol			2,6-Dichlorophenol			Silvex		
		GWPS [1]:		*2.0*			*0.005*			*0.1*			*0.075*			*7.3*			*0.490*			*0.073*			*0.024*			*0.050*		
		TRRP [2]:		*2.0*			*0.005*			*0.1*			*0.075*			*7.3*			*0.490*			*0.073*			*0.024*			*0.050*		
Well ID	**Well Type**	**Sample Type**	**Date**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**
MW-8	AMP	Normal	1/27/2011	**0.267**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	7/14/2011	**0.267**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	1/31/2012	**0.273**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	DUP	1/31/2012	**0.272**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	7/25/2012	**0.284**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	DUP	7/25/2012	**0.292**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	1/22/2013	**0.299**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	7/17/2013	**0.258**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	DUP	7/17/2013	**0.256**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	1/21/2014	**0.259**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0022	U	mg/L
MW-8	AMP	Normal	6/23/2014	**0.248**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0022	U	mg/L
MW-8	AMP	Normal	4/21/2015	**0.319**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0046	U	mg/L
MW-8	AMP	Normal	7/22/2015	**0.298**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00228	U	mg/L
MW-8	AMP	Normal	1/4/2016	**0.294**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00444	U	mg/L
MW-8	AMP	Normal	7/12/2016	**0.262**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	DUP	7/12/2016	**0.260**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	1/24/2017	**0.317**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	7/26/2017	**0.294**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	1/9/2018	**0.304**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-8	AMP	Normal	7/24/2018	**0.30**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.040	U	mg/L	<0.040	U	mg/L	<0.040	U	mg/L	<0.040	U	mg/L	<0.00020	U	mg/L
MW-8	AMP	Normal	1/9/2019	**0.36**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00024	U	mg/L
MW-8	AMP	Normal	7/2/2019	**0.372**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00024	U	mg/L
MW-8	AMP	Normal	1/29/2020	**0.35**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.040	U	mg/L	<0.040	U	mg/L	<0.040	U	mg/L	<0.040	U	mg/L	<0.00019	U	mg/L
MW-8	AMP	Normal	8/14/2020	**0.33**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-8	AMP	Normal	1/29/2021	**0.392**		mg/L	<0.00100	U	mg/L	<0.00100	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.0100	U	mg/L	<0.000238	U	mg/L
MW-8	AMP	Normal	7/28/2021	**0.39**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.00024	U	mg/L
MW-8	AMP	Normal	1/27/2022	**0.30**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.00024	U	mg/L
MW-8	AMP	Normal	7/12/2022	**0.28**		mg/L	<0.00021	U	mg/L	<0.00016	U	mg/L	<0.00020	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00011	U	mg/L
MW-8	AMP	Normal	1/20/2023	**0.36**		mg/L	<0.00053	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
MW-8	AMP	DUP	1/20/2023	**0.37**		mg/L	<0.00053	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
MW-8	AMP	Normal	7/25/2023	**0.34**		mg/L	<0.00046	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.00089	U	mg/L	<0.0010	U	mg/L	<0.00090	U	mg/L	<0.000040	U	mg/L
MW-8	AMP	Normal	1/18/2024	**0.267**		mg/L	<0.00046	U	mg/L	<0.000455	U	mg/L	<0.000449	U	mg/L	<0.000202	U	mg/L	<0.000148	U	mg/L	<0.000115	U	mg/L	<0.000126	U	mg/L	<0.0000402	U	mg/L
MW-9	POE	Normal	1/27/2011	**0.223**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	7/14/2011	**0.227**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	1/31/2012	**0.226**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	7/25/2012	**0.237**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	1/22/2013	**0.237**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	7/17/2013	**0.242**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	1/21/2014	**0.254**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0022	U	mg/L
MW-9	POE	Normal	6/24/2014	**0.250**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0021	U	mg/L
MW-9	POE	Normal	4/21/2015	**0.339**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0048	U	mg/L
MW-9	POE	Normal	7/23/2015	**0.316**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00228	U	mg/L
MW-9	POE	Normal	1/4/2016	**0.322**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00456	U	mg/L
MW-9	POE	Normal	7/12/2016	**0.299**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	1/24/2017	**0.345**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	7/26/2017	**0.354**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-9	POE	DUP	7/26/2017	**0.352**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	1/9/2018	**0.302**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-9	POE	Normal	7/24/2018	**0.31**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-9	POE	Normal	1/9/2019	**0.33**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00023	U	mg/L
MW-9	POE	Normal	7/2/2019	**0.343**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00023	U	mg/L
MW-9	POE	Normal	1/29/2020	**0.34**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00019	U	mg/L
MW-9	POE	Normal	8/14/2020	**0.33**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-9	POE	Normal	1/29/2021	**0.337**		mg/L	<0.00100	U	mg/L	<0.00100	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.0100	U	mg/L	<0.000238	U	mg/L
MW-9	POE	Normal	7/28/2021	**0.33**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.00024	U	mg/L
MW-9	POE	Normal	1/27/2022	**0.28**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.00024	U	mg/L
MW-9	POE	Normal	7/12/2022	**0.27**		mg/L	<0.00021	U	mg/L	<0.00016	U	mg/L	<0.00020	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00011	U	mg/L
MW-9	POE	Normal	1/19/2023	**0.20**		mg/L	<0.00053	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
MW-9	POE	Normal	7/25/2023	**0.17**		mg/L	<0.00046	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.00089	U	mg/L	<0.0010	U	mg/L	<0.00090	U	mg/L	<0.000040	U	mg/L
MW-9	POE	Normal	1/18/2024	**0.273**		mg/L	<0.00046	U	mg/L	<0.000455	U	mg/L	<0.000449	U	mg/L	<0.000202	U	mg/L	<0.000148	U	mg/L	<0.000115	U	mg/L	<0.000126	U	mg/L	<0.0000402	U	mg/L
MW-10	POE	Normal	1/27/2011	**0.380**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	7/14/2011	**0.574**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	1/31/2012	**0.426**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	7/25/2012	**0.476**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	1/22/2013	**0.412**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	7/18/2013	**0.451**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	1/21/2014	**0.464**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0021	U	mg/L
MW-10	POE	DUP	1/21/2014	**0.460**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0023	U	mg/L
MW-10	POE	Normal	6/24/2014	**0.498**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	4/21/2015	**0.621**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0049	U	mg/L
MW-10	POE	DUP	4/21/2015	**0.591**		mg/L	<,0.005	U	mg/L	<,0.005	U	mg/L	<,0.005	U	mg/L	<,0.005	U	mg/L	<,0.005	U	mg/L	<,0.005	U	mg/L	<,0.005	U	mg/L	<0.0047	U	mg/L
MW-10	POE	Normal	7/22/2015	**0.698**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00226	U	mg/L
MW-10	POE	Normal	1/4/2016	**0.557**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00448	U	mg/L
MW-10	POE	Normal	7/12/2016	**0.652**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	1/24/2017	**0.533**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	7/26/2017	**0.710**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	1/9/2018	**0.577**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-10	POE	Normal	7/24/2018	**0.74**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-10	POE	Normal	1/9/2019	**0.67**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.00024	U	mg/L
MW-10	POE	Normal	7/2/2019	**0.607**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.012	U	mg/L	<0.00024	U	mg/L
MW-10	POE	Normal	1/29/2020	**0.70**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-10	POE	Normal	8/14/2020	**0.69**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-10	POE	Normal	1/29/2021	**0.637**		mg/L	<0.00100	U	mg/L	<0.00100	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.0100	U	mg/L	<0.000238	U	mg/L
MW-10	POE	Normal	7/28/2021	**0.77**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.00024	U	mg/L

GSI ENVIRONMENTAL

TABLE 4.7
HISTORICAL CONCENTRATIONS FOR ANALYTES TESTED

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

				Metals - Methods 6010D			*Volatile Organic Compounds- Method 8260C*									*Semi-Volatile Organic Compounds - Method 8270E LL*												*Herbicides - Method 8151A*		
		Analyte:		Barium			Benzene			Chlorobenzene			1,4-Dichlorobenzene			Phenol			2,4-Dimethylphenol			2,4-Dichlorophenol			2,6-Dichlorophenol			Silvex		
		GWPS [1]:		*2.0*			*0.005*			*0.1*			*0.075*			*7.3*			*0.490*			*0.073*			*0.024*			*0.050*		
		TRRP [2]:		*2.0*			*0.005*			*0.1*			*0.075*			*7.3*			*0.490*			*0.073*			*0.024*			*0.050*		
Well ID	**Well Type**	**Sample Type**	**Date**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**	**Concentration**	**Qualifier**	**Unit**
MW-10	POE	Normal	1/27/2022	**0.72**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.00024	U	mg/L
MW-10	POE	Normal	7/12/2022	**0.76**		mg/L	<0.00021	U	mg/L	<0.00016	U	mg/L	<0.00020	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00011	U	mg/L
MW-10	POE	Normal	1/19/2023	**0.70**		mg/L	<0.00053	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
MW-10	POE	Normal	7/25/2023	**0.72**		mg/L	<0.00046	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.00089	U	mg/L	<0.0010	U	mg/L	<0.00090	U	mg/L	<0.000040	U	mg/L
MW-10	POE	Normal	1/19/2024	**0.707**		mg/L	<0.00046	U	mg/L	<0.000455	U	mg/L	<0.000449	U	mg/L	<0.000202	U	mg/L	<0.000148	U	mg/L	<0.000115	U	mg/L	<0.000126	U	mg/L	<0.0000403	U	mg/L
MW-11	POE	Normal	1/27/2011	**0.376**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	7/14/2011	**0.447**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	1/31/2012	**0.439**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	7/25/2012	**0.392**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	1/22/2013	**0.406**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	7/18/2013	**0.579**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	1/21/2014	**0.699**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0021	U	mg/L
MW-11	POE	Normal	6/24/2014	**0.696**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0022	U	mg/L
MW-11	POE	Normal	4/22/2015	**0.941**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0047	U	mg/L
MW-11	POE	Normal	7/22/2015	**0.974**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00224	U	mg/L
MW-11	POE	DUP	7/22/2015	**0.981**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00228	U	mg/L
MW-11	POE	Normal	1/4/2016	**1.20**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00500	U	mg/L
MW-11	POE	DUP	1/4/2016	**1.14**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00480	U	mg/L
MW-11	POE	Normal	7/12/2016	**1.18**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	1/24/2017	**1.20**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	7/26/2017	**1.28**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	1/9/2018	**1.14**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-11	POE	Normal	7/24/2018	**1.2**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00020	U	mg/L
MW-11	POE	Normal	1/9/2019	**1.2**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00023	U	mg/L
MW-11	POE	DUP	1/9/2019	**1.2**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00024	U	mg/L
MW-11	POE	Normal	7/2/2019	**1.36**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00023	U	mg/L
MW-11	POE	DUP	7/2/2019	**1.33**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00024	U	mg/L
MW-11	POE	Normal	1/30/2020	**1.0**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00019	U	mg/L
MW-11	POE	Normal	8/14/2020	**1.1**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-11	POE	Normal	1/29/2021	**0.681**		mg/L	<0.00100	U	mg/L	<0.00100	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.0100	U	mg/L	<0.000238	U	mg/L
MW-11	POE	Normal	7/28/2021	**0.95**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.00024	U	mg/L
MW-11	POE	Normal	1/27/2022	**1.3**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.00024	U	mg/L
MW-11	POE	Normal	7/12/2022	**0.57**		mg/L	<0.00021	U	mg/L	<0.00016	U	mg/L	<0.00020	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00011	U	mg/L
MW-11	POE	Normal	1/19/2023	**0.87**		mg/L	<0.00053	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
MW-11	POE	Normal	7/25/2023	**1.30**		mg/L	<0.00046	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.00089	U	mg/L	<0.0010	U	mg/L	<0.00090	U	mg/L	<0.000040	U	mg/L
MW-11	POE	Normal	1/19/2024	**1.500**		mg/L	<0.00046	U	mg/L	<0.000455	U	mg/L	<0.000449	U	mg/L	<0.000202	U	mg/L	<0.000148	U	mg/L	<0.000115	U	mg/L	<0.000126	U	mg/L	<0.0000402	U	mg/L
MW-12	POE	Normal	1/27/2011	**0.523**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	7/14/2011	**0.492**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	1/31/2012	**0.373**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	7/25/2012	**0.274**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	1/22/2013	**0.284**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	7/17/2013	**0.360**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	1/22/2014	**0.372**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0022	U	mg/L
MW-12	POE	Normal	6/24/2014	**0.342**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0021	U	mg/L
MW-12	POE	DUP	6/24/2014	**0.336**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0021	U	mg/L
MW-12	POE	Normal	4/22/2015	**0.406**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0044	U	mg/L
MW-12	POE	Normal	7/22/2015	**0.401**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00228	U	mg/L
MW-12	POE	Normal	1/4/2016	**0.391**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00460	U	mg/L
MW-12	POE	Normal	7/12/2016	**0.315**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	1/24/2017	**0.370**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-12	POE	DUP	1/24/2017	**0.360**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	7/26/2017	**0.388**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	1/9/2018	**0.306**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	DUP	1/9/2018	**0.308**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-12	POE	Normal	7/24/2018	**0.32**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-12	POE	DUP	7/24/2018	**0.32**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-12	POE	Normal	1/9/2019	**0.35**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00022	U	mg/L
MW-12	POE	Normal	7/2/2019	**NS**		mg/L	**NS**		mg/L	**NS**		mg/L	**NS**		mg/L	**NS**		mg/L	**NS**		mg/L	**NS**		mg/L	**NS**		mg/L	**NS**		mg/L
MW-12	POE	Normal	1/30/2020	**0.32**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00019	U	mg/L
MW-12	POE	DUP	1/30/2020	**0.36**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-12	POE	Normal	8/14/2020	**0.30**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-12	POE	Normal	1/29/2021	**0.196**		mg/L	<0.00100	U	mg/L	<0.00100	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.0100	U	mg/L	<0.000238	U	mg/L
MW-12	POE	Normal	7/28/2021	**0.30**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.00024	U	mg/L
MW-12	POE	Normal	1/27/2022	**0.27**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.00024	U	mg/L
MW-12	POE	Normal	7/12/2022	**0.24**		mg/L	<0.00021	U	mg/L	<0.00016	U	mg/L	<0.00020	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00011	U	mg/L
MW-12	POE	DUP	7/12/2022	**0.29**		mg/L	<0.00021	U	mg/L	<0.00016	U	mg/L	<0.00020	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
MW-12	POE	Normal	1/19/2023	**0.25**		mg/L	<0.00053	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
MW-12	POE	Normal	7/25/2023	**0.19**		mg/L	<0.00046	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.00089	U	mg/L	<0.0010	U	mg/L	<0.00090	U	mg/L	<0.000040	U	mg/L
MW-12	POE	Normal	1/19/2024	**0.231**		mg/L	<0.00046	U	mg/L	<0.000455	U	mg/L	<0.000449	U	mg/L	<0.000202	U	mg/L	<0.000148	U	mg/L	<0.000115	U	mg/L	<0.000126	U	mg/L	<0.0000402	U	mg/L
MW-12	POE	DUP	1/19/2024	**0.232**		mg/L	<0.00046	U	mg/L	<0.000455	U	mg/L	<0.000449	U	mg/L	<0.000202	U	mg/L	<0.000148	U	mg/L	<0.000115	U	mg/L	<0.000126	U	mg/L	<0.0000309	U	mg/L
MW-30	POE	Normal	1/27/2011	**0.331**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	DUP	1/27/2011	**0.330**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	7/14/2011	**0.328**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	DUP	7/14/2011	**0.324**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	1/30/2012	**0.372**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	7/24/2012	**0.330**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	1/22/2013	**0.370**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	7/17/2013	**0.346**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	1/21/2014	**0.357**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0022	U	mg/L
MW-30	POE	Normal	6/23/2014	**0.301**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	4/21/2015	**0.392**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0047	U	mg/L
MW-30	POE	Normal	7/22/2015	**0.471**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00228	U	mg/L
MW-30	POE	Normal	1/4/2016	**0.280**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00444	U	mg/L
MW-30	POE	Normal	7/12/2016	**0.335**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L

GSI ENVIRONMENTAL

TABLE 4.7
HISTORICAL CONCENTRATIONS FOR ANALYTES TESTED

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

				Metals - Methods 6010D			*Volatile Organic Compounds- Method 8260C*									*Semi-Volatile Organic Compounds - Method 8270E LL*												*Herbicides - Method 8151A*		
			Analyte:	Barium			Benzene			Chlorobenzene			1,4-Dichlorobenzene			Phenol			2,4-Dimethylphenol			2,4-Dichlorophenol			2,6-Dichlorophenol			Silvex		
			GWPS [1]:	*2.0*			*0.005*			*0.1*			*0.075*			*7.3*			*0.490*			*0.073*			*0.024*			*0.050*		
			TRRP [2]:	*2.0*			*0.005*			*0.1*			*0.075*			*7.3*			*0.490*			*0.073*			*0.024*			*0.050*		
Well ID	Well Type	Sample Type	Date	Concentration	Qualifier	Unit	Concentration	Qualifier	Unit	Concentration	Qualifier	Unit	Concentration	Qualifier	Unit	Concentration	Qualifier	Unit	Concentration	Qualifier	Unit	Concentration	Qualifier	Unit	Concentration	Qualifier	Unit	Concentration	Qualifier	Unit
MW-30	POE	Normal	1/24/2017	**0.345**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	7/26/2017	**0.369**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	1/9/2018	**0.303**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
MW-30	POE	Normal	7/24/2018	**0.37**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-30	POE	Normal	1/9/2019	**0.31**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00023	U	mg/L
MW-30	POE	Normal	7/2/2019	**0.425**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00023	U	mg/L
MW-30	POE	Normal	1/30/2020	**0.068**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00019	U	mg/L
MW-30	POE	Normal	8/14/2020	**0.33**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-30	POE	DUP	8/14/2020	**0.32**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
MW-30	POE	Normal	1/29/2021	**0.295**		mg/L	<0.00100	U	mg/L	<0.00100	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.0100	U	mg/L	<0.000238	U	mg/L
MW-30	POE	Normal	7/28/2021	**0.31**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.00024	U	mg/L
MW-30	POE	DUP	7/28/2021	**0.32**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.00024	U	mg/L
MW-30	POE	Normal	1/27/2022	**0.32**		mg/L	**0.0003**	J	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	**0.0031**	J	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.00024	U	mg/L
MW-30	POE	DUP	1/27/2022	**0.33**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.00024	U	mg/L
MW-30	POE	Normal	7/12/2022	**0.26**		mg/L	<0.00021	U	mg/L	<0.00016	U	mg/L	<0.00020	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00011	U	mg/L
MW-30	POE	Normal	1/19/2023	**0.28**		mg/L	<0.00053	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
MW-30	POE	Normal	7/25/2023	**0.26**		mg/L	<0.00046	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.00089	U	mg/L	<0.0010	U	mg/L	<0.00090	U	mg/L	<0.000040	U	mg/L
MW-30	POE	Normal	1/18/2024	**0.307**		mg/L	<0.00046	U	mg/L	<0.000455	U	mg/L	<0.000449	U	mg/L	<0.000202	U	mg/L	<0.000148	U	mg/L	<0.000115	U	mg/L	<0.000126	U	mg/L	<0.0000402	U	mg/L
R-8	POE	Normal	1/27/2011	**0.262**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	7/15/2011	**0.319**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	1/31/2012	**0.225**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	7/24/2012	**0.254**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	1/22/2013	**0.239**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	DUP	1/22/2013	**0.245**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	7/18/2013	**0.297**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	1/22/2014	**0.278**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0023	U	mg/L
R-8	POE	Normal	6/24/2014	**0.273**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0022	U	mg/L
R-8	POE	Normal	4/22/2015	**0.317**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0046	U	mg/L
R-8	POE	Normal	7/23/2015	**0.330**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00224	U	mg/L
R-8	POE	Normal	1/4/2016	**0.330**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.00224	U	mg/L
R-8	POE	Normal	7/12/2016	**0.255**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	1/24/2017	**0.231**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.006	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	7/27/2017	**0.291**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	1/9/2018	**0.202**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.0020	U	mg/L
R-8	POE	Normal	7/25/2018	**0.29**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
R-8	POE	Normal	1/9/2019	**0.22**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00022	U	mg/L
R-8	POE	Normal	7/2/2019	**0.265**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.011	U	mg/L	<0.00022	U	mg/L
R-8	POE	Normal	1/30/2020	**0.74**		mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.005	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00019	U	mg/L
R-8	POE	Normal	8/14/2020	**0.27**		mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.010	U	mg/L	<0.00020	U	mg/L
R-8	POE	Normal	1/29/2021	**0.219**		mg/L	<0.00100	U	mg/L	<0.00100	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.0100	U	mg/L	<0.000238	U	mg/L
R-8	POE	DUP	1/29/2021	**0.217**		mg/L	<0.00100	U	mg/L	<0.00100	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.00500	U	mg/L	<0.0100	U	mg/L	<0.000238	U	mg/L
R-8	POE	Normal	7/28/2021	**0.18**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.010	U	mg/L	<0.00024	U	mg/L
R-8	POE	Normal	1/27/2022	**0.22**		mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.0010	U	mg/L	<0.010	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.0050	U	mg/L	<0.00024	U	mg/L
R-8	POE	Normal	7/12/2022	**0.19**		mg/L	<0.00021	U	mg/L	<0.00016	U	mg/L	<0.00020	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00011	U	mg/L
R-8	POE	Normal	1/19/2023	**0.21**		mg/L	<0.00053	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.0010	U	mg/L	<0.00089	U	mg/L	<0.00090	U	mg/L	<0.00012	U	mg/L
R-8	POE	Normal	7/25/2023	**0.20**		mg/L	<0.00046	U	mg/L	<0.00053	U	mg/L	<0.00051	U	mg/L	<0.0012	U	mg/L	<0.00089	U	mg/L	<0.0010	U	mg/L	<0.00090	U	mg/L	<0.000040	U	mg/L
R-8	POE	Normal	1/18/2024	**0.221**		mg/L	<0.00046	U	mg/L	<0.000455	U	mg/L	<0.000449	U	mg/L	<0.000202	U	mg/L	<0.000148	U	mg/L	<0.000115	U	mg/L	<0.000126	U	mg/L	<0.0000402	U	mg/L

Notes
1. Groundwater Protection Standard as defined in the renewed Compliance Plan issued September 10, 2015
2. Groundwater Ingestion Protective Concentration Levels, PCL Tables published on 10 May 2023.
3. POE = Point of Exposure Well
AMP = Attenuation Monitoring Point Well

GSI ENVIRONMENTAL

STATIC WATER LEVEL SURVEY
& WELL INTEGRITY INSPECTION FORM

Client: **BASF Beaumont**
Project: **January 2024 Semiannual GW Sampling**
Location: **Former Ponds 1A, 1B, 2A, and 2B**

GSI Job No. 6878
Date: 01/18/24
Page: Page 1 of 1
Personnel: CM

Well Number	Current Well Designation	Well Diameter (in.)	Well Type (F / S)	Time	Depth to Water (ft btoc)	Total Depth (ft btoc)	Name Label (Y / N)	Well Cap (Y / N)	Lock (Y / N)	Guard Posts (Y / N)	Dedicated Tubing (Y / N)	Well Casing (Y / N)	Protective Casing (Y / N)	Surface Pad (Y / N)	Notes
MW-1	SUP														LNAPL = _____ DNAPL = _____
MW-4	SUP														LNAPL = _____ DNAPL = _____
~~MW-6~~ MW-4	SUP	2	S	1408	3.64	25.34	Y	Y	N	Y	N	Y	Y	Y	LNAPL = _____ DNAPL = _____
MW-8	AMP														LNAPL = _____ DNAPL = _____
MW-9	POE	2	S	1336	3.11	30.60	N	Y	N	Y	Y	Y	Y	Y	LNAPL = _____ DNAPL = _____
MW-10	POE	2	S	1342	3.58	21.95	N	Y	N	Y	Y	Y	Y	Y	LNAPL = _____ DNAPL = _____
MW-11	POE	2	S	1347	3.22	25.51	N	Y	N	Y	Y	Y	Y	Y	LNAPL = _____ DNAPL = _____
MW-12	POE	2	S	1355	2.21	30.62	N	Y	N	Y	Y	Y	Y	Y	LNAPL = _____ DNAPL = _____ label on ground, illegible.
MW-15	SUP														LNAPL = _____ DNAPL = _____
MW-17	SUP				~~3.11~~ LM	~~30.60~~ LM									LNAPL = _____ DNAPL = _____
MW-30	POE	2	F	1323	3.04	~~28.37~~ LM	N	Y	N	Y	Y	Y	Y	Y	LNAPL = _____ DNAPL = _____ TD=28.37
R-8	AMP	4	S	1535	3.32	27.92	on ground	Y	N	Y	Y	Y	Y	Y	LNAPL = _____ DNAPL = _____ label faded

>28.37

GSI ENVIRONMENTAL

STATIC WATER LEVEL SURVEY
& WELL INTEGRITY INSPECTION FORM

Client: **BASF Beaumont**
Project: **January 2024 Semiannual GW Sampling**
Location: **Former Ponds 1A, 1B, 2A, and 2B**

GSI Job No. 6878
Date: 01/18/2024
Page: Page 1 of 1
Personnel: Michael Uhey; Lauren McDougall

Well Number	Current Well Designation	Well Diameter (in.)	Well Type (F / S)	Time	Depth to Water (ft btoc)	Total Depth (ft btoc)	Name Label (Y / N)	Well Cap (Y / N)	Lock (Y / N)	Guard Posts (Y / N)	Dedicated Tubing (Y / N)	Well Casing (Y / N)	Protective Casing (Y / N)	Surface Pad (Y / N)	Notes
MW-1	SUP	2	S	1411	4.89	37.03	Y	Y	N	Y	N	Y	N	N	LNAPL = _____ DNAPL = _____ Label is facing out.
MW-4	SUP														LNAPL = _____ DNAPL = _____
MW-6	SUP	2	F	1347	3.46	35.15	N	Y	Y	N	N	Y	Y	Y	LNAPL = _____ DNAPL = _____ Water filled in the well casing. Purged water out before taking H2O reading.
MW-8	AMP	2	S	1548	3.06	30.56	N	Y	N	Y	Y	NT	N	Y	LNAPL = _____ DNAPL = _____
MW-9	POE														LNAPL = _____ DNAPL = _____
MW-10	POE														LNAPL = _____ DNAPL = _____
MW-11	POE														LNAPL = _____ DNAPL = _____
MW-12	POE														LNAPL = _____ DNAPL = _____
MW-15	SUP	2	S	1330	7.28	30.25	Y	Y	N	Y	N	Y	Y	Y	LNAPL = _____ DNAPL = _____ well casing damaged at this trip.
MW-17	SUP	2	F	1400	3.76	40.43	N	Y	N	Y	N	Y	Y	Y	LNAPL = _____ DNAPL = _____
MW-30	POE														LNAPL = _____ DNAPL = _____
R-8	AMP														LNAPL = _____ DNAPL = _____

GSI ENVIRONMENTAL

GSI Job No. 6878
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Date: 1/18/2024

Low-Flow (Minimal Drawdown) GROUNDWATER SAMPLING RECORD

Client: BASF - Beaumont
Project: 6878
Location: Beaumont, TX

Well Number: MW-8
Weather: Sunny - Overcast, 60s
Personnel: M. Wang
Site Conditions: Grass

WELL INFORMATION

Well Depth (ft, TOC): 30.56
Well Diameter: 2
Well Material: steel
Starting SWL (ft, TOC): 3.06
Ending SWL (ft, TOC): 3.06

Dedicated Equip/Type: Y
Screened Interval: NA
Sampling Method: Low Flow
Tubing Type: LDPE
Other: —

SAMPLE INFORMATION

Time	SWL (ft, TOC)	Pumping Rate (mL/min)	Sample Appearance/Odor	Temp. (°F/C)	pH	Spec. Cond. (mS/cm)	Turbidity (NTU)	Diss.Oxygen (mg/L)	Redox (mV)	Remarks
Stabilization criteria:				10%	0.1	3%	<10 / 10%			
1559	3.11	300	Clear / No Odor	19.35	7.45	1.10	1.11	2.41	218.8	
1602	3.13	300	Clear / No Odor	19.44	7.46	1.11	0.88	2.27	220.3	
1605	3.13	300	Clear / No Odor	19.67	7.46	1.11	1.02	2.18	221.3	
1608	3.13	300	Clear / No Odor	19.83	7.46	1.12	0.74	2.08	222.1	
1611	3.13	300	Clear / No Odor	19.85	7.44	1.12	0.62	1.94	222.0	

Remarks: @ 1613 started to sample MW-8.

GSI ENVIRONMENTAL

GSI Job No. 6878
Page: 1 of 1
Date: 1/18/24

Low-Flow (Minimal Drawdown) GROUNDWATER SAMPLING RECORD

Client: BASF - Beaumont
Project: 6878
Location: Beaumont, TX

Well Number: MW-9
Weather: Overcast, 60s
Personnel: M. Wang
Site Conditions: Grass

WELL INFORMATION

Well Depth (ft, TOC): 30.60
Well Diameter: 2
Well Material: Steel
Starting SWL (ft, TOC): 3.09
Ending SWL (ft, TOC): 3.18

Dedicated Equip/Type: Y
Screened Interval: NA
Sampling Method: Low Flow
Tubing Type: LDPE
Other: —

SAMPLE INFORMATION

Time	SWL (ft, TOC)	Pumping Rate (mL/min)	Sample Appearance/Odor	Temp. (°F/C)	pH	Spec. Cond. (mS/cm)	Turbidity (NTU)	Diss.Oxygen (mg/L)	Redox (mV)	Remarks
			Stabilization criteria:	10%	0.1	3%	<10 / 10%			
1645	3.18	300	Clear / No Odor	18.49	7.17	1.11	1.11	0.52	220.7	
1648	3.18	300	Clear / No Odor	18.70	7.17	1.12	0.99	0.37	220.1	
1651	3.19	300	Clear / No Odor	18.92	7.17	1.12	1.20	0.29	220.1	
1654	3.18	300	Clear / No Odor	19.20	7.17	1.12	0.99	0.23	219.4	
1657	3.18	300	Clear / No Odor	19.28	7.17	1.12	0.86	0.19	218.4	
1700	3.18	300	Clear / No Odor	19.29	7.17	1.12	0.76	0.18	218.8	

Remarks: @ 1703 - Started to collect MW-9.

GSI ENVIRONMENTAL

GSI Job No. 0878
Page: 1 of 1
Date: 4/3/24

Low-Flow (Minimal Drawdown) GROUNDWATER SAMPLING RECORD

Client: BAST - Beaumont
Project: 0878
Location: Beaumont, TX

Well Number: MW-10
Weather: Sunny, 50's
Personnel: Michael Wing
Site Conditions: Grass

WELL INFORMATION

Well Depth (ft, TOC): ≈ 21.95
Well Diameter: 2
Well Material: Steel
Starting SWL (ft, TOC): 3.72
Ending SWL (ft, TOC): 3.84

Dedicated Equip/Type: Y
Screened Interval: NA
Sampling Method: Low Flow
Tubing Type: LDPE
Other: —

SAMPLE INFORMATION

Time	SWL (ft, TOC)	Pumping Rate (mL/min)	Sample Appearance/Odor	Temp. (°F/C)	pH	Spec. Cond. (mS/cm)	Turbidity (NTU)	Diss.Oxygen (mg/L)	Redox (mV)	Remarks
Stabilization criteria:				10%	0.1	3%	<10 / 10%			
0944	3.83	300	Clear / No Odor	19.72	6.74	2.73	5.24	0.52	234.4	
0947	3.84	300	Clear / No Odor	20.04	6.74	2.73	3.18	0.43	225.1	
0950	3.84	300	Clear / No Odor	20.22	6.75	2.72	4.61	0.28	226.1	
0953	3.84	300	Clear / No Odor	20.34	6.74	2.72	1.86	0.25	222.1	
0956	3.84	300	Clear / No Odor	20.38	6.74	2.72	3.40	0.23	217.7	

Remarks: @ 0958 started to collect MW-10

GSI ENVIRONMENTAL

GSI Job No. 6878
Page: 1 of 1
Date: 7/19/24

Low-Flow (Minimal Drawdown) GROUNDWATER SAMPLING RECORD

Client: BASF Beaumont
Project: 6878
Location: Beaumont, TX

Well Number: MW-11
Weather: fine, clear
Personnel: LCM
Site Conditions: grassy

WELL INFORMATION

Well Depth (ft, TOC): 25.57
Well Diameter: 2"
Well Material: PVC
Starting SWL (ft, TOC): 3.35
Ending SWL (ft, TOC): 5.38

Dedicated Equip/Type: Poly
Screened Interval: —
Sampling Method: low flow peristaltic
Tubing Type: masterflex
Other: —

SAMPLE INFORMATION

Time	SWL (ft, TOC)	Pumping Rate (mL/min)	Sample Appearance/Odor	Temp. (°F/C)	pH	Spec. Cond. (mS/cm)	Turbidity (NTU)	Diss.Oxygen (mg/L)	Redox (mV)	Remarks
			Stabilization criteria:	10%	0.1	3%	<10 / 10%			
1015	3.38	250	clear no odor	19.02	6.63	4908.8	3.91	1.96	231.3	
1018	3.42	250	" "	19.76	6.66	4868.7	3.72	1.64	232.1	
1021	3.43	250	" "	20.13	6.29	5276.1	1.80	0.26	227.2	
1024	3.42	250	" "	20.32	6.27	5361.9	1.84	0.08	220.8	
~~1028~~			~~change~~	~~20.~~		peristaltic		pump		
1033	3.43	400	" "	20.13	6.29	5510.5	1.47	0.17	199.9	
1036	3.44	200	" "	20.25	6.28	5550.8	0.90	0.06	191.0	
1039	3.43	200	" "	20.25	6.28	5586.0	1.67	0.02	182.9	

Remarks: sampled @ 1039.

GSI ENVIRONMENTAL

GSI Job No. 6878
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Date: 1/19/24

Low-Flow (Minimal Drawdown) GROUNDWATER SAMPLING RECORD

Client: BASF
Project: 6878
Location: Beaumont, Tx

Well Number: MW-12
Weather: fine, clear
Personnel: LCM
Site Conditions: grassy

WELL INFORMATION

Well Depth (ft, TOC): 30.62
Well Diameter: 2"
Well Material: PVC
Starting SWL (ft, TOC): 2.34
Ending SWL (ft, TOC): 2.39

Dedicated Equip/Type: poly
Screened Interval:
Sampling Method: low flow peristaltic
Tubing Type: masterflex
Other: —

SAMPLE INFORMATION

Time	SWL (ft, TOC)	Pumping Rate (mL/min)	Sample Appearance/Odor	Temp. (°F/C)	pH	Spec. Cond. (mS/cm)	Turbidity (NTU)	Diss.Oxygen (mg/L)	Redox (mV)	Remarks
			Stabilization criteria:	10%	0.1	3%	<10 / 10%			
~~922~~ 922	2.37	300	clear, no odor	17.90	6.52	1184.7	0.63	0.31	225.8	
925	2.38	300	" "	18.78	6.55	1179.0	0.39	0.24	224.9	
928	2.36	250	" "	~~18.19~~ 18.02	6.57	1180.7	0.35	0.21	220.6	
931	2.38	250	" "	19.11	6.58	1183.8	0.45	0.18	223.4	
934	2.38	250	" "	19.30	6.59	1185.5	~~0.1~~	0.15	223.3	

Remarks: sampled @ 934.
Dup sampled @ 934

GSI ENVIRONMENTAL

GSI Job No. 6878
Page: 1 of 2
Date: 1/18/24

Low-Flow (Minimal Drawdown) GROUNDWATER SAMPLING RECORD

Client: BASF
Project: 6878
Location: Beaumont, TX

Well Number: MW-30
Weather: fine, overcast
Personnel: CM
Site Conditions: dry, overgrown.

WELL INFORMATION

Well Depth (ft, TOC): 28.37
Well Diameter: 2"
Well Material: PVC
Starting SWL (ft, TOC): 3.05
Ending SWL (ft, TOC): 3.10

Dedicated Equip/Type: ~~monsoon~~
Screened Interval: —
Sampling Method: Low flow peristaltic
Tubing Type: poly
Other:

SAMPLE INFORMATION

Time	SWL (ft, TOC)	Pumping Rate (mL/min)	Sample Appearance/Odor	Temp. (°F/C)	pH	Spec. Cond. (mS/cm)	Turbidity (NTU)	Diss.Oxygen (mg/L)	Redox (mV)	Remarks
			Stabilization criteria:	10%	0.1	3%	<10 / 10%			
1650	3.09	250	clear no odor	19.77	7.02	517.11	4.21	5.77	238.7	
1653	3.09	250	" "	20.34	6.97	523.79	4.15	5.50	248.0	
16576	3.09	250	" "	20.64	6.96	523.93	3.62	5.48	248.4	
1659	3.10	250	" "	20.71	6.95	525.17	3.66	5.46	247.7	
1702	3.10	250	" "	20.82	6.95	555.0	2.94	5.32	242.9	
1705	3.10	250	" "	20.94	6.88	797.03	2.68	~~5.32~~	235.8	DO = 3.45
1708	3.10	250	" "	21.19	6.80	1185.0	1.22	0.61	197.7	
~~1711~~	—	pump died. Get replacement.								
1721	3.09	400	" "	19.18	7.29	739.95	3.20	6.70	~~760.0~~	Redox 180.18
1724	3.09	250	" "	19.45	7.21	821.67	2.55	5.71	157.1	
1727	3.10	300	" "	19.82	7.09	884.83	2.97	4.82	156.0	
1730	3.10	300	" "	20.28	6.98	1018.6	2.17	3.23	139.9	
1733	3.09	250	" "	20.44	6.90	1090.5	1.64	2.27	115.5	
1736	3.09	200	" "	20.41	6.86	1140.2	1.80	1.62	101.5	

Remarks: peristaltic pump died @ 1711

GSI ENVIRONMENTAL

GSI Job No. _____
Page: 2 of 2
Date: _____

Low-Flow (Minimal Drawdown) GROUNDWATER SAMPLING RECORD

Client: BASF
Project: 6878
Location: Beaumont, Tx

Well Number: MW-30
Weather: _____
Personnel: _____
Site Conditions: _____

WELL INFORMATION

Well Depth (ft, TOC): 28.37
Well Diameter: See page 1
Well Material:
Starting SWL (ft, TOC): _____
Ending SWL (ft, TOC): 3.10

Dedicated Equip/Type: _____
Screened Interval: _____
Sampling Method: _____
Tubing Type: _____
Other: _____

SAMPLE INFORMATION

Time	SWL (ft, TOC)	Pumping Rate (mL/min)	Sample Appearance/Odor	Temp. (°F/C)	pH	Spec. Cond. (mS/cm)	Turbidity (NTU)	Diss.Oxygen (mg/L)	Redox (mV)	Remarks
			Stabilization criteria:	10%	0.1	3%	<10 / 10%			
1739	3.09	200	" "	20.59	6.84	1150	1.66	1.36	1.38	
1742	3.10	200	" "	20.60	6.83	1174.2	1.57	1.06	85.7	

Remarks: sampled @ 1742

GSI ENVIRONMENTAL

GSI Job No. 6879
Page: 1 of 1
Date: 7/19/23

Low-Flow (Minimal Drawdown) GROUNDWATER SAMPLING RECORD

Client: BASF
Project: 6879
Location: Beaumont, Tx

Well Number: R-8
Weather: five
Personnel: LCM
Site Conditions: grassy, overgrown

WELL INFORMATION

Well Depth (ft, TOC): 27.92
Well Diameter: 4"
Well Material: PVC
Starting SWL (ft, TOC): 3.32
Ending SWL (ft, TOC): 3.45

Dedicated Equip/Type: masterflex
Screened Interval: —
Sampling Method: low flow peristaltic
Tubing Type: poly
Other:

SAMPLE INFORMATION

Time	SWL (ft, TOC)	Pumping Rate (mL/min)	Sample Appearance/Odor	Temp. (°F/C)	pH	Spec. Cond. (mS/cm)	Turbidity (NTU)	Diss.Oxygen (mg/L)	Redox (mV)	Remarks
			Stabilization criteria:	10%	0.1	3%	<10 / 10%			
1551	3.44	300	clear	19.60	7.10	837.93	0.63	0.23	232.5	
1554	3.44	250	clear no odor	18.56	7.12	836.85	0.54	0.17	233.2	
1557	3.45	250	" "	18.71	7.14	837.74	0.67	0.15	232.5	
1600	3.45	250	" "	18.78	7.16	837.77	0.57	0.14	227.1	
1603	3.45	250	" "	18.80	7.17	839.29	0.63	0.13	220.8	

Remarks: sampled R-8 @ 1603

GSI Job No. 6878
Issued: 8 April 2024

APPENDIX 6

LABORATORY DATA PACKAGES AND DATA USABILITY SUMMARIES

2024 Response Action Completion Report

Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

GSI ENVIRONMENTAL

APPENDIX 6
DATA USABILITY SUMMARY

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

1.0 INTRODUCTION

GSI Environmental Inc. (GSI) reviewed one laboratory analytical packages from Eurofins Scientific Inc. (860-65940-1)) located in Stafford, Texas, for the analysis of groundwater samples collected on 18 and 19 January 2024, during the January 2024 semiannual groundwater sampling event at the former Solid Waste Management Area (SWMA) consisting of Ponds 1A, 1B, 2A and 2B.

The laboratory analytical data were reviewed for conformance to the requirements of the guidance document Review and Reporting of Chemicals of Concern (COC) Concentration Data (RG-366/TRRP-13) and adherence to project objectives of evaluating Monitored Natural Attenuation (MNA) response action effectiveness. GSI certifies that at the time the analytical data were generated for this project, Eurofins Scientific Inc. was NELAC-accredited under the Texas Laboratory Accreditation Program for the matrices, analytes, and methods of analysis for which the TCEQ offers accreditation.

The purpose of the project was to confirm compliance to the Compliance Plan CP-50219 issued by the TCEQ in 2015 for concentrations of COCs in groundwater samples collected during the January 2024 semiannual groundwater sampling events at the BASF Agricultural Products Group (BASF) facility located at 14385 W Port Arthur Rd, in Beaumont, Texas (the “Site”). The data have been found to be suitable for this purpose.

Groundwater samples collected to provide current data on COC concentrations in the groundwater at the affected property for evaluating MNA response action effectiveness were analyzed by the following methods:

- USEPA Method 8260C for benzene, chlorobenzene, and 1,4-Dicholorobenzene;
- USEPA Method 6010D and 3010A for barium;
- USEPA Method 8270E for 2,4-Dichlorophenol, 2,4-Dimethylphenol, phenol, and 2,6-Dichlorophenol;
- USEPA Method 8151A for Silvex (2,4,5-TP)

The following laboratory submittals were reviewed:

- Analytical data report and chain-of-custody,
- Laboratory review checklist (LRCs) and associated Exception Reports (ERs),
- Laboratory quality control (QC) data, and
- Field instrument calibrations, filtering, sampling, and preservation procedures.

The results of supporting QC analyses were summarized on the LRCs, ERs, and in the case narratives, each of which were included in this review. The LRCs, associated ERs, and reportable data covered by this review are included in the laboratory reports.

Eight groundwater samples (MW-8, MW-9, MW-10, MW-11, MW-12, R-8, MW-30, and DUP (MW-12)) were collected during the January 2024 groundwater sampling event at former SWMA for analysis of benzene, chlorobenzene, 1,4-Dicholorobenzene, barium, 2,4-Dichlorophenol, 2,4-Dimethylphenol, phenol, 2,6-Dichlorophenol, and Silvex (2,4,5-TP) . The sample identifications are cross-referenced to laboratory identifications in Table A.

Project measurement quality objectives (percent recovery and relative percent difference, RPD) for organic compounds and inorganic compounds are presented below:

Metals (Barium only)
Recovery 70 – 130%
RPD 30%

Organic Compounds (VOCs, SVOCs, Herbicides)
Recovery 60 – 140%
RPD 40%

2.0 DATA REVIEW / VALIDATION RESULTS

2.1 Analytical Results

Groundwater results are reported in concentration units of milligram per liter (mg/L). Concentrations that are *not detected* are reported as less than the value of the sample detection limit (SDL). Analytical results noted with a J-flag indicate an estimated concentration detected between the SDL and method detection limit (MDL). Qualified sample data are listed in Table B.

2.2 Preservation and Holding Times

Samples were evaluated for agreement with the chain-of custody forms. The samples were received in the appropriate containers and in good condition. The samples were immediately put in a cooler filled with ice following collection with receipt temperatures within the acceptance criteria of 4 ± 2°C. All samples were analyzed within the holding time according to the laboratory chain of custody forms.

2.3 Calibrations

Per the LRC, all initial calibration and continuing calibration verification data met method requirements for all analyses.

2.4 Blanks

The constituents analyzed in the method blank (MB) associated with each analytical batch were reported as *Not Detected* above the SDL or Reporting Limit (RL). Target analytes were not detected in the associated trip blanks.

2.5 Internal Standard and Surrogate Recoveries

The surrogate recovery for all groundwater samples were within the quality control limits for each method with the exception of surrogate recovery for sample R-8 for EPA Method 8270E LL (phenol and 2,6-Dichlorophenol). These data have been qualified biased low on Table B. Additionally, the percent RPD difference between primary and confirmation column/detector reported by the laboratory was below the laboratory criteria and has been flagged in the report. However, the affected results were non-detect with the reporting limit below the applicable action level; therefore, the results are acceptable.

2.6 Laboratory Control Samples

Laboratory control sample recoveries for each sample batch were within quality control limits.

2.7 Matrix Spike/Matrix Spike Duplicates

All sample collected (MW-8, MW-9, MW-10, MW-11, MW-12, R-8, MW-30, and DUP (MW-12)) had an associated matrix spike and/or matrix spike duplicate (MS/MSD) recovery outside of the upper limit for barium. Accordingly, these data have been qualified as biased high on Table B. As noted in the laboratory report, the recoveries associated with these samples were due to matrix interference and the sample used for the MS/MSD analysis is not one of the project samples with initial barium concentrations one order of magnitude above the average barium concentration at the Site. Additionally, the blank spike and the blank spike duplicate samples were within the laboratory control limits. Therefore, the results are acceptable.

2.8 Field Precision

One field duplicate was collected at sample location MW-12 during the January 2024 semiannual sampling event. Table C summarizes groundwater field duplicate precision calculations. Field duplicate precision met the project measurement quality objective of RPDs ≤ 40% for all detected analytes.

2.9 Field Procedures

The samples were collected in accordance with TCEQ-approved Sampling and Analysis Plan (SAP) dated March 2014.

3.0 SUMMARY

The data validation process resulted in qualification of less than 15% of the reported COC concentrations within the entire dataset, and no reported concentrations were rejected. Two reported COC concentrations were determined likely to be biased low and the

associated COCs were not detected. In contrast, eight reported COC concentrations were determined likely to the biased high for only one COC (barium), indicating a conservative bias for use of these data as part of the compliance evaluation. However, these concentrations are generally well below their applicable action levels.

Therefore, the groundwater analytical data are usable for the purpose of determining current COC concentrations in groundwater at the affected property.

TABLE A
CROSS-REFERENCE SAMPLE IDENTIFICATION

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

Sample Date	Lab	Lab Sample ID	Field Sample ID	Matrix
1/18/2024	Eurofins Scientific Inc.	860-65940-1	MW-8	Groundwater
1/18/2024	Eurofins Scientific Inc.	860-65940-2	MW-9	Groundwater
1/19/2024	Eurofins Scientific Inc.	860-65940-3	MW-10	Groundwater
1/19/2024	Eurofins Scientific Inc.	860-65940-4	MW-11	Groundwater
1/19/2024	Eurofins Scientific Inc.	860-65940-5	MW-12	Groundwater
1/18/2024	Eurofins Scientific Inc.	860-65940-6	R-8	Groundwater
1/18/2024	Eurofins Scientific Inc.	860-65940-7	MW-30	Groundwater
1/18/2024	Eurofins Scientific Inc.	860-65940-8	DUP	Groundwater
1/19/2024	Eurofins Scientific Inc.	860-65940-9	Trip Blank	Trip Water Blank

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TABLE B
QUALIFIED ANALYTICAL DATA

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

Sample ID	Sample Date	Analyte	Lab Result	Lab Qualifier	Units	DUS Qualifier and Bias Code	Reason for Qualification	Batch Number	Lab	Report Number
R-8	1/18/2024	Phenol	0.202	U	ug/L	UL	Surrogate Recovery < Lab Control Limit	142104	Eurofins	860-65940-1
R-8	1/18/2024	2,6-Dichlorophenol	0.126	U	ug/L	UL	Surrogate Recovery < Lab Control Limit	142104	Eurofins	860-65940-1
MW-8	1/18/2024	Barium	0.267		mg/L	H	%R of MS/MSD > Lab Control Limit	141539/142125	Eurofins	860-65940-1
MW-9	1/18/2024	Barium	0.273		mg/L	H	%R of MS/MSD > Lab Control Limit	141539/142125	Eurofins	860-65940-1
MW-10	1/19/2024	Barium	0.707		mg/L	H	%R of MS/MSD > Lab Control Limit	141539/142125	Eurofins	860-65940-1
MW-11	1/19/2024	Barium	1.50		mg/L	H	%R of MS/MSD > Lab Control Limit	141539/142125	Eurofins	860-65940-1
MW-12	1/19/2024	Barium	0.231		mg/L	H	%R of MS/MSD > Lab Control Limit	141539/142125	Eurofins	860-65940-1
R-8	1/18/2024	Barium	0.221		mg/L	H	%R of MS/MSD > Lab Control Limit	141539/142125	Eurofins	860-65940-1
MW-30	1/18/2024	Barium	0.307		mg/L	H	%R of MS/MSD > Lab Control Limit	141539/142125	Eurofins	860-65940-1
DUP	1/18/2024	Barium	0.232		mg/L	H	%R of MS/MSD > Lab Control Limit	141539/142125	Eurofins	860-65940-1

Notes:
1. %R = Percent Recovery
2. Lab Qualifier Codes: U = Analyte was not detected at or above the SDL.
3. DUS Qualifier Codes: U = Not detected.
4. DUS Bias Codes: H = Bias in sample result likely to be high; L = Bias in sample result likely to be low.
5. MS = matrix spike; MSD = matrix spike duplicate.

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TABLE C
FIELD PRECISION

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

Sample ID	Duplicate Sample ID	Sample Date	Sampled By	Matrix	Analyte	Sample Result (mg/l)	Duplicate Result (mg/l)	RPD (%)	RPD Result
MW-12	DUP	1/18/2024	GSI	Groundwater	Benzene	**0.00046**	**0.00046**	0.0	A
MW-4	MW-4 DUP	11/17/2022	GSI	Groundwater	Chlorobenzene	**0.00**	**0.000455**	0.0	A
MW-4	MW-4 DUP	11/17/2022	GSI	Groundwater	1,4-Dichlorobenzene	**0.000449**	**0.000449**	0.0	A
MW-4	MW-4 DUP	11/17/2022	GSI	Groundwater	2,4-Dichlorophenol	**0.1150**	**0.1150**	0.0	A
MW-4	MW-4 DUP	11/17/2022	GSI	Groundwater	2,4-Dimethylphenol	**0.1480**	**0.1480**	0.0	A
MW-4	MW-4 DUP	11/17/2022	GSI	Groundwater	Phenol	**0.2020**	**0.2020**	0.0	A
MW-4	MW-4 DUP	11/15/2023	GSI	Groundwater	2,6-Dimethylphenol	**0.1260**	**0.1260**	0.0	A
MW-4	MW-4 DUP	11/15/2023	GSI	Groundwater	Silvex (2,4,5-TP)	**0.0000402**	**0.0000399**	0.7	A
MW-4	MW-4 DUP	11/15/2023	GSI	Groundwater	Barium	**0.2310**	**0.2320**	0.4	A

Notes:
1. RPD = ((SR - DR)*200)/(SR + DR).
2. A = Acceptable RPD.
3. Table includes detected analytes only.

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Christ Niamike
GSI Environmental Inc
2211 Norfolk, Suite 1000
Houston, Texas 77098-4044

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JOB DESCRIPTION

BASF Beaumont

JOB NUMBER

860-65940-1

Eurofins Houston
4145 Greenbriar Dr
Stafford TX 77477

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

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Authorized for release by
Sachin Kudchadkar, Senior Project Manager
[redacted]
(281)748-9025

Table of Contents

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyte was not detected at or above the SDL.
X	Surrogate recovery exceeds control limits

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
U	Analyte was not detected at or above the SDL.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
U	Analyte was not detected at or above the SDL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
SDL	Sample Detection Limit
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Detection Check Summary

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**
Prep Method: 5030C-Purge and Trap
Instrument: A294 **Detector: MSD/0** **Column: DB-624**

Analyte	Spike Added	Result	Qualifier	Unit	RL	MDL	Analysis Date	Analysis Batch
Benzene	0.000800	0.000760	J	mg/L	0.00100	0.000460	08/22/2023	860-118245
Chlorobenzene	0.000800	0.000760	J	mg/L	0.00100	0.000530	08/22/2023	860-118245
1,4-Dichlorobenzene	0.000800	0.000827	J	mg/L	0.00100	0.000513	08/22/2023	860-118245

Method: 6010D - Metals (ICP)

Matrix: Water **Prep Type: Total/NA**
Prep Method: 3010A-Preparation, Total Metals
Instrument: A363 **Detector: AES/0**

Analyte	Spike Added	Result	Qualifier	Unit	RL	MDL	Analysis Date	Analysis Batch
Barium	0.0100	0.0109		mg/L	0.0100	0.00125	09/14/2023	860-121640

Appendix A

Laboratory Data Package Cover Page - Page 1 of 4

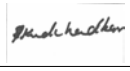
This data package is for Job No. 860-65940-1 and consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- ☑ R1- Field chain-of-custody documentation;
- ☑ R2 - Sample identification cross-reference;
- ☑ R3 - Test reports (analytical data sheets) for each environmental sample that includes:
  a. Items consistent with NELAC Chapter 5,
  b. dilution factors,
  c. preparation methods,
  d. cleanup methods, and
  e. if required for the project, tentatively identified coumpounds (TICs).
- ☑ R4 - Surrogate recovery data including:
  a. Calculated recovery (%R), and
  b. The laboratory's surrogate QC limits.
- ☑ R5 - Test reports/summary forms for blank samples;
- ☑ R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
  a. LCS spiking amounts,
  b. Calculated %R for each analyte, and
  c. The laboratory's LCS QC limits.
- ☑ R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a. Samples associated with the MS/MSD clearly identified,
  b. MS/MSD spiking amounts,
  c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d. Calculated %Rs and relative percent differences (RPDs), and
  e. The laboratory's MS/MSD QC limits
- ☐ R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
  a. The amount of analyte measured in the duplicate,
  b. The calculated RPD, and
  c. The laboratory's QC limits for analytical duplicates.
- ☑ R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- ☑ R10 - Other problems or anomalies.
- ☐ Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: ☐ This laboratory meets an exception under 30 TAC §25.6 and was last inspected by ☐ TCEQ or ☐ _____ on __/__/__. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Name (Printed)	Signature	Official Title (Printed)	Date
Sachin Kudchadkar		Senior Project Manager	01/26/2024

Laboratory Data Package Cover Page - Page 2 of 4

Laboratory Name: Eurofins Houston	LRC Date: 01/26/2024
Project Name: BASF Beaumont	Laboratory Job Number: 860-65940-1
Reviewer Name: Sachin Kudchadkar	

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
		Were all departures from standard conditions described in an exception report?	✓				
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	✓				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	✓				
		Were calculations checked by a peer or supervisor?	✓				
		Were all analyte identifications checked by a peer or supervisor?	✓				
		Were sample detection limits reported for all analytes not detected?	✓				
		Were all results for soil and sediment samples reported on a dry weight basis?			✓		
		Were % moisture (or solids) reported for all soil and sediment samples?			✓		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			✓		
		If required for the project, are TICs reported?			✓		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	✓				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		✓			1
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	✓				
		Were blanks analyzed at the appropriate frequency?	✓				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
		Were blank concentrations < MQL?	✓				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	✓				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
		Were LCSs analyzed at the required frequency?	✓				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	✓				
		Was the LCSD RPD within QC limits?	✓				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	✓				
		Were MS/MSD analyzed at the appropriate frequency?	✓				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		✓			2
		Were MS/MSD RPDs within laboratory QC limits?	✓				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?			✓		
		Were analytical duplicates analyzed at the appropriate frequency?			✓		
		Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	✓				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	✓				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	✓				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	✓				

Laboratory Data Package Cover Page - Page 3 of 4

Laboratory Name: Eurofins Houston	LRC Date: 01/26/2024
Project Name: BASF Beaumont	Laboratory Job Number: 860-65940-1
Reviewer Name: Sachin Kudchadkar	

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	✓				
		Were percent RSDs or correlation coefficient criteria met?	✓				
		Was the number of standards recommended in the method used for all analytes?	✓				
		Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
		Are ICAL data available for all instruments used?	✓				
		Has the initial calibration curve been verified using an appropriate second source standard?	✓				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):**					
		Was the CCV analyzed at the method-required frequency?	✓				
		Were percent differences for each analyte within the method-required QC limits?	✓				
		Was the ICAL curve verified for each analyte?	✓				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	✓				
S3	O	**Mass spectral tuning**					
		Was the appropriate compound for the method used for tuning?	✓				
		Were ion abundance data within the method-required QC limits?	✓				
S4	O	**Internal standards (IS)**					
		Were IS area counts and retention times within the method-required QC limits?	✓				
S5	OI	**Raw data (NELAC Section 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
		Were data associated with manual integrations flagged on the raw data?	✓				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?	✓				
S7	O	**Tentatively identified compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
S8	I	**Interference Check Sample (ICS) results**					
		Were percent recoveries within method QC limits?	✓				
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	✓				
		Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
S11	OI	**Proficiency test reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	✓				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	✓				
		Is documentation of the analyst's competency up-to-date and on file?	✓				
S15	OI	**Verification/validation documentation for methods (NELAC Chapter 5)**					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
S16	OI	**Laboratory standard operating procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	✓				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period;
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Cover Page - Page 4 of 4

Laboratory Name: Eurofins Houston	LRC Date: 01/26/2024
Project Name: BASF Beaumont	Laboratory Job Number: 860-65940-1
Reviewer Name: Sachin Kudchadkar	

ER#[1]	Description
1	Method 8270E LL: Six surrogates are used for this analysis. The laboratory's SOP allows one base and one acid of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: R-8 (860-65940-6). These results have been reported and qualified.
2	Method 6010D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 860-141539 and analytical batch 860-142125 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

1. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

Job Narrative
860-65940-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 1/19/2024 3:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.4°C and 2.5°C

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E_LL: Six surrogates are used for this analysis. The laboratory's SOP allows one base and one acid of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: R-8 (860-65940-6). These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 860-141539 and analytical batch 860-142125 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Client Sample ID: MW-8 — Lab Sample ID: 860-65940-1

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.267		0.0100	0.00125	mg/L	1		6010D	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 860-65940-2

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.273		0.0100	0.00125	mg/L	1		6010D	Total/NA

Client Sample ID: MW-10 — Lab Sample ID: 860-65940-3

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.707		0.0100	0.00125	mg/L	1		6010D	Total/NA

Client Sample ID: MW-11 — Lab Sample ID: 860-65940-4

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	1.50		0.0100	0.00125	mg/L	1		6010D	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 860-65940-5

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.231		0.0100	0.00125	mg/L	1		6010D	Total/NA

Client Sample ID: R-8 — Lab Sample ID: 860-65940-6

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.221		0.0100	0.00125	mg/L	1		6010D	Total/NA

Client Sample ID: MW-30 — Lab Sample ID: 860-65940-7

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.307		0.0100	0.00125	mg/L	1		6010D	Total/NA

Client Sample ID: DUP — Lab Sample ID: 860-65940-8

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.232		0.0100	0.00125	mg/L	1		6010D	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 860-65940-9

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-8

Lab Sample ID: 860-65940-1

Date Collected: 01/18/24 16:13

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 18:45	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 18:45	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*63 - 144*		*01/25/24 18:45*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*01/25/24 18:45*	*1*

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/25/24 17:52	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/25/24 17:52	1
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/25/24 17:52	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/25/24 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*73*		*31 - 132*	*01/24/24 16:14*	*01/25/24 17:52*	*1*
2-Fluorobiphenyl (Surr)	*68*		*40 - 130*	*01/24/24 16:14*	*01/25/24 17:52*	*1*
2-Fluorophenol (Surr)	*34*		*21 - 114*	*01/24/24 16:14*	*01/25/24 17:52*	*1*
Nitrobenzene-d5 (Surr)	*54*		*37 - 130*	*01/24/24 16:14*	*01/25/24 17:52*	*1*
p-Terphenyl-d14 (Surr)	*96*		*20 - 141*	*01/24/24 16:14*	*01/25/24 17:52*	*1*
Phenol-d5 (Surr)	*23*		*16 - 117*	*01/24/24 16:14*	*01/25/24 17:52*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000402	U	0.000200	0.0000400	mg/L		01/23/24 14:17	01/24/24 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*69*		*42 - 150*	*01/23/24 14:17*	*01/24/24 15:17*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.267**		0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 22:10	1

Client Sample ID: MW-9

Lab Sample ID: 860-65940-2

Date Collected: 01/18/24 17:03

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 19:04	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 19:04	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*63 - 144*		*01/25/24 19:04*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*01/25/24 19:04*	*1*

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/25/24 18:12	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/25/24 18:12	1

Client Sample ID: MW-9

Lab Sample ID: 860-65940-2

Date Collected: 01/18/24 17:03

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/25/24 18:12	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/25/24 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*70*		*31 - 132*	*01/24/24 16:14*	*01/25/24 18:12*	*1*
2-Fluorobiphenyl (Surr)	*66*		*40 - 130*	*01/24/24 16:14*	*01/25/24 18:12*	*1*
2-Fluorophenol (Surr)	*34*		*21 - 114*	*01/24/24 16:14*	*01/25/24 18:12*	*1*
Nitrobenzene-d5 (Surr)	*46*		*37 - 130*	*01/24/24 16:14*	*01/25/24 18:12*	*1*
p-Terphenyl-d14 (Surr)	*101*		*20 - 141*	*01/24/24 16:14*	*01/25/24 18:12*	*1*
Phenol-d5 (Surr)	*30*		*16 - 117*	*01/24/24 16:14*	*01/25/24 18:12*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000402	U	0.000200	0.0000400	mg/L		01/23/24 14:17	01/24/24 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*77*		*42 - 150*	*01/23/24 14:17*	*01/24/24 15:43*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.273**		0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 22:13	1

Client Sample ID: MW-10

Lab Sample ID: 860-65940-3

Date Collected: 01/19/24 09:58

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 19:23	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 19:23	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*63 - 144*		*01/25/24 19:23*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*01/25/24 19:23*	*1*

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/25/24 18:33	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/25/24 18:33	1
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/25/24 18:33	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/25/24 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*67*		*31 - 132*	*01/24/24 16:14*	*01/25/24 18:33*	*1*
2-Fluorobiphenyl (Surr)	*54*		*40 - 130*	*01/24/24 16:14*	*01/25/24 18:33*	*1*
2-Fluorophenol (Surr)	*29*		*21 - 114*	*01/24/24 16:14*	*01/25/24 18:33*	*1*
Nitrobenzene-d5 (Surr)	*46*		*37 - 130*	*01/24/24 16:14*	*01/25/24 18:33*	*1*
p-Terphenyl-d14 (Surr)	*93*		*20 - 141*	*01/24/24 16:14*	*01/25/24 18:33*	*1*
Phenol-d5 (Surr)	*21*		*16 - 117*	*01/24/24 16:14*	*01/25/24 18:33*	*1*

Client Sample ID: MW-10

Lab Sample ID: 860-65940-3

Date Collected: 01/19/24 09:58

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000403	U	0.000200	0.0000400	mg/L		01/23/24 14:17	01/24/24 16:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*58*		*42 - 150*	*01/23/24 14:17*	*01/24/24 16:09*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.707**		0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 22:16	1

Client Sample ID: MW-11

Lab Sample ID: 860-65940-4

Date Collected: 01/19/24 10:39

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 19:42	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 19:42	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*120*		*63 - 144*		*01/25/24 19:42*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*01/25/24 19:42*	*1*

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/25/24 18:53	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/25/24 18:53	1
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/25/24 18:53	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/25/24 18:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*79*		*31 - 132*	*01/24/24 16:14*	*01/25/24 18:53*	*1*
2-Fluorobiphenyl (Surr)	*55*		*40 - 130*	*01/24/24 16:14*	*01/25/24 18:53*	*1*
2-Fluorophenol (Surr)	*33*		*21 - 114*	*01/24/24 16:14*	*01/25/24 18:53*	*1*
Nitrobenzene-d5 (Surr)	*42*		*37 - 130*	*01/24/24 16:14*	*01/25/24 18:53*	*1*
p-Terphenyl-d14 (Surr)	*97*		*20 - 141*	*01/24/24 16:14*	*01/25/24 18:53*	*1*
Phenol-d5 (Surr)	*23*		*16 - 117*	*01/24/24 16:14*	*01/25/24 18:53*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000402	U	0.000200	0.0000400	mg/L		01/23/24 14:17	01/24/24 16:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*53*	*p*	*42 - 150*	*01/23/24 14:17*	*01/24/24 16:36*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**1.50**		0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 22:18	1

Client Sample ID: MW-12

Lab Sample ID: 860-65940-5

Date Collected: 01/19/24 09:34

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 20:01	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 20:01	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*63 - 144*		*01/25/24 20:01*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*01/25/24 20:01*	*1*

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/25/24 19:14	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/25/24 19:14	1
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/25/24 19:14	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/25/24 19:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*66*		*31 - 132*	*01/24/24 16:14*	*01/25/24 19:14*	*1*
2-Fluorobiphenyl (Surr)	*69*		*40 - 130*	*01/24/24 16:14*	*01/25/24 19:14*	*1*
2-Fluorophenol (Surr)	*37*		*21 - 114*	*01/24/24 16:14*	*01/25/24 19:14*	*1*
Nitrobenzene-d5 (Surr)	*49*		*37 - 130*	*01/24/24 16:14*	*01/25/24 19:14*	*1*
p-Terphenyl-d14 (Surr)	*98*		*20 - 141*	*01/24/24 16:14*	*01/25/24 19:14*	*1*
Phenol-d5 (Surr)	*26*		*16 - 117*	*01/24/24 16:14*	*01/25/24 19:14*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000402	U	0.000200	0.0000400	mg/L		01/23/24 14:17	01/24/24 17:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*66*		*42 - 150*	*01/23/24 14:17*	*01/24/24 17:02*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.231**		0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 22:34	1

Client Sample ID: R-8

Lab Sample ID: 860-65940-6

Date Collected: 01/18/24 16:03

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 20:20	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 20:20	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 20:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*63 - 144*		*01/25/24 20:20*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*01/25/24 20:20*	*1*

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/25/24 19:34	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/25/24 19:34	1

Client Sample ID: R-8

Lab Sample ID: 860-65940-6

Date Collected: 01/18/24 16:03

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/25/24 19:34	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/25/24 19:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*69*		*31 - 132*	*01/24/24 16:14*	*01/25/24 19:34*	*1*
2-Fluorobiphenyl (Surr)	*55*		*40 - 130*	*01/24/24 16:14*	*01/25/24 19:34*	*1*
2-Fluorophenol (Surr)	*18*	*X*	*21 - 114*	*01/24/24 16:14*	*01/25/24 19:34*	*1*
Nitrobenzene-d5 (Surr)	*47*		*37 - 130*	*01/24/24 16:14*	*01/25/24 19:34*	*1*
p-Terphenyl-d14 (Surr)	*90*		*20 - 141*	*01/24/24 16:14*	*01/25/24 19:34*	*1*
Phenol-d5 (Surr)	*19*		*16 - 117*	*01/24/24 16:14*	*01/25/24 19:34*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000402	U	0.000200	0.0000400	mg/L		01/23/24 14:17	01/24/24 17:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*78*		*42 - 150*	*01/23/24 14:17*	*01/24/24 17:29*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.221**		0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 22:37	1

Client Sample ID: MW-30

Lab Sample ID: 860-65940-7

Date Collected: 01/18/24 17:42

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 20:39	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 20:39	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 20:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*118*		*63 - 144*		*01/25/24 20:39*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*01/25/24 20:39*	*1*

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/25/24 19:55	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/25/24 19:55	1
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/25/24 19:55	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/25/24 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*31 - 132*	*01/24/24 16:14*	*01/25/24 19:55*	*1*
2-Fluorobiphenyl (Surr)	*64*		*40 - 130*	*01/24/24 16:14*	*01/25/24 19:55*	*1*
2-Fluorophenol (Surr)	*33*		*21 - 114*	*01/24/24 16:14*	*01/25/24 19:55*	*1*
Nitrobenzene-d5 (Surr)	*53*		*37 - 130*	*01/24/24 16:14*	*01/25/24 19:55*	*1*
p-Terphenyl-d14 (Surr)	*97*		*20 - 141*	*01/24/24 16:14*	*01/25/24 19:55*	*1*
Phenol-d5 (Surr)	*25*		*16 - 117*	*01/24/24 16:14*	*01/25/24 19:55*	*1*

Client Sample ID: MW-30

Lab Sample ID: 860-65940-7

Date Collected: 01/18/24 17:42

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000402	U	0.000200	0.0000400	mg/L		01/25/24 07:13	01/25/24 22:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*74*		*42 - 150*	*01/25/24 07:13*	*01/25/24 22:51*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.307**		0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 22:42	1

Client Sample ID: DUP

Lab Sample ID: 860-65940-8

Date Collected: 01/18/24 00:00

Matrix: Water

Date Received: 01/19/24 15:00

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 20:58	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 20:58	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*63 - 144*		*01/25/24 20:58*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*01/25/24 20:58*	*1*

Method: SW846 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/25/24 20:15	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/25/24 20:15	1
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/25/24 20:15	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/25/24 20:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*31 - 132*	*01/24/24 16:14*	*01/25/24 20:15*	*1*
2-Fluorobiphenyl (Surr)	*69*		*40 - 130*	*01/24/24 16:14*	*01/25/24 20:15*	*1*
2-Fluorophenol (Surr)	*34*		*21 - 114*	*01/24/24 16:14*	*01/25/24 20:15*	*1*
Nitrobenzene-d5 (Surr)	*49*		*37 - 130*	*01/24/24 16:14*	*01/25/24 20:15*	*1*
p-Terphenyl-d14 (Surr)	*104*		*20 - 141*	*01/24/24 16:14*	*01/25/24 20:15*	*1*
Phenol-d5 (Surr)	*25*		*16 - 117*	*01/24/24 16:14*	*01/25/24 20:15*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000399	U	0.000200	0.0000400	mg/L		01/25/24 07:13	01/25/24 22:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*73*		*42 - 150*	*01/25/24 07:13*	*01/25/24 22:25*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.232**		0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 22:39	1

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Client Sample ID: Trip Blank

Date Collected: 01/19/24 00:00
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-9

Matrix: Water

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 17:10	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 17:10	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*63 - 144*		*01/25/24 17:10*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*01/25/24 17:10*	*1*

Surrogate Summary

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCA	TOL
Lab Sample ID	Client Sample ID	(63-144)	(80-120)
860-65940-1	MW-8	117	101
860-65940-2	MW-9	114	100
860-65940-3	MW-10	119	103
860-65940-4	MW-11	120	101
860-65940-5	MW-12	117	102
860-65940-6	R-8	114	100
860-65940-7	MW-30	118	101
860-65940-8	DUP	115	102
860-65940-9	Trip Blank	99	101
860-65947-C-14 MS	Matrix Spike	108	99
LCS 860-142206/3	Lab Control Sample	113	99
LCSD 860-142206/4	Lab Control Sample Dup	109	98
MB 860-142206/10	Method Blank	123	110

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPHd14	PHL
Lab Sample ID	Client Sample ID	(31-132)	(40-130)	(21-114)	(37-130)	(20-141)	(16-117)
860-65940-1	MW-8	73	68	34	54	96	23
860-65940-2	MW-9	70	66	34	46	101	30
860-65940-3	MW-10	67	54	29	46	93	21
860-65940-4	MW-11	79	55	33	42	97	23
860-65940-5	MW-12	66	69	37	49	98	26
860-65940-6	R-8	69	55	18 X	47	90	19
860-65940-7	MW-30	83	64	33	53	97	25
860-65940-8	DUP	80	69	34	49	104	25
LCS 860-142039/2-A	Lab Control Sample	76	59	34	47	86	27
LCSD 860-142039/3-A	Lab Control Sample Dup	75	60	31	48	81	27
MB 860-142039/1-A	Method Blank	69	62	28	52	87	26

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1
Lab Sample ID	Client Sample ID	(42-150)
860-65940-1	MW-8	69

Surrogate Summary

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Method: 8151A - Herbicides (GC) (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DCPAA1 (42-150)								
860-65940-2	MW-9	77								
860-65940-3	MW-10	58								
860-65940-4	MW-11	53 p								
860-65940-5	MW-12	66								
860-65940-6	R-8	78								
860-65940-7	MW-30	74								
860-65940-8	DUP	73								
LCS 860-141589/2-A	Lab Control Sample	95								
LCS 860-142092/2-A	Lab Control Sample	69								
LCSD 860-141589/3-A	Lab Control Sample Dup	107								
LCSD 860-142092/3-A	Lab Control Sample Dup	78								
MB 860-141589/1-A	Method Blank	87								
MB 860-142092/1-A	Method Blank	60								

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 860-142206/10
Matrix: Water
Analysis Batch: 142206

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000460	U	0.00100	0.000460	mg/L			01/25/24 16:51	1
Chlorobenzene	0.000455	U	0.00100	0.000455	mg/L			01/25/24 16:51	1
1,4-Dichlorobenzene	0.000449	U	0.00100	0.000449	mg/L			01/25/24 16:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*123*		*63 - 144*		*01/25/24 16:51*	*1*
Toluene-d8 (Surr)	*110*		*80 - 120*		*01/25/24 16:51*	*1*

Lab Sample ID: LCS 860-142206/3
Matrix: Water
Analysis Batch: 142206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.0500	0.04239		mg/L		85	75 - 125		
Chlorobenzene			0.0500	0.04671		mg/L		93	82 - 135		
1,4-Dichlorobenzene			0.0500	0.04662		mg/L		93	75 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*113*		*63 - 144*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: LCSD 860-142206/4
Matrix: Water
Analysis Batch: 142206

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.0500	0.04273		mg/L		85	75 - 125	1	25
Chlorobenzene			0.0500	0.04700		mg/L		94	82 - 135	1	25
1,4-Dichlorobenzene			0.0500	0.04994		mg/L		100	75 - 125	7	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*63 - 144*
Toluene-d8 (Surr)	*98*		*80 - 120*

Lab Sample ID: 860-65947-C-14 MS
Matrix: Water
Analysis Batch: 142206

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	0.000460	U	0.0500	0.04529		mg/L		91	66 - 142		
Chlorobenzene	0.000455	U	0.0500	0.04964		mg/L		99	60 - 133		
1,4-Dichlorobenzene	0.000449	U	0.0500	0.05100		mg/L		102	75 - 125		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*108*		*63 - 144*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level

Lab Sample ID: MB 860-142039/1-A
Matrix: Water
Analysis Batch: 142314

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 142039

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	0.115	U	2.00	0.115	ug/L		01/24/24 16:14	01/26/24 09:41	1
2,4-Dimethylphenol	0.148	U	2.00	0.148	ug/L		01/24/24 16:14	01/26/24 09:41	1
Phenol	0.202	U	4.00	0.202	ug/L		01/24/24 16:14	01/26/24 09:41	1
2,6-Dichlorophenol	0.126	U	2.00	0.126	ug/L		01/24/24 16:14	01/26/24 09:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*69*		*31 - 132*	*01/24/24 16:14*	*01/26/24 09:41*	*1*
2-Fluorobiphenyl (Surr)	*62*		*40 - 130*	*01/24/24 16:14*	*01/26/24 09:41*	*1*
2-Fluorophenol (Surr)	*28*		*21 - 114*	*01/24/24 16:14*	*01/26/24 09:41*	*1*
Nitrobenzene-d5 (Surr)	*52*		*37 - 130*	*01/24/24 16:14*	*01/26/24 09:41*	*1*
p-Terphenyl-d14 (Surr)	*87*		*20 - 141*	*01/24/24 16:14*	*01/26/24 09:41*	*1*
Phenol-d5 (Surr)	*26*		*16 - 117*	*01/24/24 16:14*	*01/26/24 09:41*	*1*

Lab Sample ID: LCS 860-142039/2-A
Matrix: Water
Analysis Batch: 142314

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 142039

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-Dichlorophenol	20.0	10.94		ug/L		55	38 - 120
2,4-Dimethylphenol	20.0	10.49		ug/L		52	39 - 117
Phenol	20.0	5.854		ug/L		29	15 - 106
2,6-Dichlorophenol	20.0	11.46		ug/L		57	42 - 118

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*76*		*31 - 132*
2-Fluorobiphenyl (Surr)	*59*		*40 - 130*
2-Fluorophenol (Surr)	*34*		*21 - 114*
Nitrobenzene-d5 (Surr)	*47*		*37 - 130*
p-Terphenyl-d14 (Surr)	*86*		*20 - 141*
Phenol-d5 (Surr)	*27*		*16 - 117*

Lab Sample ID: LCSD 860-142039/3-A
Matrix: Water
Analysis Batch: 142314

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 142039

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4-Dichlorophenol	20.0	11.18		ug/L		56	38 - 120	2	30
2,4-Dimethylphenol	20.0	10.08		ug/L		50	39 - 117	4	30
Phenol	20.0	5.738		ug/L		29	15 - 106	2	30
2,6-Dichlorophenol	20.0	11.70		ug/L		58	42 - 118	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*75*		*31 - 132*
2-Fluorobiphenyl (Surr)	*60*		*40 - 130*
2-Fluorophenol (Surr)	*31*		*21 - 114*
Nitrobenzene-d5 (Surr)	*48*		*37 - 130*
p-Terphenyl-d14 (Surr)	*81*		*20 - 141*

Method: 8270E LL - Semivolatile Organic Compounds by GC/MS - Low Level (Continued)

Lab Sample ID: LCSD 860-142039/3-A
Matrix: Water
Analysis Batch: 142314

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 142039

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Phenol-d5 (Surr)	27		16 - 117

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 860-141589/1-A
Matrix: Water
Analysis Batch: 141689

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 141589

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000411	U	0.000200	0.0000400	mg/L		01/22/24 14:41	01/23/24 10:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	87		42 - 150	01/22/24 14:41	01/23/24 10:58	1

Lab Sample ID: LCS 860-141589/2-A
Matrix: Water
Analysis Batch: 141689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 141589

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Silvex (2,4,5-TP)			0.00205	0.002409		mg/L		118	45 - 124		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid	95		42 - 150

Lab Sample ID: LCSD 860-141589/3-A
Matrix: Water
Analysis Batch: 141689

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 141589

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silvex (2,4,5-TP)			0.00207	0.002466		mg/L		119	45 - 124	2	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4-Dichlorophenylacetic acid	107		42 - 150

Lab Sample ID: MB 860-142092/1-A
Matrix: Water
Analysis Batch: 142162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 142092

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0000408	U	0.000200	0.0000400	mg/L		01/25/24 07:13	01/25/24 14:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	60		42 - 150	01/25/24 07:13	01/25/24 14:05	1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 860-142092/2-A
Matrix: Water
Analysis Batch: 142162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 142092

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Silvex (2,4,5-TP)			0.00204	0.001820		mg/L		89	45 - 124		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*69*		*42 - 150*

Lab Sample ID: LCSD 860-142092/3-A
Matrix: Water
Analysis Batch: 142162

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 142092

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silvex (2,4,5-TP)			0.00206	0.001855		mg/L		90	45 - 124	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*78*		*42 - 150*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 860-141539/1-A
Matrix: Water
Analysis Batch: 142125

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 141539

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.00125	U	0.0100	0.00125	mg/L		01/22/24 10:30	01/24/24 21:02	1

Lab Sample ID: LCS 860-141539/2-A
Matrix: Water
Analysis Batch: 142125

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 141539

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Barium			1.00	0.9580		mg/L		96	80 - 120		

Lab Sample ID: LCSD 860-141539/3-A
Matrix: Water
Analysis Batch: 142125

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 141539

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium			1.00	0.9570		mg/L		96	80 - 120	0	20

Lab Sample ID: 880-38100-AB-3-A MS ^50
Matrix: Water
Analysis Batch: 142125

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 141539

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Barium	6.55		1.00	7.850	4	mg/L		130	75 - 125		

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 880-38100-AC-3-A MSD ^50
Matrix: Water
Analysis Batch: 142125

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 141539

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	6.55		1.00	8.000	4	mg/L		145	75 - 125	2	20

GC/MS VOA

Analysis Batch: 142206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-1	MW-8	Total/NA	Water	8260C	
860-65940-2	MW-9	Total/NA	Water	8260C	
860-65940-3	MW-10	Total/NA	Water	8260C	
860-65940-4	MW-11	Total/NA	Water	8260C	
860-65940-5	MW-12	Total/NA	Water	8260C	
860-65940-6	R-8	Total/NA	Water	8260C	
860-65940-7	MW-30	Total/NA	Water	8260C	
860-65940-8	DUP	Total/NA	Water	8260C	
860-65940-9	Trip Blank	Total/NA	Water	8260C	
MB 860-142206/10	Method Blank	Total/NA	Water	8260C	
LCS 860-142206/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 860-142206/4	Lab Control Sample Dup	Total/NA	Water	8260C	
860-65947-C-14 MS	Matrix Spike	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 142039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-1	MW-8	Total/NA	Water	3510C	
860-65940-2	MW-9	Total/NA	Water	3510C	
860-65940-3	MW-10	Total/NA	Water	3510C	
860-65940-4	MW-11	Total/NA	Water	3510C	
860-65940-5	MW-12	Total/NA	Water	3510C	
860-65940-6	R-8	Total/NA	Water	3510C	
860-65940-7	MW-30	Total/NA	Water	3510C	
860-65940-8	DUP	Total/NA	Water	3510C	
MB 860-142039/1-A	Method Blank	Total/NA	Water	3510C	
LCS 860-142039/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 860-142039/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 142104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-1	MW-8	Total/NA	Water	8270E LL	142039
860-65940-2	MW-9	Total/NA	Water	8270E LL	142039
860-65940-3	MW-10	Total/NA	Water	8270E LL	142039
860-65940-4	MW-11	Total/NA	Water	8270E LL	142039
860-65940-5	MW-12	Total/NA	Water	8270E LL	142039
860-65940-6	R-8	Total/NA	Water	8270E LL	142039
860-65940-7	MW-30	Total/NA	Water	8270E LL	142039
860-65940-8	DUP	Total/NA	Water	8270E LL	142039

Analysis Batch: 142314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 860-142039/1-A	Method Blank	Total/NA	Water	8270E LL	142039
LCS 860-142039/2-A	Lab Control Sample	Total/NA	Water	8270E LL	142039
LCSD 860-142039/3-A	Lab Control Sample Dup	Total/NA	Water	8270E LL	142039

GC Semi VOA

Prep Batch: 141589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-1	MW-8	Total/NA	Water	3511	

GC Semi VOA (Continued)

Prep Batch: 141589 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-2	MW-9	Total/NA	Water	3511	
860-65940-3	MW-10	Total/NA	Water	3511	
860-65940-4	MW-11	Total/NA	Water	3511	
860-65940-5	MW-12	Total/NA	Water	3511	
860-65940-6	R-8	Total/NA	Water	3511	
MB 860-141589/1-A	Method Blank	Total/NA	Water	3511	
LCS 860-141589/2-A	Lab Control Sample	Total/NA	Water	3511	
LCSD 860-141589/3-A	Lab Control Sample Dup	Total/NA	Water	3511	

Analysis Batch: 141689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 860-141589/1-A	Method Blank	Total/NA	Water	8151A	141589
LCS 860-141589/2-A	Lab Control Sample	Total/NA	Water	8151A	141589
LCSD 860-141589/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	141589

Analysis Batch: 141901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-1	MW-8	Total/NA	Water	8151A	141589
860-65940-2	MW-9	Total/NA	Water	8151A	141589
860-65940-3	MW-10	Total/NA	Water	8151A	141589
860-65940-4	MW-11	Total/NA	Water	8151A	141589
860-65940-5	MW-12	Total/NA	Water	8151A	141589
860-65940-6	R-8	Total/NA	Water	8151A	141589

Prep Batch: 142092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-7	MW-30	Total/NA	Water	3511	
860-65940-8	DUP	Total/NA	Water	3511	
MB 860-142092/1-A	Method Blank	Total/NA	Water	3511	
LCS 860-142092/2-A	Lab Control Sample	Total/NA	Water	3511	
LCSD 860-142092/3-A	Lab Control Sample Dup	Total/NA	Water	3511	

Analysis Batch: 142162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-7	MW-30	Total/NA	Water	8151A	142092
860-65940-8	DUP	Total/NA	Water	8151A	142092
MB 860-142092/1-A	Method Blank	Total/NA	Water	8151A	142092
LCS 860-142092/2-A	Lab Control Sample	Total/NA	Water	8151A	142092
LCSD 860-142092/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	142092

Metals

Prep Batch: 141539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-1	MW-8	Total/NA	Water	3010A	
860-65940-2	MW-9	Total/NA	Water	3010A	
860-65940-3	MW-10	Total/NA	Water	3010A	
860-65940-4	MW-11	Total/NA	Water	3010A	
860-65940-5	MW-12	Total/NA	Water	3010A	
860-65940-6	R-8	Total/NA	Water	3010A	
860-65940-7	MW-30	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 141539 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-8	DUP	Total/NA	Water	3010A	
MB 860-141539/1-A	Method Blank	Total/NA	Water	3010A	
LCS 860-141539/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 860-141539/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
880-38100-AB-3-A MS ^50	Matrix Spike	Total/NA	Water	3010A	
880-38100-AC-3-A MSD ^50	Matrix Spike Duplicate	Total/NA	Water	3010A	

Analysis Batch: 142125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
860-65940-1	MW-8	Total/NA	Water	6010D	141539
860-65940-2	MW-9	Total/NA	Water	6010D	141539
860-65940-3	MW-10	Total/NA	Water	6010D	141539
860-65940-4	MW-11	Total/NA	Water	6010D	141539
860-65940-5	MW-12	Total/NA	Water	6010D	141539
860-65940-6	R-8	Total/NA	Water	6010D	141539
860-65940-7	MW-30	Total/NA	Water	6010D	141539
860-65940-8	DUP	Total/NA	Water	6010D	141539
MB 860-141539/1-A	Method Blank	Total/NA	Water	6010D	141539
LCS 860-141539/2-A	Lab Control Sample	Total/NA	Water	6010D	141539
LCSD 860-141539/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	141539
880-38100-AB-3-A MS ^50	Matrix Spike	Total/NA	Water	6010D	141539
880-38100-AC-3-A MSD ^50	Matrix Spike Duplicate	Total/NA	Water	6010D	141539

Lab Chronicle

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Client Sample ID: MW-8
Date Collected: 01/18/24 16:13
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 18:45	AN	EET HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	142039	01/24/24 16:14	DR	EET HOU
Total/NA	Analysis	8270E LL		1	1 mL	1 mL	142104	01/25/24 17:52	LPL	EET HOU
Total/NA	Prep	3511			49.8 mL	4 mL	141589	01/23/24 14:17	TH	EET HOU
Total/NA	Analysis	8151A		1			141901	01/24/24 15:17	KM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	141539	01/22/24 10:30	MD	EET HOU
Total/NA	Analysis	6010D		1			142125	01/24/24 22:10	JDM	EET HOU

Client Sample ID: MW-9
Date Collected: 01/18/24 17:03
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 19:04	AN	EET HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	142039	01/24/24 16:14	DR	EET HOU
Total/NA	Analysis	8270E LL		1	1 mL	1 mL	142104	01/25/24 18:12	LPL	EET HOU
Total/NA	Prep	3511			49.8 mL	4 mL	141589	01/23/24 14:17	TH	EET HOU
Total/NA	Analysis	8151A		1			141901	01/24/24 15:43	KM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	141539	01/22/24 10:30	MD	EET HOU
Total/NA	Analysis	6010D		1			142125	01/24/24 22:13	JDM	EET HOU

Client Sample ID: MW-10
Date Collected: 01/19/24 09:58
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 19:23	AN	EET HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	142039	01/24/24 16:14	DR	EET HOU
Total/NA	Analysis	8270E LL		1	1 mL	1 mL	142104	01/25/24 18:33	LPL	EET HOU
Total/NA	Prep	3511			49.6 mL	4 mL	141589	01/23/24 14:17	TH	EET HOU
Total/NA	Analysis	8151A		1			141901	01/24/24 16:09	KM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	141539	01/22/24 10:30	MD	EET HOU
Total/NA	Analysis	6010D		1			142125	01/24/24 22:16	JDM	EET HOU

Client Sample ID: MW-11
Date Collected: 01/19/24 10:39
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 19:42	AN	EET HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	142039	01/24/24 16:14	DR	EET HOU
Total/NA	Analysis	8270E LL		1	1 mL	1 mL	142104	01/25/24 18:53	LPL	EET HOU
Total/NA	Prep	3511			49.7 mL	4 mL	141589	01/23/24 14:17	TH	EET HOU
Total/NA	Analysis	8151A		1			141901	01/24/24 16:36	KM	EET HOU

Lab Chronicle

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Client Sample ID: MW-11
Date Collected: 01/19/24 10:39
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	141539	01/22/24 10:30	MD	EET HOU
Total/NA	Analysis	6010D		1			142125	01/24/24 22:18	JDM	EET HOU

Client Sample ID: MW-12
Date Collected: 01/19/24 09:34
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 20:01	AN	EET HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	142039	01/24/24 16:14	DR	EET HOU
Total/NA	Analysis	8270E LL		1	1 mL	1 mL	142104	01/25/24 19:14	LPL	EET HOU
Total/NA	Prep	3511			49.7 mL	4 mL	141589	01/23/24 14:17	TH	EET HOU
Total/NA	Analysis	8151A		1			141901	01/24/24 17:02	KM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	141539	01/22/24 10:30	MD	EET HOU
Total/NA	Analysis	6010D		1			142125	01/24/24 22:34	JDM	EET HOU

Client Sample ID: R-8
Date Collected: 01/18/24 16:03
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 20:20	AN	EET HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	142039	01/24/24 16:14	DR	EET HOU
Total/NA	Analysis	8270E LL		1	1 mL	1 mL	142104	01/25/24 19:34	LPL	EET HOU
Total/NA	Prep	3511			49.8 mL	4 mL	141589	01/23/24 14:17	TH	EET HOU
Total/NA	Analysis	8151A		1			141901	01/24/24 17:29	KM	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	141539	01/22/24 10:30	MD	EET HOU
Total/NA	Analysis	6010D		1			142125	01/24/24 22:37	JDM	EET HOU

Client Sample ID: MW-30
Date Collected: 01/18/24 17:42
Date Received: 01/19/24 15:00

Lab Sample ID: 860-65940-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 20:39	AN	EET HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	142039	01/24/24 16:14	DR	EET HOU
Total/NA	Analysis	8270E LL		1	1 mL	1 mL	142104	01/25/24 19:55	LPL	EET HOU
Total/NA	Prep	3511			49.8 mL	4 mL	142092	01/25/24 07:13	TH	EET HOU
Total/NA	Analysis	8151A		1			142162	01/25/24 22:51	WP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	141539	01/22/24 10:30	MD	EET HOU
Total/NA	Analysis	6010D		1			142125	01/24/24 22:42	JDM	EET HOU

Lab Chronicle

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Client Sample ID: DUP

Lab Sample ID: 860-65940-8

Date Collected: 01/18/24 00:00

Matrix: Water

Date Received: 01/19/24 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 20:58	AN	EET HOU
Total/NA	Prep	3510C			250 mL	1.00 mL	142039	01/24/24 16:14	DR	EET HOU
Total/NA	Analysis	8270E LL		1	1 mL	1 mL	142104	01/25/24 20:15	LPL	EET HOU
Total/NA	Prep	3511			50.1 mL	4 mL	142092	01/25/24 07:13	TH	EET HOU
Total/NA	Analysis	8151A		1			142162	01/25/24 22:25	WP	EET HOU
Total/NA	Prep	3010A			50 mL	50 mL	141539	01/22/24 10:30	MD	EET HOU
Total/NA	Analysis	6010D		1			142125	01/24/24 22:39	JDM	EET HOU

Client Sample ID: Trip Blank

Lab Sample ID: 860-65940-9

Date Collected: 01/19/24 00:00

Matrix: Water

Date Received: 01/19/24 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	142206	01/25/24 17:10	AN	EET HOU

Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Accreditation/Certification Summary

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00759	08-03-24
Florida	NELAP	E871002	06-30-24
Louisiana (All)	NELAP	03054	06-30-24
Oklahoma	NELAP	1306	08-31-24
Oklahoma	State	2023-139	08-31-24
Texas	NELAP	T104704215-23-53	06-30-24
Texas	TCEQ Water Supply	T104704215	12-28-25
USDA	US Federal Programs	525-23-79-79507	03-20-26

Method Summary

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	EET HOU
8270E LL	Semivolatile Organic Compounds by GC/MS - Low Level	SW846	EET HOU
8151A	Herbicides (GC)	SW846	EET HOU
6010D	Metals (ICP)	SW846	EET HOU
3010A	Preparation, Total Metals	SW846	EET HOU
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET HOU
3511	Microextraction of Organic Compounds	SW846	EET HOU
5030C	Purge and Trap	SW846	EET HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Sample Summary

Client: GSI Environmental Inc
Project/Site: BASF Beaumont

Job ID: 860-65940-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
860-65940-1	MW-8	Water	01/18/24 16:13	01/19/24 15:00
860-65940-2	MW-9	Water	01/18/24 17:03	01/19/24 15:00
860-65940-3	MW-10	Water	01/19/24 09:58	01/19/24 15:00
860-65940-4	MW-11	Water	01/19/24 10:39	01/19/24 15:00
860-65940-5	MW-12	Water	01/19/24 09:34	01/19/24 15:00
860-65940-6	R-8	Water	01/18/24 16:03	01/19/24 15:00
860-65940-7	MW-30	Water	01/18/24 17:42	01/19/24 15:00
860-65940-8	DUP	Water	01/18/24 00:00	01/19/24 15:00
860-65940-9	Trip Blank	Water	01/19/24 00:00	01/19/24 15:00

Eurofins Houston
4145 Greenbriar Dr
Stafford, TX 77477
Phone (281) 240-4200

Chain of Custody Record

eurofins Environment Testing

1/26/2024

Client Information	Sampler: Michael Wang Lauren McDonald	Lab PM: Kudchadkar Sachin C	C No: 0-25614-9032.1
Client Contact: Christ Niamike	Phone: 979-551-5334	E-Mail: Sachin.Kudchadkar@et.eurofinsus.com	Page: age 1 of 1
Company: GSI Environmental Inc	PWSID:		Job #:
Address: 2211 Norfolk, Suite 1000	Due Date Requested:		
City: Houston	TAT Requested (days): Standard		
State, Zip: TX, 77098-4044	Compliance Project: X Yes △ No		
Phone: 713-522-6300(Tel)	PO #: 6878		
Email: [redacted]	WO #:		
Project Name: GW Sampling	Project #: 86004218		
Site: BASF - Beaumont	SSOW#:		

Analysis Requested

Preservation Codes:

A	HCL	M	Hexane
B	NaOH	N	None
C	Zn Acetate	O	AsNaO2
D	Nitric Acid	P	Na2O4S
E	NaHSO4	Q	Na2SO3
F	MeOH	R	Na2S2O3
G	Amchlor	S	H2SO4
H	Ascorbic Acid	T	TSP Dodecahydrate
I	Ice	U	Acetone
J	DI Water	V	MCAA
K	EDTA	W	pH 4-5
L	EDA	Y	Trizma

Other

Temp: 2.5 IR ID HOU-369
C/F: -0.0
Corrected Temp: 2.5

Temp: IR ID HOU-369
C/F: -0.0 1.4
Corrected Temp: 1.4

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8161A_MOD Silvex	8270E_LL -phenol, 2,4-dichlorophenol, 2,6-dichlorophenol, 2,4-dimethylphenol	6010D Barium	8260C Benzene, chlorobenzene, and 1,4-dichlorobenzene	Total Number of containers	
			Preservation Code:				N	N	D	A		
MW-8	1/18/24	1613	G	Water	N	N	X	X	X	X	8	
MW-9	1/18/24	1703	G	Water	N	N	X	X	X	X	8	
MW-10	1/19/24	0958	G	Water	N	N	X	X	X	X	8	TRRP Format
MW-11	1/19/24	1039	G	Water	N	N	X	X	X	X	8	
MW-12	1/19/24	0934	G	Water	N	N	X	X	X	X	8	
R-8	1/18/24	1603	G	Water	N	N	X	X	X	X	8	
MW-30	1/18/24	1742	G	Water	N	N	X	X	X	X	8	
DUP	1/19/24			Water	N	N	X	X	X	X	8	
~~Field~~ Trip Blank				Water	N	N	~~X~~	~~X~~	~~X~~	X	2	Hold off running analysis until further Notice
				Water								
				Water								

Possible Hazard Identification
X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client X Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:			
Relinquished by: Michael Wang	Date/Time: 1/19/24 1430	Company	Received by:	Date/Time: 1.19.24 1430	Company		
Relinquished by:	Date/Time: 1.19.24 1500	Company	Received by: Sandra Jones	Date/Time: 1/19/24 1500	Company Eurofins		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: △ Yes △ No | Custody Seal No.

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GSI Environmental Inc

Job Number: 860-65940-1

Login Number: 65940
List Number: 1
Creator: Torres, Sandra

List Source: Eurofins Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5, 1.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

GSI Job No. 6878
Issued: 8 April 2024

APPENDIX 7

STATISTICAL METHODOLOGY

2024 Response Action Completion Report

Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

GSI ENVIRONMENTAL

APPENDIX 7
STATISTICAL OR GEOSTATISTICAL METHODOLOGIES: MANN-KENDALL ANALYSIS

2024 Response Action Completion Report
Solid Waste Registration No. 30053
BASF Corporation Agro Plant, Beaumont, Texas

1.0 GENERAL

The Mann-Kendall test is a non-parametric statistical procedure that is well suited for analyzing trends in data over time (Gilbert, 1987 and Connor, 2014). The Mann-Kendall test can be viewed as a non-parametric test for zero slope of the first-order regression of time-ordered concentration data versus time. The Mann-Kendall test does not require any assumptions as to the statistical distribution of the data (e.g. normal, lognormal, etc.) and can be used with data sets which include irregular sampling intervals and missing data. The Mann-Kendall test is designed for analyzing a single groundwater constituent, multiple constituents are analyzed separately.

2.0 MANN-KENDALL STATISTIC (S)

The Mann-Kendall statistic (S) measures the trend in the data. Positive values indicate an increase in constituent concentrations over time, whereas negative values indicate a decrease in constituent concentrations over time. The strength of the trend is proportional to the magnitude of the Mann-Kendall Statistic (i.e., large magnitudes indicate a strong trend).

Data for performing the Mann-Kendall Analysis should be in time sequential order. The first step is to determine the sign of the difference between consecutive sample results. $Sgn(x_j - x_k)$ is an indicator function that results in the values 1, 0, or –1 according to the sign of $x_j - x_k$ where $j > k$, the function is calculated as follows

$sgn(x_j - x_k) = 1$ if $x_j - x_k > 0$

$sgn(x_j - x_k) = 0$ if $x_j - x_k = 0$

$sgn(x_j - x_k) = -1$ if $x_j - x_k < 0$

The Mann-Kendall statistic (S) is defined as the sum of the number of positive differences minus the number of negative differences or

$$S = \sum_{k=1}^{n-1} \sum_{j=k+1}^{n} \mathrm{sgn}\left(x_j - x_k\right).$$

The confidence on the Mann-Kendall statistic can be measured by assessing the S result along with the number of samples, n, to find the confidence in the trend by utilizing a Kendall probability table found in many statistical textbooks (e.g. Hollander and Wolfe,

1973). The resulting confidence in the trend is applied in the Mann Kendall trend analysis.

Average

The arithmetic mean of a sample of n values of a variable is the average of all the sample values written as:

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

Standard Deviation

The standard deviation is the square root of the average of the square of the deviations from the sample mean written as:

$$s = \sqrt{\frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1}}.$$

The standard deviation is a measure of how the value fluctuates about the arithmetic mean of the data.

Coefficient of Variation (COV)

The Coefficient of Variation (COV) is a statistical measure of how the individual data points vary about the mean value. The coefficient of variation, defined as the standard deviation divided by the average or

$$C.O.V. = \frac{s}{\bar{x}}$$

Values less than or near 1.00 indicate that the data form a relatively close group about the mean value. Values larger than 1.00 indicate that the data show a greater degree of scatter about the mean.

3.0 INTERPRETATION OF RESULTS: MANN-KENDALL ANALYSIS

- The Coefficient of Variation (COV) is a statistical measure of how the individual data points vary about the mean value. Values less than or near 1.00 indicate that the data form a relatively close group about the mean value. Values larger than 1.00 indicate that the data show a greater degree of scatter about the mean.

- The Mann-Kendall statistic (MK (S) measures the trend in the data. Positive values indicate an increase in constituent concentrations over time, whereas negative

values indicate a decrease in constituent concentrations over time. The strength of the trend is proportional to the magnitude of the Mann-Kendall Statistic (i.e., large magnitudes indicate a strong trend).

- The "Confidence in Trend" is the statistical confidence that the constituent concentration is increasing (S>0) or decreasing (S<0).

- The "Concentration Trend" for each well is determined according to the following rules, where COV is the coefficient of variation:

MANN-KENDALL ANALYSIS DECISION MATRIX

Mann-Kendall Statistic	Confidence in Trend	Concentration Trend
S > 0	> 95%	Increasing
S > 0	90 - 95%	Probably Increasing
S > 0	< 90%	No Trend
S ≤ 0	< 90% and COV ≥ 1	No Trend
S ≤ 0	< 90% and COV < 1	Stable
S < 0	90 - 95%	Probably Decreasing
S < 0	95%	Decreasing

4.0 REFERENCES

Connor, J. A., S. K. Farhat, and M. Vanderford. GSI Mann-Kendall toolkit for quantitative analysis of plume concentration trends. *Groundwater* 52, No. 6: 819-820.

Gilbert, R. O., 1987, *Statistical Methods for Environmental Pollution Monitoring*, Van Nostrand Reinhold, New York, NY, ISBN 0-442-23050-8.

Hollander, M. and D. A. Wolfe, 1973. *Nonparametric Statistical Methods*, New York: John Wiley & Sons, Inc.