

TCEQ Interoffice Memorandum

To: Commissioners

Thru: Richard A. Hyde, P.E., Executive Director
Brent Wade, Deputy Director, Office of Waste

From: Beth Seaton, Director, Remediation Division

Date: October 30, 2014

Subject: Docket No. 2014-1054-SPF
Consideration of a Final Administrative Order
First Quality Cylinders State Superfund Site
San Antonio, Bexar County, RN100645977
(Monica Harris, P.G., Patricia Scott)

I. Overview

The First Quality Cylinders State Superfund Site (site) is located at 931 West Laurel Street in San Antonio, Bexar County, Texas. A map of the site is attached for reference. The site occupies approximately 1.2 acres and is bounded by Mullen street and a church parking lot on the north, Fredericksburg Road on the east, West Laurel Street on the south, and North Comal street on the west. A church is located across Mullen Street from the site, and other commercial/industrial properties line the streets on the other three sides of the site.

Former site operations, conducted from 1982 until 1993, included the rebuilding of aircraft cylinders using a chromium-plating process. A process building was located on the western portion of the site. Inside the process building was a 55-foot long plating trench where the chromium-plating operations were performed. The soil and groundwater at the site are contaminated with total chromium and hexavalent chromium.

The remainder of this memorandum summarizes the current site conditions, site regulatory history, characterization of the nature and extent of the contamination, removal actions, remedy selection process, efforts to identify responsible parties, and staff recommendation.

II. Current Site Conditions

A partial slab of the former process building remains on the western portion of the site. Adjacent to the partial slab is a gravel area where the chromium contaminated soil and the plating trench were removed. The remainder of the site is paved with asphalt. A vertical subsurface containment system restricts contaminated groundwater from

migrating off-site. The containment system consists of a soil-bentonite slurry wall anchored in the Navarro clay and a shallow groundwater recovery system. The shallow groundwater recovery system consists of a French drain located in the eastern area of the site and three recovery wells. Groundwater flows into the French drain, is extracted through the three recovery wells, and then is disposed of off-site. The slurry wall completely surrounds the site and serves as a barrier to the lateral flow of groundwater, thus preventing migration of groundwater off site.

There is an approximately 25-foot elevation decline from the northwest to southeast across the site. The shallow groundwater recovery system prevents releases of contaminated groundwater to the surface when the level of the groundwater rises above the surface elevation of the lower portions of the site during periods of heavy precipitation.

III. Site Regulatory History

From 1982 until 1993, various entities¹ operated the site as an aircraft cylinder rebuilding facility. The Texas Water Commission (TWC), predecessor agency to the TCEQ, cited numerous violations of waste regulations against all of the operators.

In October 1990, 1st Quality Cylinders, Inc. entered into an Agreed Order with the TWC that required it to implement TWC-approved plans for investigation of the site's soil and groundwater chromium contamination.

In December 1992, the Texas Office of the Attorney General initiated an enforcement action against past and current owners and operators of the site for their failure to comply with the terms of the 1990 Agreed Order with the TWC.

In June 1993, the State of Texas, on behalf of the TWC, entered into an Amended Agreed Order For Temporary Injunction that required defendants² to perform the investigation activities specified in the TWC 1990 Agreed Order, lower the subsurface water table at the site, keep the French drain system and plating trench free and clear of liquids, and implement a secondary containment plan for all tanks at the site.

In December 1993, Aero-Chrome Services, Inc. abandoned the facility. After the site was abandoned, the City of San Antonio (city) and San Antonio River Authority (SARA) intervened in the ongoing district court enforcement action, seeking injunctive relief to

¹ Site Operators: Quality Cylinders, Inc. (1982 – 1987); 1st Quality Cylinders, Inc. (1988-1990); International Aircraft Cylinders, Inc. (1990-1991); and Aero-Chrome Services, Inc. (1992-1993).

² Defendants included: 1st Quality Cylinders, Inc.; International Aircraft Cylinders, Inc.; Aero-Chrome Services, Inc.; Mr. Jerry Coward; Mr. Morris Jaffe, Sr.; Mr. Minot Pratt, IV; Mr. Michael Panzarella; Mr. Dick Lubel; and L-S Interest, Inc.

prevent migration of contamination from the site onto property dedicated to the City's streets.

In April 1994, the State of Texas, the city, SARA and the defendants entered into a Partial Agreed Order with Permanent Injunction in which the city agreed to remove and dispose of contaminated soils within the city's right-of-way of Fredericksburg Road and West Laurel Street and the defendants agreed to design and construct the containment system. The 1994 Partial Agreed Order allowed the city and SARA to move forward with street and drainage improvement projects. In the spring of 1996, the defendants completed the installation of the containment system required by the 1994 Partial Agreed Order.

The defendants failed to maintain the shallow groundwater recovery system as required by the 1994 Partial Agreed Order. The Texas Natural Resource Conservation Commission (TNRCC), predecessor agency to the TCEQ, sought judicial enforcement of the 1994 Partial Agreed Order; however, in May 1996, the TNRCC, in consultation with the Texas Office of the Attorney General determined that cleanup of the site utilizing the enforcement process was no longer an effective route to remedy site contamination, and the site was accepted into the state Superfund program.

IV. Characterization of the Nature and Extent of Contamination

The TCEQ conducted a Remedial Investigation in two phases consisting of the collection of on-site and off-site soil and groundwater samples. These samples were analyzed for volatile organic compounds, cyanide, hexavalent chromium, total chromium, cadmium, and lead.

Based on pump test results indicating that the affected groundwater has a yield of less than 150 gallons per day, the contaminated aquifer is designated as a Class 3 groundwater resource per the Texas Risk Reduction Program rule. A Tier 1 Exclusion Criteria Checklist, dated August 2003, demonstrated that conditions at the site met the exclusion criteria, meaning that no further ecological assessments were needed.

Chromium-contaminated soil was detected in areas around the plating trench and in two discrete areas outside the process building. These areas were identified as the source of the chromium contamination in the groundwater. Total chromium was not detected in the off-site monitor wells, indicating that the slurry wall was effectively containing impacted groundwater on-site. Cyanides and metals other than chromium were not detected above their respective protective concentration levels (PCLs) in on-site or off-site soil and groundwater samples. No volatile organic compounds were detected above the PCLs in the on-site soil and groundwater samples.

V. Removal Actions

In September 1997, in order to prevent exposure to the on-site waste, the TNRCC conducted a removal action to fence the perimeter of the site, dispose of wastes stored inside the process building, repair the shallow groundwater recovery system, and dispose of the collected contaminated groundwater. Notice was sent to the known Potentially Responsible Parties (PRPs) giving them the opportunity to perform the removal action. No offers to perform the removal action were received by the TNRCC. The TCEQ continues to operate and maintain the shallow groundwater recovery system and dispose of the collected contaminated groundwater.

In 2012, the TCEQ conducted a removal action to excavate the plating trench and chromium-contaminated soils that were identified during the remedial investigation as sources of the groundwater chromium contamination. The removal of the sources was conducted to prevent further impacts to groundwater and to accelerate and reduce the cost of the final remedy of the site. Known PRPs were again notified by certified mail giving them the opportunity to perform the removal action. No offers to perform the removal action were received by the TCEQ.

Demolition of the process building was necessary to remove the plating trench. Areas of asbestos-containing material inside the building were identified and removed. The process building interior was decontaminated to remove traces of hexavalent chromium from floors, walls, ceilings, and process equipment before the structure was demolished. The building debris was recycled, where possible, or properly disposed of off-site.

The plating trench and the affected soil adjacent to the plating trench and in the two areas outside the process building were excavated, treated with 29% calcium polysulfide (CPS) solution, and disposed of at a permitted disposal facility. The excavated areas were backfilled with clean soil amended with CPS solution. An amendment delivery system was installed along the alignment of the former plating trench to allow for sampling of groundwater and for future treatment and/or extraction of groundwater from the source area, if needed.

VI. Evaluation of Remedial Alternatives

The TCEQ completed a Feasibility Study (FS) for the site in 2009 that evaluated potential remedial alternatives for the soil and groundwater. Evaluation of remedial options was based on the following criteria: long-term effectiveness; compliance with applicable regulations; reduction in toxicity, mobility, and volume of chemicals of concern (COCs); relative cost; impacts of implementation; and technical merit. Three remedial alternatives were considered.

1. No Action Alternative. With this alternative, chromium-impacted groundwater would remain in-place and no further remediation would be performed. This alternative would maintain the contaminated groundwater on-site indefinitely, posing a risk to human health and the environment.
2. Groundwater Extraction and Off-Site Disposal. This alternative utilizes the current containment to extract the contaminated groundwater which would then be disposed of at an off-site permitted facility. While this alternative is protective of human health and the environment, it is expected to take 30 years and is projected to cost around \$5 million.
3. Plume Management Zone (PMZ) with In-Situ Chemical Reduction (ISCR) (Selected Remedy). This remedy consists of the establishment of a PMZ on-site and ISCR at the source area. ISCR would involve the injection of CPS solution into the saturated zone. The existing containment system would be utilized to collect groundwater until the remedial action objectives are met. Although the establishment of a PMZ was not contemplated at the time of the FS, this remedial option was later evaluated as a supplement to the groundwater remedial alternatives in order to facilitate completion of the remedial action. The combination of a PMZ with source area ISCR treatment will reduce source area concentrations to be protective of human health and the environment at a point of exposure outside the PMZ. The establishment of a PMZ will result in a revised action level for the source area, which may reduce the number of ISCR treatments necessary to achieve remedial action objectives. This remedy is protective of human health and the environment and is projected to cost around \$1.2 million. This alternative can be fully implemented within one year and is expected to take less than 10 years to achieve the clean-up goal.

VII. Selected Remedy

The PMZ with ISCR remedy was selected based upon the evaluation criteria listed in Section VI and the evaluation criteria established in 30 Tex. Admin. Code § 335.348(l), i.e., that “[t]he remedial action for a particular facility shall be selected based on the remedial alternative that the executive director determines to be the lowest cost alternative which is technologically feasible and reliable, effectively mitigates and minimizes damage to the environment, and provides adequate protection of the public health and safety and the environment.” Because a PMZ was selected, institutional controls will be placed on the site, in accordance with the Texas Risk Reduction Program rule (30 Tex. Admin. Code § 350.111), and will remain in place until it is demonstrated that concentrations of COCs in the groundwater no longer exceed their applicable PCLs. No off-site institutional controls are required by the selected remedy.

Under the ISCR treatment, CPS solution will be distributed into the saturated zone through approximately 130 direct push injection borings. The extracted groundwater from the shallow groundwater recovery system will be managed using a portable treatment system to reduce the concentration of residual chromium to a level suitable for discharge into the sanitary sewer or surface water. Detailed engineering specifications will be developed during the remedial design phase.

As a part of the FS, the TCEQ conducted bench-scale treatability studies of potential treatment for hexavalent chromium in soil and groundwater. The result indicated that CPS solution was capable of immobilizing hexavalent chromium in soil and lowering the concentration of hexavalent chromium in groundwater.

To further evaluate the effectiveness of ISCR treatment of groundwater, the TCEQ conducted a pilot-scale treatability study. The pilot scale study provided information on: (1) chemical dose and injection method to optimize the distribution of the chemical reductant into the shallow groundwater zone; (2) the degree to which the chromium concentrations are expected to decline following ISCR treatment; and (3) the degree to which the chromium concentrations might rebound following treatment. An amended FS was prepared in 2012 to incorporate the results of the pilot tests.

A revised soil critical PCL will be calculated for the remaining source area soil PCL exceedance zone to determine source area soil concentrations that are protective of the groundwater. Any areas of soil exceeding this revised critical PCL will require excavation.

In May 2014, notice was published in the Texas Register informing the public of the proposed remedy and requesting public comment. In addition, a public meeting was held in San Antonio on June 12, 2014, again notifying the public of the proposed remedy and allowing for public comment. The TCEQ did not receive any comments objecting to the proposed remedy.

A complete summary of TCEQ Remedial Investigation and Feasibility Study activities can be found at:

<http://www.tceq.state.tx.us/remediation/superfund/state/firstqual.html>

VIII. Efforts to Identify Potentially Responsible Parties

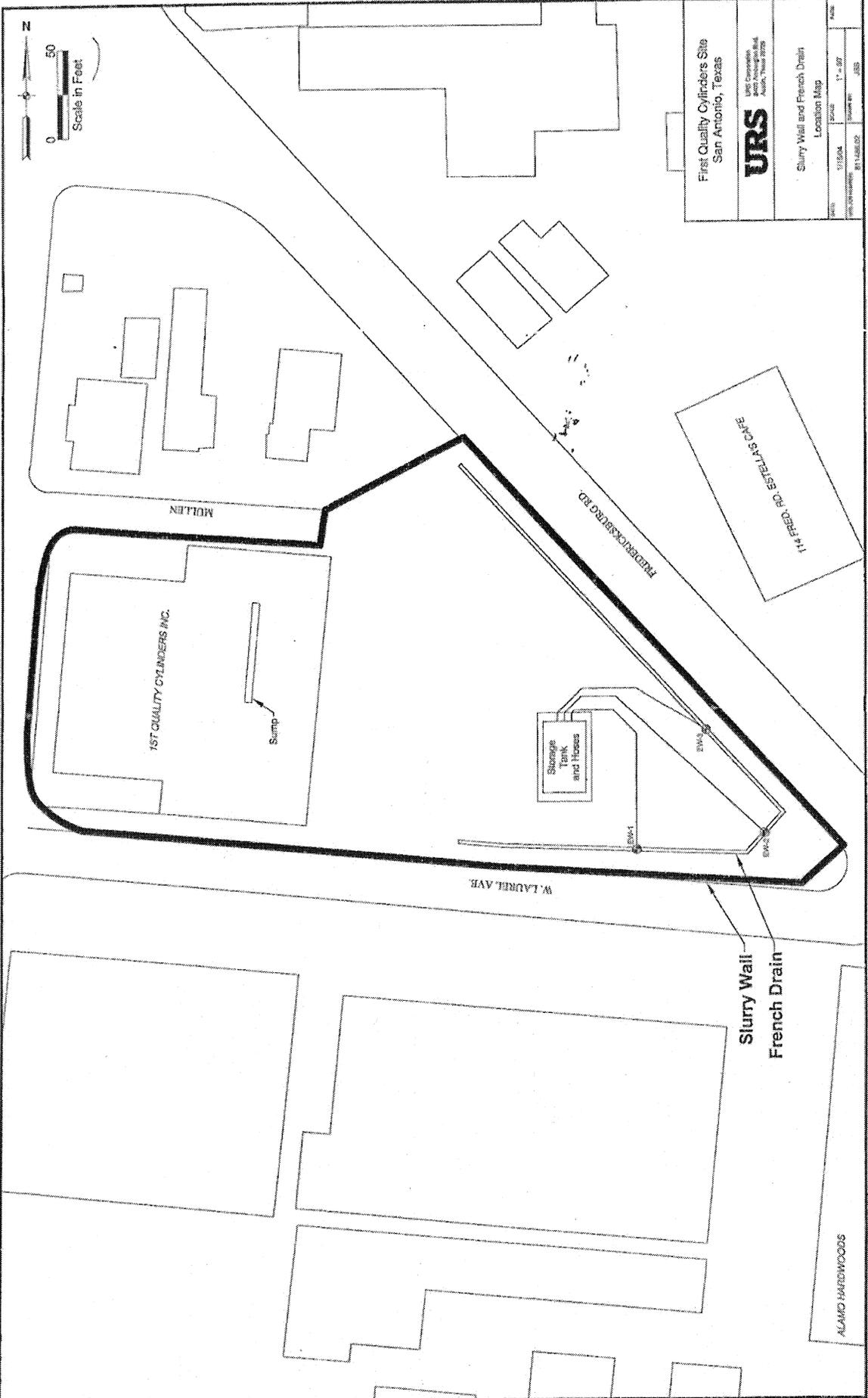
Based upon the review of available site records, the TCEQ has identified nine entities who are Potentially Responsible Parties (PRPs), as defined in Tex. Health & Safety Code § 361.271, for the solid waste and/or hazardous substances at the site. In accordance with Tex. Health & Safety Code § 361.187 and by letters dated May 6, 2014, the PRPs

were given an opportunity to fund or perform the remedial action for the site. The TCEQ did not receive good faith any offers from the PRPs.

IX. Staff Recommendation

TCEQ staff recommends that the Commission issue this Administrative Order to require responsible parties to implement the selected remedial action, which is cost effective and protective of public health and safety and the environment, and to reimburse the TCEQ for remedial investigation/feasibility study and remediation costs as authorized by Tex. Health & Safety Code § 361.188. This Administrative Order will also list the site on the state registry of Superfund sites and will make a determination as to responsible parties.

If there are any questions, please contact Monica Harris, P.G., Superfund Section Manager, Remediation Division, at 239-5906 or Patricia Scott, Staff Attorney, Litigation Division, at 239-0637.



First Quality Cylinders Site
San Antonio, Texas

URS
URS Corporation
4800 Northrup Blvd.
Austin, Texas 78759

Slurry Wall and French Drain
Location Map

Sheet	115804	Scale	1" = 50'	Date
Project	000-000-000000	Revised By	03/08/04	03/04

Juanita E. Harvey a.k.a. Juanita Black

Estate of Morris Douglas Jaffe, Sr.

Quality Cylinders, Inc.

and these parties:

1. are the owners or operators of the Site;
2. owned or operated the Site at the time of processing, storage, or disposal of any solid waste;
3. by contract, agreement, or otherwise, arranged to process, store, or dispose of, or arranged with a transporter for transport to process, store, or dispose of solid waste owned or possessed by the PRPs or by any other person or entity at the Site; or
4. accepted solid waste for transport to the Site as selected by the PRP.

B. Reserved.

C. The following PRPs entered into this AO as Agreeing Respondents but do not admit liability regarding the Site except for the purpose of enforcing this AO.

There are no Agreeing Respondents.

D. When ranked, the Site had a State Superfund Hazard Ranking System ("HRS") score of 50.

E. The portion of the Site used for ranking on the State Registry of Superfund Sites is described as follows:

1.2680 acres of land out of Lot 12, Block 7, New City Block 210, First Quality Cylinder Incorporated Subdivision, a.k.a. 1st Quality Cylinder Incorporated Subdivision, formerly being arbitrary Lots 1 through 7, in the City of San Antonio, Bexar County, Texas, as shown by the plat of record in Volume 9519, at Page 169, Deed and Plat Records of Bexar County, Texas, being more particularly described by metes and bounds, as surveyed, as follows:

Beginning at an iron bar found set in the ground in the north right-of-way line of West Laurel Street at the point of curve of a circular curve to the right having a radius of 10.00 feet, a southwest corner of Lot 12, Block 7, New City Block 210, First Quality Cylinder Incorporated Subdivision in the City of San Antonio as shown by the plat of record in Volume 9519, Page 169 of the Deed and Plat Records of Bexar County, Texas, for a southwest corner of this tract;

Thence curve right in a northwesterly direction along the arc of said curve having a radius of 10.00 feet, through a central angle of $89^{\circ}42'00''$, a distance of 15.66 feet to an iron bar found set in the ground at the point of tangency of said curve in the east right-of-way line of North Comal Street, a southwest corner of said Lot 12 for a southwest corner of this tract;

Thence N $00^{\circ}30'00''$ W with the east right-of-way line of the North Comal Street and the west boundary line of said Lot 12, a distance of 134.16 feet to an iron bar found set in the ground at the point of curve of a circular curve to the right having a radius of 10.00 feet, a northwest corner of said Lot 12 for a northwest corner of this tract;

Thence curve right in a northeasterly direction along the arc of said curve having a radius of 10.00 feet, through a central angle of $90^{\circ}18'00''$, a distance of 15.76 feet to an iron bar found set in the ground at the point of tangency of said curve in the south right-of-way line of Mullen Street, a northwest corner of said Lot 12 for a northwest corner of this tract;

Thence curve right in a southeasterly direction along the arc of said curve having a radius of 15.00 feet, through a central angle of $42^{\circ}54'00''$ a distance of 11.23 feet to an iron bar found set in the ground at the point of tangency of said curve in the present southwest right-of-way line of Fredericksburg Road, a northeast corner of said Lot 12 for a northeast corner of this tract;

Thence S $47^{\circ}18'00''$ E with the southwest right-of-way line of Fredericksburg Road to the northeast boundary line of said Lot 12, a distance of 182.41 feet to an iron bar found set in the ground at the point of curve of a circular curve to the right having a radius of 15.00 feet, a southeast corner of said Lot 12 for a southeast corner of this tract;

Thence curve right in a southwesterly direction along the arc of said curve having a radius of 15.00 feet, through a central angle of $137^{\circ}06'00''$, a distance of 35.89 feet to an iron bar found set in the ground at the point of tangency of said curve in the north right-of-way line of West Laurel Street, a southeast corner of said Lot 12, for a southeast corner of this tract;

Thence S $89^{\circ}48'00''$ W with the north right-of-way line of West Laurel Street and the south boundary line of said Lot 12 a distance of 394.97 feet to the point of beginning.

Containing 1.2680 acres (55,234 square feet) of land, more or less.

- F. The Site consists of the area listed in Paragraph E above. In addition, the Site includes any areas outside the area listed in Paragraph E above where as a result, either directly or indirectly, of a release of solid waste or hazardous substances from the area described in Paragraph E above, solid waste or hazardous substances have been deposited, stored, disposed of, or placed or have otherwise come to be located.
- G. The Site was proposed for listing on the State Registry of Superfund Sites in the *Texas Register* on November 12, 1999. 24 Tex. Reg. 10234 (1999).
- H. The Site historically has been used as an aircraft cylinder chrome plating facility.
- I. The Chemicals of Concern at the Site include those substances listed in Exhibit B. The substances listed in Exhibit B have been processed, deposited, stored, disposed of, or placed or have otherwise come to be located on the Site.
- J. The substances listed in Exhibit B have been documented in soil and groundwater at the Site.
- K. The substances listed in Exhibit B are:
1. substances designated under Section 311(b)(2)(A) of the Federal Water Pollution Control Act, as amended (33 United States Code (“U.S.C.”) Section 1321);
 2. elements, compounds, mixtures, solutions, or substances designated under Section 102 of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”) (42 U.S.C. Section 9601 et seq., as amended);
 3. hazardous wastes having the characteristics identified under or listed under Section 3001 of the Federal Solid Waste Disposal Act, as amended (42 U.S.C. Section 6921), excluding wastes, the regulation of which has been suspended by Act of Congress;
 4. toxic pollutants listed under Section 307(a) of the Federal Water Pollution Control Act (33 U.S.C. Section 1317);
 5. hazardous air pollutants listed under Section 112 of the Federal Clean Air Act, as amended (42 U.S.C. Section 7412); or
 6. any imminently hazardous chemical substances or mixtures with respect to which the administrator of the Environmental Protection Agency (“EPA”) has taken action under Section 7 of the Toxic Substances Control Act (15 U.S.C. Section 2606).

- L. The substances listed in Exhibit B include the following: garbage; rubbish; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, municipal, commercial, mining, and agricultural operations and from community and institutional activities; or hazardous substances, for the purposes of TEX. HEALTH & SAFETY CODE Sections 361.271 through 361.277 and 361.343 through 361.345.
- M. The substances listed in Exhibit B are solid wastes or hazardous substances.
- N. Solid wastes or hazardous substances at the Site listed in Exhibit B are, or potentially are, spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.
- O. Potential pathways for exposure to the solid wastes or hazardous substances listed in Exhibit B include ingestion and dermal contact.
- P. Exposure to levels of hexavalent chromium and total chromium found at the Site poses an unacceptable carcinogenic risk or an unacceptable toxicity risk.
- Q. The solid wastes or hazardous substances at the Site are not capable of being managed separately under the Remedial Action plan.
- R. On November 8, 1999, the Commission provided written notice of the proposed listing of the Site on the State Registry to each PRP identified as of that date at the PRP's last known address.
- S. On May 6, 2014, the Commission provided written notice of the public meeting and of the opportunity to comment on the proposed Remedy as specified in Sections 361.187(b) and (c) of the Act to each PRP identified as of that date at the PRP's last known address.
- T. On May 6, 2014, each PRP identified as of that date was provided an opportunity to fully fund or perform the proposed Remedial Activities, as specified in Sections 361.187(d) and 361.133 (c) of the Act.
- U. No voluntary actions have been undertaken at the Site by any PRPs.
- V. The Remedy Selection Document ("RSD") for the Site is attached to this AO as Exhibit A.
- W. The remedy adopted in Exhibit A is selected as the Remedy to be implemented in accordance with this AO.

- X. In September 1997, the Texas Natural Resource Conservation Commission (TNRCC), predecessor to the TCEQ, conducted a Removal Action at the Site to address solid waste and hazardous substances disposed of at the Site that were spilled, released or posed a potential threat of release. This Removal Action included such measures as limiting public access to the Site through fencing and warning signs; disposing of wastes stored inside the process building; repairing, operating, and maintaining the groundwater recovery system, including disposal of collected contaminated groundwater. To this date, the TCEQ continues to operate the groundwater recovery system and dispose the collected contaminated groundwater. In 2012, the TCEQ conducted a Removal Action to excavate the plating trench and two areas outside the process building that were identified during the Remedial Investigation as the main sources of chromium contamination. Both the 1997 and 2012 Removal Actions were performed after the PRPs were given notice and the opportunity to perform the Removal Actions.

III. Conclusions of Law and Determinations

- A. The PRPs listed in Section II (Findings of Fact) Paragraph A are responsible parties (“RPs”) pursuant to Section 361.271 of the Act.
- B. Some of the substances referenced in Section II (Findings of Fact) Paragraph I, which are found at the Site, are hazardous substances as defined in Section 361.003(11) of the Act.
- C. Some of the substances referenced in Section II (Findings of Fact) Paragraph I, which are found at the Site, are solid wastes as defined in Section 361.003(34) of the Act.
- D. Hazardous substances were deposited, stored, disposed of, or placed or otherwise came to be located at the Site; and solid wastes were stored, processed, disposed of, or discarded at the Site.
- E. The Site is a facility as defined in Section 361.181(c) of the Act.
- F. The Site is a solid waste facility as defined in Section 361.003(36) of the Act.
- G. “Imminent and substantial endangerment” is defined by rule as follows: A danger is imminent if, given the entire circumstances surrounding each case, exposure of persons or the environment to hazardous substances is more likely than not to occur in the absence of preventive action. A danger is substantial if, given the current state of scientific knowledge, the harm to public health and safety or the environment which would result from exposure could cause adverse environmental or health effects. 30 TEX. ADMIN. CODE Section 335.342(9).

- H. There has been a release (as defined in Section 361.003(28) of the Act) or threatened release of hazardous substances or solid wastes into the environment at the Site that poses an imminent and substantial endangerment (as defined in 30 TEX. ADMIN. CODE Section 335.342(9)) to the public health and safety or the environment; and therefore, the Site will be listed on the State Registry of Superfund Sites as per Section V (Order) Paragraph A.
- I. The release or threatened release of hazardous substances or solid wastes into the environment at or from the Site has not been proven to be divisible pursuant to Section 361.276 of the Act.
- J. The actions required by this AO are reasonable and necessary to protect the public health and safety or the environment.
- K. EPA issued a No Further Remedial Action Planned memo for this Site on September 3, 1999. Funds from the Federal Government are unavailable for the Remedial Activities at this Site because EPA determined that no further federal action will be taken at the Site.
- L. The Agreeing Respondents and the ED recognize, and the Commission by issuing this AO finds, that this AO has been negotiated in good faith and that implementation of this AO will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Agreeing Respondents and the ED, and that this AO is fair, reasonable, and in the public interest.
- M. This AO represents the complete and fully integrated agreement of the Agreeing Respondents and the ED.
- N. The 1997 and 2012 Removal Actions were conducted because there existed a spill, release, or threatened release of solid wastes and/or hazardous substances at the Site that made immediate action necessary and appropriate to protect human health and the environment and prevent irreversible or irreparable harm to the public health and safety or the environment.

IV. Exhibits and Definitions

- A. The following exhibits are incorporated by reference into this AO:
 - “Exhibit A” Remedy Selection Document
 - “Exhibit B” List of Solid Wastes and Hazardous Substances at the Site
 - “Exhibit C” Field Sampling Plan Contents Outline

B. The following terms have the meaning set out below:

“Agreeing Respondents”	The PRPs listed in Section II (Findings of Fact) Paragraph C that fund or perform the Work and have agreed to the terms and conditions of this AO as evidenced by signing a consent form.
“Chemical of Concern”	Any chemical that has the potential to adversely affect ecological or human receptors due to its concentration, distribution, and mode of toxicity.
“Day”	A calendar day.
“Defaulting Performing Party”	Any Performing Party that fails to comply with the terms or conditions of this AO.
“De Minimis Responsible Parties”	The PRPs listed in Section II (Findings of Fact) Paragraph B.
“Demobilization”	The dismantling and removal of all construction equipment from the Site.
“Effective Date”	The Day ten (10) Days after the issue date of this AO.
“Executive Director (ED)”	The Executive Director of the TCEQ or a designee.
“include”	Use of the term include, in all its forms, in this AO is intended to express an enlargement or illustrative application specifying a particular thing already included within the preceding general words. It is not used as a term of limitation.
“Institutional Control”	A legal instrument which indicates the limitations on or the conditions governing use of the property which ensures protection of human health and the environment in accordance with 30 TEX. ADMIN. CODE Chapter 350 and as required by the Remedy.
“Parties”	Collectively, the Respondents and the Commission.
“Performing Parties”	Collectively, the Agreeing Respondents and persons that did not enter into this AO but that fund or perform the Work.
“Post Construction Activities (PCA)”	All Remedial Activities at the Site, subsequent to the issuance of the Approval of RA Completion, required to complete the Remedial Activities in accordance

with this AO.

“Post Construction Cost Estimate”

An estimate of the cost to perform all of the PCA for as long as post construction activities are needed.

“Project Manager”

The individual designated by the ED to oversee implementation of the Work and to coordinate communications with the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties.

“Remedial Action (RA)”

Those Remedial Activities, except for Post Construction Activities, undertaken at the Site, including on-site physical construction and any required institutional controls, to implement the Remedy. The areal extent of the RA is not limited to the Site. It includes all suitable areas in proximity to the Site necessary for implementation of the Remedial Activities.

“Remedial Activities”

The RD, RA, PCA, and any other actions required to implement and maintain the Remedy pursuant to the RSD and 30 TEX. ADMIN. CODE Chapter 335, Subchapter K and 30 TEX. ADMIN. CODE Chapter 350.

“Remedial Activities Contractors”

The individual, company, or companies retained by the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, by the Performing Parties to undertake any or all phases of the Remedial Activities. Remedial Activities Contractors cannot assume the role of any quality assurance official required by this AO.

“Remedial Design (RD)”

Those Remedial Activities during which engineering plans and technical specifications are developed for the Remedy.

“Remediation Goals”

Cleanup standards or other measures of achievement of the goals of the Remedy, consistent with the Act, 30 TEX. ADMIN. CODE Chapter 335, Subchapter K and 30 TEX. ADMIN. CODE Chapter 350, determined by the ED to be necessary at the Site to achieve and to maintain the Remedy.

“Remedy”

The Remedy adopted for the Site in the Remedy Selection Document to clean up or control exposure at the Site in accordance with all applicable laws and

regulations and to be implemented in accordance with this AO. The Remedy includes all applicable requirements contained in the Act, 30 TEX. ADMIN. CODE Chapter 335, Subchapter K and 30 TEX. ADMIN. CODE Chapter 350.

“Remedy Selection Document (RSD)”

The document that was developed for the Site, based on Site specific information, that specifies the Remedy, and that was adopted by the ED and TCEQ after the opportunity for public review and comment.

“Removal Action”

Activities consistent with the definition provided by section 361.003(30) of the Act, such as: cleaning up or removing released hazardous waste from the environment; taking necessary action in the event of the threat of release of hazardous waste into the environment; taking necessary action to monitor, assess, and evaluate the release or threat of release of hazardous waste; disposing of removed material; erecting a security fence or other measure to limit access; taking any other necessary action to prevent, minimize, or mitigate damage to the public health and welfare or the environment that may otherwise result from a release or threat of release.

“Responsible Parties”

The PRPs listed in Section II (Findings of Fact) Paragraph A.

“Respondents”

Collectively, the Agreeing Respondents, the RPs, the De Minimis Responsible Parties, and the Performing Parties.

“Samples”

Samples of environmental media taken pursuant to and in accordance with this AO.

“Sections”

Those major divisions of this AO designated by Roman numerals.

“Site Coordinator”

The individual designated by the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties to oversee the Remedial Activities Contractors and the implementation of the Remedial Activities and to coordinate communications with the ED.

“Site Representative”

A person designated by the Project Manager that is

authorized to oversee the Remedial Activities.

“Substantial Completion” The point, as determined by the ED in his sole discretion, at which the Work (or a specified part thereof) has been substantially completed in accordance with any work plans or documents required to be developed pursuant to this AO.

“Work” All activities to be undertaken or performed in accordance with and as required by this AO.

V. Order

Therefore, the TCEQ orders:

- A. The Site will be listed on the State Registry of Superfund Sites.
- B. Reserved
- C. Respondents, other than any De Minimis Responsible Parties, shall reimburse the Hazardous and Solid Waste Remediation Fee Account for all of the ED’s costs of the Remedial Investigation (“RI”) and the Feasibility Study (“FS”), including the oversight costs of these activities. Respondents, other than any De Minimis Responsible Parties, shall reimburse the Hazardous and Solid Waste Remediation Fee Account for all of the ED’s costs of the Removal Actions, including the oversight costs of these activities. Respondents, other than any De Minimis Responsible Parties, shall reimburse the Hazardous and Solid Waste Remediation Fee Account for all uncompensated Pre-Remedial Investigation costs, including oversight costs of these activities.

The RPs and any Defaulting Performing Parties shall reimburse the Hazardous and Solid Waste Remediation Fee Account for all costs incurred by the ED in implementing and in overseeing the Work and for any costs incurred by the ED for activities other than the RI and FS to the extent that such costs have not been paid.

Reimbursement is to be made within forty-five (45) Days after the ED transmits a demand letter stating the amount owed. Payment is to be made by cashier’s check or money order. All payments and accompanying letters or documentation should contain the following information: First Quality Cylinders Superfund Site,” “Cost Recovery Funds for the Hazardous and Solid Waste Remediation Fee Account (Fund 550) of the State of Texas,” “PCA Code 50131,” “Docket Number 2014-1054-SPF,” and “TCEQ Project Manager, Subhash Pal.”

All payments and accompanying letters or documentation should be

mailed to: Cashier's Office, MC-214, TCEQ, Re: "First Quality Cylinders State Superfund Site," P.O. Box 13088, Austin, TX, 78711-3088. All checks and money orders shall be payable to the "Texas Commission on Environmental Quality," or "TCEQ." The requirement to make such payments will survive the termination of this AO in accordance with Section XXXIII (Termination of the Administrative Order).

- D. This AO applies to and is binding upon Respondents, other than any De Minimis Responsible Parties, and Respondents' agents, successors, and assigns. Respondents, other than any De Minimis Responsible Parties as specified in Section II (Findings of Fact) Paragraph B, are jointly and severally responsible for carrying out the Work. Performance of any or all of the Work by the Performing Parties, Agreeing Respondents, or any De Minimis Responsible Parties shall not excuse any other Respondent from such performance. Upon performance by any Respondent of Remedial Activities, either alone or in conjunction with other Performing Parties, such Respondent shall, from such performance forward, become a Performing Party. Such performance by a Respondent of some of the Remedial Activities does not excuse the Respondent from performance of those Remedial Activities that took place prior to the Respondent becoming a Performing Party or any other preexisting requirement of this AO. No change in the ownership or corporate status and no acquisition of a Respondent will alter its respective responsibilities under this AO.
- E. Respondents that own or lease real property at the Site shall provide a copy of this AO to all of their lessees or sublessees of the Site until such time as this AO is terminated in accordance with Section XXXIII (Termination of the Administrative Order) and to any prospective owners or successors before all or substantially all property rights, stock, or assets are transferred.
- F. Respondents shall provide a copy of this AO to all contractors, subcontractors, laboratories, and consultants retained by Respondents to perform any or all of the Work within thirty (30) Days after the Effective Date or on the date such services are retained, whichever date occurs later. Notwithstanding the terms of any contract, Respondents remain responsible for compliance with this AO and for ensuring that their contractors and agents comply with this AO.
- G. Within forty-five (45) Days after the Effective Date, each Respondent that owns real property at the Site shall record a copy of this AO, with all exhibits, in the appropriate office where land ownership and transfer records are filed or recorded, and shall ensure that the recording of this AO is properly indexed to each and every property comprising any part or all of the Site so as to provide notice to third parties of the issuance and terms of this AO with respect to those properties. Each Respondent that

owns real property comprising all or any part of the Site shall, within sixty (60) Days after the Effective Date, send notice of such recording and indexing to the ED. The obligations and restrictions of this AO run with the land and are binding upon any and all persons who acquire any interest in any real property comprising all or any part of the Site.

Not later than ninety (90) Days before any transfer of any property interest in any property included within the Site and in accordance with Section XII (Notices and Submittals), Respondents that own or lease such real property shall submit the transfer documents to the ED.

- H. In accordance with Section 361.1855 of the Act and for the purpose of selecting the Remedy, the ED has selected commercial/industrial as the appropriate land use for the Site. Any change in use of any or all of the Site must comply with Section 361.190 of the Act.
- I. A qualified Remedial Activities Contractor shall direct and supervise all aspects of the Remedial Activities. Within ten (10) Days after the Effective Date each Respondent that is not an Agreeing Respondent shall notify the ED of its intent to perform the Work.

In addition to fulfilling the requirements of Section VIII (Project Manager/Site Coordinator) Paragraph C, within ten (10) Days after the Effective Date, Agreeing Respondents or, if there are no Agreeing Respondents, Performing Parties shall notify the ED in writing of the name, title, qualifications, relevant licenses, and permits of the Site Coordinator and Remedial Activities Contractor proposed to be used in carrying out the Remedial Activities. The Agreeing Respondents shall demonstrate or, if there are no Agreeing Respondents, the Performing Parties shall demonstrate that each proposed Remedial Activities Contractor has all licenses necessary to do business in the State of Texas and any permits necessary to perform any or all of the Remedial Activities. If at any time the Agreeing Respondents or, if there are no Agreeing Respondents, Performing Parties propose to use a different Remedial Activities Contractor, the Agreeing Respondents or Performing Parties, as appropriate, shall notify the ED before the new Remedial Activities Contractor performs any of the Remedial Activities. The Agreeing Respondents' Site Coordinator shall be the Project Manager's and Site Representative's point of contact for all Performing Parties. All Performing Parties must coordinate with and cooperate with any Agreeing Respondents in the performance of any and all of the Work.

- J. The Remedy may be modified as specified in 30 TEX. ADMIN. CODE Section 335.349. Except as specified in the previous sentence and in Section XVIII (Extension of Deadlines), the terms of this AO may be amended upon approval by the Commission after notice to all Respondents.

- K. Respondents shall provide all the necessary information and assistance for TCEQ's Community Relations personnel to implement the Community Relations Plan.
- L. All ED-approved final submittals, documents, plans, and reports required to be developed and approved by the ED pursuant to this AO will be incorporated in and enforceable under this AO.
- M. In complying with this AO, Respondents shall at all times comply with the requirements of the Act and 30 TEX. ADMIN. CODE Chapter 335, Subchapter K and 30 TEX. ADMIN. CODE Chapter 350, as applicable.

VI. Remedial Activities

- A. The Respondents shall undertake the Remedial Activities in the following phases:

Remedial Design ("RD");

Remedial Action ("RA"); and

Post Construction Activity ("PCA").

The ED may, in his sole discretion, waive, in writing, a requirement to submit any report, submittal, document, or plan otherwise required to be submitted by this AO.

- B. Remedial Design

1. Not later than ten (10) Days after the Effective Date, Respondents shall submit a Design Concept Memorandum ("DCM") to the ED for review, comment, and approval. Respondents must submit a DCM that includes:
 - a. Description of key performance and design criteria for the Remedy necessary to meet the requirements of the Remedy Selection Document;
 - b. Identification of all significant design options that may be considered by the design professional to meet the required performance and design criteria and the proposed option(s) to meet those criteria; and,
 - c. Identification of potential problems and unresolved issues which may affect the timely completion of the RD, RA and PCA, and proposed solutions to those problems.

2. Within thirty (30) Days after the ED approves the DCM, Respondents shall:
 - a. Obtain written landowner consent for any institutional control to be placed in the land records for any or all of the Site as required by this AO or by TCEQ rule and submit a copy of the consent to the ED; and
 - b. Submit a Preliminary RD to the ED for review, comment, and approval.
3. The Respondents shall submit a Preliminary RD that meets the requirements as set forth in this Section and consists of a 30% completion of all sections of the following RD submittals:
 - RA Schedule;
 - RA Field Sampling Plan (“RA FSP”);
 - Remedial Action Construction Quality Assurance Project Plan (“RA C-QAPP”);
 - RA Plans and Specifications;
 - RA Health and Safety Plan (“RA HASP”); and
 - Post Construction Activity Plan (“PCA Plan”).
4. The RA Schedule will describe the sequence, dependency on other activities, and duration of each activity to be conducted during the RA, including Project Milestones (which will be subject to the provisions of Section XXI (Stipulated Penalties) Paragraph D) and the specific mobilization date to begin the RA.
5. The RA Sampling and Analysis Plan (RA SAP) and RA C-QAPP will describe the means of assuring quality during the RA and will specify a quality assurance official (“Respondent QA Official”), independent of the Remedial Activities Contractors, to conduct a quality assurance program during the RA.
 - a. The RA SAP will be comprised of the RA FSP and the “Texas Commission on Environmental Quality Superfund Cleanup Section, Remediation Division, Quality Assurance Project Plan for the Superfund Program” (Program QAPP) which is most current as of the Effective Date of this AO. The RA SAP will address sampling and analysis relating to environmental parameters which may present toxic risk to human health or

the environment. Respondents and their contractors and subcontractors, including analytical laboratories, shall strictly adhere to all requirements of the approved RA SAP.

- b. The Program QAPP text will not be altered. Alterations to the Program QAPP necessitated by project specific circumstances will be effected by appropriate notation in Section 8.0 “Exceptions, Additions and Changes to the Program QAPP” of the RA FSP.
- c. The RA FSP will include:
 - i) All data required by the Program QAPP and the contents outline attached as Exhibit C to this AO;
 - ii) Data Quality Objectives (“DQOs”) which provide for the collection and analysis of a sufficient quantity and quality of data to demonstrate attainment of the Remediation Goals and to demonstrate protection of off-site receptors from exposure to Chemicals of Concern during the RA; DQOs will be developed in accordance with EPA “Guidance for the Data Quality Objectives Process, EPA QA/G-4;” and,
 - iii) A perimeter air monitoring plan including the action levels necessary to protect off-site receptors from exposure to the Chemicals of Concern; the Chemicals of Concern to be sampled; the kinds of sampling techniques to be used to sample; the number, type, and location of monitors; the calibration methods and schedule; and the sampling and reporting frequency.
- d. In regard to laboratories and laboratory analytical work, Respondents shall:
 - i) Ensure that all contracts with laboratories utilized by Respondents for analysis of Samples provide for access to those laboratories by the ED’s personnel and the ED’s authorized representatives to assure the accuracy of laboratory results related to the Site.
 - ii) Ensure that each laboratory utilized is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the Chemicals of Concern in the media of interest within detection and quantitation limits consistent with both QA/QC procedures and approved DQOs for the Site. The

Respondent QA Official shall provide written certification that it has reviewed the laboratory's quality assurance plan and capabilities and has determined that:

- (a) The laboratory has a documented quality assurance program in place that is generally consistent with National Environmental Laboratory Accreditation Conference (NELAC) standards;
- (b) The laboratory has demonstrated and documented proficiency with each sample preparation and determinative combination to be used on the project;
- (c) The laboratory has documented standard operating procedures for each of the methods required for the project; and,
- (d) The laboratory has the capability of meeting the analytical objectives for the project.

A table which presents the laboratory's method detection limits and quantitation limits and the preliminary remediation goal for each analyte of concern, and a table that presents the laboratory's control limits for quality control parameters, i.e., surrogates, matrix spike/matrix spike duplicate samples, and laboratory control samples must be submitted along with the certification letter and must be submitted attached or inserted into the RA FSP.

- iii) Ensure that all laboratories used for analysis of Samples are acceptable to the ED. A laboratory may be deemed unacceptable for any of the following reasons:
 - (a) repeated or numerous deficiencies found in the laboratory quality assurance program during the ED's or EPA's laboratory inspections;
 - (b) repeated or numerous deficiencies in laboratory performance;
 - (c) debarment by EPA; or

- (d) failure to comply with any requirement or criteria of the Program QAPP or this AO.
 - iv) Ensure that all data submitted to the agency is produced by laboratories accredited by TCEQ according to 30 TEX. ADMIN. CODE Chapter 25 (relating to Environmental Testing Laboratory Accreditation and Certification) Subchapters A and B.
- 6. The RA C-QAPP will describe the activities necessary to ensure that the Remedy is constructed to meet or exceed all design criteria, plans, specifications, and all applicable Remediation Goals. The RA C-QAPP will address sampling and analysis relating to physical properties of constructed engineered controls which must meet specified criteria to ensure the long-term performance of those features (e.g. physical soil properties of soil backfill or constructed clay caps, physical properties of geotextiles and liner materials, leak testing of piping systems and containment vessels, etc.). At a minimum, the RA C-QAPP will include the following elements:
 - a. The responsibility and authority of organizations and key personnel involved in designing and constructing the RA;
 - b. The qualifications of the Respondent QA Official(s) and supporting inspection personnel;
 - c. The observations and tests that will be used to ensure that the construction meets or exceeds all design criteria, plans, and specifications and all applicable Remediation Goals;
 - d. The sampling activities, sample size, methods for determining locations, frequency of sampling, acceptance and rejection criteria, and methods for ensuring that corrective measures are implemented; and
 - e. Detailed reporting requirements.
- 7. The RA Plans and Specifications will establish the sequences, procedures and requirements to be implemented at the Site including at a minimum:
 - a. Demolition activities including monitor well closure, decontamination, environmental controls, and disposal.
 - b. Excavation activities including: establishment of limits of initial excavation for surface and subsurface soils with provisions for field controls; excavation materials handling

- including stockpiling; excavation confirmation sampling; backfill procedures; air emissions control; stormwater management; cross-contamination prevention; and equipment and personnel decontamination procedures and facilities.
- c. Estimated quantities of material to be excavated and estimated quantities of materials to be disposed of off-site.
 - d. Details regarding construction and installation of fences, signs and other engineered controls.
 - f. Site restoration activities, including backfill materials, compaction, and final cover.
 - g. Plans including at a minimum:
 - i) Site plan;
 - ii) Demolition plan;
 - iii) Excavation plan, plan view;
 - iv) Excavation plan, sections;
 - v) Monitor well construction details;
 - vi) Final Site grading plan;
 - vii) Construction details; and
 - viii) All other plans and specifications necessary to describe sequences, procedures, and requirements to conduct the Remedial Activities in a manner protective of human health and the environment.
8. The RA HASP will specify the procedures that are sufficient to protect on-site personnel and the public from the physical, chemical and/or biological hazards of the Site. The HASP will address all requirements of 29 CFR Chapter XVII - "Occupational Safety and Health Administration (OSHA), Department of Labor," 40 C.F.R. §35.6015(a)(21) "Health and Safety Plan," and all applicable safety regulations, ordinances and statutes pertaining to the safety of on-Site personnel and the public. The HASP and any revisions or addenda will be reviewed and signed by a Board Certified Industrial Hygienist.

The TCEQ relies on the Respondent in the preparation of an adequate HASP. However, TCEQ reserves the right to review and provide comments on the Respondent's HASP. If TCEQ provides comments, they constitute only general safety guidelines which are not intended to cause the Respondent to reduce the level of protection. Any language in the comments or in this AO which appears to give the TCEQ the right to direct or control the Respondent's means, methods and details of the Work shall be deemed to mean that the Respondent will follow TCEQ's desires only as to the results of the Work. The Respondent is solely responsible for preparing an adequate HASP, for complying with the RD and the applicable safety laws and regulations, for performing the Work in a safe manner and for protecting the health and safety of on-site personnel and the public. The Respondent shall address the TCEQ's comments and concerns and if necessary submit a revised HASP. TCEQ notation of "approval," "acceptance," or similar language in response to a HASP submittal for review shall not alter the responsibilities of the parties as described in this Section. In the event that TCEQ notes a HASP "approved" or "accepted" or uses similar language to indicate that there are no further comments, such notation shall be deemed to mean only:

We have reviewed your HASP under the AO provision reserving the right for TCEQ to review and provide comments constituting general safety guidelines (not intended to cause the Respondent to reduce the level of protection). The reviewer(s) might not be Board Certified Industrial Hygienist or any other type of safety professional. We have no comments (or further comments) at this time on your HASP. We recognize this HASP as your final HASP. If you change this HASP you must submit a revision or addendum for review and potential comment in accordance with this AO.

Do not rely on TCEQ review of or comments (or lack thereof) on your HASP for any purposes.

By telling you we have no comments (or further comments), we are not assuming responsibility for your means, methods, details or sequences, nor are we assuming any duty of protection to you, your employees, your subcontractors or suppliers, or their employees, or to any third party. Any language in the comments or in this AO which appears to give the TCEQ the right to direct or control your means, methods and details of the Work shall be deemed to mean that you will follow TCEQ's desires only as to the results of the Work. You are solely responsible for

preparing and implementing an adequate HASP, for complying with the RD and the applicable safety regulations, ordinances and statutes, for performing the Work in a safe manner and for protecting the health and safety of on-site personnel and the public.

9. The PCA Plan will describe all sequences, procedures and requirements for implementing the PCA. The PCA Plan will, at a minimum, include the following:
 - a. A Post Construction Sampling and Analysis Plan (“PC SAP”) and Post Construction Quality Assurance Project Plan (“PC-QAPP”) meeting the criteria established herein for the RA SAP and RA C-QAPP but addressing all sampling and analyses relating to PCA;
 - b. Post Construction Plans and Specifications necessary to assure that the Remedial Activities attain and maintain the Remediation Goals;
 - c. A PCA Schedule describing the sequence, dependency on other activities, and duration of each activity to be conducted during the PCA, including Project Milestones (which will be subject to Section XXI (Stipulated Penalties) Paragraph D) and the specific mobilization date to begin the PCA;
 - d. A Post Construction Cost Estimate providing an estimate for a qualified third party to perform all of the tasks necessary for post construction for as long as PCA are needed, in accordance with the PCA Schedule; and
 - e. A Post Construction Activities HASP (“PCA HASP”) which meets all of the requirements specified above for the RA HASP but which is appropriate to protect on-site personnel and the public from any physical, chemical and/or biological hazards of the Site relating to the Post Construction period and activities.
10. Within thirty (30) Days after the ED provides written comments to the Site Coordinator on the Preliminary RD, Respondents shall submit a Pre-Final RD to the ED for review, comment, and approval. The Pre-Final RD will consist of 95% RD submittals.

Respondents shall address the ED’s comments on the Preliminary RD and submit a summary note which clearly and explicitly indicates how each comment by the ED on the Preliminary RD has

been satisfactorily addressed and which will also identify all other revisions or changes from the Preliminary RD.

11. Within twenty (20) Days after the ED provides the Site Coordinator with the ED's written comments on the Pre-Final RD, Respondents shall submit the Final RD, prepared and sealed by a Professional Engineer registered in the State of Texas, to the ED. The Final RD will consist of 100% complete RD submittals except the PCA Plan. A Professional Engineer shall include a certification that the design was prepared to attain all Remediation Goals upon implementation. Respondents shall address the ED's comments on the Pre-Final RD and submit a summary note which clearly and explicitly indicates how each of the ED's comments on the Pre-Final RD has been satisfactorily addressed and which will also identify all other revisions or changes from the Pre-Final RD.
12. The ED will notify the Site Coordinator of his approval or disapproval of the Final RD including written comments. Within fifteen (15) Days after the ED provides written comments to the Site Coordinator, Respondents shall resubmit the Final RD, in both clean and redline, strikeout format, with a summary note which clearly and explicitly indicates how each of the ED's comments on the previous draft of the Final RD has been satisfactorily addressed and which will also discuss all other revisions or changes from the previous draft of the Final RD.
13. The ED will notify the Site Coordinator of his approval or disapproval of each resubmittal of the Final RD. Each resubmittal will be submitted as specified in Paragraph 12 above. Disapproval of the first resubmittal, and each subsequent resubmittal, is subject to assessment of stipulated penalties in accordance with Section XXI (Stipulated Penalties).
14. Upon the ED's approval, the documents comprising the Final RD will be incorporated as requirements into and will be enforceable under this AO.

C. Remedial Action

1. Respondents and Respondents' contractors and subcontractors shall not mobilize to the Site until the Final RD is approved by the TCEQ. Under no circumstance will mobilization occur prior to TCEQ approval of the RA HASP.¹ The Respondents will be

¹TCEQ's "approval" or "acceptance" of the HASP will be given the meaning as explained in Section VI (Remedial Activities) Paragraph B.8.

responsible for initiating, maintaining, and supervising all safety precautions and programs required for the protection of all persons who may be affected by the Work, the Work, and any property which may be affected by the Work.

2. As soon as practicable after the award of any contract to ship solid wastes and/or hazardous substances from the Site and prior to any such actual shipment, Respondents shall submit to the Project Manager a written certification containing all relevant information regarding such shipments. The certification will include:
 - a. The name and location of the facility to which the solid wastes and/or hazardous substances are to be shipped;
 - b. The type and quantity of the solid wastes and/or hazardous substances to be shipped;
 - c. The expected schedule for the shipment of the solid wastes and/or hazardous substances; and
 - d. The method of transportation and the name, address, and phone number of the transporter.
3. In addition, Respondents shall certify that:
 - a. No enforcement order is currently imposed on any selected receiving facility or transporter by any regulating authorities;
 - b. The selected receiving facility and transporter are permitted to accept the specific solid wastes and/or hazardous substances to be shipped from the Site by all appropriate regulating authorities; and
 - c. After appropriate inquiry, they have no knowledge that either the selected receiving facility or transporter is non-compliant with any federal, state, or local requirement.
4. The ED may inspect the Remedial Activities and/or the Site at any time to evaluate compliance with this AO.
5. At least ten (10) Days prior to the expected date of achieving Substantial Completion of the RA, the Site Coordinator shall conduct a pre-Substantial Completion inspection and shall develop and submit to the ED a preliminary punch list identifying any nonconformance with the requirements of the RA Plans and Specifications.

6. At the same time that the Performing Parties submit the Substantial Completion punch list, they shall schedule a Substantial Completion inspection by the ED. The Site Coordinator shall accompany the ED during the Substantial Completion inspection.
7. Within 10 Days after the ED's on-site inspection, the Respondents shall submit to the ED in writing a revised punch list incorporating any deficiencies identified by the ED during the Substantial Completion inspection, indicating those deficiencies that are completely addressed and providing a proposed schedule and list of activities necessary to complete the RA. The ED will notify the Site Coordinator in writing of his approval or disapproval of the revised punch list.

If the ED disapproves the revised punch list, the ED will provide written comments to the Site Coordinator. Within ten (10) Days after the ED provides written comments to the Site Coordinator on the revised punch list, Respondents shall submit a final punch list, in both clean and redline, strikeout format, with a summary note that clearly and explicitly indicates how each of the ED's comments on the revised punch list has been satisfactorily addressed. The ED will notify the Site Coordinator of his approval or disapproval of the final punch list with comments. If disapproved by the ED, within fifteen (15) Days after the ED provides written comments, Respondents shall resubmit the final punch list. The ED will notify the Site Coordinator of his approval or disapproval of each resubmittal of the final punch list. Disapproval of the first resubmittal and each subsequent resubmittal is subject to assessment of stipulated penalties in accordance with Section XXI (Stipulated Penalties).

8. When Respondents believe that they have completed the RA, they shall submit a certification to the ED that the RA is complete. If the ED identifies RA items to be corrected or completed, Respondents shall immediately correct or complete these items.
9. Within forty five (45) Days after Respondents certify that the RA is complete, Respondents shall submit to the ED a draft RA Report, containing the following:
 - a. A certification from a Professional Engineer licensed in the State of Texas that the RA has been completed in compliance with the Final RD and this AO and that the RA is complete;
 - b. All data collected during the RA and documentation of compliance with the terms of the RA Quality Assurance

Project Plan and the RA Construction Quality Assurance Plan;

- c. Copies of waste manifests for all Class II, Class I, and hazardous wastes and substances disposed of off-site;
 - d. As-built drawings showing:
 - i. Areas and depths of excavation, with verification sample results by grid area;
 - ii. Final Site plan with topographic contours;
 - e. Progress photographs;
 - f. Proposed areas for soil and groundwater that will require land use restrictions and/or other deed notices, certifications, or restrictions; and,
 - g. Proposed language for any institutional controls in accordance with and as required by this AO and TCEQ rules.
10. The ED will notify the Site Coordinator of his approval or disapproval of the draft RA Report. If the ED disapproves the draft RA Report, the ED will provide written comments to the Site Coordinator.
11. Within fifteen (15) Days after the ED provides written comments to the Site Coordinator on the draft RA Report, Respondents shall submit a final RA Report, in both clean and redline, strikeout format, with a summary note which clearly and explicitly indicates how each of the ED's comments on the draft RA Report has been satisfactorily addressed and which also discusses all other revisions or changes from the draft RA Report.
12. The ED will notify the Site Coordinator of his approval or disapproval of the final RA Report with comments.
13. If disapproved by the ED, within fifteen (15) Days after the ED provides written comments, Respondents shall resubmit the RA Report as specified in Paragraph 11 above. Each resubmittal will also be submitted in accordance with Paragraph 11 above.
14. The ED will notify the Site Coordinator of his approval or disapproval of each resubmittal of the final RA Report including written comments. Disapproval of the first resubmittal and each

subsequent resubmittal is subject to assessment of stipulated penalties in accordance with Section XXI (Stipulated Penalties).

15. Within thirty (30) Days after approval of the final RA Report and after obtaining the required written landowner consent in accordance with Paragraph B.2. of this Section, Respondents shall:
 - a. record a copy or copies of any required institutional controls in compliance with the requirements found in 30 TEX. ADMIN. CODE Section 350.111 in the appropriate local or county office where land ownership and transfer records are filed or recorded;
 - b. ensure that the recording of these documents is properly indexed and recorded to each and every property at the Site in the appropriate office where land ownership and transfer records are filed so as to provide notice to third parties concerning those properties; and
 - c. send evidence of such recording, landowner consent, and indexing to the ED.
16. After he approves the final RA Report, receives evidence of the filing of any institutional control from each property owner or other person as required by Section V (Order) Paragraph G, and determines that the financial assurance requirements of Paragraph E below have been satisfied, the ED will issue an Approval of RA Completion to the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, to any Performing Parties.

D. Post Construction Activity

1. Concurrent with the submittal of the preliminary punch list for the Substantial Completion inspection, the Site Coordinator shall 1) submit a list of the name, title, qualifications, relevant licenses and permits of the Remedial Activities Contractors proposed to be used in carrying out any or all of the PCA and 2) submit to the ED a Revised PCA Plan.
2. The ED will notify the Site Coordinator of his approval or disapproval of the Revised PCA Plan including written comments to the Site Coordinator.
3. Within fifteen (15) Days after the ED provides written comments to the Site Coordinator, Respondents shall submit the Final PCA Plan, in both clean and redline, strikeout format, with a summary note which clearly and explicitly indicates how each of the ED's

comments on the Revised PCA Plan has been satisfactorily addressed and which will also discuss all other revisions or changes from the Revised PCA Plan.

4. The ED will notify the Site Coordinator of his approval or disapproval of the submittal and each resubmittal of the Final PCA Plan. Each resubmittal will be submitted as specified in Paragraph 3 above. Disapproval of the first resubmittal and each subsequent resubmittal is subject to assessment of stipulated penalties in accordance with Section XXI (Stipulated Penalties).
5. Upon the ED's approval of the final PCA Plan, Respondents shall begin the PCA in accordance with the schedule included in the PCA Plan.
6. The Agreeing Respondent(s) shall submit a Five Year Review report to the TCEQ for TCEQ's approval no later than five (5) years after the ED issues an Approval of RA Completion for the Site. The Five Year Review report must be conducted in accordance with the U.S. Environmental Protection Agency's "Comprehensive Five-Year Review Guidance." The Agreeing Respondent(s) shall submit Five Year Review reports for the Site to the TCEQ every five (5) years unless and until the TCEQ approves cessation.

E. Post Construction Financial Assurance

1. Respondents shall provide financial assurance in the minimum amount of the final Post Construction Cost Estimate and shall maintain such financial assurance for the full duration of the PCA. Within ten (10) Days of the ED's approval of the PCA Plan, Respondents shall submit a written proposal for providing financial assurance to the ED for approval.
2. Subject to the ED's approval, financial assurance may be demonstrated by one or a combination of the following mechanisms: letter of credit, surety bond guaranteeing payment, surety bond guaranteeing performance, fully funded trust, insurance, escrow account or other approved mechanism. Each financial assurance document will be issued by an institution with the authority to issue the document whose operations are regulated and examined by a federal or state agency.
3. Within fifteen (15) Days after the ED provides written approval of Respondents' proposed financial assurance mechanism to the Site Coordinator, Respondents shall submit the necessary financial assurance documents to the ED. The ED will notify the Site Coordinator of his approval or disapproval of the financial

assurance documents with comments. If disapproved by the ED, within fifteen (15) Days after the ED provides written comments to the Site Coordinator, Respondents shall resubmit the financial assurance documents, in both clean and redline, strikeout format, with a summary note which clearly and explicitly indicates how each of the ED's comments on the previous draft of the financial assurance documents has been satisfactorily addressed and which will also discuss all other revisions or changes from the previous draft of the financial assurance documents.

4. The ED will notify the Site Coordinator of his approval or disapproval, with comments, of each resubmittal of the financial assurance documents. Each resubmittal will be submitted in accordance with Paragraph 3 above. Disapproval of the first resubmittal and each subsequent resubmittal is subject to assessment of stipulated penalties in accordance with Section XXI (Stipulated Penalties).

VII. Failure to Attain Remediation Goals or Findings of Significant Difference

- A. If at any point in the Remedial Activities the Performing Parties conclude that the Remedial Activities as implemented in accordance with this AO will not attain the Remediation Goals, or if the Performing Parties find that conditions at the Site differ from those that form the basis of the RSD and significantly change the scope, performance or costs of the Remedial Activities, then the Performing Parties shall take the actions specified in this Section.
- B. Within ten (10) Days after the Performing Parties initially determine that a failure to attain Remediation Goals or that a significant difference in the scope, performance or cost of the Remedial Activities as described in this Section exists, Performing Parties shall notify the ED of that determination with a description of its basis.
- C. Not later than sixty (60) Days after the initial assertion of a failure to attain Remediation Goals or of a significant difference in the scope, performance or cost of the Remedial Activities, the Performing Parties shall submit a Failure Evaluation Report to the ED for his approval.
- D. The Performing Parties shall submit a Failure Evaluation Report that meets the requirements of this Section. The Failure Evaluation Report will include a discussion of the following: the data related to the failure to attain Remediation Goals or to the assertion of a significant difference, conclusions concerning all such data, and any known cause of the failure to attain Remediation Goals or of the significant difference, and a recommendation for any necessary additional studies. Data presented in the Failure Evaluation Report will comply with the DQOs.

- E. The ED will not consider the failure of a design element or Remedial Action that is not required by this AO to be the basis for a failure to attain the Remediation Goals.
- F. The ED will consider differences in the quantity or extent of contaminants as the basis for a determination of a significant difference only when such differences are so significant as to cause the Remedy not to be the lowest cost alternative that is technologically feasible and reliable and that effectively mitigates and minimizes damage to and provides adequate protection of the public health and safety or the environment.
- G. After receipt of the Failure Evaluation Report, the ED will notify the Site Coordinator of his approval or disapproval of the report with comments. If the ED determines that the basis of the Performing Parties' assertion of a failure to attain Remediation Goals or of a significant difference is valid, no applicable stipulated penalties will be imposed for missed deadlines subsequent to the Performing Parties' notification made in accordance with Paragraph B above, except for failure to submit documents pursuant to this Section. If the ED determines that the basis of a failure to attain Remediation Goals or of an assertion of a significant difference is not valid, the ED will direct that Remedial Activities continue and that the Performing Parties pay any applicable stipulated penalties for any missed deadlines.
- H. Unless the ED approves the Failure Evaluation Report and/or directs continuation of Remedial Activities, within thirty (30) Days after the ED provides written comments to the Site Coordinator, the Performing Parties shall resubmit the Failure Evaluation Report, in both clean and redline, strikeout format, with a summary note which clearly and explicitly indicates how each of the ED's comments on the previous draft of the Failure Evaluation Report has been satisfactorily addressed and which will also identify all other revisions or changes from the previous version of the Failure Evaluation Report.
- I. The ED will notify the Site Coordinator of his approval or disapproval, with comments, of each resubmittal of the Failure Evaluation Report. Each resubmittal will be submitted in accordance with Paragraph H above. Disapproval of the first resubmittal and each subsequent resubmittal is subject to assessment of stipulated penalties in accordance with Section XXI (Stipulated Penalties).
- J. Not later than ninety (90) Days after a determination by the ED that the Remedy will not attain the Remediation Goals or a significant difference exists, the Respondents shall submit to the ED for approval a written report evaluating alternatives to the Remedial Activities and may submit a proposal for such alternative Remedial Activities as may be necessary to achieve the Remediation Goals. Any proposed alternatives must comply

with the remedy selection criteria contained in 30 TEX. ADMIN. CODE Chapter 335, Subchapter K and 30 TEX. ADMIN. CODE Chapter 350. The Remedy may be modified, as stated in Section V (Order) Paragraph J, only as specified in 30 TEX. ADMIN. CODE Section 335.349.

- K. In the event TCEQ determines that alternate or additional Remedial Actions are necessary because of the Remedy's failure, TCEQ may terminate this AO.

VIII. Project Manager/Site Coordinator

- A. Not later than the Effective Date, the ED will designate a Project Manager to oversee implementation of the Work and to coordinate communication between the ED and the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties.
- B. Respondents shall direct all communications regarding the Remedial Activities, whether written or oral, at a minimum, to the Project Manager or, if not available, the alternate Project Manager.
- C. In addition to fulfilling the requirements of Section V (Order) Paragraph I, within ten (10) Days after the Effective Date, the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties shall submit a written notice to the Project Manager containing the Site Coordinator's address, phone number and/or pager number at which he/she may be contacted at any time in case of emergency. The Site Coordinator shall notify the ED in writing at least seven (7) Days prior to the start date of any field activities associated with the Remedial Activities. All Performing Parties must coordinate with and cooperate with any Agreeing Respondents in the performance of the Work.
- D. The Project Manager has the authority to require that the Remedial Activities are performed in accordance with all applicable statutes and regulations and with this AO and to require a cessation of the performance of any part or all of the Remedial Activities that:
 - 1. In the Project Manager's opinion, may present or contribute to an imminent and substantial endangerment to public health, welfare, or the environment because of an actual or threatened release of solid wastes or hazardous substances from the Site; or
 - 2. In the Project Manager's opinion, is not in conformance with any work plan developed in accordance with this AO; or
 - 3. In the Project Manager's opinion, is a violation of any work plan developed in accordance with this AO, HASP, or Program QAPP.

- E. Within 24 hours after the Project Manager issues an oral order to halt any or all of the Remedial Activities, if time permits, the Project Manager will provide a brief explanation of the basis for the order. As soon as possible, but in any event no more than fourteen (14) Days after the initial order to halt any or all of the Remedial Activities, the Project Manager will provide a written explanation of the basis for the order to halt any or all of the Remedial Activities to the Site Coordinator. The Remedial Activities may be resumed only after the basis for the order to halt any or all of the Remedial Activities has been corrected and instructions to proceed have been provided to the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties by the Project Manager. All additional costs associated with the cessation of any or all of the Remedial Activities will be borne by Respondents, other than any De Minimis Responsible Parties.
- F. During the RD and RA, the Project Manager and Site Coordinator shall hold meetings at least once per month to review the progress and details of the Remedial Activities and to review and resolve any discrepancies in data. At the ED's discretion, these meetings may be held by telephone. At least seven (7) Days prior to each meeting, the Performing Parties shall deliver an agenda for the meeting and any documents to be discussed to the Project Manager.
- G. The ED and the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties may change their respective Project Manager, alternate Project Manager, or Site Coordinator by written notice to each other of the name, address, and telephone number of the new Project Manager, alternate Project Manager, or Site Coordinator seven (7) Days prior to the change, or if seven (7) Days notice is not feasible, as soon as possible.
- H. The Project Manager may assign other persons, including other TCEQ employees or contractors, to serve as a Site Representative and may temporarily delegate her or his responsibilities to such Site Representative. The Project Manager will notify the Site Coordinator orally or in writing of such delegation.

IX. Endangerment and Immediate Threat

- A. In the event of any action or occurrence during the performance of the Remedial Activities which causes or threatens a release of a solid waste or hazardous substance or which may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action to prevent, abate, or minimize such release or threat and shall immediately notify the Project Manager and Site Representative or, if the Project Manager cannot be contacted, the alternate Project Manager and Site Representative. Respondents shall also notify the TCEQ

Emergency Response Unit, (210) 490-3096, Region 13. Respondents shall take such action in accordance with all applicable provisions of the HASP. If Respondents fail to take appropriate response action as required by this Section and the ED takes such action instead, Respondents, other than any De Minimis Responsible Parties, shall reimburse the ED for all costs of the response action. Respondents shall make payments of such costs as specified in Section V (Order) Paragraph C and not later than forty-five (45) Days after the ED transmits a demand letter stating the amount owed.

- B. Nothing in the preceding paragraph will be deemed to limit any authority of the State of Texas to take, direct, or order all appropriate action to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of solid wastes or hazardous substances to the environment on, at, or from the Site.

X. Submittals Requiring the ED's Approval

- A. Upon the ED's approval of a submittal, Respondents shall proceed to implement all actions required by the submittal according to the schedule approved by the ED.
- B. Approved submittals may be modified upon agreement by the ED and the Performing Parties. The Performing Parties shall submit proposed modifications and obtain approval in accordance with the process for submittals specified in this AO generally. Upon approval of any modification, the modification is incorporated into the original submittal for all purposes.
- C. The ED's approval of submittals or modifications is administrative in nature and allows the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties to proceed to the next steps in the Remedial Activities. The ED's approval does not imply any warranty of performance, does not imply that the Remedy, when constructed, will meet the Remediation Goals, nor does it imply that the Remedy will function properly and ultimately be accepted by the ED.

XI. Submittal of Documents, Sampling, and Analyses

- A. Respondents shall provide to the ED all data, information, documents, or records related to the Site which are generated or obtained by any Respondent within twenty (20) Days of any written request from the ED for such data, information, document, or record. Respondents shall provide written notice to the ED immediately upon generating or obtaining any such data, information, document or record.
- B. Subject to the confidentiality provisions set forth in Paragraph C below, all data, information, documents, and records developed pursuant to this AO

or submitted by Respondents to the ED pursuant to this AO will be available to the public.

- C. Respondents may assert a claim of business confidentiality pursuant to the Texas Public Information Act as to any process, method, technique, or any description thereof that the Respondents claim constitutes proprietary or trade secret information developed by Respondents or developed by their contractors or subcontractors. If no confidentiality claim accompanies the process, method, technique, or description thereof when submitted to the ED, any such process, method, technique, or description thereof may be made available to the public by the ED or the State of Texas without further notice to Respondents. Respondents shall make business confidentiality determinations in good faith.
- D. The ED or his Site Representatives may take splits or duplicates of any samples obtained by any Respondent at the Site at any time including during the implementation of the Remedial Activities. The Respondents shall provide assistance necessary for the ED to take split or duplicate samples.
- E. Respondents shall provide the ED with a schedule of routine sampling and notify the ED at least seven (7) Days before any non-routine sampling is conducted at the Site, except in the event of situations provided for by Section IX (Endangerment and Immediate Threat). Respondents shall collect and analyze all Samples in accordance with approved work plans developed pursuant to this AO and shall handle all Samples in accordance with the approved PCA QAPP.
- F. Respondents shall submit all data, information, reports, schedules, and other documents required by this AO in hard copy format (two hard copies of draft submittals and three of final submittals) and in specified computer software format (one electronic copy of each draft and final submittal) as determined by the Project Manager.

XII. Notices and Submittals

Respondents shall make all notices and submittals required by this AO in writing and in accordance with the contact information contained in this Section unless otherwise expressly authorized. Receipt by the Site Coordinator of any notice or communication from the ED relating to this AO will be deemed by the ED to be receipt by all Respondents. All information required to be submitted pursuant to this AO, including data, documents, records, reports, approvals, and other correspondence, will be submitted to the following Parties at the addressees listed below or to such other addressees as such Party hereafter may designate in a written communication to all other Parties:

As to the Texas Commission on Environmental Quality:

For mail:

Texas Commission on Environmental Quality
Remediation Division
Mail Code 136
P.O. Box 13087
Austin, TX 78711-3087
Attention: Project Manager/ First Quality
Cylinders State Superfund Site

For overnight express mail or delivery service:

Project Manager
Mail Code 136
First Quality Cylinders State Superfund Site
TCEQ, Remediation Division
Building D
12100 Park 35 Circle
Austin, TX 78753

By facsimile:

Project Manager
First Quality Cylinders State Superfund Site
Superfund Section
(512) 239-6400

XIII. Periodic Review

- A. Respondents shall provide written progress reports on the Remedial Activities to the ED, as specified below in Paragraphs B and C.
- B. RD/RA Progress Reports
 - 1. Respondents shall submit written monthly progress reports to the ED beginning on the tenth Day of the month following the Effective Date. These progress reports will describe the actions taken pursuant to this AO during the previous month, including a general description of activities and progress during the reporting period, activities projected to be commenced or completed during the next reporting period, and any problems encountered or anticipated by Performing Parties in commencing or completing the Remedial Activities. Progress reports will include all data received during the reporting period and an up-to-date progress schedule. Progress

reports will identify any violations of this AO and calculate any applicable stipulated penalty required under Section XXI (Stipulated Penalties). The requirement to submit these monthly progress reports will be terminated at the earlier of: 1) if no PCA Plan is required, when the AO is terminated in accordance with Section XXXIII (Termination of the Administrative Order) or 2) if a PCA Plan is required, upon the ED's approval of a Final PCA Plan in accordance with Section VI (Remedial Activities) Paragraph D.

2. If an RD/RA progress report submitted by Performing Parties is deficient, the ED will provide written notice to the Site Coordinator. The notice will include comments and a description of the deficiencies.
3. Within ten (10) Days of the ED providing the Site Coordinator with a notice of deficiency of an RD/RA progress report, Performing Parties shall make such changes as the ED deems necessary and resubmit the progress report to the ED.

C. Post Construction Progress Reports

1. Performing Parties shall submit written monthly post construction progress reports to the ED beginning on the tenth Day of the month following the initiation of the PCA as described in Section VI (Remedial Activities) Paragraph D.1. These progress reports will describe the actions taken pursuant to this AO, including a general description of activities and progress during the reporting period, activities projected to be commenced or completed during the next reporting period, and any problems encountered or anticipated by Performing Parties in commencing or completing the Remedial Activities. Post construction progress reports will include all data received during the reporting period and an up-to-date progress schedule. Post construction progress reports will identify any violations of this AO and calculate any applicable stipulated penalty required under Section XXI (Stipulated Penalties). The requirement to submit monthly post construction progress reports will be terminated when the conditions specified in Section XIV (Termination of Post Construction Activities) have been met as determined by the ED in his sole discretion.
2. If a monthly post construction progress report submitted by Performing Parties is deficient, the ED will provide written notice to the Site Coordinator. This notice will include comments and a description of the deficiencies.
3. Not later than ten (10) Days after the ED provides the Site Coordinator with a notice of deficiency of a post construction

progress report, Performing Parties shall make such changes as the ED deems necessary and resubmit the post construction progress report to the ED.

XIV. Termination of Post Construction Activities

The ED will terminate the requirement to perform PCA if Respondents demonstrate that all Remediation Goals have been met. The Respondents shall satisfactorily perform PCA for the duration of time specified in the RSD, and the Remediation Goals will not be deemed achieved before the time specified in the RSD.

XV. Records

A. Each Respondent shall preserve and retain, and shall instruct its accountants, attorneys, employees, agents, contractors, and subcontractors and anyone else acting on its behalf at the Site to preserve and retain, in the form of originals or copies, all data, records, documents, and information of whatever kind, nature, or description that relate in any way to the Site that are now or that come to be in its possession or control. The previous sentence is meant to include data, records, documents, or information relating to each Respondent's potential liability or to any other person's potential liability for the Site under Section 361.271 of the Act.

B. All data, records, documents, and information required to be preserved and retained in accordance with Paragraph A above will be preserved and retained for a minimum of ten (10) years after the ED's issuance of the Approval of RA Completion. At the end of the ten (10) year retention period, each Respondent shall notify the ED at least ninety (90) Days before any such data, records, documents, or information is destroyed. If the ED requests, Respondents shall, at no cost to TCEQ, provide the ED originals or copies of such data, records, documents, or information which are not protected by a privilege as per Paragraph C below.

Until this AO is terminated in accordance with Section XXXIII (Termination of the Administrative Order), Respondents shall maintain an index of documents that Respondents claim contain privileged information. The index will contain, for each document, the date, author, addressee, and subject of the document. Respondents shall submit a copy of the index to the ED within ten (10) Days after the ED submits a written request.

C. Any Respondent refusing to provide copies of any data, information, records, or documents based upon a claim of privilege shall identify the data, information, record, or document and explain the basis for the claim. Notwithstanding the immediately preceding sentence, any data, record,

information, or document required to be developed or submitted pursuant to this AO will be available to the public.

- D. At any time prior to the completion of the Work, the ED may contact the Site Coordinator to determine the location and/or to obtain copies of any or all of the data, records, documents, or information developed in accordance with this AO. The Respondents shall provide copies of any such data, records, documents, and information to the ED at no cost to TCEQ.
- E. Upon request by the ED, Respondents shall submit to the ED all data, information, records, and documents requested, including those relevant to the items specified in Section 361.182(b) of the Act for possible inclusion in the administrative record in accordance with 30 TEX. ADMIN. CODE Section 335.345.

XVI. Access

- A. As of the Effective Date, any Respondent that owns, in whole or in part, the Site, an off-site area that is to be used for access to the Site, property subject to or affected by the Remedial Activities, or other property where documents generated in accordance with this AO are or come to be located shall provide access to such property to the ED; any federal, state or local authorities and their contractors approved by the ED; and the Performing Parties and their authorized representatives and contractors. Failure to provide such access may result in the imposition of statutory and/or stipulated penalties. Respondents shall indemnify TCEQ, and TCEQ will not be liable, for any loss or claim arising out of Respondents' activities at the Site, on off-site areas to be used for access to the Site, on property subject to or affected by the Remedial Activities, and on other property where documents generated in accordance with this AO are or come to be located.
- B. If a person other than a Respondent owns, in whole or in part, the Site, an off-site area that is to be used for access to the Site, property subject to or affected by the Remedial Activities, or other property where documents generated in accordance with this AO are or come to be located, Respondents shall obtain, or use their best efforts to obtain, access agreements from the then current owner(s) within ninety (90) Days of the Effective Date. Respondents shall secure agreements to provide access for the ED; federal, state or local authorities and their contractors as approved by the ED; and the Performing Parties and their authorized representatives and contractors. Respondents shall ensure that such agreements specify that TCEQ is not liable for any loss or claim arising out of any activities at the Site, on off-site areas to be used for access to the Site, on property subject to or affected by the Remedial Activities, or on

other property where documents generated in accordance with this AO are or come to be located. Respondents shall provide copies of such agreements to the ED before the Performing Parties initiate field activities. Respondents' best efforts shall include, if necessary, providing reasonable compensation to any property owner not a Party. If access agreements are not obtained within the ninety (90) Days, Respondents shall immediately notify the ED of their failure to obtain access. If the ED determines, in his sole discretion, that the Performing Parties have used best efforts to obtain such access, the ED will, pursuant to statutory authority, make appropriate efforts to obtain such access upon terms reasonable to the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, to the Performing Parties. Any revision to the deadlines specified in this AO necessitated by Respondents' inability to obtain such access may be considered a reasonable ground for extending any affected deadline pursuant to Section XVIII (Extension of Deadlines).

- C. Subject to the Performing Parties' reasonable safety and internal security requirements, the ED will have the authority to enter, freely move about, and exit the Site, any off-site area that is to be used for access to the Site, property subject to or affected by the Remedial Activities, or other property where documents generated in accordance with this AO are located or come to be located, for the purposes of: inspecting conditions at the Site, the Remedial Activities and all information, documents, data, records, operating logs, and contracts related to the Site; reviewing the Performing Parties' progress in performing the Remedial Activities; conducting such tests as the ED deems necessary; using a camera, sound recording device, or other documentary type equipment; verifying the data submitted to the ED by the Performing Parties; and performing any Remedial Activities not being performed or not being satisfactorily performed by the Performing Parties. Nothing herein will be interpreted as limiting or affecting the ED's right of entry or inspection authority under state or federal law. All persons with access to the Site shall comply with the HASP.

XVII. Delay in Performance

Respondents shall notify the ED of any delay or anticipated delay in achieving compliance with any requirement of this AO. Such notification will be made by telephone to the Project Manager or, if not available, the alternate Project Manager, within forty-eight (48) hours after Respondents first knew or should have known that an event might cause a delay. Within seven (7) Days after notifying the ED by telephone, Respondents shall provide written notification fully describing the cause of the delay, the anticipated duration of the delay, the measures taken and to be taken by Respondents, their contractors, or consultants, to prevent or minimize the delay, and the timetable by which these measures have been, are being, and will be implemented. A revised timetable will

be implemented upon its approval by the ED.

XVIII. Extension of Deadlines

Upon failure to comply with the terms and conditions of this AO, any Defaulting Performing Parties shall cease to be Performing Parties; and all such rights and privileges as accrue to the Performing Parties pursuant to this AO will immediately terminate as to such Defaulting Performing Parties. At that time all responsibilities and obligations that attach to RPs in addition to those that attach to Performing Parties will attach to Defaulting Performing Parties that are RPs, including the requirement to pay TCEQ costs in accordance with Section V (Order) Paragraph C.

Notwithstanding anything to the contrary in this AO, the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties shall bear no costs for any fines, penalties, or increases in the ED's oversight of the Remedial Activities resulting from Defaulting Performing Parties actions or inactions. Defaulting Performing Parties and the RPs may be assessed the ED's full costs for oversight of the Work. If actions required by this AO are delayed or are not timely completed because of acts or omissions of one or more Defaulting Performing Parties, the Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties, may request a time extension. Upon such request, the ED will approve the time extension, disapprove it, or approve such alternative time extension as the ED in his sole discretion deems appropriate. Thereafter, Respondents shall adhere to all remaining deadlines in this AO and in any documents developed in accordance with this AO and approved by the ED.

The Agreeing Respondents may seek and the ED may grant an extension of any deadline contained in this AO or in any document submitted pursuant to this AO. Agreeing Respondents shall submit the request for a deadline extension no later than seven (7) Days prior to the deadline date and shall substantiate good cause for extension of the deadline. The determination of what constitutes good cause and the length of any deadline extension will be at the ED's sole discretion.

XIX. Reserved

XX. Compliance with Applicable Laws

- A. Respondents shall perform all actions pursuant to this AO in accordance with the requirements of all applicable or relevant and appropriate federal, state, and local laws, including the Texas Solid Waste Disposal Act as codified in the Texas Health and Safety Code and the Texas Oil and Hazardous Substance Spill Prevention and Control Act as codified in the Texas Water Code. This AO is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

- B. All materials removed from the Site shall be disposed of or treated at a facility which is in compliance with all applicable or relevant and appropriate federal, state, and local laws and shall be disposed of or treated in accordance with all such requirements.

XXI. Stipulated Penalties

- A. Subject to the provisions of Sections XXII (Force Majeure) and XXIII (Resolution of Disagreements), noncompliance with this AO shall result in the imposition of stipulated penalties as set forth below.

- B. Penalties Related to Timeliness of Submittals Required by this AO

For failure to:

1. meet the deadlines set forth in Sections V (Order) and VI (Remedial Activities);
2. submit timely reports as set forth herein;
3. submit data in a timely fashion or provide timely notice of sampling as required by Section XI (Submittal of Documents, Sampling, and Analyses); or
4. re-submit a document within the timeframes specified herein;

Agreeing Respondents shall pay stipulated penalties in the following amounts for each Day and part thereof during which any delay listed in Subparagraphs B.1 through B.4 above continues:

<i>Period of Delay</i>	<i>Amount/Day</i>
1st through 14th Day	\$500.00
15th through 45th Day	\$2,000.00
46th Day and beyond	\$3,000.00

- C. Penalties Related to Competency of Submittals

This Paragraph applies to submittals of any document required by Sections VI (Remedial Activities), VII (Failure to Attain Remediation Goals or Findings of Significant Difference), and XIII (Periodic Review) which fail to be responsive and acceptable. Agreeing Respondents shall pay a stipulated penalty of \$5,000 for each week and part thereof that an acceptable and responsive document is not submitted. This penalty may be assessed in addition to any penalties assessed under Paragraph B of this Section.

D. Penalties Related to Project Milestones

For failure to:

1. achieve any RA Project Milestones in accordance with the schedule approved under Section VI (Remedial Activities) Paragraph B; or
2. achieve any PCA Project Milestones in accordance with the schedule approved under Section VI (Remedial Activities) Paragraph B.

Agreeing Respondents shall pay stipulated penalties in the following amounts for each Day and part thereof during which any delay listed in Subparagraphs D.1 through D.2 above continues:

<i>Period of Delay</i>	<i>Amount/Day</i>
1st through 14th Day	\$1,000.00
15th through 45th Day	\$3,000.00
46th Day and beyond	\$10,000.00

- E. For disobeying an order to halt any or all of the Remedial Activities under Section VIII (Project Manager/Site Coordinator), Agreeing Respondents shall pay stipulated penalties of \$10,000 per Day.
- F. For failure to use best efforts to obtain Site access in accordance with Section XVI (Access), Agreeing Respondents shall pay a stipulated penalty of \$1,000 per Day.
- G. For denying access provided for in Section XVI (Access), Agreeing Respondents shall pay stipulated penalties of \$10,000 per Day.
- H. Any Agreeing Respondent who fails to provide records within ten (10) Days after receipt of a written request from the ED or within such other period as specified herein shall pay a stipulated penalty of \$10,000 per Day.
- I. With the exception of the stipulated penalties referenced in Paragraphs E, G and H above which attach to individual Agreeing Respondents, all stipulated penalties assessed in accordance with this Section are joint and several, not individual, obligations.
- J. Agreeing Respondents shall pay stipulated penalties assessed under this Section as specified in Paragraph K below within sixty (60) Days after the ED transmits a demand letter stating that stipulated penalties have accrued or after resolution of a disagreement as specified in Section XXIII

(Resolution of Disagreements), whichever comes later. Stipulated penalties will accrue from the date of noncompliance until the noncompliance is corrected, provided however, that if any Agreeing Respondent prevails in resolution of disagreements as specified in Section XXIII (Resolution of Disagreements), it shall have no liability to pay stipulated penalties with regard to those matters submitted for resolution of disagreements in accordance with Section XXIII (Resolution of Disagreements) in which it prevails.

- K. Agreeing Respondents shall pay stipulated penalties to the “General Revenue Fund of the State of Texas” and shall mail payments to:

Chief Fiscal Officer (MC 180)
Texas Commission on Environmental Quality
“Re: First Quality Cylinders State Superfund Site Administrative Order”
P.O. Box 13088
Austin, Texas 78711-3088

- L. The requirement to pay stipulated penalties that have been incurred prior to the termination of this AO in accordance with Section XXXIII (Termination of the Administrative Order) will survive termination of this AO.
- M. A single act or omission may be the basis for more than one type of stipulated penalty. A single act or omission may also be subject to more than one (1) Day of stipulated penalties. In cases where more than one stipulated penalty applies to a single act or omission, the ED may choose which stipulated penalties to assess.
- N. The ED has the sole discretion to reduce or waive stipulated penalties and to do so as to specific Agreeing Respondents or groups of Agreeing Respondents.
- O. Stipulated penalties against Agreeing Respondents will be in lieu of administrative and civil penalties for the same violation but will not prevent TCEQ from seeking enforcement of the ordering provisions by injunctive relief. Respondents that are not Agreeing Respondents are subject to administrative and civil penalties.

XXII. Force Majeure

- A. If a delay in performance is caused (in whole or in part) by events beyond the reasonable control of the Agreeing Respondents, that failure will not be construed as a violation of this AO. The burden of establishing that an event is beyond their reasonable control lies with the Agreeing Respondents. The Agreeing Respondents shall notify the ED in writing

within seven (7) Days of the start of the Force Majeure event and within seven (7) Days of the end of the Force Majeure event. Agreeing Respondents shall submit the notification as specified in this Section. Failure to so notify the ED will constitute a waiver of the claim of Force Majeure.

Such notice will describe in detail the cause of the delay; the anticipated duration of the delay; the measures taken and to be taken by the Agreeing Respondents, their contractors, or consultants to prevent or minimize the delay, and the timetable by which these measures have been, are being, and will be implemented. Measures to prevent or minimize the delay will be implemented upon the ED's written approval of the timetable. The Agreeing Respondents shall also submit, for the ED's approval, a proposed schedule for subsequent Remedial Activities whose deadlines have been affected by the Force Majeure event. Neither the ED's approval of the timetable of measures to be taken to prevent or minimize delays or of the revised schedule of Remedial Activities will be construed as excusing the delay or as a waiver of TCEQ's rights to enforce this AO.

- B. Force Majeure events will not include increased costs or expenses of any part or all of the Work, or the financial inability of any Agreeing Respondent to perform any part or all of the Work.
- C. If the ED and the Agreeing Respondents cannot agree that the cause for the delay was a Force Majeure event or cannot agree upon the schedule for subsequent Remedial Activities, then the disagreement will be resolved according to Section XXIII (Resolution of Disagreements). The Agreeing Respondents shall have the burden of demonstrating that Force Majeure is warranted.

XXIII. Resolution of Disagreements

- A. The Agreeing Respondents and the ED shall attempt to resolve on an informal basis any issues arising under Sections V (Order) through XXXIII (Termination of the Administrative Order) on which there is disagreement. The Agreeing Respondents shall commence informal negotiations by notifying the Project Manager in writing that there is a disagreement and that this Section is being invoked. Except as provided below in Paragraph D, informal negotiations will not extend beyond thirty (30) Days from the date the Project Manager receives such notification, unless the Agreeing Respondents and the ED agree otherwise in writing.
- B. The Agreeing Respondents shall notify the Project Manager within thirty (30) Days after the Day the Agreeing Respondents knew or should have known of the events giving rise to the disagreement. Should the Agreeing Respondents fail to give such notice, the ED's decision on any disagreement will be binding.

- C. Notification of the Project Manager in accordance with Paragraph A above will not by itself postpone the deadlines established in accordance with this AO or stay the accrual of any applicable stipulated penalties for the matter at issue. However, the obligation to pay any applicable stipulated penalties to the TCEQ will be stayed pending resolution of the disagreement in accordance with this Section.
- D. If the ED makes a determination to perform a portion or all of the Remedial Activities, the Agreeing Respondents shall have five (5) Days after notification to the Site Coordinator to commence informal negotiations by notifying the Project Manager in accordance with Paragraph A above. Informal negotiations will not extend beyond fifteen (15) Days from the date the ED receives notification, unless the Agreeing Respondents and the ED agree otherwise in writing.
- E. The procedure for any resolution of disagreements subsequent to informal negotiations is set forth in Sections 361.321 and/or 361.322 of the Act.
- F. Unless otherwise specifically set forth herein, the fact that resolution of disagreements is not specifically set forth in individual Sections is not intended to and will not bar the Agreeing Respondents from invoking this Section as to any disagreement arising under Sections V (Order) through XXXIII (Termination of the Administrative Order), including any disagreement concerning the ED's exercise of discretion under the terms of this AO.

XXIV. Indemnification

Respondents agree to indemnify and hold harmless TCEQ and its officers, employees, agents, principals and assigns from and against all fines, penalties, claims, damages, losses, demands, judgments, settlements, costs of suit, and attorneys' fees that arise out of or result from:

1. Respondents' performance of an inherently dangerous activity or handling of a solid waste or hazardous substance at or from the Site;
2. Respondents' negligent, reckless, or intentional acts or omissions or such acts or omissions of any of its agents or employees; and
3. the negligent, reckless, or intentional acts or omissions of any of the Respondents' contractors or suppliers or their agents or employees.

XXV. Liability

The State of Texas, by issuing this AO, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions of Respondents

or their directors, officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any of the Work. Neither TCEQ nor the State of Texas will be deemed a party to any contract entered into by any Respondent or its directors, officers, employees, agents, successors, assigns, contractors, or consultants to perform any or all of the Work or any other activity at the Site.

XXVI. Severability

The provisions of this AO are intended to be severable and are deemed severable. Should any provision of this AO be rendered unenforceable by a court of competent jurisdiction or other appropriate authority, the remaining provisions will remain valid and enforceable.

XXVII. TCEQ's General Reservation of Rights and Retention of Claims

Except as specified herein, nothing in this AO will constitute or be construed as a covenant not to sue by TCEQ or the State of Texas or a release from any claim, cause of action, or demand in law or equity against any person, firm, partnership, or corporation. Except as specified herein, the ED reserves and this AO is without prejudice to all rights against Respondents with respect to all matters including:

1. Claims based on Respondents' failure to fulfill the requirements of this AO;
2. Liability arising from the past, present, or future disposal, release, or threat of release of solid wastes or hazardous substances outside of or not related to the Site;
3. Liability for future disposal of solid wastes or hazardous substances at the Site, other than as provided in the RSD or in any work plan required to be developed in accordance with this AO;
4. Liability for violations of federal or state law which occur during or after implementation of the Remedial Activities;
5. Claims based on criminal liability; and
6. Claims for natural resource damages as defined by CERCLA (42 U.S.C. Sections 9601 *et seq.*), the Oil Pollution Act of 1990 (33 U.S.C. Sections 2701 *et seq.*), the Oil Spill Prevention and Response Act (Texas Natural Resources Code Chapter 40), and the Federal Water Pollution Control Act (33 U.S.C. Sections 1251 *et seq.*).

Notwithstanding any other provisions of this Section, any De Minimis Responsible Party will be released from any further liability to the TCEQ and the State of Texas arising out of or relating to the Site only upon satisfactory completion of its

requirements under this AO as specified in Section V (Order) Paragraph D.

XXVIII. Section Headings

Section headings are included for convenience of reference only and will be disregarded in the construction and interpretation of any of the provisions of this AO.

XXIX. Continuing Authority

TCEQ specifically retains authority over Respondents for the duration of this AO for the purposes of issuing such further orders or directions as may be necessary or appropriate to construe, implement, modify, enforce, terminate, or reinstate the terms of this AO or for any further relief as the interest of the State of Texas may require.

XXX. Enforcement

Except as provided in Section XXI (Stipulated Penalties) Paragraph O, nothing herein will preclude TCEQ from taking any additional enforcement actions against Respondents at any time including issuing such additional orders as TCEQ may deem necessary or from requiring Respondents, but not any De Minimis Responsible Parties, to perform additional activities in the future and to completely perform all of the Work.

This AO in no way obligates the State of Texas to assist Respondents in defending contribution actions brought by other persons or entities.

XXXI. Computation of Time

- A. Deadlines falling on a weekend or a holiday recognized by the State of Texas will be extended until the next business day.
- B. The terms “submit” and “provide” as used herein will refer to the date on which information, data, a document, or a record is to be received by the appropriate Party. Submittals received on the deadline date will be deemed timely.

XXXII. Opportunity to Conference

- A. The Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties may, within twenty (20) Days after the Effective Date, request a conference with the Project Manager. The request must be submitted in writing to the Project Manager. Any such conference will occur at the TCEQ’s main campus in Austin.
- B. The purpose and scope of the conference will be limited to issues involving the implementation of the Remedial Activities. The conference is not an

evidentiary hearing, does not constitute a proceeding to challenge this AO, and does not give Agreeing Respondents or, if there are no Agreeing Respondents to this AO, the Performing Parties the right to seek review of this AO.

XXXIII. Termination of the Administrative Order

- A. The ED may terminate this AO when he determines that alternative or additional work is required at the Site because the Remediation Goals will not be attained by implementation of the Remedial Activities, unless Agreeing Respondents and the ED agree on such alternative or additional work, agree to modify the Remedial Action to include such additional or alternative work in accordance with Section V (Order) Paragraph J, and agree to modify this AO in accordance with Section V (Order) Paragraph J.
- B. Except as provided in this Section, when the ED determines that the Work has been completed in accordance with this AO, the ED will provide written notice to Agreeing Respondents that Agreeing Respondents have fully satisfied the requirements of this AO. Such notice will be issued within one hundred and eighty (180) Days after the ED determines that the Work has been completed in accordance with this AO. This notice will not, however, terminate Respondents' obligations to comply with those provisions specified herein that are intended to survive this AO, including requirements regarding record preservation and Sections XV (Records), XXI (Stipulated Penalties), XXV (Liability), XXIX (Continuing Authority), and XXX (Enforcement).

XXXIV. Rules of Construction

The masculine, feminine, and neuter gender will each include the other, and the singular and plural number will each include the other.

This AO may be executed in two or more counterparts each of which will be deemed an original but all of which together will constitute one and the same document.

XXXV. Sovereign Immunity

The Parties hereby agree that nothing in this AO waives the State of Texas' sovereign immunity relating to suit, liability, and the payment of damages. The Parties further agree that all claims, suits, or obligations arising under or relating to this AO are subject to and limited to the availability of funds appropriated by the Texas Legislature for that respective claim, suit or obligation.

The Chief Clerk shall send a copy of this Administrative Order to all Parties.

Issue date:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Bryan W. Shaw, Ph.D., Chairman

For the Commission

FIRST QUALITY CYLINDERS

STATE SUPERFUND SITE

ADMINISTRATIVE ORDER

EXHIBIT A

REMEDY SELECTION DOCUMENT

REMEDY SELECTION DOCUMENT



**FIRST QUALITY CYLINDERS PROPOSED STATE SUPERFUND SITE
SAN ANTONIO, BEXAR COUNTY, TEXAS
AUGUST 22, 2014**

***PREPARED BY: SUBHASH C. PAL, P.E., PROJECT MANAGER
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
SUPERFUND SECTION
REMEDICATION DIVISION***

**FIRST QUALITY CYLINDERS PROPOSED STATE SUPERFUND SITE
SAN ANTONIO, BEXAR COUNTY, TEXAS
REMEDY SELECTION DOCUMENT**

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Acronyms and Abbreviations

ARARS	Applicable or Relevant and Appropriate Requirements
COCs	Chemicals of Concern
CPS	Calcium Polysulfide
C/I	Commercial/Industrial
EPA	United States Environmental Protection Agency
FOC	Fraction of Organic Carbon
HRS	Hazard Ranking System
ISCR	In-Situ Chemical Reduction
mg/L	milligram/Liter
NFRAP	No Further Remedial Action Planned
PCL	Protective Concentration Level
PMZ	Plume Management Zone
PRPs	Potentially Responsible Parties
SAWS	San Antonio Water System
TCEQ	Texas Commission on Environmental Quality
TDS	Total Dissolved Solids
Tex. Admin. Code	Texas Administrative Code
TRRP	Texas Risk Reduction Program
TWC	Texas Water Commission
VOCs	Volatile Organic Compounds

**FIRST QUALITY CYLINDERS PROPOSED STATE SUPERFUND SITE
SAN ANTONIO, BEXAR COUNTY, TEXAS
REMEDY SELECTION DOCUMENT**

I. INTRODUCTION

The First Quality Cylinders State Superfund Site (site) occupies a 1.268-acre tract of land at 931 West Laurel Street in San Antonio, Bexar County, Texas (Figure 1). The approximate geographic coordinates of the facility are Latitude 29°27'15"N and Longitude 98°30'15"W. Former site operations, which were conducted from 1982 until 1993, included the rebuilding of aircraft cylinders using a chromium plating process. A process building was located on the western portion of the site. Inside the process building was a 55-foot long plating trench where the chromium plating operations were performed.

The site consists of a partial slab of the former process building, gravel area next to the slab where chromium contaminated soil and the plating trench were removed, and the remainder of the site which is paved with asphalt. A containment system has been installed to control migration of contaminated groundwater from the site. The containment system consisting of a soil-bentonite slurry wall completely surrounding the site and a shallow groundwater recovery system located on the eastern end of the site, parallel to and approximately 10 feet inside the slurry wall. The slurry wall is approximately 2 feet wide and 20 feet deep and is anchored in 6 to 10 feet into the Navarro clay. The shallow groundwater recovery system consists of French drain, three extraction wells, and a 6,000-gallon aboveground storage tank. The soil and groundwater at the site are contaminated with total chromium and hexavalent chromium.

The Texas Commission on Environmental Quality (TCEQ) is the agency in the State of Texas that implements many of the state laws relating to the conservation of natural resources and the protection of public health and safety and the environment. The TCEQ addresses certain sites that may constitute an imminent and substantial endangerment to public health and safety or the environment through the state Superfund program.

II. PURPOSE

This Remedy Selection Document (RSD) presents the *Remedial Action* (also known as the remedy) for the site, which is designed to address the contamination and provide protection of public health and safety and the environment. Words appearing in italics in this document are defined in Section IX, Glossary of this RSD.

- A. The purpose of this document is:
 - 1. to describe the actions taken by the TCEQ to investigate the contamination, including any mitigating actions; and
 - 2. to describe the Remedy selected to address the contaminated soil and groundwater at the site.

- B. This RSD summarizes information that can be found in greater detail in various studies and reports located in the site files. Relevant documents are identified and summarized in Part V, Summary of Site Activities and Reports of this RSD.

Copies of the documents summarized in this RSD, as well as other relevant information, can be

viewed at the local repository:

San Antonio Public Library
600 Soledad
San Antonio, Texas 78205
Phone Number: (210) 207-2500

or in Austin at the TCEQ Records Management Center:

Building E, 1st Floor
12100 Park 35 Circle
Austin, Texas 78753
Phone Number: (512) 239-2930

III. LEGAL AUTHORITY

The investigation of the nature and extent of contamination at the site and the selection of the *Remedial Action* are in accordance with the *Solid Waste Disposal Act* (codified as Chapter 361 of the Texas Health and Safety Code); Subchapter K: Hazardous Substance Facilities Assessment and Remediation rules found in 30 Texas Administrative Code (Tex. Admin. Code) Chapter 335; and the *Texas Risk Reduction Program* (TRRP) rules found in 30 Tex. Admin. Code Chapter 350.

While the Subchapter K rules are specific to the Superfund process, the TRRP rules are a comprehensive program for addressing environmental contamination and apply to many different types of corrective action administered by the TCEQ. The TRRP rules establish procedures for determining the concentration of contaminants to which a person or other environmental receptor can be exposed without unacceptable risk of harm. These acceptable concentration levels are called *Protective Concentration Levels* (PCLs).

A three-tiered approach may be used under the TRRP rules to calculate the PCLs for a site. The tiers represent increasing levels of evaluation where site-specific information is factored into the process. For example, Tier 1 uses conservative, generic models that do not account for site-specific factors while Tiers 2 and 3 allows for more detailed and complex evaluations so that PCLs are appropriate for specific site conditions. The PCLs for this site were developed under Tier 2 to protect human health and the environment.

Critical to the analysis under all three of the tiers is the land use classification for the site. Under the TRRP rules, the land can be classified as either residential or commercial/industrial (C/I). Remediation to residential standards assumes that the site may be occupied by children and therefore is applicable not only to strictly residential land but also to playgrounds, schools, daycare centers and similar land uses. Remediation to C/I standards assumes that the site will not be regularly occupied by children and is protective of persons who may occupy the site as workers. Sites remediated to C/I standards cannot be used for residential-type activities without TCEQ approval and after any response actions necessary to make the site safe for residential use have been implemented. After a public meeting on December 16, 1999, the site was proposed for listing on the Texas Superfund Registry and commercial/industrial (C/I) was designated as the appropriate land use for the site. The PCLs were calculated taking into account the C/I land use.

The TRRP rules provide for the following approaches, which may be used in combination, to

address the risks posed by the presence of contamination above a PCL: 1) removal or decontamination of contaminated media; 2) physical controls, such as landfills and caps which limit exposure to the contaminated media; or 3) *institutional controls* such as deed restrictions on the future use of the property which are also intended to limit exposure to the contaminated media. The TRRP rules provide for two broad remediation categories: Remedy Standard A and Remedy Standard B. To meet Remedy Standard A requirements, the contaminated media must be removed and/or decontaminated such that physical controls, and in most cases, *institutional controls*, are not necessary to protect human and ecological receptors from unprotective levels of contamination based on the designated land use. To meet the requirements of Remedy Standard B, however, physical controls and *institutional controls* may be relied on to eliminate exposure to levels of contamination that exceed the PCL. These standards are described in detail in 30 Tex. Admin. Code §§ 350.32 and 350.33, respectively. The proposed remedy at the site meets the criteria established for Remedy Standard B.

IV. SITE REGULATORY HISTORY

The facility operated as an aircraft cylinder rebuilding business using a chromium plating process from 1982 to 1993. During its operating life, the facility was operated as: Quality Cylinders, Inc.; 1st Quality Cylinders, Inc.; International AirCraft Cylinders, Inc.; and Aero-Chrome Services, Inc. As a result of the chromium plating process, the soil and groundwater at the site were contaminated with total chromium and hexavalent chromium.

Several times during the site's operation, the contaminated groundwater spilled onto the surrounding areas. In October 1990, the site operator entered into an agreed order with the Texas Water Commission (TWC), a predecessor agency of TCEQ, which required the site operator to characterize and properly dispose of on-site waste and investigate observed contamination in the site's soil and groundwater. In 1993, the Texas Office of the Attorney General, at the request of the TWC, initiated enforcement litigation against site owners and operators for their failure to comply with the terms of the 1990 agreed order. This litigation resulted in the installation of the containment system around 1997 to control migration of contaminated groundwater from the site. Groundwater flows into the French drain system, is extracted through three extraction wells and disposed off-site.

After attempts to address site contamination through the enforcement process were exhausted, the site was referred to the Superfund program. In September 1997, the Texas Natural Resource Conservation Commission (TNRCC) conducted a *Removal Action* to fence the perimeter of the site, dispose of wastes stored inside the process building, repair and provide operation and maintenance of the shallow groundwater recovery system and to dispose of the collected contaminated groundwater. The TCEQ continues to operate the shallow groundwater recovery system and oversees the disposal of collected contaminated groundwater.

A *Remedial Investigation*, conducted by the TCEQ between February 2000 and January 2004, identified the source of total chromium and hexavalent chromium contamination in subsurface soil and delineated the area of contamination. A *Removal Action*, conducted between June 18, 2012 and October 5, 2012, removed the process building and excavated contaminated subsurface soil that was the primary source of groundwater contamination. The excavated materials were treated on-site to immobilize the hexavalent chromium and properly disposed of in an off-site permitted landfill.

V. SUMMARY OF SITE ACTIVITIES AND REPORTS

A. HAZARD RANKING SYSTEM

The *Hazard Ranking System* (HRS) is a numerically-based screening system that uses information from initial, limited investigations to assess whether a site qualifies for the state or federal Superfund program. Sites scoring 28.5 or greater may qualify for the federal Superfund program, while sites scoring 5 or greater may qualify for the state Superfund program. In August 1999, the TCEQ derived a Hazard Ranking Score for the site, and the site earned a score of 50.0, which qualified the site for listing on the Texas Superfund Registry. On September 3, 1999 the United States Environmental Protection Agency (EPA) issued a “No Further Remedial Action Planned” (NFRAP) for the site making the site ineligible for the federal Superfund National Priorities List.

B. REMEDIAL INVESTIGATION

During 2002 and 2004, the TCEQ conducted two phases of *Remedial Investigation* at the site. During Phase 1 of the *Remedial Investigation*, soil and groundwater samples were collected from the following locations:

- Subsurface soil samples from 17 on-site locations.
- Groundwater samples from four on-site wells.
- Subsurface soil samples from eight off-site locations.
- Groundwater samples from eight off-site wells.

The subsurface soil samples were analyzed for metals (cadmium, chromium, and lead). In addition, 10 subsurface soil samples were submitted for geotechnical analysis (volumetric water content, bulk density, porosity and intrinsic permeability). The groundwater samples were analyzed for metals (cadmium, chromium, lead) and total dissolved solids (TDS).

During Phase 2 of the *Remedial Investigation*, the following soil and groundwater samples were collected:

- Subsurface soil samples from 65 on-site locations.
- Groundwater samples from three on-site wells, and.
- Subsurface soil samples from three off-site locations.
- Groundwater samples from one off-site well.

Subsurface soil samples were analyzed for volatile organic compounds (VOCs), total metals (cadmium, chromium, and lead), cyanide, and hexavalent chromium. Three on-site soil samples were analyzed for fraction of organic carbon (FOC) and pH. The groundwater samples were analyzed for VOCs, metals, cyanide, hexavalent chromium and TDS. The monitor well locations are shown in Figure 2.

Site-specific data including land use, source area size, groundwater classification and soil classification have been used for the selection of appropriate assessment levels and *Critical Protective Concentration Levels* (*critical PCL*). No VOCs were detected above the *critical PCL* in the on-site soil and groundwater samples. Concentrations of petroleum hydrocarbon-related VOCs were detected in soil and groundwater samples from an off-site monitor well. This monitor

well is located down-gradient from a gas station and the presence of VOCs in soil and groundwater samples appeared to be related to a potential release from a petroleum storage tank.

Results of the analysis of the site's groundwater samples showed total dissolved solid concentrations ranged from 713 to 10,000 milligrams per Liter (mg/L). A yield test indicated that the shallow groundwater in the vicinity of the site was not capable of producing 150 gallons per day. Based upon these characteristics, the contaminated shallow groundwater beneath the site is designated as a Class 3 groundwater resource.

Cyanides and metals other than chromium were not detected in on-site or off-site soil and groundwater samples above the respective *critical PCL*. Total chromium concentrations in soil samples collected from the site perimeter and off-site locations did not exceed the *critical PCL*. Chromium contaminated soil was detected around the plating trench inside the process building and two areas outside the process building as shown in Figure 3. Total chromium was not detected in the off-site monitor wells indicating that the slurry wall is effectively containing impacted groundwater on-site.

Ecological Risks

The Tier 1 Exclusion Criteria Checklist, dated August 2003, determined that conditions at the site met the exclusion criteria, meaning that no further ecological assessments are needed.

C. TREATABILITY STUDY FOR SOIL-BENCH-SCALE

The TCEQ conducted a bench-scale treatability study to determine additive recipes to immobilize hexavalent chromium in soil at the site. The bench-scale study included mixing surface and subsurface composite soil samples with varying ratios of fly ash, lime kiln dust, cement kiln dust, Portland cement, and calcium polysulfide (CPS) solution. It was determined that the addition of 5 gallons of 29% CPS solution per ton of soil provides effective treatment.

D. REMOVAL ACTION

A *Removal Action* was performed at the site from June 18, 2012 to October 5, 2012, during which total chromium and hexavalent chromium impacted soil was excavated, treated on-site with CPS solution to immobilize the hexavalent chromium, and properly disposed of in an off-site permitted waste disposal facility. The *Potentially Responsible Parties* (PRPs) were notified of the *Removal Action* and no offer to perform the *Removal Action* was received from any PRP.

Preliminary work for the *Removal Action* included a lead and asbestos survey, communication with the City of San Antonio, acquisition of a demolition permit, preparation of an Asbestos Abatement Plan, and preparation of a Traffic Control Plan. Areas of Asbestos-Containing Materials were identified and removed. The process building interior was decontaminated to remove traces of hexavalent chromium from floors, walls, ceilings, and process equipment. The building structure was demolished. The building debris was recycled, where possible; otherwise, a waste profile was prepared, and debris was loaded and transported for proper disposal at an off-site facility.

The plating trench and the affected soil adjacent and beneath the slab and the trench was treated with 29% CPS solution in-situ or ex-situ, excavated and stockpiled. The areas of contaminated soil

outside the process building were also excavated and treated with 29% CPS solution and added to the stockpile. All the materials were sampled for waste characterization and disposed of at a permitted disposal facility. Confirmation samples were collected and analyzed to assure clean-up goals had been achieved. Figure 4 presents the extent of excavation and confirmation sampling locations.

The excavated areas were backfilled with clean soil amended with CPS solution. An amendment delivery system was installed along the alignment of the former trench to allow for sampling of groundwater. It will also allow for treatment and/or extraction of groundwater from the source area, if needed.

E. TREATABILITY STUDY FOR GROUNDWATER-BENCH-SCALE AND PILOT-SCALE

The groundwater bench-scale treatability study evaluated in-situ chemical reduction (ISCR) treatment by using jar tests that involved mixing samples of aquifer soil and groundwater collected from several locations within the site with varying doses of CPS solution. The results indicated that CPS is capable of lowering the concentrations of hexavalent chromium in groundwater to below the pre-treatment standard that would allow treated groundwater to be discharged to the San Antonio Water System (SAWS) sanitary sewer. The results also indicated that it may be possible to lower hexavalent chromium concentrations below the surface water *critical PCL*. If this objective is achieved, it may be appropriate to breach a portion of the slurry wall so that the groundwater within the site can flow off-site.

The TCEQ next conducted a pilot-scale treatability study to evaluate the effectiveness of using ISCR for treating hexavalent chromium in affected groundwater at the site. The pilot-scale treatability study was performed to provide information on: 1) chemical dose and injection methods that optimize the distribution of the chemical reductant into the shallow groundwater zone; 2) the degree that chromium concentrations in groundwater are expected to decline following ISCR treatment; and 3) the degree that chromium concentrations may increase (rebound) following treatment.

A total of 1,350 gallons of 29% by weight of CPS solution, a chemical reductant, was injected 7 to 12 feet below ground surface at 48 drilling locations placed in a close-packed array on 10-foot centers throughout the 4,400 square foot treatment area. To enhance the dispersion of CPS in the saturated zone, 150-200 gallons of water was injected at each location following the injection of CPS solution.

Groundwater monitoring events were conducted at 1, 3, 6, and 12 weeks post-treatment. The following Table summarizes total chromium concentrations observed at key groundwater wells prior to ISCR treatment and during post-treatment sampling events. The pilot-scale study indicated that the concentration of chromium had been reduced significantly.

Table: Chromium Concentration Data for the Pilot Scale Treatability Study

Well Identification	EW-2	EW-3	TW-2	MW-11
Location	Groundwater Collection Trench	Groundwater Collection Trench	Treatment zone- hot spot	Adjacent to Collection Trench
Pretreatment Concentration (mg/L)	2.52	2.62	127	4.85
Post-Treatment Concentration (mg/L) Week 1 12/12/13	0.939	0.0934	107	0.101
Post-Treatment Concentration (mg/L) Week 3 12/28/13	0.537	0.293	91.0 50.8 (FD)	0.014
Post-Treatment Concentration (mg/L) Week 6 1/17/14	NS	0.134	53.6	<0.002
Post-Treatment Concentration (mg/L) Week 12 2/28/14	NS	0.178	56.4	0.101

EW- Extraction Well

TW- Treatability Study Well

MW- Monitor Well

FD-Field Duplicate

NS- Not Sampled

VI. REMEDY SELECTION

A *Remedial Action* may consist of any combination of removal or decontamination of contaminated media, physical controls such as landfills and caps, or institutional controls, such as deed restrictions on the future use of the property. In accordance with 30 Tex. Admin. Code § 335.348(l) and the requirement of Texas Health and Safety Code § 361.193, the TCEQ selects the *Remedial Action* for a site by determining which remedial alternative is the lowest cost alternative which is technologically feasible and reliable, effectively mitigates and minimizes damage to the environment, and provides adequate protection of the public health and safety and the environment. Based on these evaluation criteria the selected remedy for this site is the establishment of a *Plume Management Zone (PMZ)* with In-Situ Chemical Reduction (ISCR) followed by post-treatment polishing, if needed.

During a public meeting held on June 12, 2014 at VIA Administrative Board Room, 800 Myrtle Street, San Antonio, Texas, the above-mentioned remedy for the site was presented to the public. There were no objections to the proposed remedy from the public.

The TRRP rules classify remedies as either conforming to Remedy Standard A or Remedy Standard B. These standards are described in detail in 30 Texas Administrative Code Section 350.32 and Section 350.33, respectively. The remedy selected for the site conforms to Remedy Standard B.

VII. DESCRIPTION OF THE SELECTED REMEDY

The remedy would consist of the establishment of a PMZ on-site and ISCR on the source area. *Institutional Controls* would be placed on the property designating non-residential use and restricting exposure to the groundwater on the property. The ISCR would involve the injection of CPS solution into the saturated zone. The groundwater will be managed until the *Remedial Action* objectives are met, and then the slurry wall will be breached.

Under this alternative, a revised soil *critical* PCL would be calculated for the remaining source area soil PCL exceedance zone to determine source area soil concentrations that are protective of groundwater at the point of exposure. Any areas of soil exceeding this revised *critical* PCL would require excavation and proper off-site disposal.

Under the ISCR treatment, CPS solution will be distributed into the saturated zone through approximately 130 direct push injection borings (as in the pilot study) as presented in Figure 5. The extracted groundwater from the interceptor trench will be managed using a portable treatment system to reduce the concentration of residual chromium to a level suitable for discharge into the sanitary sewer or surface water. Detailed engineering specifications will be developed during the remedial design phase.

The engineering controls currently in place (e.g., interceptor trench, perimeter containment system, fencing) will be maintained throughout the operational periods. Protocols for system operation and maintenance activities, groundwater monitoring, and any additional site controls needed to prevent unacceptable exposure to hexavalent chromium will be developed in an Operations and Maintenance Plan.

VIII. REMAINING STEPS IN THE SUPERFUND PROCESS

The PRPs were notified of the proposed remedy by letter dated May 6, 2014 and they were allowed a period of 60 days after the public meeting to make a good faith offer (GFO) to fund, or perform, the selected remedy. The public meeting was conducted on June 12, 2014. The deadline for GFO ended on August 11, 2014 and no GFO was received. Whether or not PRPs come forward to fund or perform the remedy, the TCEQ will issue a final administrative order as provided by Texas Health and Safety Code § 361.188 (188 Order). At that time, the site will no longer be considered a “proposed” state Superfund Site but will then be “listed” on the State Registry of Superfund Sites.

Following issuance of the Administrative Order, either the PRPs or the TCEQ will complete the detailed design of the selected remedy and implement the remedy in its entirety. At any time in this process, the TCEQ may determine that a change should be made to the *Remedial Action*. Any changes will be implemented in accordance with 30 Texas Administrative Code Section 335.349.

Upon completion of the *Remedial Action*, the TCEQ may propose to delete the site from the State Registry of Superfund Sites. A public meeting will be held before the site is deleted from the State Registry.

IX. GLOSSARY

Critical Protective Concentration Level (critical PCL)-The lowest protective concentration level

for a chemical of concern within a source medium determined from all of the applicable human health exposure pathways considering both carcinogenic and non-carcinogenic effects, and when necessary, protective concentration levels for applicable ecological exposure pathways as required.

Hazard Ranking System (HRS) - The scoring system used by the TCEQ to evaluate a site for the state or federal Superfund program. The scoring system was developed by the U.S. Environmental Protection Agency (EPA) as described in 40 Code of Federal Regulations Part 300, Appendix A.

Institutional Control – A legal instrument placed in the property records in the form of a deed notice or restrictive covenant which indicates the limitations on or the conditions governing use of the property which ensures protection of human health and the environment.

Plume Management Zone (PMZ) - The area of groundwater Protective Concentration Level exceedance zone at the time of response action plan submittal, plus any additional area allowed in accordance with the TRRP.

Potentially Responsible Parties (PRPs) - Persons or entities that the TCEQ considers potentially responsible for the contamination of the site pursuant to Section 361.271 of the Texas Health and Safety Code.

Protective Concentration Level (PCL) - The concentration of a chemical of concern which can remain within the source medium and not result in levels which exceed the applicable human health risk-based exposure limit or ecological protective concentration level at the point of exposure for that exposure pathway.

Remedial Action (RA) - An action, including remedial design and post-closure care, consistent with a remedy taken instead of, or in addition to, a removal action in the event of a release or threatened release of hazardous substances into the environment to prevent or minimize the release of a hazardous substance so that the hazardous substance does not cause an imminent and substantial endangerment to present or future public health and safety or the environment.

Remedial Investigation (RI) - An investigative study which may include removals, and/or a feasibility study, in addition to the development of protective concentration levels, designed to adequately determine the nature and extent of release or threatened release of hazardous substances and, as appropriate, its impact on air, soils, groundwater and surface water, both within and beyond the boundaries of the facility.

Removal Action - An action which removes the source or potential source of contaminants before the Remedial Action is conducted where immediate action is appropriate to protect human health and environment.

Solid Waste Disposal Act - Chapter 361 of the Texas Health and Safety Code. The purpose of the Solid Waste Disposal Act is to safeguard the health, welfare, and physical property of the people and to protect the environment by controlling the management of solid waste, including any hazardous waste that is generated. Subchapter F of Chapter 361 relates to the state Superfund process. The Texas Health and Safety Code is available online at:
<http://www.statutes.legis.state.tx.us/>

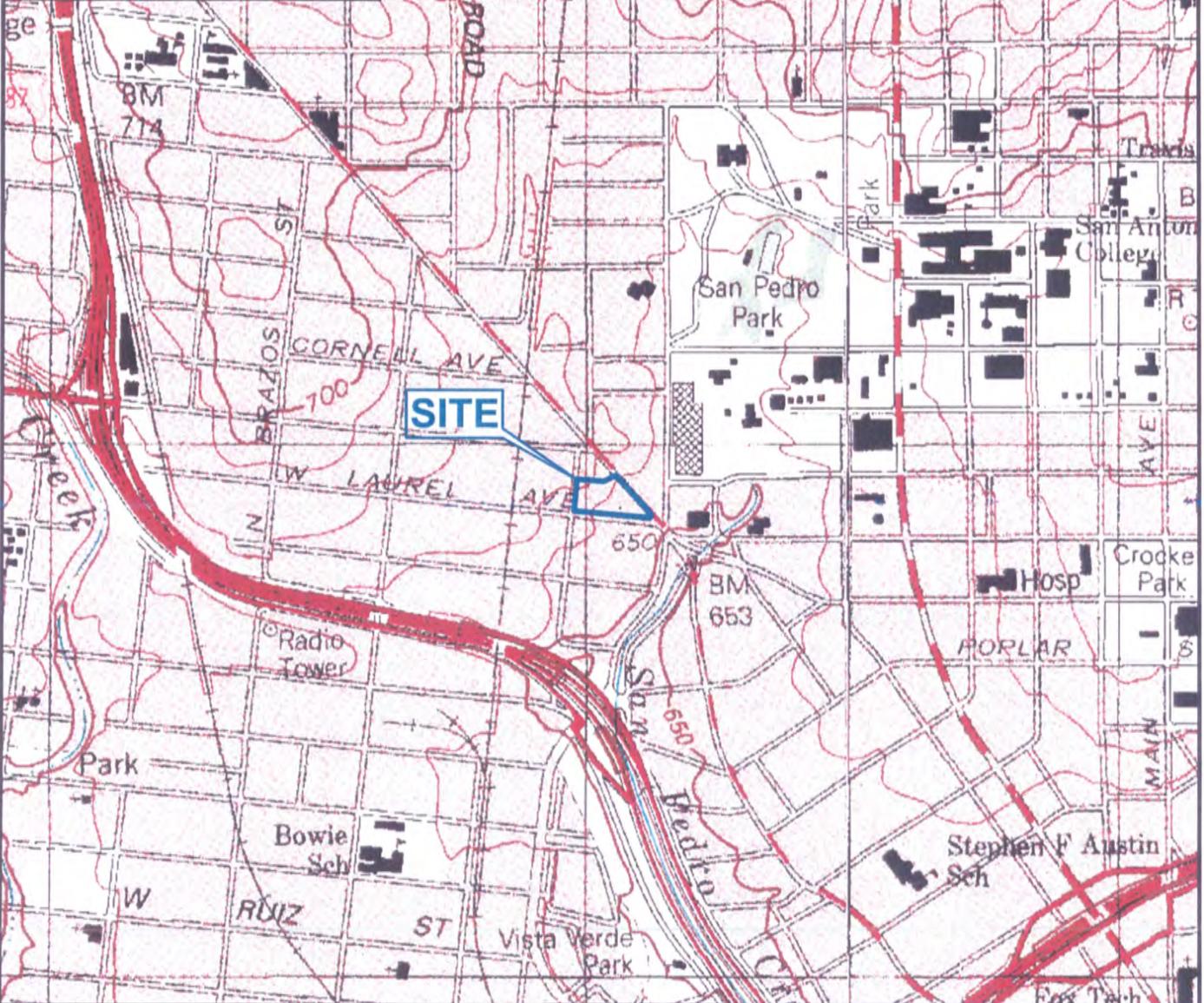
Texas Risk Reduction Program (TRRP) - A program of the TCEQ that provides a consistent corrective action process directed toward protection of human health and the environment balanced with the economic welfare of the citizens of the state. The rules for this program are located in Chapter 350 of 30 Tex. Admin. Code. The Tex. Admin. Code is available online at: **<http://www.sos.state.tx.us/tac/>**.

FIGURES

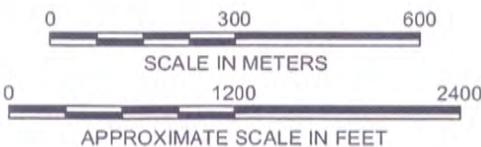
**FIGURE 1
SITE LOCATION MAP**

REFERENCE

URS, January 2004, Remedial Investigation Affected Property Assessment Report



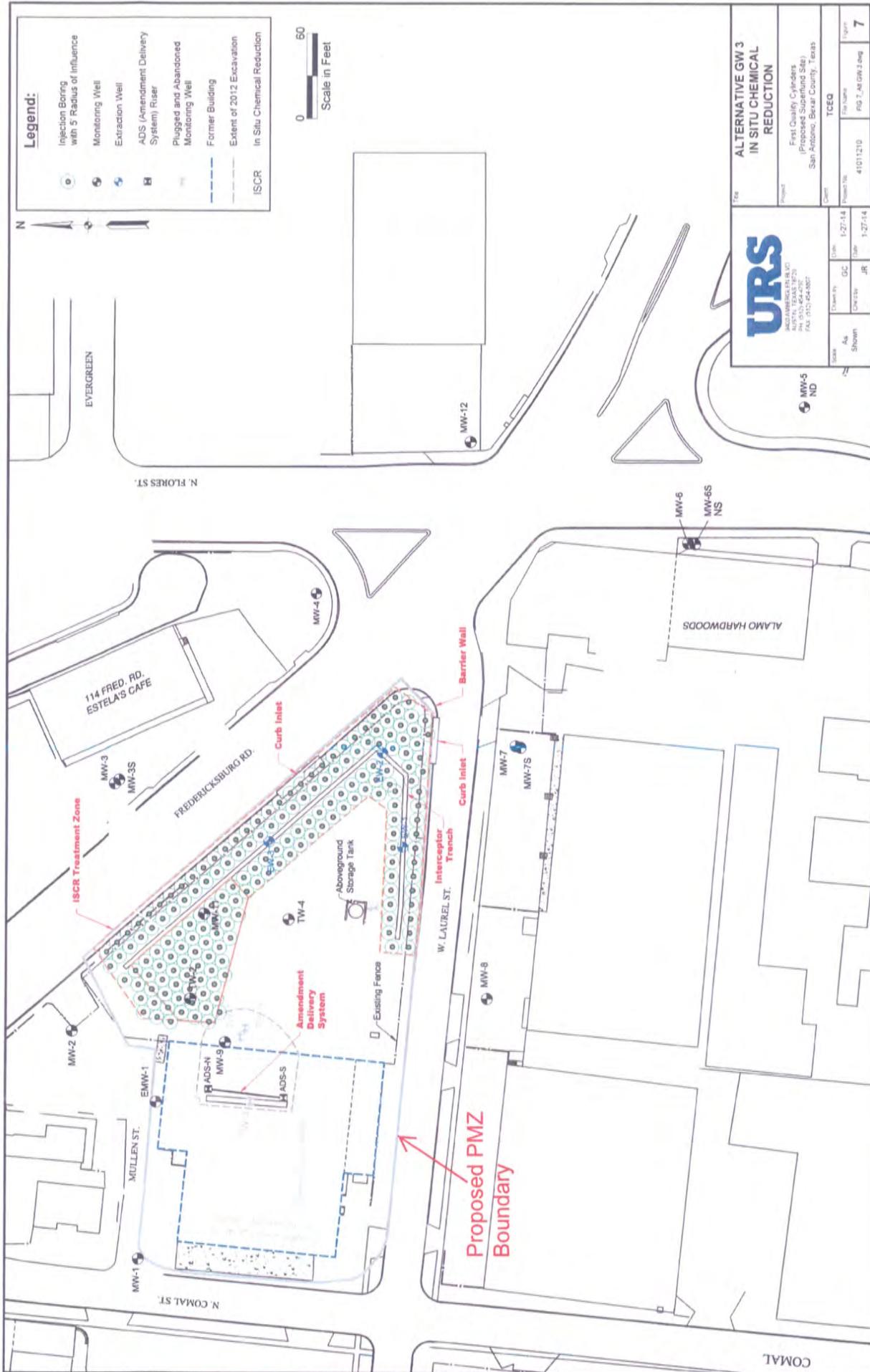
Source:
U.S.G.S. 7.5-minute Series Topographic Maps
for San Antonio West (1992) and San Antonio
East (1993) Texas Quadrangles.



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Scale: As Shown	Drawn by: SLC	Date: 12-23-13
	Chk'd by: JR	Date: 12-23-13

Title: SITE LOCATION MAP		
Project: First Quality Cylinders (Proposed Superfund Site) San Antonio, Bexar County, Texas		
Client: TCEQ		
Project No.:	File Name:	Figure:
41011210	Site Location Map.dwg	1



File: L:\07\Projects\GW3\12012010_0517\11.dwg; Date: 1/27/14; User: JCR; Plot: 1-27-14; Scale: As Shown; Sheet: 7 of 7; Project: 41011210; File Name: FIG 5_A_GW3.dwg

**FIRST QUALITY CYLINDERS
STATE SUPERFUND SITE
ADMINISTRATIVE ORDER**

**EXHIBIT B
LIST OF SOLID WASTES AND HAZARDOUS
SUBSTANCES AT THE SITE**

SOLID WASTE AND HAZARDOUS SUBSTANCES AT THE SITE

Total chromium

Hexavalent Chromium

FIRST QUALITY CYLINDERS

STATE SUPERFUND SITE

ADMINISTRATIVE ORDER

EXHIBIT C

FIELD SAMPLING PLAN CONTENTS OUTLINE

FIELD SAMPLING PLAN (FSP)

TABLE OF CONTENTS

Title and Approval Sheet

Distribution List

Table of Content

1.0 Introduction/Purpose

- **Investigation Phase:** Purpose - Briefly states the specific purpose of this FSP relative to the Quality Assurance Project Plan and Work Plan and/or other documents. A schematic presentation of the project documents and the location of key planning components should be presented.
- **RA Phase:** Purpose - Briefly states the specific purpose of this FSP relative to the RA Contract Document and Quality Assurance Project Plan and/or other documents and a schematic presentation of the project documents and the location of key planning components.
- **Project/Task Organization** - Identify the key individuals or organization participating in the project and their role(s) and responsibilities, and the organizational chart for the project. (Project specific information for QAPP Element A4) ¹

2.0 Site and Project Summary

- **Investigation Phase:** Problem Definition/Background- Briefly states the Site description, surrounding area, historical information, previous investigation, suspected contamination source, a probable transport pathways and other Site information. Most of this information is available from the Conceptual Site Model developed during the planning phase. Any specific data gaps and methods to fill the data gaps should also be discussed. State the specific problem to be solved or the decision to be made and identify the decision maker. (Project specific information for QAPP Element A5) ¹
- **RA Phase:** Problem Definition/Background- Briefly states the Site description, historical information, previous investigation, a summary of the selected remedy, a brief discussion of the Remedial Action activities. State the specific problem to be solved or the decision to be made and identify the decision maker. (Project specific information for QAPP Element A5) ¹
- **Project/Task Description and Schedule-** A summary of the project and the project tasks, the turn-around time for the project including the turnaround time requirement of laboratory analysis. (Project specific information for QAPP Element A6) ¹

Describe any special personnel and equipment required for the specific type of work being planned or measurement being taken. (Project specific information for QAPP Element A8) ¹

Data Acquisition Requirement (Non-direct Measurement)-Define the criteria for the use of non-measurement source such as computer databases, programs, literature files, and historical databases. (Project specific information for QAPP Element B9) ¹

Assessment Technique-Define the number, frequency, and type of quality assessments activities, the responsible staff, and the procedures to be performed during the life of the project are specified in this section and any special training/certification requirements. (Project specific information for QAPP Element C1) ¹

3.0 Sampling Objectives / Data Quality Objectives

Data Quality Objectives - Summarize the project specific quality objectives and measurement performance criteria. This section should include the summary of the 7-Step DQO process or a systematic planning process used and should include reference to Appendix B for the complete details of the proposed DQOs document for the project. Designates and briefly describes sampling units (e.g. AOCs, surface soil to 6 inches). States objectives by sampling unit or media. The Project specific calculations or algorithms are also specified in this section.(Project specific information for QAPP Element A7) ¹

4.0 Sampling Plan Design

Sampling Process Design - All the relevant components of the experimental design and the key parameters to be evaluated are included in this section. This section shall include the sampling activities, the rationale for the design (in terms of meeting the DQOs), the sampling design assumptions, the procedures for locating and selecting environmental samples, a classification of measurements as critical or noncritical, the type and number of samples required for the project including the required field QC samples, the sampling locations and frequency, the applicable sample matrices, and an identification of samples critical to the project. Most of this information should be available from the output from Step 7 of the DQO process. (Project specific information for QAPP Element B1) ¹

Describe the sampling plan for each media as applicable, including figures and tables.

- Surface Soil
- Subsurface Soil
- Groundwater
- Surface Water and Sediment
- Air Other
- Matrices

This section should also include a table summary containing a list of all chemicals of concern identified for the project with the corresponding Level of

Required Performance (LORP) (e.g., action levels and preliminary remedial goals), analytical methods, including the preparation, analysis and cleanup methods, and the corresponding Method Detection Limit for all the analytes of concern.

5.0 Sampling Method and Sample Handling

Sampling Method Requirements - *Identify sampling methods and equipment and describe the procedures for sample collection, preparation, and decontamination. This section should reference the Standard Operating Procedures located in Appendix B. (Project specific information for QAPP Element B2)*¹

Sampling Handling and Custody Requirements- *This section shall include the required sample volumes, container types, and preservation requirements for non-standard analytical methods proposed for project work that are not listed in Table B2-1 of the Site-specific QAPP. This section also includes the field sample handling and custody requirements for the project. (Project specific information for QAPP Element B3)*¹

*This section should also contain specific requirements for field instrument/equipment testing, inspection and maintenance for the project. Additionally, field instrument calibration and frequency requirements for water level, pH, temperature, conductivity, dissolved oxygen, redox potential, and turbidity measurements are contained in this section. This section also includes the critical field supplies, the inspection or acceptance testing requirements, and the acceptance criteria. (Project specific information for QAPP Element B6, B7, and B8)*¹

6.0 Field Survey and Measurements

This section shall describe the sampling methods and criteria for field survey and measurements, such as land survey, hydrogeological tests and measurements, geophysical survey and or soil gas surveys, required for the project.

7.0 Additional Field Activities

This section contains description and procedures for other field activities such as pre-sampling/mobilization activities, required notification, property access, Site restoration and IDW handling and disposal.

8.0 Exceptions, Additions and Changes to the TCEQ Superfund Program QAPP

List any exceptions, additions and changes to the Superfund Program QAPP in each of the appropriate sub-sections corresponding to the table of contents of the Program QAPP. Site specific information (e.g., Group A and Group B elements) specified above shall not be re-stated in this section. Please refer to the Program QAPP for details. This section should also include specifications for non-standard methods and other analytical methods not contained in the Program QAPP.)

GROUP A: PROJECT MANAGEMENT

- A.1 Title and Approval Sheet
- A.2 Table of Contents
- A.3 Distribution List
- A.4 Project/Task Organization
- A.5 Problem Definition/Background
- A.6 Project/Task Description
- A.7 Quality Objectives and Criteria for Measurement Data
- A.8 Special Training Requirements/Certification
- A.9 Documentation and Records
 - A.9.1 Field Operation Records
 - A.9.2 Laboratory Records
 - A.9.3 Data Handling Records
 - A.9.4 Data Reporting Package Format and Documentation Control
 - A.9.5 Data Reporting Package Archiving and Retrieval

GROUP B: MEASUREMENT/DATA ACQUISITION

- B.1 Sampling Process Design
- B.2 Sampling Methods Requirements
 - B.2.1 Sample Containers
 - B.2.2 Sample Volumes, Container Types, and Preservation Requirements
- B.3 Sample Handling and Custody Requirements
 - B.3.1 Field Sample Handling and Custody Requirements
 - B.3.2 Laboratory Sample Handling and Custody Requirements
- B.4 Analytical Methods Requirements
 - B.4.1 Screening Methods
 - B.4.2 Definitive Preparation Methods
 - B.4.3 Definitive Analysis Methods
 - B.4.4 Non-standard Method Validation
- B.5 Quality Control Requirements
 - B.5.1 Definitive Analytical Methods
 - B.5.2 Screening Methods
 - B.5.3 Quality Control Measure Descriptions
 - B.5.4 Elements of Quality Control
 - B.5.5 Method Detection Limit and Sample Quantitation Limit
- B.6 Instrument/Equipment Testing, Inspection, and Maintenance Requirements
 - B.6.1 Maintenance Responsibilities
 - B.6.2 Maintenance Schedules
 - B.6.3 Spare Parts
 - B.6.4 Maintenance Records
- B.7 Instrument Calibration and Frequency
- B.8 Inspection/Acceptance Requirements for Supplies and Consumables
- B.9 Data Acquisition Requirements
- B.10 Data Management
 - B.10.1 Logbooks and Forms

B.10.2 Data Storage/Retrieval Requirements

GROUP C: ASSESSMENT/OVERSIGHT

- C.1 Assessments and Response Actions*
- C.2 Reports to Management*

GROUP D: DATA VALIDATION AND USABILITY

- D.1 Data Review, Validation, and Verification Requirements*
- D.2 Validation and Verification Methods*
- D.3 Reconciliation with User Requirements*

List of Tables

List of Figures

List of Appendices

- Appendix A - Standard Operating Procedures*
- Appendix B - Data Quality Objectives Document*
- Appendix C- Z- Other supporting documents as necessary.*