

Technical Summary and Executive Director's Preliminary Decision

02/11/2021

Description of Application

- Applicant:** Union Pacific Railroad Company
Houston Wood Preserving Works
Industrial Solid Waste Registration No. 31547
Hazardous Waste Permit No. 50343
Compliance Plan No. 50343
EPA I.D. No. TXD000820266
- Location:** Union Pacific Railroad Company - Houston Wood Preserving Works (UPRR) is located at 4910 Liberty Road near the intersection of Interstate 10 and Waco Street on approximately 36 acres in Houston, Harris County, Texas. The site is within the drainage area of Segment 1007 of the San Jacinto River Basin (*North Latitude 29° 47' 14"*, *West Longitude 95° 19' 13"*).
- This facility is not located in an area affected by the Texas Coastal Management Program.
- General:** The Southern Pacific Transportation Company conducted wood treating operations at the Houston Wood Preserving Works site from 1911 to 1984. UPRR acquired the property through its merger with Southern Pacific in 1997. Currently the former facility is closed. UPRR conducts post-closure care and corrective action as part of facility operations. Wastes managed by the facility include wood treatment (creosote) related wastes and were generated on-site at the facility on a noncommercial basis from cleanup activities.
- The original permit was issued on June 20, 1994, for a term of ten years. The permit was renewed on June 10, 2005, for an additional ten-year term.
- Request:** UPRR has applied to the TCEQ for a permit renewal with a major amendment to continue post-closure care of one closed surface impoundment (TCEQ Unit No. 1, NOR No. 001) and continue corrective action at the site. The major amendment authorizes: the addition of solid waste management units and areas of concern subject to corrective action; the updates to on-site and off-site plume management zones; the addition of a Response Action Plan to address facility wide soil and groundwater contamination; and the addition of alternate point of exposure wells. The request also includes: a site name change from Union Pacific Railroad Company, Houston Tie Plant to Union Pacific Railroad Company, Houston Wood Preserving Works; updates to the site legal description, financial assurance, and site boundary; and typographical corrections and administrative changes. The permit renewal application was submitted in accordance with 30 Texas Administrative Code (TAC) Section 305.63. The application request dated December 5, 2014 was received on December 10, 2014.
- UPRR has applied for a compliance plan which authorizes and requires UPRR to monitor the concentration of hazardous constituents in groundwater and remediate groundwater quality to specified standards.
- Authority:** The permit/compliance plan is required by 30 TAC Sections 335.2 and 335.43, and Section 3005(c) of the Hazardous and Solid Waste Amendments of 1984 (HSWA). A draft permit/compliance plan has been prepared in accordance with applicable requirements of 30 TAC Chapters 335 and 305, which have been adopted under the authority of the Texas Health and Safety Code Ann., Chapter 361 (Vernon Supp.), and Section 5.103, Texas Water Code Ann. (Vernon Supp.). In addition, a portion of the draft permit/compliance plan has been prepared

under both State and Federal authority which implements applicable requirements of HSWA for which the TCEQ is not authorized. The permit/compliance plan must be signed by the TCEQ and the U. S. Environmental Protection Agency (EPA) for the applicant to have a fully effective Resource Conservation and Recovery Act (RCRA) permit. The TCEQ and the EPA have entered into a Joint Permitting Agreement (JPA) whereby EPA accepts the applicant's information submitted through the State as a Federal application for purposes of implementing HSWA.

Technical Information

The proposed permit renewal includes the following:

- A. Establishes general provisions for facility operation and post-closure care of the subject facility unit (30 TAC Chapter 335, Subchapter F and Chapter 350);
- B. Requires the permittee to establish and maintain financial assurance to provide for proper facility post-closure care in the total amount of \$342,513 (2019 Dollars) (30 TAC Sections 335.179);
- C. Requires the permittee to control access to the facility (40 CFR 264.14);
- D. Specifies minimum physical conditions, and routine inspections for the facility units (30 TAC Sections 335.177, 40 CFR Part 264, Subparts B);
- E. Standard permit provisions and other requirements pertaining to the management of industrial solid waste, including hazardous industrial solid wastes (40 CFR Part 264, Subpart B);
- F. Land Disposal Restrictions, Provision II.A.7, which will implement the applicable requirements of HSWA upon issuance of the permit by EPA (40 CFR Part 268);
- G. The following is a list of standard post-closure care requirements for land based permitted units (30 TAC Sections 335.174):
 1. Maintain all storm water conveyance structures in good functional condition;
 2. Maintain proper cover on closed units to promote drainage, prevent ponding, minimize surface water infiltration, and minimizes erosion;
 3. Maintain facility perimeter fence and ensure that all entrances are manned or locked, and ensure TCEQ access to the facility; and
 4. Perform groundwater monitoring and, if applicable, any necessary corrective action.Surface impoundment - inspection requirements for the closed surface impoundment; and post-closure requirements. (40 CFR Part 264, Subpart K)

The proposed compliance plan renewal includes the following:

- A. Defines the point of compliance (POC) and alternate point of exposure (APOE) and requires Union Pacific Railroad Company to perform groundwater monitoring in specified POC wells and APOE wells for the duration of:
 1. 30 years at the RCRA-regulated Closed Surface Impoundment (NOR Unit No. 001), [30 TAC Section 335.166]; and,
 2. 30 years at SWMUs 2 through 12, AOCs 1 through 8, and waste management NOR Unit Nos. 003 through 006 located within the proposed on-site plume management zone (PMZ), and within the off-site PMZ [30 TAC Section 335.167 and Chapter 350].

- B. Defines the Groundwater Protection Standard (GWPS) which specifies hazardous constituent concentration limits to be achieved and monitored at the POC and APOE by operation of the corrective action monitoring program (30 TAC Section 335.156 and Chapter 350);
- C. Authorizes Alternate Concentration Limits (ACLs) for the GWPS that are protective of human health and the environment in accordance with 30 TAC Section 335.160(b). The ACLs are based on the Texas Risk Reduction Program (TRRP), Tier 1 protective concentration levels (PCLs) specified in accordance with 30 TAC Chapter 350.
- D. Specifies procedures to determine if the GWPS has been exceeded at the POC (30 TAC Sections 335.158) and APOE (30 TAC Chapter 350);
- E. Defines the Corrective Action Program proposed in the revised Response Action Plan consisting of the following:
 - o Non-Aqueous Phased Liquid (NAPL) removal/ inspection of seeps in the on-site Englewood Intermodal Yard.
 - o Revised on-site/off-site PMZ limited to the Union Pacific Railroad Company property and off-site, adjacent City of Houston owned right-of-way to the North, East and west of the Union Pacific Railroad Company property boundary.
 - o Installation of subsurface slurry wall barrier along the northern and eastern Union Pacific Railroad Company property boundary.
 - o On-site/off-site mobile multi-phase extraction events to remediate NAPL. A three-year pilot with 1 year of monthly removal in all recovery wells and 2 years of quarterly removal in all recovery wells.
 - o On-site/off-site semi-annual groundwater monitoring.
 - o Ongoing maintenance and inspection of containment caps.
- F. Requires groundwater monitoring to measure the effectiveness of the Corrective Action Program;
- G. Authorizes the temporary storage of recovered groundwater through on-site management methods in the Container Storage Area authorized by the Executive Director followed by off-site disposal at an authorized permitted facility;
- H. Requires the permittee to provide financial assurance in the amount of \$19,689,000 (the \$2019 Dollars) for installation and operation of the groundwater remediation system(s) and sampling and analysis costs for the duration of 30 years.

The uppermost aquifer consists predominately of clay interbedded with fine-grained silty sands and sand layers and thin carbonate zones of the Beaumont Formation. Based on the boring logs obtained from monitoring well installation, cone penetrometer soundings and geophysical logs four groundwater bearing units (A-TZ, B-CZ/B-TZ, C-TZ and D-TZ) have been identified beneath the site. It is likely that there is some degree of interconnectivity between the A-TZ, B-CZ/B-TZ and C-TZ. The general direction of groundwater flow in each of the four zones: is to the east-northeast in the A-TZ and BC-Z/B-TZ, to the west-southwest in the C-TZ and to the west in the D-TZ. The depth to groundwater varies for each groundwater unit (A-TZ, B-CZ/B-TZ, C-TZ and D-TZ).

Contamination has been verified in the uppermost aquifer (A-TZ, B-CZ/B-TZ and C-TZ) and the draft compliance plan requires:

Corrective action with groundwater monitoring at the: RCRA-regulated Closed Surface Impoundment (NOR Unit No. 001); at SWMUs 2 through 12, AOCs 1 through 8 and waste management NOR Unit Nos. 003 through 006 located within the proposed on-site PMZ, within the off-site PMZ and off-site groundwater plume with chemicals of concern (COC) concentration in samples above the GWPS.

Public Notice

The public notice issued in conjunction with the final draft permit satisfies the requirements of the Resource Conservation and Recovery Act (RCRA), as amended, 42 U.S.C. 6901 et seq. and 40 CFR 124.10. The TCEQ and EPA have entered into a joint permitting agreement whereby RCRA permits or compliance plans will be issued in Texas in accordance with the Texas Solid Waste Disposal Act, Texas Health and Safety Code Ann., Chapter 361, and with RCRA, as amended. If TCEQ and EPA decide to issue a final permit/compliance plan to this facility, the permit/compliance plan will implement both the requirements of RCRA as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) and the federally authorized State requirements. However, the State of Texas has not received full HSWA authority. Therefore, if the draft permit/compliance plan contains HSWA requirements for which the TCEQ is not authorized, both the TCEQ and EPA must issue the permit/compliance plan in order for the applicant to have a fully effective RCRA permit. Any jointly issued permit/compliance plan provisions will be fully enforceable under State and Federal law. Areas in which the TCEQ has not been authorized by EPA are denoted in the draft permit/compliance plan with an asterisk (*). Persons wishing to comment or request a hearing on a HSWA requirement denoted with an asterisk (*) in the draft permit/compliance plan should also notify EPA in writing as follows: Chief, RCRA Permits Branch, EPA Region 6, 1445 Ross Avenue, Dallas, Texas 75202-2733. EPA will accept hearing requests submitted to the TCEQ.

Opportunity for Hearing

Before a permit/compliance plan can be issued, extended, or renewed, the TCEQ will provide an opportunity for a hearing to the applicant and persons affected. If a hearing is requested, the Commission will determine whether to grant or deny the hearing requests. If the hearing requests are denied, the draft permit/compliance plan may be considered for issuance by the Commission or the Executive Director. If the hearing requests are granted, the hearings will be conducted by the State Office of Administrative Hearings. EPA will reach a decision on the HSWA portion of the joint permit/compliance plan based on the hearing record developed by the TCEQ. The EPA portion of the permit/compliance plan implementing nonauthorized HSWA provisions will become effective thirty (30) days after the date of issuance if changes were required.

Decisions regarding the permit/compliance plan provisions issued under State authority may be reconsidered in response to a Motion for Rehearing or a Motion for Reconsideration and by appeal to a District Court in Travis County. Decisions regarding the permit/compliance plan provisions issued under Federal authority may be reconsidered in accordance with the procedures of 40 CFR 124.19.

Preliminary Decision

- General: The Executive Director has made a preliminary decision that this proposed permit/compliance plan renewal, if issued, meets all the statutory and regulatory requirements.
- Special: The proposed permit/compliance plan renewal does not authorize variances or alternatives to required standards.

Additional Information

- A. Technical information:
Sarah Schreier
Industrial & Hazardous Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality
Mail Code MC 130

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P. O. Box 13087
Austin, Texas 78711-3087
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B. HSWA information:

Melissa Smith, Section Chief
State/Tribal Oversight Section
U.S. Environmental Protection Agency
Region VI - 6PD-O
1445 Ross Avenue
Dallas, Texas 75202-2733
214/665-7170

C. Procedural and public hearing information:

Office of Public Interest Counsel
Texas Commission on Environmental Quality
Mail Code MC 103
P. O. Box 13087
Austin, Texas 78711-3087
512/239-6363

Prepared by:



Sarah Schreier
Project Manager
Industrial & Hazardous Waste Permits Section
Waste Permits Division



**Texas Commission on
Environmental Quality
Austin, Texas**

Hazardous Waste Permit No. 50343
EPA ID. No. TXD000820266
ISWR No. 31547

Permit for Industrial Solid Waste
Management Site issued under
provisions of Texas Health and Safety
Code ANN. Chapter 361 and Chapter 26
of the Texas Water Code

Name of Permittee: Union Pacific Railroad Company
Houston Wood Preserving Works
4910 Liberty Road
Houston, Texas 77026

Site Owner: Union Pacific Railroad Company
1400 Douglas Street
STOP 1030
Omaha, Nebraska 68179

Registered Agent for Service: CT Corporation System
1999 Bryan Street, Suite 900
Dallas, Texas 75201-3136

Classification of Site: Hazardous Industrial Solid Waste, Post-Closure Care,
Corrective Action, Noncommercial Facility.

The permittee is authorized to conduct post-closure care in accordance with the limitations, requirements, and other conditions set forth herein. This permit is granted subject to the rules of the Commission and other Orders of the Commission, and laws of the State of Texas. This permit does not exempt the permittee from compliance with the Texas Clean Air Act. This permit will be valid until canceled, amended, modified, or revoked by the Commission, except that the authorization to manage wastes shall expire midnight, ten (10) years after the date of this renewal permit approval. This permit was originally issued on June 6, 1994 and subsequently renewed on June 10, 2005.

All provisions in this permit stem from State and/or Federal authority. Those provisions marked with an asterisk (*) stem from Federal authority and will implement the applicable requirements of Hazardous and Solid Waste Amendments of 1984 (HSWA) for which the Texas Commission on Environmental Quality has not been authorized.

Issued Date:

DRAFT

For the Commission

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- A - Legal Description of Facility
- B - Facility Map
- C - Permit Application Revision Chronology
- D - List of Incorporated Application Materials
- E - List of Permitted Facility Units

List of Compliance Plan Attachments:

- CP A Facility Site Maps
 - Sheet 1 of 7 Facility Site Map
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- CP C Well Design, Construction, Installation, Certification, Plugging and Abandonment Procedures and Specifications

Permit/Compliance Plan Acronyms

ACL	-	Alternate Concentration Limit
AAL	-	Attenuation Action Level(s)
ALR	-	Action Leakage Rate
AMP	-	Attenuation Monitoring Point
AOC	-	Area(s) of Concern
APA	-	Affected Property Assessment
APAR	-	Affected Property Assessment Report
APOE	-	Alternate Point of Exposure
Appendix VIII	-	40 CFR 261, Appendix VIII (Identification and Listing of Hazardous Waste - Hazardous Constituents)
ASTM	-	American Society for Testing and Materials
BGS	-	Below Ground Surface
BLRA	-	Baseline Risk Assessment
CAO	-	Corrective Action Observation
CAS	-	Corrective Action System
CCC	-	Coastal Coordination Council
CEMS	-	Continuous Emissions Monitoring System
CFR	-	Code of Federal Regulations
CMI	-	Corrective Measures Implementation
CMP	-	Texas Coastal Management Program
CMS	-	Corrective Measures Study
COC	-	Constituent(s) of Concern
EPA	-	United States Environmental Protection Agency
EPA SW-846	-	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition, November 1986
GWPS	-	Groundwater Protection Standard
HSWA	-	Hazardous and Solid Waste Amendments of 1984
ICM	-	Interim Corrective Measures
LDR	-	Land Disposal Restrictions
MDL	-	Method Detection Limit
MQL	-	Method Quantitation Limit
MSL	-	Mean Sea Level
NAPL	-	Non-Aqueous Phase Liquid
NOR	-	Notice of Registration
PCB	-	Polychlorinated Biphenyl
PCL	-	Protective Concentration Level
PMZ	-	Plume Management Zone
POC	-	Point of Compliance
POE	-	Point of Exposure
ppm	-	Parts Per Million
ppmv	-	Parts Per Million by Volume
PQL	-	Practical Quantitation Limit
Psi	-	Pounds Per Square Inch
QA/QC	-	Quality Assurance/Quality Control
RACR	-	Response Action Completion Report
RAER	-	Response Action Effectiveness Report
RAP	-	Response Action Plan (for Action Leakage Rate in landfills)
RAP	-	Remedial Action Plan
RCRA	-	Resource Conservation and Recovery Act
RFA	-	RCRA Facility Assessment

RFI	-	RCRA Facility Investigation
RRR	-	TCEQ Risk Reduction Rules
RRS	-	Risk Reduction Standard
RSA	-	Remedy Standard A
RSB	-	Remedy Standard B
SR/WM	-	Source Reduction and Waste Minimization
SSI	-	Statistically Significant Increase
SWDA	-	Solid Waste Disposal Act
SWMU	-	Solid Waste Management Unit(s)
TAC	-	Texas Administrative Code
TCEQ	-	Texas Commission on Environmental Quality
TCEQ QAPP	-	"Quality Assurance Project Plan for Environmental Monitoring and Measurement Activities Relating to the Resource Conservation and Recovery Act and Underground Injection Control"
THC	-	Total Hydrocarbons
TRRP	-	Texas Risk Reduction Program

I. Facility Description

A. Size and Location of Site

A permit is issued to Union Pacific Railroad Company - Houston Wood Preserving Works (hereafter called the permittee), to conduct post-closure care and corrective action at a closed hazardous waste facility located at 4910 Liberty Road, Houston, in Harris County, Texas, and within the drainage area of Segment 1007 in the San Jacinto River Basin (North Latitude 29° 47' 14", West Longitude 95° 19' 13"). The legal description of the facility submitted in Permit No. 50343 application dated December 5, 2014, is hereby made a part of this permit as "Attachment A." The hazardous waste management facility as delineated by the permittee's application map is hereby made a part of this permit as "Attachment B."

B. Incorporated Application Materials

This permit is based on, and the permittee shall follow the Part A and Part B Industrial & Hazardous Waste Application submittals dated December 5, 2014, the revisions to the permit and permit application that are listed in "Attachment C," and the Application Elements listed in "Attachment D," which are hereby approved subject to the terms of this permit and any other orders of the Texas Commission on Environmental Quality (TCEQ). These materials are incorporated into this permit by reference as if fully set out herein. All revisions to these elements shall become conditions of this permit upon the date of approval by the Commission.

II. General Facility Standards

A. Standard Permit Conditions

The permittee has a duty to comply with the Standard Permit Conditions under 30 Texas Administrative Code (TAC) Section 305.125. Moreover, the permittee has a duty to comply with the following permit conditions:

1. Modification of Permitted Facilities

The facility units and operational methods authorized are limited to those described herein and by the application submittals identified in Section I.B. All facility units and operational methods are subject to the terms and conditions of this permit and TCEQ rules. Prior to constructing or operating any facility units in a manner which differs from either the related plans and specifications contained in the permit application or the limitations, terms or conditions of this permit, the permittee must comply with the TCEQ permit amendment/modification rules as provided in 30 TAC Sections 305.62 and 305.69.

2. Duty to Comply

The permittee must comply with all the conditions of this permit, except that the permittee need not comply with the conditions of this permit to the extent and for the duration such noncompliance is authorized in an emergency order issued by the Commission. Any permit noncompliance, other than noncompliance authorized by an emergency order, constitutes a violation of the Resource

Conservation and Recovery Act (RCRA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. [30 TAC Section 305.142]

3. Severability

The provisions of this permit are severable. If any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected.

4. Definitions

For purposes of this permit, terms used herein shall have the same meaning as those in 30 TAC Chapters 305, 335, and 350 unless this permit specifically provides otherwise; where terms are not defined in the regulations or the permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

Application data - data used to complete the final application and any supplemental information.

5. Permit Expiration

In order to continue a permitted activity after the expiration date of the permit the permittee shall submit a new permit application at least 180 days before the expiration date of the effective permit, unless permission for a later date has been granted by the Executive Director. Authorization to continue such activity will terminate upon the effective denial of said application.

6. Certification Requirements

For a new facility, the permittee may not commence storage, processing, or disposal of solid waste; and for a facility being modified, the permittee may not process, store or dispose of solid waste in the modified portion of the facility, except as provided in 30 TAC Section 305.69 (relating to Solid Waste Permit Modification at the Request of the Permittee) until the following has been accomplished [30 TAC Section 305.144]:

- a. The permittee has submitted to the Executive Director and the local Regional Office of the TCEQ, by certified mail or hand delivery, a letter signed by the permittee, and signed and sealed by a Texas Professional Engineer stating that the facility has been constructed or modified in compliance with the permit. If the certification is being provided to document proper closure of a permitted unit, or to certify installation or repair of a tank system, then the certification must be signed and sealed by an independent Texas licensed Professional Engineer. Required certification shall be in the following form:

"This is to certify that the following activity (specify activity, e.g., construction, installation, closure, etc., of an item) relating to the following item (specify the item, e.g., the particular facility, facility unit, unit

component, subcomponent part, or ancillary component), authorized or required by TCEQ Permit No. 50343 has been completed, and that construction of said facility component has been performed in accordance with and in compliance with good engineering practices and the design and construction specifications of Permit No. 50343."

- b. A certification report has been submitted, with the certification described in Provision II.A.6.a., which is logically organized and describes in detail the tests, inspections, and measurements performed, their results, and all other bases for the conclusion that the facility unit, unit component, and/or closure have been constructed, installed and/or performed in conformance with the design and construction specifications of this permit and in compliance with this permit. The report shall describe each activity as it relates to each facility unit or component being certified including reference to all applicable permit provisions. The report shall contain the following items, at a minimum:
- (1) Scaled, as-built plan-view and cross-sectional drawings which accurately depict the facility unit and all unit components and subcomponents, and which demonstrate compliance with the design and construction specifications approved and detailed in the terms of this permit;
 - (2) All necessary references to dimensions, elevations, slopes, construction materials, thickness and equipment; and
 - (3) For all drawings and specifications, the date, signature, and seal of a Professional Engineer who is licensed in the State of Texas.
- c. The Executive Director has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or if within fifteen (15) days of submission of the letter required by paragraph (a) of this section, the permittee has not received notice from the Executive Director of the intent to inspect, prior inspection is waived and the permittee may commence processing, storage, or disposal of solid waste.

* 7. Land Disposal Restrictions

The permittee shall comply with the land disposal restrictions as found in 40 Code of Federal Regulations (CFR) 268 and any subsequent applicable requirements promulgated through the Federal Register. Requirements include modifying/amending the permittee's waste analysis plan to include analyses to determine compliance with applicable treatment standards or prohibition levels, pursuant to 40 CFR 268.7(c) and 264.13(a).

8. Dust Suppression

Pursuant to 40 CFR 266.23(b)/30 TAC Section 335.214(b), the permittee shall not use waste, used oil, or any other material which is contaminated with dioxin, polychlorinated biphenyls (PCBs), or any other hazardous waste (other than a waste identified solely on the basis of ignitability) for dust suppression or road treatment.

9. Permit Reopener

This permit shall be subject to review by the Executive Director five (5) years from the date of permit issuance or reissuance and shall be modified as necessary to assure that the facility continues to comply with currently applicable requirements of the Solid Waste Disposal Act (SWDA) and the rules and regulations of the Commission. The permittee shall submit any information as may be reasonably required by the Executive Director to ascertain whether the facility continues to comply with currently applicable requirements of the SWDA and the rules and regulations of the Commission.

10. Texas Coastal Management Program

The TCEQ has reviewed the permit application for consistency with the goals and policies of the Texas Coastal Management Program (CMP) in accordance with the regulations of the Coastal Coordination Council (CCC) and has determined that the permit is consistent with the applicable CMP goals and policies. [30 TAC Section 281.43(a)(1)]

11. Monitoring of Commercial Hazardous Waste Management Facility Operations (Reserved)

12. Failure to Submit Relevant Facts in Permit Application

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Executive Director, the permittee shall promptly submit the correct information or facts to the Executive Director. [30 TAC Section 305.125(19)].

13. Hazardous Waste Combustion Facility Provision (Reserved)

14. Waste Management Fee Assessment, Fee Payment, and Records and Reporting

- a. If applicable, the permittee is subject to the assessment of fees for hazardous wastes which are stored, processed, disposed, or otherwise managed and for Class 1 industrial wastes which are disposed at a commercial facility. [30 TAC Section 335.325]
- b. As applicable and except as provided in Provision II.A.14.c., the permittee shall pay waste management fees monthly. Monthly fee payments shall be due by the 25th day following the end of the month for which payment is due. [30 TAC Section 335.328(b)]
- c. If required, the permittee owes waste management fees in an amount less than \$500 for a calendar month or less than \$1,500 for a calendar quarter, the permittee may file a quarterly report and pay a quarterly fee. [30 TAC Section 335.328(c)]
- d. If required, the permittee shall document the basis for the assessment of any applicable waste management fees, including any adjustment to or exemption from assessment. [30 TAC Section 335.329(b)(4)]

- e. If required, the permittee shall submit a monthly report of on-site waste management activities subject to the assessment of waste management fees on forms furnished or approved by the Executive Director. This report shall be due by the 25th day following the end of the month (or quarter) for which a report is made. Monthly (or quarterly) reports shall be submitted, regardless of whether any storage, processing, or disposal was made during a month (or quarter), by preparing and submitting a summary indicating that no waste was managed during that month (or quarter). [30 TAC Section 335.329(b)(5)]
- f. As applicable, the permittee shall maintain the required records and reports in accordance with 30 TAC Sections 335.329(c) and (d).

15. Transfer of Ownership and/or Operational Control

The transfer of ownership and/or operational control of this permit is subject to the transfer requirements of 30 TAC Section 305.64 and permit modification requirements of 30 TAC Section 305.69. The new owner and/or operator seeking a transfer of ownership and/or operational control of this permit shall submit a Class 1¹ permit modification (with prior written approval by the Executive Director) at least 90 days prior to the scheduled transfer in accordance with 30 TAC Section 305.69(b)(2). Prior to the Executive Director issuing the permit modification transferring the permit, the new owner or operator shall provide a fully executed financial assurance mechanism satisfactory to the TCEQ Executive Director, for all existing units which have received waste and any corrective action required under this permit, in compliance with 30 TAC Chapter 37, Subchapter P. [30 TAC Section 305.64(g)]

B. Recordkeeping and Reporting Requirements

1. Monitoring and Records

- a. All data submitted to the TCEQ shall be in a manner consistent with the latest version of the "Quality Assurance Project Plan for Environmental Monitoring and Measurement Activities Relating to the Resource Conservation and Recovery Act and Underground Injection Control" (TCEQ QAPP).
- b. Monitoring samples and measurements shall be taken at times and in a manner to be representative of the monitored activity. The method used to obtain a representative sample of the material to be analyzed shall be the appropriate method from Appendix I of 40 CFR Part 261 or an equivalent method approved in writing prior to use by the Executive Director of the TCEQ. Laboratory methods shall be the latest version specified in current edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846 (EPA SW-846); Standard Methods for the Examination of Water and Wastewater; RCRA Groundwater Monitoring: Draft Technical Guidance, 1992, OSWER Directive 9950.1, or an equivalent method; as specified in the Waste Analysis Plan and approved in writing prior to use by the Executive Director. [30 TAC Section 305.125(11)(A)]

- c. The permittee shall retain in an organized fashion and furnish to the Executive Director, upon request, records of all monitoring information, copies of all reports and records required by this permit, and the certification required by 40 CFR 264.73(b)(9), for a period of at least three (3) years from the date of the sample, measurement, report, record, certification, or application. [30 TAC Section 305.125(11)(B)]
- d. Records of monitoring shall include the following [30 TAC Section 305.125(11)(C)]:
 - (1) The date, time, and place of sample or measurement;
 - (2) The identity of individual who collected the sample or measurement;
 - (3) The dates analyses were performed;
 - (4) The identity of individual and laboratory who performed the analyses;
 - (5) The analytical techniques or methods used; and
 - (6) The results of such analyses or measurements.
- e. All engineering and geoscientific information submitted to the TCEQ shall be prepared by, or under the supervision of, a licensed professional engineer or licensed professional geoscientist, and shall be signed, sealed, and dated by qualified professionals as required by the Texas Engineering Practice Act and the Texas Geoscience Practice Act and the licensing and registration boards under these acts.

2. Operating Record

In addition to the recordkeeping and reporting requirements specified elsewhere in this permit, the permittee shall maintain a written operating record at the facility, in accordance with 40 CFR 264.73. These records will be made available to representatives of the TCEQ upon request.

3. Retention of Application Data

Throughout the terms of the permit, the permittee shall keep records of data used to complete the final application and any supplemental information. All copies of renewals, amendments, revisions and modifications must also be kept at the facility such that the most current documents are always available for inspection. All materials, including any related information, submitted to complete the application shall be retained, not just those materials which have been incorporated into the permit. [30 TAC Section 305.47]

4. Reporting of Noncompliance

The permittee shall report to the Executive Director of the TCEQ information regarding any noncompliance which may endanger human health or the environment. [30 TAC Section 305.125(9)]

- a. Report of such information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the noncompliance.
- b. A written submission of such information shall also be provided within five (5) days of the time the permittee becomes aware of the noncompliance. The written submission shall contain the following:
 - (1) A description of the noncompliance and its cause;
 - (2) The potential danger to human health or safety, or the environment;
 - (3) The period of noncompliance, including exact dates and times;
 - (4) If the noncompliance has not been corrected, the anticipated time it is expected to continue; and
 - (5) Steps taken or planned to reduce, eliminate, and prevent the recurrence of the noncompliance, and to mitigate its adverse effects.

5. Twenty-Four Hour Reporting

The following shall be included as information which must be reported orally within twenty-four (24) hours pursuant to 30 TAC Section 305.125(9) [30 TAC Section 305.145]:

- a. Information concerning release of any solid waste that may cause an endangerment to public drinking water supplies; and
- b. Any information of a release or discharge of solid waste, or of a fire or explosion which could threaten the environment or human health or safety, outside the facility. The description of the occurrence and its cause shall include:
 - (1) Name, address, and telephone number of the owner or operator;
 - (2) Name, address, and telephone number of the facility;
 - (3) Date, time, and type of incident;
 - (4) Name and quantity of material(s) involved;
 - (5) The extent of injuries, if any;
 - (6) An assessment of actual or potential hazards to the environment and human health or safety outside the facility, where this is applicable; and
 - (7) Estimated quantity and disposition of recovered material that resulted from the incident.

6. Notice Waiver

The Executive Director may waive the five (5) day written notice requirement specified in Provision II.B.4.b. in favor of a written report submitted to the Commission within fifteen (15) days of the time the permittee becomes aware of the noncompliance or condition. [30 TAC Section 305.145(b)]

7. Biennial Report

The permittee shall prepare and submit to the Executive Director all information and records required by 40 CFR 264.75. By March 1st of each even-numbered year for the preceding odd-numbered year's activities the permittee shall submit either a Biennial Report or letter certifying submission of the above. One copy of the report/letter shall be submitted to the TCEQ Industrial & Hazardous Waste Permits Section and an additional copy shall be submitted to the appropriate TCEQ Regional Office.

8. Pollution Prevention (Reserved)

9. Annual Detection Monitoring Report (Reserved)

10. Manifest Discrepancy Report

If a significant discrepancy in a manifest is discovered, the permittee must attempt to reconcile the discrepancy. If not resolved within fifteen (15) days, the permittee must submit a report, describing the incident, to the Executive Director, as per the requirements of 30 TAC Section 335.12. A copy of the manifest must be included in the report.

11. Unmanifested Waste Report (Reserved)

12. Monthly Summary (Reserved)

C. Incorporated Regulatory Requirements

1. State Regulations

To the extent applicable to the activities authorized by this permit, the following TCEQ regulations are hereby made provisions and conditions of the permit.

- a. 30 TAC Chapter 37, Subchapter P: Financial Assurance for Hazardous and Nonhazardous Industrial Solid Waste Facilities;
- b. 30 TAC Chapter 305, Subchapter A: General Provisions;
- c. 30 TAC Chapter 305, Subchapter C: Application for Permit or Post-Closure Order;
- d. 30 TAC Sections 305.61 - 305.69 (regarding amendments, renewals, transfers, corrections, revocation and suspension of permits);
- e. 30 TAC Sections 305.121 - 305.125 (regarding permit characteristics and conditions);

- f. 30 TAC Sections 305.127 - 305.129 (regarding permit conditions, signatories and variance procedures);
- g. 30 TAC Chapter 305, Subchapter G: Additional Conditions for Hazardous and Industrial Solid Waste Storage, Processing or Disposal Permits;
- h. 30 TAC Chapter 335, Subchapter A: Industrial Solid Waste and Municipal Hazardous Waste in General;
- i. 30 TAC Chapter 335, Subchapter B: Hazardous Waste Management General Provisions;
- j. 30 TAC Section 335.152, Standards;
- k. 30 TAC Sections 335.153 - 335.155 (regarding reporting of emergency situations and additional reports required);
- l. 30 TAC Sections 335.156 - 335.167 (regarding applicability of groundwater monitoring programs and corrective action requirements);
- m. 30 TAC Sections 335.168 - 335.169 (regarding the design and operating requirements and closure and post-closure care of surface impoundments);
- n. 30 TAC Sections 335.177 - 335.179 (regarding general performance standard, cost estimate for closure, and financial assurance);
- o. 30 TAC Sections 335.325, 335.328 and 335.329 (regarding waste management fee assessment, fee payment, and records and reports);
- p. 30 TAC Chapter 335, Subchapter Q: Pollution Prevention: Source Reduction and Waste Minimization; and
- q. 30 TAC Chapter 350, Texas Risk Reduction Program.

Issuance of this permit with incorporated rules in no way exempts the permittee from compliance with any other applicable state statute and/or Commission Rule.

2. Federal Regulations

To the extent applicable to the activities authorized by this permit, the following provisions of 40 CFR Parts 264 adopted by reference by 30 TAC Section 335.152 are hereby made provisions and conditions of this permit, to the extent consistent with the Texas Solid Waste Disposal Act, Texas Health and Safety Code Ann., Chapter 361 (Vernon), and the rules of the TCEQ:

- a. Subpart B -- General Facility Standards;
- b. Subpart C -- Preparedness and Prevention;
- c. Subpart D -- Contingency Plan and Emergency Procedures;
- d. Subpart E -- Manifest System, Recordkeeping, and Reporting;

- e. Subpart G -- Closure and Post-Closure;
- f. Subpart H -- Financial Requirements;
- g. Subpart K -- Surface Impoundments;
- h. 40 CFR Part 268 -- Land Disposal Restrictions (LDR).

III. Facility Management

A. Operation of Facility

The permittee shall conduct corrective actions and post closure care at the facility to minimize the possibility of a fire, explosion, or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment, as required by 40 CFR 264.31. All equipment and structures used to manage hazardous waste at the facility shall be maintained in proper operating condition.

B. Personnel Training

The permittee shall ensure that all facility personnel involved with hazardous waste management successfully complete a training program as required by 40 CFR 264.16. The permittee shall maintain training documents and records, as required by 40 CFR 264.16(d) and (e).

C. Security

1. The permittee shall provide and maintain an artificial or natural barrier which surrounds the post-closure care portion(s) of the facility and shall always have a means to control entry through gates or other entrances to these same facility areas.
2. The permittee shall post warning signs at all points of access to the post-closure care portion(s) of the facility and along the natural and/or artificial barriers in sufficient numbers to be seen from any approach to that portion of the facility. The signs shall be printed so that they may be clearly read from a distance of at least twenty-five (25) feet and shall state "Danger - Unauthorized Personnel Keep Out" in English and Spanish.

D. General Inspection Requirements

The permittee shall follow the inspection schedule contained in the permit application submittals identified in Section I.B. of this permit and as set out in Table III.D. - Inspection Schedule. The permittee shall remedy any deterioration or malfunction discovered by an inspection, as required by 40 CFR 264.15(c). Records of inspection shall be kept, as required by 40 CFR 264.15(d). Any remedial actions taken in response to facility inspections and the date of the remediation shall be included in the inspection records.

E. Contingency Plan (Reserved)

F. Special Permit Conditions (Reserved)

IV. Wastes and Waste Analysis

A. Waste Analysis Plan (Reserved)

B. Authorized Wastes

Industrial wastes historically managed in the post-closure care unit authorized in Provision V are identified in Table IV.B. - Wastes Managed in Permitted Units.

C. Sampling and Analytical Methods (Reserved)

V. Authorized Units and Operations

A. Authorized Units

The permittee is authorized to maintain the permitted facility units listed in "Attachment E" for post-closure care subject to the limitations herein. References hereinafter in this permit to "TCEQ Permit Unit No.____" shall be to the authorized permitted facility unit listed in "Attachment E." All authorized units must be clearly identified as numbered in "Attachment E." These units must have signs indicating "TCEQ Permit Unit No.____."

B. Container Storage Areas (Reserved)

C. Tanks and Tank Systems (Reserved)

D. Surface Impoundments

The closed surface impoundment and approved waste types are shown in Table V.D.1. - Surface Impoundments. Wastes were removed from the surface impoundment and the unit backfilled. The permittee shall perform post-closure care of the unit identified in Attachment E.

E. Waste Piles (Reserved)

F. Land Treatment Units (Reserved)

G. Landfills (Reserved)

H. Incinerators (Reserved)

I. Boilers/Industrial Furnaces (Reserved)

J. Drip Pads (Reserved)

K. Miscellaneous Units (Reserved)

L. Containment Buildings (Reserved)

VI. Groundwater Detection Monitoring

The permittee shall design, construct and maintain a groundwater monitoring program to monitor groundwater throughout any post-closure care period. Groundwater monitoring at the facility shall be performed in accordance with permit Section XI - Compliance Plan.

VII. Closure and Post-Closure Requirements

- A. Facility Closure (Reserved)
- B. Financial Assurance for Closure (Reserved)
- C. Storage, Processing, and Combustion Unit Closure Requirements (Reserved)
- D. Surface Impoundment Closure Requirements (Reserved)
- E. Landfill Closure and Certification Requirements (Reserved)
- F. Containment Buildings Closure Requirements (Reserved)
- G. Facility Post-Closure Care Requirements

For each hazardous waste management unit which is closed as a surface impoundment, the permittee shall conduct post-closure care of the unit for a period of at least thirty (30) years after certification of closure of each respective unit. The Post-Closure Care Period for each closed unit is specified in Table VII.G. - Post-Closure Period. Post-Closure Care shall continue beyond the specified date in Table VII.G. until the Executive Director has approved the permittee's request to reduce or terminate the post-closure period, consistent with 40 CFR Section 264.117 and 30 TAC Section 335.152(a)(5). Post-Closure Care shall be performed in accordance with the Post-Closure Plan referenced in Section I.B., 40 CFR 264.117, and the following requirements:

1. Maintain all storm water conveyance structures in good functional condition.
2. Maintain the cover on the Closed Surface Impoundment, as applicable, such that the cover promotes drainage, prevents ponding, minimizes surface water infiltration, and minimizes erosion of the cover. Any desiccation cracks, erosion, gulying, or other damage shall be repaired upon observance.
3. Maintain a self-sustaining vegetative cover on the capped areas by periodic seeding, fertilizing, irrigation, and/or mowing.
4. Maintain all benchmarks at the facility.
5. Maintain the facility perimeter fence, manned or locked gates, and warning signs in good functional condition.
6. Ensure that all entrances to the facility have manned or locked gates.
7. Ensure that the TCEQ has access to the facility.

8. Prepare and submit the Biennial Report required by Provision II.B.7.
9. Perform all groundwater monitoring and related activities specified in Section XI - Compliance Plan, of the permit.

10. General Post-Closure Requirements

a. Request for Permit Modification or Amendment

The permittee shall submit a written request for a permit modification or amendment to authorize a change in the approved Post-Closure Plan(s) in accordance with 40 CFR 264.118 (d)(2). The written request shall include a copy of the amended Post-Closure Plan(s) for approval by the Executive Director.

b. Time Frames for Modification/Amendment Request

The permittee shall submit a written request for a permit modification or amendment in accordance with the time frames in 40 CFR 264.118 (d)(3).

11. Post-Closure Notice and Certification Requirements

No later than sixty (60) days after completion of the established post-closure period for each unit, the owner or operator shall submit to the Executive Director, by registered mail with a copy to the TCEQ Regional Office, a certification that the Post-Closure Care Period for the unit was performed in accordance with the specifications of the approved Post-Closure Plan and this permit. The certification shall be signed by the permittee and a registered professional engineer. Documentation supporting the registered professional engineer's certification must be furnished to the Executive Director upon request until the Executive Director releases the owner or operator from the financial assurance requirements for post-closure under 40 CFR 264.145(i).

H. Financial Assurance for Post-Closure

1. The permittee shall provide financial assurance for post-closure care of all existing units required by this permit in an amount not less than \$342,513 (2019 dollars) as shown on Table VII.E.2. - Permitted Unit Post Closure Cost Summary. Financial assurance shall be secured and maintained in compliance with 30 TAC Chapter 37, Subchapter P and 30 TAC Section 335.152.
2. The permittee shall submit to the Executive Director, upon request, such information as may be required to determine the adequacy of the financial assurance.

VIII. Liability Requirements

A. Sudden Accidental Occurrences (Reserved)

B. Incapacity of Owners or Operators, Guarantors, or Financial Institutions

The permittee shall comply with 30 TAC Section 37.71, regarding bankruptcy, whenever necessary.

IX. Corrective Action for Solid Waste Management Units

A. Notification of Release from Solid Waste Management Unit

If a solid waste management unit (SWMU) or area of contamination not previously addressed in the RCRA Facility Assessment (RFA) dated October 1993 or any release of hazardous waste or hazardous constituents that may have occurred from any SWMU and/or Area of Concern (AOC), that is discovered subsequent to issuance of this permit, the permittee shall notify the Executive Director in writing within fifteen (15) days of the discovery. Within forty-five (45) days of such discovery, the permittee shall submit an RFA for that unit or release which shall be based on EPA's RCRA Facility Assessment Guidance, October 1986, NTIS PB 87-107769. If the RFA indicates a release or suspected release warrants further investigation, the permittee shall comply with the requirements of Section XI.A.6 and Section XI.H of this permit.

B. Corrective Action Obligations (Reserved)
Refer to Section XI of this permit.

C. Units Requiring Investigation (Reserved)
Refer to Section XI of this permit.

D. Variance from Investigation (Reserved)
Refer to Section XI of this permit.

E. RCRA Facility Investigation (RFI)/Affected Property Assessment (APA) (Reserved)
Refer to Section XI of this permit.

F. Remedy Selection (Reserved)
Refer to Section XI of this permit.

G. Compliance Plan

The permittee shall follow Section XI, Compliance Plan, developed in accordance with 30 TAC Sections 335.156 - 335.167. All revisions to the Compliance Plan shall become provisions and conditions of this permit upon the date of approval by the Commission.

X. Air Emission Standards

A. General Conditions

Emissions from this facility must not cause or contribute to a condition of "air pollution" as defined in Section 382.003 of the Texas Health and Safety Code Ann. or violate Section 382.085 of the Texas Health and Safety Code Ann. If the Executive Director of the TCEQ determines that such a condition or violation occurs, the permittee shall implement additional abatement measures as necessary to control or prevent the condition or violation.

XI. Compliance Plan

A. General Information (and Applicability)

1. The term "Uppermost Aquifer" as referenced in this Compliance Plan consists predominately of clay interbedded with fine-grained silty sands and sand layers and thin carbonate zones of the Beaumont Formation. Based on the boring logs obtained from monitoring well installation, cone penetrometer soundings and geophysical logs four groundwater water bearing units (A-TZ, B-CZ/B-TZ, C-TZ and D-TZ) have been identified beneath the site. It is likely that there is some degree of interconnectivity between each of the A-TZ, B-CZ/B-TZ, and C-TZ. The depth to groundwater varies for each groundwater bearing unit (A-TZ, B-CZ/B-TZ, C-TZ and D-TZ) A brief description of each groundwater bearing unit is provided below:

The A-TZ consists of continuous very fine-grained silty sand, sand and clay layers beneath the site. The A-TZ is encountered at a depth of approximately 10 to 13 feet BGS. The thickness of the A-TZ ranges from 4 to 21 feet with the thickest portion on the eastern-side of the property and thins to the west. The general direction of groundwater flow in the A-TZ is to the east-northeast. The A-TZ is underlain by the B-Cohesive Zone (B-CZ)/B-TZ.

In the B-CZ/B-TZ, the B-CZ consists predominately of clay, silty clays and sandy clays ranging in thickness from 6 to 19 feet. The B-TZ is a discontinuous very fine-grained, dense silty sand and sand layers that underlies the B-CZ in the western portion of the site and is absent to the east. The B-TZ appears to pinch out from west to east into the B-CZ clay where groundwater is encountered in very thin carbonate seams approximately 0.1 feet thick. Where present, the B-TZ is approximately 3 to 10 feet thick and is encountered at a depth ranging from 25 to 35 feet BGS. The overall general direction of groundwater flow in the B-CZ/B-TZ is to the east-northeast.

The C-TZ consists of a very fine-grained silt and silty sand layers approximately 10 to 13 feet thick and is encountered at a depth of ranging from 60 to 75 feet BGS. The general direction of groundwater flow in the C-TZ is to the west-southwest.

The D-TZ consists of a series of very fine-grained silty sand layers interbedded with thin clay layers and is encountered at depths ranging from 85 to 104 feet BGS. The base of the D-TZ was encountered from approximately 116 feet to 120 feet BGS. The general direction of groundwater flow in the D-TZ is to the west.

Language for both the Corrective Action Program (30 TAC Section 335.166) and the Compliance Monitoring Program (30 TAC Section 335.165) is included in this Compliance Plan for reference and as contingency for future changes in accordance with Provision XI.D.6. Applicability of specific Corrective Action Program or Compliance Monitoring Program requirements depends on the status of the units, as defined in Provisions XI.A.2. through A.4. and CP Table I.

2. The Compliance Plan is specific to the waste management units listed in CP Table I (Items A and B) and depicted in CP Attachment A, for which the groundwater Corrective Action Program and Compliance Monitoring Program apply, pursuant to 30 TAC Sections 335.166 and 335.165, for releases from RCRA-regulated units.
3. The Compliance Plan is specific to the waste management units listed in CP Table I (Item D) and depicted in CP Attachment A, for which alternative requirements for the groundwater Corrective Action Program apply, pursuant to 30 TAC Sections 335.151, 335.156 and Chapter 350, for commingled releases from RCRA-regulated units and one or more SWMUs and/or AOCs.
4. The Compliance Plan is specific to the SWMUs and/or AOCs listed in CP Table I (Item C) and depicted in CP Attachment A, for which the Corrective Action Program applies pursuant to 30 TAC Section 335.167 and Chapter 350 for releases from the SWMUs and/or AOCs.
5. The Compliance Plan is specific to the SWMUs and/or AOCs listed in CP Table II for which investigation and necessary corrective action applies pursuant to 30 TAC Section 335.167 and Chapter 350 and Section XI.H.
6. The Compliance Plan applies to any SWMUs and/or AOCs discovered subsequent to issuance of this Compliance Plan. The permittee shall notify the Executive Director within fifteen (15) days of such a discovery. Within forty-five (45) days of discovering a SWMU or AOC, the permittee shall complete the following: Submit an RFA report for that SWMU and/or AOC which shall be based on EPA RCRA Facility Assessment Guidance, October 1986, NTIS PB 87-107769 or subsequent revisions. The purpose of the RFA is to identify releases or potential releases of hazardous waste, hazardous constituents or other constituents of concern from SWMUs and/or AOCs that may require corrective action. If the RFA indicates there is no release, the permittee shall submit the RFA report to document results and the requirements of 30 TAC Chapter 350 shall not apply. However, if the RFA indicates that there is a release or a potential for release that warrants further investigation, the permittee shall conduct an investigation and necessary corrective action based on 30 TAC Chapter 350 requirements, applicable guidance, and the approved schedules in accordance with Section XI.H. Upon written approval of the RFA, the permittee shall include the newly discovered SWMUs and/or AOCs with each groundwater report in accordance with CP Table VII, and include the new SWMUs and/or AOCs on CP Tables I or II as appropriate, with the next Compliance Plan modification, amendment or renewal.

B. Authorized Components and Functions of Corrective Action and Compliance Monitoring Systems

Corrective Action Systems are required for units specified in CP Table I, Items A, C and D. The permittee is authorized to install and operate the Corrective Action System components specified in Provisions XI.B.1. through XI.B.10., subject to the limitations contained herein. Compliance Monitoring System components for units listed in CP Table I, Item B are specified below in Provision XI.B.11.

Corrective Action Systems:

1. Groundwater monitoring system may at a minimum consist of the following categories of wells listed in CP Table V, to monitor groundwater quality. An application to modify or amend the Compliance Plan is required to change the category or wells listed in CP Table V.
 - a. Background Well(s) unaffected by the operation of the facility.
 - b. POC Wells to demonstrate compliance with the Groundwater Protection Standard (GWPS).
 - c. Point of Exposure (POE) Wells, to demonstrate compliance with the GWPS and evaluate the effectiveness of the remediation program.
 - d. Alternate Point of Exposure (APOE) Wells to demonstrate compliance with the GWPS at a location other than the prescribed POE; and in maintaining a Plume Management Zone (PMZ) in accordance with 30 TAC Section 350.33.
2. The permittee is authorized to install and operate the following additional corrective action system wells to monitor groundwater quality and hydrogeological conditions of the aquifer as designated in CP Attachment A. The permittee may propose changes to the following corrective action system wells as part of the reporting requirements in CP Table VII (Item 12) and shall become part of the Compliance Plan upon approval by the Executive Director. The purpose is to provide the permittee with the flexibility to alter the groundwater monitoring system and Corrective Action System designs, as necessary, to proactively address changing environmental conditions without modification or amendment to the Compliance Plan.
 - a. Corrective Action Observation (CAO) Wells to evaluate the lateral and vertical extent of groundwater contamination in the Uppermost Aquifer and evaluate the effectiveness of the remediation program.
 - b. Corrective Action System (CAS) Wells to remediate and/or contain contaminated groundwater.
 - c. Attenuation Monitoring Point (AMP) Wells, located within the migration pathway of a chemical of concern, which demonstrates that Attenuation Action Levels (AALs) representing critical PCLs established as the GWPS will not be exceeded at the applicable point of exposure.
 - d. Supplemental Wells to gauge hydrogeologic conditions of the aquifer.
3. Groundwater Corrective Action System to effect withdrawal, treatment, and/or containment of contaminated groundwater and non-aqueous phase liquids (NAPLs) by means of recovery wells, interceptor trenches, bioremediation, air sparging and/or another alternate Corrective Action System design. Any alternate Corrective Action System designs proposed by the permittee

subsequent to issuance of this Compliance Plan that are equivalent to or exceed the performance of the Corrective Action Systems approved herein shall become part of the Compliance Plan upon approval by the Executive Director. The type of Corrective Action System in operation at the facility and an evaluation of system performance shall be reported in accordance with CP Table VII.

4. Collection and conveyance system to store recovered groundwater and NAPLs, if found, prior to disposal at authorized facilities. If the recovered groundwater is characteristically hazardous and/or is contaminated with listed hazardous waste and the collection system does not meet the wastewater treatment unit exemption under 30 TAC Sections 335.2(f) and 335.41(d), the collection system shall comply with the following regulations: 1) If the contaminated groundwater is stored for less than ninety (90) days without a permit or interim status, then the container and tank collection systems shall comply with provisions of 30 TAC Section 335.69(a)(1)/40 CFR Part 265 Subparts I and J; 2) If the contaminated groundwater is stored for more than ninety (90) days, then the container and tank collection system shall comply with the provisions of 30 TAC Section 335.152(a)(7) and (8)/40 CFR Part 264 Subparts I and J. The collection and conveyance system shall consist of the following components.
 - a. A groundwater CAS.
 - b. A groundwater storage system.
 - c. Appurtenances for the collection and conveyance of recovered contaminated groundwater and NAPLs, if applicable.
5. Treatment system to reduce the concentration of hazardous constituents in contaminated groundwater to the GWPS specified in CP Table III by means of biological, physical, and chemical treatment processes.
6. Groundwater containment system to inhibit contaminated groundwater above CP Table III GWPS from migrating beyond the influence of the CAS.
7. Reinjection of fresh or recovered groundwater, after treatment, into the contaminated aquifer in accordance with 30 TAC Sections 331.9 and 331.10.
8. The following handling methods are authorized for recovered groundwater having concentrations of hazardous constituents exceeding the GWPS:
 - a. Treatment through an on-site wastewater treatment system and discharge via a permitted outfall in compliance with a current industrial wastewater discharge permit.
 - b. Treatment of recovered groundwater by means of air stripping and carbon adsorption. The air stripper shall be maintained in compliance with applicable air quality regulations.
 - c. Disposal at permitted deep injection well facility.
 - d. Disposal at other authorized on-site facility or permitted off-site facility.

- e. Any other treatment methods approved by the Executive Director.

The method(s) utilized for handling, disposing and recording volumes of all recovered/purged contaminated groundwater shall be reported in accordance with CP Table VII.

- 9. Recovered NAPLs, if found, shall be managed (treated, stored, and disposed), or recycled in an authorized on-site unit(s) or an off-site facility.
- 10. The Corrective Action Program shall consist of the system components listed in Provisions XI.B.1. through XI.B.9., to be operated according to the plans and specifications as approved in Provision XI.C.1. and the specifications of this Compliance Plan.
 - a. If groundwater recovery wells are utilized in the Corrective Action System, the flow rate at each recovery well shall be set and recorded once a week. This weekly flow rate data shall be used to calculate a semiannual total flow which shall be reported in accordance with CP Table VII of this Compliance Plan.
 - b. All Corrective Action System components shall be maintained in a functional and leak-free condition. All above ground collection system pipes shall be inspected weekly. In addition, the area surrounding the wells shall be inspected weekly for visible signs indicating leaks in buried sections of the collection system. If a release of reportable quantity is detected in any part of the collection system, it must be reported within twenty-four (24) hours to the local TCEQ Region Office, and immediate action must be taken to stop the release and resolve the problem.
 - c. The permittee shall notify the Executive Director of any scheduled or non-scheduled periods of Corrective Action System shutdown, Corrective Action System malfunction, or treatment system shutdown for maintenance lasting more than thirty (30) days. The permittee shall notify the Executive Director in writing no later than seven (7) days following the date the permittee determines that the shutdown will last more than thirty (30) days. All shutdowns and malfunctions, irrespective of duration, shall be recorded in the facility's inspection log, and shall be reported in accordance with CP Table VII.
- 11. Compliance Monitoring Systems: Groundwater monitoring system may at a minimum consist of the following categories of wells listed in CP Table V, to monitor groundwater quality. An application to modify or amend the Compliance Plan is required to change the category or the wells listed in CP Table V.
 - a. Background well(s) that is unaffected by the operation of the facility.
 - b. POC wells to demonstrate compliance with the GWPS.
 - c. POE wells to demonstrate compliance with the GWPS.
 - d. APOE wells to demonstrate compliance with the GWPS at a location other than the prescribed POE.

C. General Design and Construction Requirements

1. All plans submitted with the Compliance Plan Application referenced in Provision I.B., concerning the design, construction, and operation of the authorized components of the Corrective Action and Groundwater Monitoring Programs and/or groundwater Compliance Monitoring Program, are approved subject to the terms established by this Compliance Plan. All plans must comply with this Compliance Plan and TCEQ Rules. Any alternate Corrective Action System design proposed by the permittee subsequent to issuance of this Compliance Plan that are equivalent to or exceed the performance of the Corrective Action Systems approved herein shall become part of the Compliance Plan upon approval by the Executive Director.
2. Well Design, Construction, Installation, Certification, Plugging and Abandonment Procedures and Specifications

For all wells to be constructed after issuance of this Compliance Plan that do not meet the well construction specifications identified in CP Attachment C of this permit, the permittee shall submit to the Executive Director the proposed well location and construction diagram for approval at least ninety (90) days in advance of the anticipated date of installation or in accordance with an approved schedule for installation. These requirements may be met through submittal of a work plan by the permittee and subsequent approval by the Executive Director. Well installation shall commence upon written approval of the Executive Director. Wells constructed prior to issuance of this Compliance Plan may be utilized as groundwater monitoring wells if they meet the standards of CP Attachment C or are otherwise authorized by issuance of the Compliance Plan.

Unless the permittee proposes an alternate well design that will result in wells of equivalent performance, each well installed after issuance of this Compliance Plan shall follow the design specifications contained in CP Attachment C of this permit. The permittee shall follow the certification and reporting requirements for installation of new, plugging/ abandonment and replacement of existing wells as specified in CP Attachment C of this permit and CP Table VII.

3. The permittee shall not install or maintain any drinking water or supply wells that are screened within plumes of groundwater contamination at the facility.

D. Corrective Action and Compliance Monitoring Objectives and the Groundwater Protection Standard

Corrective Action and Compliance Monitoring Objectives for Units Specified in CP Table I

1. The GWPS defines the concentration limits of hazardous constituents, with respect to groundwater quality restoration in the Uppermost Aquifer and any lower interconnected aquifers, which are to be achieved at the POC, (and POE, and APOE, if applicable) and beyond in accordance with Provision XI.E.1. by operation of the Corrective Action Program and/or Compliance Monitoring Program at this facility.

2. POC wells are designated in CP Attachment A and further defined for purposes of this Compliance Plan by CP Table V, which also identifies the POE (and APOE, if any) wells for which groundwater monitoring procedures will apply (Section XI.F.)
3. For Corrective Action, the hazardous constituents detected in groundwater are specified in Column A of CP Table III and IIIA. For Compliance Monitoring, hazardous constituents that are reasonably expected to be in or derived from waste placed in the units and that are to be monitored annually at the POC are listed in Column A of CP Table IV. The hazardous constituents detected in the groundwater are specified in Column A of CP Table IVA. Additional constituents shall be added to CP Tables IIIA (Corrective Action) and IVA (Compliance Monitoring) through a Compliance Plan modification or amendment in accordance with Provision XI.L.4. Groundwater analysis for each hazardous constituent shall utilize an analytical method, listed in the EPA SW-846 and as listed in the July 8, 1987 edition of the Federal Register and later editions, which is capable of measuring the concentration of the hazardous constituent at a level equal to or less than the corresponding value specified in CP Tables III, IIIA, and IVA and equal to the quantitation level specified in CP Table IV except when matrix interference prevents achievement of that level.
4. The GWPS are specified in Column B, (and if applicable, in Column C) of CP Tables III and IIIA (Corrective Action) or IVA (Compliance Monitoring). The GWPS shall be the values for statistical comparisons unless CP Tables III, IIIA or IVA are amended in accordance with current guidance and regulations, or if any other accepted levels are promulgated by the TCEQ or the EPA. The values in CP Tables III and IIIA or IVA will change as updates to 30 TAC Section 335.160 and Chapter 350 are promulgated. The Executive Director or the permittee may request to replace concentration limits through a modification or amendment to this Compliance Plan in accordance with 30 TAC Chapter 305 Subchapter D.
5. Compliance Period for each unit is specified in CP Table VI.
6. The GWPS Achieved for the Corrective Action Program.
 - a. Achievement of the GWPS, in accordance with Provision XI.E.1., is defined by the results of the data evaluation of Provision XI.F.4., wherein the concentrations of hazardous constituents have been reduced by the Corrective Action Program (Section XI.E.) to concentrations of hazardous constituents that do not exhibit a statistically significant increase or exceed the concentration limits when directly compared to the GWPS of CP Table III.
 - b. If the GWPS is achieved at the RCRA-regulated units or waste management areas, in accordance with Provision XI.E.1., during the Compliance Period, the permittee may apply to modify or amend this Compliance Plan to revise the Corrective Action Program to the extent necessary to demonstrate by means of the Groundwater Monitoring Program that the GWPS will not be exceeded during the remainder of the Compliance Period.

- c. If the GWPS is not achieved at the RCRA-regulated units or waste management areas, in accordance with Provision XI.E.1., during the Compliance Period, the Corrective Action Program must continue until the GWPS has not been exceeded in all wells for that corrective action area for three (3) consecutive years.
 - d. If the GWPS established in this Compliance Plan for the RCRA-regulated unit or waste management area have not been exceeded for three (3) consecutive years at the end of the Compliance Period, then the permittee must, within ninety (90) days, submit an application for a Compliance Plan/Permit modification or amendment to establish a Compliance Monitoring Program or a Detection Monitoring Program for the aquifer(s) during the remaining portion of the thirty (30) year post-closure care period in accordance with 40 CFR Part 264.117. If the thirty (30) year post-closure care period has expired, the permittee may request groundwater monitoring for that RCRA-regulated unit or waste management area be discontinued. Until approval of the request, the permittee shall continue groundwater monitoring under current Compliance Plan provisions for each RCRA-regulated unit or waste management area.
 - e. If the GWPS established in this Compliance Plan for SWMUs and/or AOCs listed in CP Table I, Item C have not been exceeded for three (3) consecutive years in all wells for that unit, then the permittee may apply for a modification or amendment to the Compliance Plan to terminate the Corrective Action Program for that unit.
 - f. If the GWPS established by this Compliance Plan for those units/areas listed in CP Table I, Item D (regarding alternative corrective action requirements for commingled plumes) have not been exceeded for three (3) consecutive years for all wells for those units/areas, and the performance standards of 30 TAC Sections 335.8 and 335.167 are met, then the permittee may apply for a modification or amendment to the Compliance Plan to terminate the Corrective Action Program for those units/areas.
7. Compliance Monitoring Program: Compliance with the GWPS for each well is defined by the results of the data evaluation of Provision XI.F.4., wherein the concentrations of hazardous constituents do not exhibit a statistically significant increase (SSI) or exceed the concentration limits when directly compared to the concentration limits of CP Table IVA. If any POC (and/or POE, if any) well of CP Table V is non-compliant with the GWPS at any time during the Compliance Monitoring Program, the permittee shall respond and report according to CP Table VII. The groundwater Compliance Monitoring Program established by this Compliance Plan shall extend until expiration of the Compliance Period specified in CP Table VI. At the end of the Compliance Period, the permittee shall either:
- a. Submit a permit modification or amendment request to re-establish a Detection Monitoring Program under 30 TAC Section 335.164 for the remaining portion of the thirty (30) year post-closure care period in accordance with 40 CFR Part 264.117 if none of the hazardous constituents are detected at concentrations equal to or greater than the values listed in CP Table IV. Until approval of the request, the permittee shall continue groundwater monitoring under current Compliance Plan provisions;

- b. Continue monitoring under the Compliance Monitoring Program if any hazardous constituent continues to be detected at concentrations equal to or greater than the value listed in CP Table IV and the GWPS in CP Table IVA is not exceeded during remaining portion of the thirty (30) year post-closure care period; or
- c. If the thirty (30) year post-closure care period has expired and hazardous constituents continue to be detected in groundwater by Compliance Monitoring Program, then the permittee may request groundwater monitoring be discontinued if the GWPS of CP Table IVA are not exceeded at the end of the Compliance Period. Until approval, the permittee shall continue groundwater monitoring under current Compliance Plan provisions.

E. Corrective Action Program

The Corrective Action Program applies to units specified in CP Table I, Items A, C and D. The Corrective Action Program shall remediate, recover, and/or contain contaminated groundwater from the Uppermost Aquifer and any interconnected lower aquifers, if applicable. The Corrective Action Program shall consist of the system components of Section XI.B., to be operated according to the specifications of this Compliance Plan. The permittee shall conduct the Corrective Action Program until the performance standards of Provision XI.E.1. are met. The permittee shall initiate the Corrective Action Program immediately upon issuance of this Compliance Plan, except where other specific TCEQ response deadlines may apply.

1. Performance Standard

The permittee shall conduct the Corrective Action Program to remedy the quality of groundwater by removing or treating in place the hazardous constituents so as to achieve the concentration limits specified in the GWPS of Section XI.D. in accordance with the following:

- a. At the POC (POE and APOE, if any) and between the POC (POE and APOE, if any) and the downgradient facility property line;
- b. Beyond the facility boundary where necessary to protect human health and the environment, unless the permittee demonstrates to the satisfaction of the Executive Director that, despite the permittee's best efforts, the necessary permission from the property owner(s) was not received to undertake such action. The permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied;
- c. Operate the Corrective Action System so as to intercept, contain and/or treat the contamination in the Uppermost Aquifer unless the system is under repair or maintenance;
- d. Recommend changes to the configuration of the Corrective Action System at any time that it is determined that the contamination present in the Uppermost Aquifer, deeper zone, or any interconnected lower aquifers is not being effectively contained and/or remediated; and

- e. The permittee is required to actively remove NAPLs from the Uppermost Aquifer and any interconnected aquifers wherever found, to the extent technically practicable.

F. Groundwater Monitoring Program Requirements

The permittee shall install, operate and maintain the Groundwater Monitoring System to evaluate the compliance status of the waste management units under the Compliance Monitoring Program, or to evaluate the effectiveness of the Corrective Action Program for those units undergoing remediation, as applicable. The Groundwater Monitoring System, shall be composed of wells specified in CP Table V, and shall include at a minimum Background, and Point of Compliance, and other wells as necessary which have been approved by the Executive Director (e.g. POE, and APOE, etc.).

1. Waste Management Area Specific Background Groundwater Quality

The permittee may submit to the Executive Director for review and approval a plan to determine site-specific background values of the naturally-occurring hazardous constituents of CP Table III, IIIA (for Corrective Action) or CP Table IVA (for Compliance Monitoring) in lieu of the concentration limits given in these CP Tables. The plan shall include appropriate background well locations and screened intervals, well sampling schedules, and methodology for determining and expressing background values in a form appropriate for the statistical evaluation of the monitoring results. Once background values have been established, the permittee shall submit a modification or amendment, in accordance with Provision XI.J.4., to add background values.

2. Sampling and Analysis Plan

- a. Wells shall be sampled according to the Sampling and Analysis Plan referenced in Provision I.B. The Sampling and Analysis Plan is hereby incorporated into the Compliance Plan by reference as if set out fully herein. The permittee or the Executive Director shall propose modifications to the plan, as necessary to reflect current methods in EPA SW-846 and ASTM Standard Test Methods or other methods accepted by the TCEQ. The laboratory methods utilized for groundwater analysis shall be capable of measuring concentration of each hazardous constituent equal to or less than the values in CP Tables CP III, IIIA or IVA. Any and all revisions to the plan shall become conditions of this Compliance Plan at the beginning of the first quarter following approval by the Executive Director.
- b. An up-to-date and approved Sampling and Analysis Plan shall be maintained at the facility and made available for inspection upon request.

3. Sampling and Analysis Frequencies and Parameters

- a. Frequencies of sampling are defined below:
 - (1) "Week" and "month" shall be based upon a calendar week and month;

- (2) "Quarter" shall be based on divisions of the calendar year (i.e., January through March, April through June, July through September, October through December);
 - (3) "Semiannual" shall be based on divisions of the calendar year (i.e., January through June, and July through December) and consist of two consecutive quarters;
 - (4) "Annual" or "Year" shall be four consecutive quarters, beginning with the first quarter. Years shall be designated consecutively, beginning with the "first year", "second year", etc; and
 - (5) "Calendar year" shall be based on divisions of the calendar (i.e. January through December).
- b. Sampling of wells shall commence during the first complete quarter after issuance of this Compliance Plan. Thereafter, samples shall be collected on a frequency as specified in CP Table VIII. Data evaluations shall be completed within sixty (60) days of collection of the last sample unless QA/QC procedures show that data is unacceptable and re-analyses or re-sampling must be performed. In such cases, the Executive Director will be notified as soon as it becomes apparent that the sixty-day (60) time limit will not be met.
- c. In the first and subsequent years of groundwater monitoring, the wells shall be sampled and analyzed according to the following schedules:
- (1) Corrective Action Monitoring for units specified in CP Table I, Items A, C and D.
 - (a) Each Background, POC, POE, and APOE well listed in CP Table V; and each AMP if applicable, CAO, and CAS well depicted in CP Attachment A shall be sampled and analyzed on a frequency as specified in CP Table VIII for the constituents of CP Table IIIA until the achievement of the GWPS in accordance with Provision XI.D.6.
 - (b) Each CAO well, AMP well (if applicable) and CAS well shall continue to be sampled, according to Section XI.D., until any changes to these groups of wells are approved by the Executive Director pursuant to Provision XI.B.3.
 - (c) Each well of CP Table V shall be sampled for the constituents of CP Table IIIA, according to Provision XI.D.3., until analytical results satisfy the GWPS of CP Table IIIA for all wells of CP Table V of that unit or area for two consecutive sampling events. All wells listed in CP Table V shall then be sampled and analyzed on a frequency as specified in CP Table VIII for the constituents of CP Table III until all constituents of CP Table III are below the GWPS for all CP Table V wells of that unit or area in accordance with Provision XI.D.6.

- (d) If the GWPS is achieved in all wells (Background, POC, POE, APOE, AMP, CAO and CAS), in accordance with Provision XI.D.6.a., then the permittee may apply to modify or amend the Compliance Plan according to Provisions XI.D.6.b., XI.D.6.d., XI.D.6.e., or XI.D.6.f.
 - (e) Any well with NAPLs detected in the wellbore shall be considered as non-compliant with the GWPS and is not required to be analyzed for the constituents of CP Table III or IIIA.
- (2) Compliance Monitoring for units specified in CP Table I, Item B.
- (a) If data evaluation is performed in accordance with Provision XI.F.4.a., one sample from each well of CP Table V shall be taken and analyzed semiannually for the constituents of CP Table IVA. If data evaluation is performed in accordance with Provision XI.F.4.b., a sequence of at least four independent samples from each well of CP Table V shall be taken and analyzed on a frequency as specified in CP Table VIII for the constituents of CP Table IVA; and
 - (b) One sample from each well of CP Table V shall be taken and analyzed annually for constituents in CP Table IV during the first quarter of each year. Analysis for the hazardous constituents of CP Table IV and CP Table IVA may be accomplished with the same sample when sampling events coincide.
- d. Field Determination Requirements - All Wells Specified in CP Table VII (Item 12).
- (1) Water level measurements relative to Mean Sea Level shall be measured to within 0.01 ft and shall be performed during each sampling event effective immediately with issuance of this Compliance Plan. Measurements shall be taken in all monitor wells specified in this Compliance Plan.
 - (2) Field determinations of pH, temperature and Specific Conductivity are required for all wells of CP Table V and as depicted in CP Attachment A excluding wells containing NAPLs. Turbidity in nephelometric turbidity units is required if micropurging techniques are utilized during sample collection.
 - (3) Field observations including descriptions of appearance (clarity, color, etc.) shall be recorded on a frequency as specified in CP Table VIII for all wells of CP Table V and wells depicted in CP Attachment A, excluding wells containing NAPL.
 - (4) The total depth of each well which is not equipped with a dedicated pump shall be measured during each sampling event. Total depth of each well which is equipped with a dedicated pump shall be measured when: 1) pumps are removed for maintenance; or 2) the groundwater production rate of the dedicated pump decreases by 25% from the initial production rate when the pump was installed. The measured total depth shall be compared to the total depth recorded on the well construction log. Should a comparison of the measured and the recorded total depth

reveal that greater than 20% of the well screen has been silted in, the permittee shall perform such actions necessary (redevelopment, replacement, etc.) to enable the well to function properly.

- (5) All wells specified in CP Table VII (Item 12) shall be inspected during each sampling event in accordance with specifications in the Sampling and Analysis Plan. Repairs or a proposal for replacement for any affected well shall be performed within ninety (90) days of the routine sampling event inspection which identified the problem well.

4. Data Evaluation Procedures

Data evaluation in accordance with this provision shall be performed for all wells within sixty (60) days of collection of the last sample for the duration of the Corrective Action Monitoring and Compliance Monitoring programs. When evaluating the monitoring results of each well, pursuant to Section XI.F., for the constituents of CP Tables III or IIIA for corrective action monitoring, or CP Tables IV or IVA for compliance monitoring, the permittee shall either:

- a. **Corrective Action Monitoring:** Directly compare the value of each constituent to the respective concentration limit of CP Table III or IIIA and determine if it is less than, equal to, or greater than the concentration limits. If the values for all the constituents are less than or equal to the respective concentration limits, then the well shall be considered compliant with the GWPS for the sampling event. If one or more constituent value is greater than the respective concentration limit, then the well shall be considered non-compliant with the GWPS for the sampling event; or

Compliance Monitoring: Directly compare the value of each constituent to the respective concentration limit of CP Table IV or IVA and determine if it is less than, equal to, or greater than the listed value. For constituents listed in CP Table IV that are not also listed in CP Table IVA, if constituents are detected at concentrations equal to or greater than the value listed in CP Table IV, then the procedures of Provision XI.G.2.b. apply. For constituents listed in CP Table IVA, if the values for all the constituents are less than or equal to the respective concentration limits of CP Table IVA, then the well shall be considered compliant with the GWPS for the sampling event. If one or more constituent value is greater than the respective concentration limit, then the well shall be considered non-compliant with the GWPS for the sampling event and the procedures of Provision XI.G.2.a. apply; or

- b. Compare the value of each constituent to its respective concentration limit of CP Table III or IIIA for corrective action monitoring, or CP Table IV or IVA for compliance monitoring, using one of the following procedures:
 - (1) The Confidence Interval Procedure for the mean concentration based on a normal, log-normal, or non-parametric distribution. The 95 percent confidence coefficient of the t-distribution will be used in constructing the confidence interval (Chapter 21 of Statistical Analysis of Groundwater Data at RCRA Facilities-Unified Guidance, U.S. EPA, March 2009), and subsequent updates acceptable to the Executive Director. The confidence interval upper limit for each constituent shall be compared with the corresponding concentration limit in CP Table III or IIIA for corrective

action monitoring, or CP Table IV or IVA for compliance monitoring. To be considered in compliance, the confidence interval upper limit for a well in question must not exceed the tabled concentration limit. A confidence interval upper limit above the tabled concentration limit shall be considered as evidence of statistically significant contamination; or

- (2) An alternative statistical method proposed by the permittee and approved by the TCEQ. Any proposed alternative method must be appropriate with respect to distributional assumptions and must provide reasonable control of both false positive and false negative error rates.
- c. Within thirty (30) days of an initial data evaluation that determines concentration limits have been exceeded in a well, pursuant to Provisions XI.F.4.a. or XI.F.4.b., the permittee may resample and repeat the analysis to verify concentration limits have been exceeded. If the second analysis indicates that the sample does not exceed the concentration limits, then the well shall be considered compliant with the concentration limits for the sampling event.

G. Response and Reporting

- I. Corrective Action Monitoring for units specified in CP Table I, Items A, C, or D (if alternative corrective action requirements apply).
 - a. If the permittee or the Executive Director determines that the Corrective Action Program required by this Compliance Plan no longer satisfies the requirements of 30 TAC Sections 335.166 or 335.167, the permittee must, within ninety (90) days of either the permittee's determination or Executive Director's notification, submit an application for a Compliance Plan modification or amendment to make any appropriate changes to the Corrective Action Program which will satisfy the regulations.
 - b. If the Executive Director determines that the lateral or vertical extent of groundwater contamination is not delineated, the permittee must, within ninety (90) days of the date of the Executive Director's notification unless otherwise directed, initiate an investigation to determine the extent of the contamination based on the Practical Quantitation Limit (PQL), Method Quantitation Limit (MQL), or other applicable standard as required or approved by the Executive Director.
 - c. This section applies only if POEs are defined in CP Table V and a GWPS is assigned at the POE; and attenuation action level (if applicable) is assigned to its respective attenuation monitoring point. If during two (2) consecutive sampling events the GWPS is exceeded at the POE, or the attenuation action level (if applicable) is exceeded at its respective attenuation monitoring point, then within ninety (90) days of completing the data evaluation of the second sampling event, the permittee must:
 - (1) Install groundwater recovery wells or alternate Corrective Action System design to mitigate the downgradient migration of the contaminant plume; and/or

- (2) Reevaluate the criteria originally used to establish the GWPS, in accordance with Provision XI.D.4., and submit an application to modify or amend the Compliance Plan to address the GWPS exceedance; and/or reevaluate the criteria originally used to establish the attenuation action level and submit an analysis to the Executive Director for approval to request changes to the attenuation action level.

2. Compliance Monitoring for units specified in CP Table I, Item B

- a. Compliance with the GWPS for each POC (POE and APOE, if applicable) well of CP Table V is defined by the results of the data evaluation of Provision XI.F.4., wherein the concentrations of hazardous constituents do not exhibit a statistically significant increase or exceed the concentration limits when directly compared to the concentration limits of CP Table IVA. If the permittee determines that any concentration limit of CP Table IVA is being exceeded pursuant to the procedures used in Provision XI.F.4. at any POC (POE, and APOE, if applicable) well of CP Table V, then the permittee must notify the Executive Director of this finding in writing within seven (7) days. The notification must identify what concentration limits have been exceeded and indicate that the permittee will either:
 - (1) Submit a Compliance Plan modification or amendment to the Executive Director to establish a Corrective Action Program meeting the requirements of 30 TAC Section 335.166 within 180 days of such determination in accordance with 30 TAC Section 335.165(11)(B);
 - (2) Demonstrate that a source other than the regulated unit caused the exceedance of the concentration limits of CP Table IVA or that the concentration is an artifact caused by errors in sampling, analysis, or statistical evaluation or natural variation in the groundwater within ninety (90) days in accordance with 30 TAC Section 335.165(12); or
 - (3) Re-evaluate the criteria originally used to establish the concentration limits of the GWPS to determine if a Corrective Action Program is necessary. If it is determined that revised concentration limits will result in a GWPS that is protective of human health and the environment, then the permittee may request to replace the concentration limits of the GWPS through a modification or amendment to this Compliance Plan in accordance with Provision XI.D.6. Such a request must be submitted within ninety (90) days and may require a proposal for additional groundwater monitoring wells to verify attenuation of the contaminant plume to levels that are protective of human health and the environment.
- b. If the permittee detects CP Table IV constituents at concentration levels equal to or greater than the listed Quantitation Limit and which exceed background groundwater quality in groundwater samples from POC (POE, APOE, if any) wells of CP Table V that are not already identified in CP Table IVA as monitoring constituents, then the permittee must either:
 - (1) Report the concentration of the newly detected constituents to the Executive Director within seven (7) days after the completion of the analysis. Within ninety (90) days after the completion of the analysis, the permittee shall submit a modification or amendment application, in

accordance with Provision XI.J.4., requesting that the constituent be added to the CP Table IVA. The request shall propose a concentration limit for the GWPS based on 30 TAC Section 335.160 for each constituent; or

(2) Resample within thirty (30) days of the initial findings and repeat the CP Table IV analysis. If the second analysis does not confirm the presence of the newly detected constituents, then the permittee shall continue monitoring under the current Compliance Plan provisions. If the second analysis confirms the presence of the newly detected constituents, then the permittee shall report the concentration of these additional constituents to the Executive Director within seven (7) days after the completion of the second analysis. Within ninety (90) days after completion of the second analysis, the permittee shall submit a modification or amendment application, in accordance with Provision XI.J.4., requesting that the confirmed constituents be added to the CP Table IVA. The request shall propose a concentration limit for the GWPS based on 30 TAC Section 335.160 for each constituent.

c. If the permittee or the Executive Director determines that the Compliance Monitoring Program required by this Compliance Plan no longer satisfies the requirements of 30 TAC Section 335.165, the permittee must, within ninety (90) days of either the permittee's determination or Executive Director's notification, submit a Compliance Plan application, in accordance with Provision XI.J.4., to make changes to the Compliance Monitoring Program which will satisfy the regulations.

3. For Corrective Action and Compliance Monitoring Programs, the permittee shall submit a groundwater monitoring report(s) in accordance with the frequency specified in CP Table VII, and contain the information listed in CP Table VII required for the specific program(s) that are applicable.

H. Corrective Action and Interim Corrective Measures (ICMs) for Solid Waste Management Units

1. Corrective Action Obligations

The permittee shall conduct corrective action as necessary to protect human health and the environment for all releases of hazardous waste, hazardous constituents listed in Appendix VIII and/or 40 CFR Part 264, Appendix IX and/or other COCs from any SWMU and/or AOC according to 30 TAC Section 335.167. Corrective action shall consist of an Affected Property Assessment (APA), determination of protective concentration levels, selection of a remedy standard (if necessary), development and implementation of a response action (if necessary), and submittal of required reports according to 30 TAC Chapter 350.

In the case of SWMUs and/or AOCs that have been grandfathered under 30 TAC Chapter 335, Subchapters A and S, Risk Reduction Standards (RRS), corrective action shall consist of the RCRA Facility Investigation (RFI) and if necessary, Interim Corrective Measures (ICM), Baseline Risk Assessment (BLRA), Corrective Measures Study (CMS) and Corrective Measures Implementation (CMI). For grandfathered SWMUs and/or AOCs, the permittee may continue to complete the corrective action requirements under 30 TAC Chapter 335, Subchapters A and S,

provided the permittee complies with the notification and schedule requirements pursuant to 30 TAC Sections 335.8 and 350.2(m). If on the basis of the APA /RFI, it is determined that COC have been or are being released into the environment, the permittee may be required to conduct necessary ICMs and/or corrective actions.

Upon the Executive Director's review of corrective action obligations, the permittee may be required to perform any or all of the following:

- a. Conduct investigation(s);
- b. Provide additional information;
- c. Investigate additional SWMU(s) and/or AOC(s); and/or
- d. Submit an application for a modification/amendment to a Compliance Plan to implement corrective action.

Any additional requirements must be completed within the time frame(s) specified by the Executive Director.

2. The permittee shall conduct an RFI/APA for the SWMUs and/or AOC listed in CP Table II, in accordance with Provision XI.A.5., and for any new SWMUs and/or AOC discovered after the issuance of this Compliance Plan in accordance with Provision XI.A.6.
3. Variance from Investigation

The permittee may elect to certify that no COCs are currently or never have been present or managed in a SWMU and/or AOC referenced in Provision XI.H.2. in lieu of performing the investigation required in Provisions XI.H.1. and XI.H.4., provided that confirming data is submitted for the current and past waste(s) managed in the respective unit or area. The permittee shall submit such information and certification(s) on a unit-by-unit basis in the time frame required in Provision XI.H.4. for review and approval by the Executive Director of the TCEQ. Should the permittee fail to demonstrate and certify that COCs are not or were not present in a particular unit, the investigation required in Provisions XI.H.1. and XI.H.4. shall be performed for the SWMU and/or AOC.

4. RCRA Facility Investigation (RFI)/Affected Property Assessment (APA)

Within sixty (60) days from the date of issuance of this Compliance Plan and/or approval of the RFA Report of Provision XI.A.5., the permittee shall submit a schedule for completion of the RFI(s)/APA to the Executive Director for review and approval. The permittee shall initiate the investigations in accordance with the approved schedule and guidance contained in the EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994 and in accordance with state regulations referenced in Provision XI.H.1. The results of the RFI/APA must be appropriately documented in a report and submitted to the Executive Director for approval within the time frame established in the approved schedule. The Report shall be considered complete

when the full nature and extent of the contamination, the QA/QC procedures and the Data Quality Objectives are documented to the satisfaction of the Executive Director. The permittee shall propose or conduct ICMs, as necessary, to protect human health and the environment.

5. Remedy Selection

Upon approval of RFI Report/APA Report (APAR), if it is determined that there has been a release of COCs into the environment, which poses a potential risk to human health and the environment, then the permittee shall propose a remedy in accordance with the 30 TAC Chapter 335, Subchapters A and S, Risk Reduction Standards (if applicable), the TRRP rules, or as otherwise authorized by the Executive Director. This may require a BLRA and/or CMS Report to be submitted for review and approval within the time frame(s) specified by the Executive Director. For facilities that are grandfathered under 30 TAC Chapter 335, Subchapter S, this report shall address RRS requirements, and the applicable items contained in the EPA publications referenced in Provision XI.H.4. or other guidance acceptable to the Executive Director. For projects conducted under TRRP, the risk assessment process shall be addressed in the APAR and the evaluation of corrective measures shall be conducted as part of the remedy standard selection process.

6. Corrective Measures Implementation (CMI)/Remedial Action Plan (RAP)

If on the basis of the RFI and/or BLRA and/or CMS or APA, it is determined that there is a risk to the human health and the environment, then the permittee shall submit for approval a CMI Work Plan(s) or propose a response action (TRRP) within 180 days of receipt of approval of the RFI and/or BLRA/CMS Report or APAR unless otherwise extended by the Executive Director. The CMI Workplan shall address all the applicable items contained in the EPA publications referenced in Provision XI.H.4. or other guidance acceptable to the Executive Director. Response actions, including TRRP Remedy Standard A or Risk Reduction Standard (RRS) No. 2, cannot be self-implemented as normally allowed by TRRP or RRS because under Hazardous Solid Waste Amendments (HSWA) corrective action and permit provisions requires the CMI workplan to be reviewed prior to approval and public participation (see also Provision XI.H.7.). For TRRP response actions, the permittee shall submit a RAP in accordance with schedules and requirements of 30 TAC Chapter 350. The CMI Workplan or RAP shall contain detailed final proposed engineering design, monitoring plans and schedule to implement the selected remedy and assurances of financial responsibility for completing the corrective action. Upon completion of the response action, the permittee shall submit a CMI Report or Response Action Completion Report (RACR) to the TCEQ for review and approval. The CMI Report shall address all the applicable items in the EPA publications EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994 or other guidance acceptable to the Executive Director. The RACR shall address all the applicable items in Title 30 TAC Chapter 350 and applicable guidance.

If the response action does not propose a permanent remedy (e.g., RRS No. 3 or Remedy Standard B), or the response action requires long-term groundwater monitoring in order to demonstrate attainment of a permanent remedy (e.g., monitored natural attenuation to demonstrate Remedy Standard A), the permittee must submit a CMI Workplan or RAP as part of a Compliance Plan

application and/or modification/amendment in accordance with Provision XI.J.4. to establish corrective action and provide financial assurance to satisfy the requirements of 30 TAC Section 335.167. The Compliance Plan application and/or modification/amendment must be submitted within 180 days of approval of the CMS/BLRA or APAR. The permittee may propose an alternative schedule to be approved by the Executive Director to incorporate several approved CMI Workplans or RAPs into a single Compliance Plan modification/or amendment when CMI Workplans or RAP schedules coincide. Implementation of the corrective measure(s) shall be addressed through issuance of a new or modified/amended Compliance Plan.

To report the progress of the corrective measures, the permittee shall submit to the TCEQ CMI Progress Reports or RAERs (TRRP) as a section of the Compliance Plan groundwater report required by CP Table VII of this Compliance Plan, or as otherwise directed.

If deed recordation and necessary institutional controls are required as part of the final corrective action, the permittee shall within ninety (90) days of approval for the final corrective action submit to the Executive Director for review and approval the required proof of deed notice in accordance with Provision XI.J.1.

7. Public Notice

a. The permittee shall conduct public notice when:

- (1) CMI Work Plan or RAP is submitted to the Executive Director, in accordance with Provision XI.H.6., which contains the proposed final corrective measure for SWMU(s) and/or AOC(s) from which a release has occurred, and with proposed institutional control (as applicable). This process occurs through Compliance Plan renewal, or modification/amendment; or
- (2) If on the basis of the RFI/BLRA or APAR required by Provisions XI.H.4. and XI.H.5., it is determined the release from SWMU(s) and/or AOC(s) meets the performance standards under RRR or TRRP such that no remedy is needed, there is no risk to the human health and the environment, and the permittee seeks approval of no further action determination by the Executive Director. This process occurs through corrective action process.

b. No public notice is required when it is determined based on the results of the RFA required by Provision XI.A.6., or the RFI or APAR required by Provision XI.H.4., that no release occurred from a SWMU and/or AOC.

The purpose of the public notice is to give the members of the public the opportunity to submit written comments on the proposed corrective measure(s) or proposed no further action determination. Refer to CP Attachment B of this Compliance Plan for further guidance on public notice participation in HSWA corrective action.

8. Interim Corrective Measures (ICM)

- a. The ICM apply to waste management units or AOC under investigation for which a final Corrective Action Program has not been authorized by the Compliance Plan. ICM also apply to units/AOC that are discovered after issuance of this Compliance Plan.
- b. The objectives of the ICM are to remove, decontaminate, and/or stabilize the source (i.e., waste and waste residues) and contaminated media to protect human health and the environment. The permittee shall modify the ICM, as necessary, to achieve these objectives.
- c. The permittee is authorized to design, construct, operate and maintain ICM for waste management units/AOC as necessary to protect human health and the environment. The ICM shall be operated until final corrective measures established, in accordance with Provision XI.H.6., are authorized in the Compliance Plan. At a minimum, the ICM shall consist of the following:
 - (1) Specific performance goals to protect human health and the environment;
 - (2) A monitoring system to evaluate the ICM and determine if the objectives outlined in Provision XI.H.8.b. are being met. All ICM wells must comply with the requirements of Provision XI.C.2. and CP Attachment C, Well Design and Construction Specifications, of this permit;
 - (3) An implementation schedule to initiate ICMs;
 - (4) Submittal of a report specifying the design of the ICM upon installation. During implementation of the ICM, periodic ICM Status Reports shall be submitted in accordance with CP Table VII (Item 25) to document the objectives of Provision XI.H.8.b. are being achieved; and
 - (5) A procedure to modify the design, as necessary, to achieve the objectives outlined in Provision XI.H.8.b.

I. Financial Assurance

The permittee shall provide financial assurance for operation of the Groundwater Monitoring and Corrective Action Programs, as applicable, in accordance with this Compliance Plan in a form acceptable to the Executive Director in an initial amount not less than \$19,689,000 (2019 dollars) within sixty (60) days of issuance of this Compliance Plan. The financial assurance shall be secured, maintained, and adjusted in compliance with TCEQ regulations on hazardous waste financial assurance requirements (30 TAC Chapter 37, Subchapter P).

J. General Provisions

1. Deed Recordation Requirements

For waste and contaminated media approved to remain in place above background or health-based concentration levels after completion of the corrective action and/or groundwater monitoring programs, the permittee shall record an instrument in the county deed records for the facility to specifically

identify the areas of contamination exceeding background or health-based values. The deed certification shall follow the requirements of 30 TAC Sections 335.560 and 335.569 or 30 TAC Section 350.111, where applicable.

2. Notification Requirements

The permittee shall notify the local TCEQ region office at least ten (10) days prior to any well installation or sampling activity required by the Compliance Plan in order to afford Region personnel the opportunity to observe these events and collect samples. This notification requirement will not apply to the routine semiannual or annual groundwater sampling events specified in this Compliance Plan.

3. Distribution of Copies

The permittee shall submit all schedules, plans, and reports required by this Compliance Plan according to the following distribution list:

- a. An original paper copy and one electronic copy (on USB disc) to the Corrective Action Section, Mail Code MC-127, Remediation Division, Texas Commission on Environmental Quality in Austin, Texas; and
- b. One electronic copy to the Waste Program, Texas Commission on Environmental Quality Region 12 Office in Houston, Texas.

4. Compliance Plan Modification or Amendment

Any application to modify or amend the Compliance Plan shall be accomplished in accordance with the provisions of 30 TAC Chapter 305 Subchapter D and submitted in accordance with the Compliance Plan Application's general instructions.

5. Any changes to the Corrective Action or Groundwater Monitoring Systems are subject to Executive Director's approval.
6. The permittee shall maintain all reports, monitoring, testing, analytical, and inspection data obtained or prepared pursuant to the requirements of this Compliance Plan, including graphs and drawings, in the operating record at the facility. The operating record at the facility shall be made available for review by the staff of the TCEQ upon request.
7. The permittee shall submit a compliance schedule in accordance with CP Table VIII.

K. Force Majeure

The permittee's non-compliance with one or more of the provisions of this Compliance Plan may be justified only to the extent and for the duration that non-compliance is caused by a "Force Majeure" event. For purposes of this Compliance Plan, "Force Majeure" is defined as an event that is caused by an Act of God, labor strike, or work stoppage, or other circumstance beyond the permittee's control that

could not have been prevented by due diligence, and that makes substantial compliance with the applicable provision or provisions of this Compliance Plan impossible.

The occurrence of a "Force Majeure" event that justifies the missing of one deadline shall not automatically justify the missing of later deadlines unless there is a cumulative effect due to such an event. The permittee shall keep a record of any delaying events.

If the permittee anticipates or experiences an inability to comply with any of the provisions of this Compliance Plan due to a "Force Majeure" event, the permittee shall notify the Executive Director of the TCEQ within twenty-four (24) hours. A written notice must be submitted to the TCEQ within ten (10) days, which describes the nature, cause, and anticipated length of the delay and all steps which the permittee has taken and will take, with a schedule for their implementation, to avoid or minimize the delay. In the event that performance of any of the activities required by this Compliance Plan is affected by a "Force Majeure" event, then the permittee shall propose a plan for approval by the Executive Director of the TCEQ, for achieving the objectives of the Compliance Plan by alternative means in the most timely manner.

Table III.D. - Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Security Fencing	Damage; Broken/loose fencepost; Loose or broken barbed wire; Damaged fence; Damaged gate; Inoperable gate locks	Semi-annually & after major storm/flood event
Warning Signs	Missing, damaged, or illegible signs	Semi-annually & after major storm/flood event
Surveyed Benchmarks	Benchmarks missing or damaged	Semi-annually & after major storm/flood event
Groundwater Monitor Wells	Well cap condition poor, broken, poor seal; Lock function sticks, inoperable; Casing condition bent, torn, missing; Concrete pad cracked, broken, missing	Semi-annually & after major storm/flood event
Final Cover and Cap	Settlement or subsidence; Damage or erosion to clay cap; Erosion/undercutting at cap perimeters; Shrubs/trees with long root systems present	Semi-annually & after major storm/flood event
Drainage Structures	Grass requires mowing, treatment or repair; Debris or sediment restrict flow; Erosion or undercutting; Inadequate drainage away from clay cap	Semi-annually & after major storm/flood event

Table IV.B. - Wastes Managed in Permitted Units

No.	Waste*	EPA Waste Codes	TCEQ Waste Codes
1	Wood treatment (creosote) related wastes	K001, F034, U051, U188	219, 301, 488, 609

*Historical wastes managed; unit was closed in 1984 with releases to groundwater.

Table V.D.1. - Surface Impoundments

Permit Unit No.	Surface Impoundment	N.O.R. No.	Waste Nos. ¹	Rated Capacity ²	Dimensions	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage Ignitable, Reactive, Incompatible, or F020, F021, F022, F023, F026, and F027 Waste (state all that apply)
001	Closed Surface Impoundment	001	01	5065 yd ³ (Rated capacity before closure)	180 ft x 160 ft x 7 ft (before closure)	N/A	N/A	N/A

¹from Table IV.B, first column

²Estimated amount of waste and contaminated soil removed in 1984.

Table VII.E.2. - Permitted Unit Post-Closure Cost Summary

Existing Unit Post-Closure Cost Estimate	
Unit	Cost
SWMU No. 1 Closed Surface Impoundment (TCEQ Unit No. 001, NOR No. 001)	\$342,513
Total Existing Unit Post-Closure Cost Estimate	\$342,513 (in 2019 Dollars)¹

Proposed Unit Post-Closure Cost Estimate	
Unit	Cost

¹As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VII.G. - Post-Closure Period

Unit Name	Date Certified Closed	Permitted Post Closure Period (Yrs.)	Earliest Date Post Closure Ends (See Note 1)
Surface Impoundment (NOR No. 1, TCEQ Unit No. 001)	6/20/1994	30 years	6/20/2024

Note 1 - Post-Closure Care shall continue beyond the specified date until the Executive Director has approved the permittee's request to reduce or terminate the post-closure period, consistent with 40 CFR Section 264.117 and 30 TAC Section 335.152(a)(5).

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

A. Corrective Action¹ (30 TAC Section 335.166)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed ⁴
1.RCRA-Regulated Waste Management Unit No.1 - Closed Surface Impoundment /SWMU 1	001	

B. Compliance Monitoring¹ (30 TAC Section 335.165)

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

C. Corrective Action² (30 TAC Section 335.167)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed ⁴
1.SWMU 7 -Tank Storage Area (On-Site PMZ)	002	
2.Sub-surface Tank (On-site PMZ)	003	
3.Container Storage Area (On-site PMZ)	004	
4.Waste Pile (On-Site PMZ)	005	
5.Miscellaneous Storage Containers	006	
6.SWMU 2 - Northern and Southern Drainage Ditches (On-site PMZ)		
7.SWMU 3 Oil Drum Storage (ODS) Building (On-site PMZ)		
8.SWMU 4 Recent Process Area (On-site PMZ)		
9.SWMU 5 Original Process Area (On-site PMZ)		
10.SWMU 6 Water Treatment and Boiler System (On-site PMZ)		
11.SWMU 8 AST Area (On-site PMZ)		
12.SWMU 9 Location of Former UST No. 44-023-05 (On-site PMZ)		
13.SWMU 10 Location of Former Sap Water Treatment Tank (On-site PMZ)		
14.SWMU 11 Oil Water Separators (On-site PMZ)		
15.SWMU 12 Railroad Tie Storage Area (On-site PMZ)		
16.AOC 1 Diesel Storage Tank (On-Site PMZ)		
17.AOC 2 Hose House (On-site PMZ)		

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed ⁴
18.AOC 3 Contaminated Portion of City Water Line (On-Site PMZ)		
19.AOC 4 Location of Former Incinerator (On-site PMZ)		
20.AOC 5 City Storm Sewer (On-site PMZ)		
21.AOC 6 Inactive Wastewater Lagoon (On-site PMZ)		
22.AOC 7 Location of Former UST No. 44-023-21 (On-site PMZ)		
23.AOC 8 Former Fueling AST's and Wastewater Lagoons (On-site PMZ)		

D. Alternative Corrective Action³ (30 TAC Section 335.151)

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

Foot Note: PMZ=plume management zone, UST=underground storage tank, AST=aboveground storage tank

1. Program applies to RCRA-regulated units only.
2. Program applies to releases from solid waste management units (SWMUs) and/or areas of concern (AOCs).
3. Program applies to commingled releases from RCRA-regulated unit and from one or more SWMUs and/or AOCs.
4. For the purpose of maintaining a historical record to verify the units/areas have met the program requirements in accordance with Permit Provisions XI.A.2, XI.A.3., XI.A.4. and/or XI.A.5., the permittee shall update CP Table I to reflect the new status of the unit/area to include the remedy standard achieved for all media of concern and the date of the Commission's No Further Action (NFA) approval letter. The units/area shall not be deleted from CP Table I until the program objectives have been completed and no further action has been approved through modification or amendment to the Permit. Put "N/A" if a specific program or column item is not applicable.

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

Unit Name	NOR Number, if applicable	SWMU or AOC	Affected Media ¹	Date Program Requirement and Remedy Standard Completed ²
1.RCRA-regulated Waste Management Unit (WMU) No. 001, Closed Surface Impoundment	001	SWMU 1	GW	
2.Tank Car Storage Area	002	SWMU 7	Soil & GW	See footnote 3
3.Sub-surface Tank	003	WMU	None	
4.Constiner Storage Area	004	WMU	None	
5.Waste Pile	005	WMU	None	
6.Miscellaneous Storage Containers	006	WMU	None	
7.Northern and Southern Drainage Ditches (NDD & SDD)		SWMU 2	SDD Soil & GW	See footnote 3
8.Oil Drum Storage (ODS) Building		SWMU 3	None	See footnote 3
9.Recent Process Area		SWMU 4	Soil & GW	See footnote 3
10.Original Process Area		SWMU 5	Soil & GW	See footnote 3
11.Water Treatment and Boiler System		SWMU 6	Soil & GW	See footnote 3
12.AST Area		SWMU 8	Soil & GW	See footnote 3
13.Location of Former UST No. 44-023-05		SWMU 9	Soil & GW	See footnote 3
14. Location of Former Sap Water Treatment Tank		SWMU 10	Soil & GW	See footnote 3
15.Oil Water Separator		SWMU 11	Soil & GW	See footnote 3
16.Railroad Tie Storage Area		SWMU 12	GW	
17.Diesel Storage Tank		AOC 1	Soil & GW	See footnote 3
18. Hose House		AOC 2	Soil & GW	See footnote 3
19.Contaminated Portion of City Water Line		AOC 3	None	
20.Location of Former Incinerator		AOC 4	None	
21.City Storm Sewer		AOC 5	None	
22.Inactive Wastewater Lagoon		AOC 6	Soil & GW	See footnote 3
23.Location of Former UST No. 44-023-21		AOC 7	Soil & GW	See footnote 3
24.Former Fueling AST and Wastewater Lagoons		AOC 8	Soil & GW	

Foot Note: GW=Groundwater, AST=Aboveground Storage Tank, UST=Underground Storage Tank

SWMU= Solid Waste Management Units, AOC= Area of Concern

1. Specify media affected [i.e. soil, groundwater (GW), surface water (SW), sediment (SED)].
2. Specify the date of Commission's No Further Action (NFA) approval letter for program requirement and remedy standard completed for all media of concern.
3. Completion of interim soil response action activities are documented in Interim Response Action Completion Report (RACR) (2016, revised 2017)

Note: CP Table II lists SWMUs and/or AOC which have been identified in the RFA Report as having a release(s) or potential releases of hazardous waste, hazardous constituents or other constituents of concern. The permittee is thus required to meet corrective action objectives in accordance with Permit Section XI.H. and 30 TAC Section 335.167 consisting of further investigation, and necessary corrective actions. For the purpose of maintaining a historical record to verify the SWMUs and/or AOC have met the RCRA Corrective Action Objectives in accordance with Permit Section XI.H., the permittee shall update the CP Table II list of SWMUs and/or AOC to reflect the addition of new units and/or areas new status of the units and/or areas which include the Unit Number, the remedy standard achieved for all media of concern and the date of the Commissions NFA approval letter. SWMUs and/or AOC shall not be deleted from this table even though the Corrective Action Objectives have been completed or no further action determination has been approved for the SWMU and/or AOC.

There may be cases in which the permittee fulfills the corrective action active objectives for soils at SWMUs and/or AOC, however, long term monitoring and necessary corrective action maybe required for groundwater to verify remedy standards are met. In such instances individual SWMU and/or AOC would be listed in CP Table I, Items C and be subject to all applicable provisions of this Compliance Plan, or if the release occurred from one or more SWMU and/or AOC and is commingled with RCRA unit then units/areas would be listed in CP Table I, Item D. Upon completion of the corrective action objectives for groundwater in accordance with Permit Section XI.H., then the permittee shall modify or amend the Compliance Plan to reassign the SWMUs and/or AOC in CP Table I, Item C, or Item D to CP Table II as appropriate. CP Table II would reflect the new status of the SWMU and/or AOC to include the remedy standard achieved for all media of concern and the date of the Commissions NFA approval letter.

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

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (Residential) (mg/l) ^{2,5}
1. RCRA-Regulated Waste Management Unit 001/SWMU1- A-TZ	Acenaphthene	1.5E+00 ^{GW} Ing
	Acenaphthylene	1.5E+00 ^{GW} Ing
	Anthracene	7.3E+00 ^{GW} Ing
	Bis(2-ethylhexyl) phthalate	6.0E-03 ^{GW} Ing
	Dibenzofuran	9.8E-02 ^{GW} Ing
	Di-n-butyl phthalate	2.4E+00 ^{GW} Ing
	Fluoranthene	9.8E-01 ^{GW} Ing
	Fluorene	9.8 E-01 ^{GW} Ing
	2-Methylnaphthalene	9.8E-02 ^{GW} Ing
	Naphthalene	4.9E-01 ^{GW} Ing
	Phenanthrene	7.3E-01 ^{GW} Ing
	Phenol	7.3E+00 ^{GW} Ing
	Pyrene	7.3E-01 ^{GW} Ing
2. RCRA-Regulated Waste Management Unit 00/SWMU1 - B-TZ	Acenaphthene	1.5E+00 ^{GW} Ing
	Acenaphthylene	1.5 E+00 ^{GW} Ing
	Anthracene	7.3E+00 ^{GW} Ing
	Bis(2-ethylhexyl) phthalate	6.0E-03 ^{GW} Ing
	Dibenzofuran	9.8E-02 ^{GW} Ing
	Di-n-butyl phthalate	2.4 E+00 ^{GW} Ing
	Fluoranthene	9.8 E-01 ^{GW} Ing
	Fluorene	9.8 E-01 ^{GW} Ing
	2-Methylnaphthalene	9.8 E-02 ^{GW} Ing
	Naphthalene	4.9 E-01 ^{GW} Ing
	Phenanthrene	7.3 E-01 ^{GW} Ing
	Phenol	7.3 E+00 ^{GW} Ing
	Pyrene	7.3E-01 ^{GW} Ing

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (C/I) (mg/l) at the APOE ^{2,3,5}	Column C Groundwater Protection Standards (Residential) (mg/l) at APOE ^{1,2,3,4,5}
1. On-Site - Site-Wide PMZ	1,2-Dichloroethane	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3
	Benzene	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3
	Chlorobenzene	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-01 ^{GW} Ing B-CZ 1.0E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-01 ^{GW} Ing B-CZ 1.0E+01 ^{GW} Class3
	Ethylbenzene	A-TZ/B-TZ/C-TZ/D-TZ 7.0E-01 ^{GW} Ing B-CZ 7.0E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 7.0E-01 ^{GW} Ing B-CZ 7.0E+01 ^{GW} Class3
	Methylene Chloride	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3
	Toluene	A-TZ/B-TZ/C-TZ/D-TZ 1.0E+00 ^{GW} Ing B-CZ 1.0E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.0E+00 ^{GW} Ing B-CZ 1.0E+02 ^{GW} Class3
	Xylenes (total)	A-TZ/B-TZ/C-TZ/D-TZ 1.0E+01 ^{GW} Ing B-CZ 1.0E+03 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.0E+01 ^{GW} Ing B-CZ 1.0E+03 ^{GW} Class3
	Vinyl Chloride (selected wells)*	A-TZ/B-TZ/C-TZ/D-TZ 0 2.0E-03 ^{GW} Ing B-CZ 2.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-03 ^{GW} Ing B-CZ 2.0E-01 ^{GW} Class3
	1,2-Diphenylhydrazine	A-TZ/B-TZ/C-TZ/D-TZ 2.6E-03 ^{GW} Ing B-CZ 2.6E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.1E-03 ^{GW} Ing B-CZ 1.1E-01 ^{GW} Class3
	2,4-Dimethylphenol	A-TZ/B-TZ/C-TZ/D-TZ 1.5E+00 ^{GW} Ing B-CZ 1.5E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-01 ^{GW} Ing B-CZ 4.9E+01 ^{GW} Class3
	2,4-Dinitrotoluene	A-TZ/B-TZ/C-TZ/D-TZ 3.0E-03 ^{GW} Ing B-CZ 3.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 0.0013 ^{GW} Ing B-CZ 0.13 ^{GW} Class3
	2,6-Dinitrotoluene	A-TZ/B-TZ/C-TZ/D-TZ 3.0E-03 ^{GW} Ing B-CZ 3.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.3E-03 ^{GW} Ing B-CZ 1.3E-01 ^{GW} Class3
	2-Chloronaphthalene	A-TZ/B-TZ/C-TZ/D-TZ 5.8E+00 ^{GW} Ing B-CZ 5.8E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 2.0E+00 ^{GW} Ing B-CZ 2.0E+02 ^{GW} Class3
	2-Methyl-4,6-dinitrophenol	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-03 ^{GW} Ing B-CZ 7.3E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 2.4E-03 ^{GW} Ing B-CZ 2.4E-01 ^{GW} Class3

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (C/I) (mg/l) at the APOE ^{2,3,5}	Column C Groundwater Protection Standards (Residential) (mg/l) at APOE ^{1,2,3,4,5}
	2-Methylnaphthalene	A-TZ/B-TZ/C-TZ/D-TZ 2.9E-01 ^{GW} Ing B-CZ 2.9E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-02 ^{GW} Ing B-CZ 9.8E+00 ^{GW} Class3
	4-Nitrophenol	A-TZ/B-TZ/C-TZ/D-TZ 1.5E-01 ^{GW} Ing B-CZ 1.5E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-02 ^{GW} Ing B-CZ 4.9E+00 ^{GW} Class3
	Acenaphthene	A-TZ/B-TZ/C-TZ/D-TZ 4.4E+00 ^{GW} Ing B-CZ 4.4E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.5E+00 ^{GW} Ing B-CZ 1.5E+02 ^{GW} Class3
	Acenaphthylene	A-TZ/B-TZ/C-TZ/D-TZ 4.4E+00 ^{GW} Ing B-CZ 4.4E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.5 ^{GW} Ing B-CZ 1.5E+02 ^{GW} Class3
	Anthracene	A-TZ/B-TZ/C-TZ/D-TZ 2.2E+01 ^{GW} Ing B-CZ 2.2E+03 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 7.3E+00 ^{GW} Ing B-CZ 7.3E+02 ^{GW} Class3
	Benzo(a)anthracene	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-02 ^{GW} Ing B-CZ 2.0E+00 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.1E-03 ^{GW} Ing B-CZ 9.1E-01 ^{GW} Class3
	Benzo(a)pyrene	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-04 ^{GW} Ing B-CZ 2.0E-02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-04 ^{GW} Ing B-CZ 2.0E-02 ^{GW} Class3
	Bis(2-chloroethoxy) Methane	A-TZ/B-TZ/C-TZ/D-TZ 1.9E-03 ^{GW} Ing B-CZ 1.9E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 8.3E-04 ^{GW} Ing B-CZ 8.3E-02 ^{GW} Class3
	Bis(2-ethylhexyl) phthalate	A-TZ/B-TZ/C-TZ/D-TZ 6.0E-03 ^{GW} Ing B-CZ 6.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 6.0E-03 ^{GW} Ing B-CZ 6.0E-01 ^{GW} Class3
	Chrysene	A-TZ/B-TZ/C-TZ/D-TZ 2.0E+00 ^{GW} Ing B-CZ 2.0E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.1E-01 ^{GW} Ing B-CZ 9.1E+01 ^{GW} Class3
	Dibenzofuran	A-TZ/B-TZ/C-TZ/D-TZ 2.9E-01 ^{GW} Ing B-CZ 2.9E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-02 ^{GW} Ing B-CZ 9.8E+00 ^{GW} Class3
	Di-n-butyl Phthalate	A-TZ/B-TZ/C-TZ/D-TZ 7.3E+00 ^{GW} Ing B-CZ 7.3E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 2.4E+00 ^{GW} Ing B-CZ 2.4E+02 ^{GW} Class3
	Fluoranthene	A-TZ/B-TZ/C-TZ/D-TZ 2.9E+00 ^{GW} Ing B-CZ 2.9E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-01 ^{GW} Ing B-CZ 9.8E+01 ^{GW} Class3
	Fluorene	A-TZ/B-TZ/C-TZ/D-TZ 2.9E+00 ^{GW} Ing B-CZ 2.9E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-01 ^{GW} Ing B-CZ 9.8E+01 ^{GW} Class3
	Naphthalene	A-TZ/B-TZ/C-TZ/D-TZ - 1.5+00 ^{GW} Ing B-CZ 1.5E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-01 ^{GW} Ing B-CZ 4.9E+01 ^{GW} Class3

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (C/I) (mg/l) at the APOE ^{2,3,5}	Column C Groundwater Protection Standards (Residential) (mg/l) at APOE ^{1,2,3,4,5}
	Nitrobenzene	A-TZ/B-TZ/C-TZ/D-TZ 1.5E-01 ^{GW} Ing B-CZ 1.5E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-02 ^{GW} Ing B-CZ 4.9E+00 ^{GW} Class3
	n-Nitrosodiphenylamine	A-TZ/B-TZ/C-TZ/D-TZ 4.2E-01 ^{GW} Ing B-CZ 4.2E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.9E-01 ^{GW} Ing B-CZ 1.9E+01 ^{GW} Class3
	Pentachlorophenol	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-03 ^{GW} Ing B-CZ 1.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-03 ^{GW} Ing B-CZ 1.0E-01 ^{GW} Class3
	Phenanthrene	A-TZ/B-TZ/C-TZ/D-TZ 2.2E+00 ^{GW} Ing B-CZ 2.2E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-01 ^{GW} Ing B-CZ 7.3E+01 ^{GW} Class3
	Phenol	A-TZ/B-TZ/C-TZ/D-TZ 2.2E+01 ^{GW} Ing B-CZ 2.2E+03 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 7.3E+00 ^{GW} Ing B-CZ 7.3E+02 ^{GW} Class3
	Pyrene	A-TZ/B-TZ/C-TZ/D-TZ 2.2E+00 ^{GW} Ing B-CZ 2.2E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-01 ^{GW} Ing B-CZ 7.3E+01 ^{GW} Class3
	Arsenic	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-02 ^{GW} Ing B-CZ 1.0E+00 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-02 ^{GW} Ing B-CZ 1.0E+00 ^{GW} Class3

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (Residential) (mg/l) at APOE ^{2,3,4,5}
1. Off-Site PMZ (City of Houston Right-of Way)	1,2-Dichloroethane	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3
	Benzene	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3
	Chlorobenzene	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-01 ^{GW} Ing B-CZ 1.0E+01 ^{GW} Class3
	Ethylbenzene	A-TZ/B-TZ/C-TZ/D-TZ 7.0E-01 ^{GW} Ing B-CZ 7.0E+01 ^{GW} Class3
	Methylene Chloride	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3
	Toluene	A-TZ/B-TZ/C-TZ/D-TZ 1.0E+00 ^{GW} Ing B-CZ 1.0E+02 ^{GW} Class3
	Xylenes (total)	A-TZ/B-TZ/C-TZ/D-TZ 1.0E+01 ^{GW} Ing B-CZ 1.0E+03 ^{GW} Class3
	Vinyl Chloride (selected wells)*	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-03 ^{GW} Ing B-CZ 2.0E-01 ^{GW} Class3

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (Residential) (mg/l) at APOE ^{2,3,4,5}
	1,2-Diphenylhydrazine	A-TZ/B-TZ/C-TZ/D-TZ 1.1E-03 ^{GW} Ing B-CZ 1.1E-01 ^{GW} Class3
	2,4-Dimethylphenol	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-01 ^{GW} Ing B-CZ 4.9E+01 ^{GW} Class3
	2,4-Dinitrotoluene	A-TZ/B-TZ/C-TZ/D-TZ 0.0013 ^{GW} Ing B-CZ 0.13 ^{GW} Class3
	2,6-Dinitrotoluene	A-TZ/B-TZ/C-TZ/D-TZ 1.3E-03 ^{GW} Ing B-CZ 1.3E-01 ^{GW} Class3
	2-Chloronaphthalene	A-TZ/B-TZ/C-TZ/D-TZ 2.0E+00 ^{GW} Ing B-CZ 2.0E+02 ^{GW} Class3
	2-Methyl-4,6-dinitrophenol	A-TZ/B-TZ/C-TZ/D-TZ 2.4E-03 ^{GW} Ing B-CZ 2.4E-01 ^{GW} Class3
	2-Methylnaphthalene	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-02 ^{GW} Ing B-CZ 9.8E+00 ^{GW} Class3
	4-Nitrophenol	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-02 ^{GW} Ing B-CZ 4.9E+00 ^{GW} Class3
	Acenaphthene	A-TZ/B-TZ/C-TZ/D-TZ 1.5E+00 ^{GW} Ing B-CZ 1.5E+02 ^{GW} Class3
	Acenaphthylene	A-TZ/B-TZ/C-TZ/D-TZ 1.5 ^{GW} Ing B-CZ 1.5E+02 ^{GW} Class3
	Anthracene	A-TZ/B-TZ/C-TZ/D-TZ 7.3E+00 ^{GW} Ing B-CZ 7.3E+02 ^{GW} Class3
	Benzo(a)anthracene	A-TZ/B-TZ/C-TZ/D-TZ 9.1E-03 ^{GW} Ing B-CZ 9.1E-01 ^{GW} Class3
	Benzo(a)pyrene	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-04 ^{GW} Ing B-CZ 2.0E-02 ^{GW} Class3
	Bis(2-chloroethoxy) methane	A-TZ/B-TZ/C-TZ/D-TZ 8.3E-04 ^{GW} Ing B-CZ 8.3E-02 ^{GW} Class3
	Bis(2-ethylhexyl) phthalate	A-TZ/B-TZ/C-TZ/D-TZ 6.0E-03 ^{GW} Ing B-CZ 6.0E-01 ^{GW} Class3
	Chrysene	A-TZ/B-TZ/C-TZ/D-TZ 9.1E-01 ^{GW} Ing B-CZ 9.1E+01 ^{GW} Class3

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (Residential) (mg/l) at APOE ^{2,3,4,5}
	Dibenzofuran	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-02 ^{GW} Ing B-CZ 9.8E+00 ^{GW} Class3
	Di-n-butyl Phthalate	A-TZ/B-TZ/C-TZ/D-TZ 2.4E+00 ^{GW} Ing B-CZ 2.4E+02 ^{GW} Class3
	Fluoranthene	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-01 ^{GW} Ing B-CZ 9.8E+01 ^{GW} Class3
	Fluorene	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-01 ^{GW} Ing B-CZ 9.8E+01 ^{GW} Class3
	Naphthalene	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-01 ^{GW} Ing B-CZ 4.9E+01 ^{GW} Class3
	Nitrobenzene	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-02 ^{GW} Ing B-CZ 4.9E+00 ^{GW} Class3
	n-Nitrosodiphenylamine	A-TZ/B-TZ/C-TZ/D-TZ 1.9E-01 ^{GW} Ing B-CZ 1.9E+01 ^{GW} Class3
	Pentachlorophenol	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-03 ^{GW} Ing B-CZ 1.0E-01 ^{GW} Class3
	Phenanthrene	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-01 ^{GW} Ing B-CZ 7.3E+01 ^{GW} Class3
	Phenol	A-TZ/B-TZ/C-TZ/D-TZ 7.3E+00 ^{GW} Ing B-CZ 7.3E+02 ^{GW} Class3
	Pyrene	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-01 ^{GW} Ing B-CZ 7.3E+01 ^{GW} Class3
	Arsenic	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-02 ^{GW} Ing B-CZ 1.0E+00 ^{GW} Class3

Notes:

*Vinyl Chloride shall be sampled in accordance with the schedule specified in CP Table VIII.

1. Use Column C to specify if there are additional GWPS assigned at a POE or APOE (i.e. for sites with MNA or PMZ proposals as applicable under TRRP). (i.e. modify Table and Footnotes to support the establishment of GWPS at POC, POE or APOE monitoring points, as appropriate). Put "N/A" if a specific program or column item is not applicable.

2. For each COC, select the appropriate GWPS designation and include the applicable definition that applies to verify the corrective action program objectives are being achieved either under Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The GWPS designation and definitions specified in this table either under 30 TAC Chapter 335 (regarding RRR) or 30 TAC Chapter 350 (regarding TRRP) may not be combined pursuant to 30 TAC Section 350.2(m).
3. D-TZ wells are designated as corrective action observation wells and used to monitor the bottom of the PMZ.
4. GWPS in Column C apply where the groundwater exits the property.
5. Foot Notes - Definition for TRRP acronyms specified as the GWPS:
^{GW}In_g ACL pursuant to 30 TAC Section 335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial [C/I]) for Class 1 or Class 2 Groundwater ingestion PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with 30 TAC Section 350.72(b), ^{GW}In_g PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1×10^{-4}) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 noncarcinogenic chemicals of concern within a source medium.

^{GW}Class3 ACL pursuant to 30 TAC Section 335.160(b) based upon the PCL determined under RSA or RSB (Residential or C/I), Tier I for Class 3 Groundwater ingestion PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

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

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (Residential) (mg/l) ^{2,5}
1. RCRA-Regulated Waste Management Unit 001/SWMU1- A-TZ	Acenaphthene	1.5E+00 ^{GW} Ing
	Acenaphthylene	1.5E+00 ^{GW} Ing
	Anthracene	7.3E+00 ^{GW} Ing
	Bis(2-ethylhexyl) phthalate	6.0E-03 ^{GW} Ing
	Dibenzofuran	9.8E-02 ^{GW} Ing
	Di-n-butyl phthalate	2.4E+00 ^{GW} Ing
	Fluoranthene	9.8E-01 ^{GW} Ing
	Fluorene	9.8 E-01 ^{GW} Ing
	2-Methylnaphthalene	9.8E-02 ^{GW} Ing
	Naphthalene	4.9E-01 ^{GW} Ing
	Phenanthrene	7.3E-01 ^{GW} Ing
	Phenol	7.3E+00 ^{GW} Ing
	Pyrene	7.3E-01 ^{GW} Ing
2. RCRA-Regulated Waste Management Unit 001/SWMU1- B-TZ	Acenaphthene	1.5E+00 ^{GW} Ing
	Acenaphthylene	1.5 E+00 ^{GW} Ing
	Anthracene	7.3E+00 ^{GW} Ing
	Bis(2-ethylhexyl) phthalate	6.0E-03 ^{GW} Ing
	Dibenzofuran	9.8E-02 ^{GW} Ing
	Di-n-butyl phthalate	2.4 E+00 ^{GW} Ing
	Fluoranthene	9.8 E-01 ^{GW} Ing
	Fluorene	9.8 E-01 ^{GW} Ing
	2-Methylnaphthalene	9.8 E-02 ^{GW} Ing
	Naphthalene	4.9 E-01 ^{GW} Ing
	Phenanthrene	7.3 E-01 ^{GW} Ing
	Phenol	7.3 E+00 ^{GW} Ing
	Pyrene	7.3E-01 ^{GW} Ing

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (C/I) (mg/l) at the APOE ^{2,3,5}	Column C Groundwater Protection Standards (Residential) (mg/l) at APOE ^{1,2,3,4,5}
1. On-Site - Site-Wide PMZ	Benzene	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3
	Vinyl Chloride (selected wells)*	A-TZ/B-TZ/C-TZ/D-TZ 0 2.0E-03 ^{GW} Ing B-CZ 2.0E-01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-03 ^{GW} Ing B-CZ 2.0E-01 ^{GW} Class3
	2,4-Dimethylphenol	A-TZ/B-TZ/C-TZ/D-TZ 1.5E+00 ^{GW} Ing B-CZ 1.5E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-01 ^{GW} Ing B-CZ 4.9E+01 ^{GW} Class3
	2-Methylnaphthalene	A-TZ/B-TZ/C-TZ/D-TZ 2.9E-01 ^{GW} Ing B-CZ 2.9E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-02 ^{GW} Ing B-CZ 9.8E+00 ^{GW} Class3
	Benzo(a)pyrene	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-04 ^{GW} Ing B-CZ 2.0E-02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-04 ^{GW} Ing B-CZ 2.0E-02 ^{GW} Class3
	Dibenzofuran	A-TZ/B-TZ/C-TZ/D-TZ 2.9E-01 ^{GW} Ing B-CZ 2.9E+01 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-02 ^{GW} Ing B-CZ 9.8E+00 ^{GW} Class3
	Fluorene	A-TZ/B-TZ/C-TZ/D-TZ 2.9E+00 ^{GW} Ing B-CZ 2.9E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-01 ^{GW} Ing B-CZ 9.8E+01 ^{GW} Class3
	Naphthalene	A-TZ/B-TZ/C-TZ/D-TZ 1.5E+00 ^{GW} Ing B-CZ 1.5E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-01 ^{GW} Ing B-CZ 4.9E+01 ^{GW} Class3
	Phenanthrene	A-TZ/B-TZ/C-TZ/D-TZ 2.2E+00 ^{GW} Ing B-CZ 2.2E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-01 ^{GW} Ing B-CZ 7.3E+01 ^{GW} Class3
	Pyrene	A-TZ/B-TZ/C-TZ/D-TZ 2.2E+00 ^{GW} Ing B-CZ 2.2E+02 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-01 ^{GW} Ing B-CZ 7.3E+01 ^{GW} Class3
	Arsenic	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-02 ^{GW} Ing B-CZ 1.0E+00 ^{GW} Class3	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-02 ^{GW} Ing B-CZ 1.0E+00 ^{GW} Class3

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (Residential) (ng/l) at APOE ^{2,3,4,5}
I. Off-Site PMZ (City of Houston Right-of-Way)	Benzene	A-TZ/B-TZ/C-TZ/D-TZ 5.0E-03 ^{GW} Ing B-CZ 5.0E-01 ^{GW} Class3
	Vinyl Chloride (selected wells)*	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-03 ^{GW} Ing B-CZ 2.0E-01 ^{GW} Class3
	2,4-Dimethylphenol	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-01 ^{GW} Ing B-CZ 4.9E+01 ^{GW} Class3
	2-Methylnaphthalene	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-02 ^{GW} Ing B-CZ 9.8E+00 ^{GW} Class3
	Benzo(a)pyrene	A-TZ/B-TZ/C-TZ/D-TZ 2.0E-04 ^{GW} Ing B-CZ 2.0E-02 ^{GW} Class3
	Dibenzofuran	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-02 ^{GW} Ing B-CZ 9.8E+00 ^{GW} Class3
	Fluorene	A-TZ/B-TZ/C-TZ/D-TZ 9.8E-01 ^{GW} Ing B-CZ 9.8E+01 ^{GW} Class3
	Naphthalene	A-TZ/B-TZ/C-TZ/D-TZ 4.9E-01 ^{GW} Ing B-CZ 4.9E+01 ^{GW} Class3
	Phenanthrene	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-01 ^{GW} Ing B-CZ 7.3E+01 ^{GW} Class3
	Pyrene	A-TZ/B-TZ/C-TZ/D-TZ 7.3E-01 ^{GW} Ing B-CZ 7.3E+01 ^{GW} Class3
	Arsenic	A-TZ/B-TZ/C-TZ/D-TZ 1.0E-02 ^{GW} Ing B-CZ 1.0E+00 ^{GW} Class3

Notes:

*Vinyl Chloride shall be sampled in accordance with the schedule specified in CP Table VIII.

1. Use Column C to specify if there are additional GWPS assigned at a POE or APOE (i.e. for sites with MNA or PMZ proposals as applicable under TRRP). (i.e. modify Table and Footnotes to support the establishment of GWPS at POC, POE or APOE monitoring points, as appropriate). Put "N/A" if a specific program or column item is not applicable.
2. For each COC, select the appropriate GWPS designation and include the applicable definition that applies to verify the corrective action program objectives are being achieved either under Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The GWPS designation and

definitions specified in this table either under 30 TAC Chapter 335 (regarding RRR) or 30 TAC Chapter 350 (regarding TRRP) may not be combined pursuant to 30 TAC Section 350.2(m).

3. D-TZ wells are designated as corrective action observation wells and used to monitor the bottom of the PMZ.
4. GWPS in Column C apply where the groundwater exits the property.
5. Foot Notes – Definition for TRRP acronyms specified as the GWPS:

^{GW}In_g ACL pursuant to 30 TAC Section 335.160(b) based upon the PCL determined under RSA or RSB (Residential or Commercial /Industrial [C/I]) for Class 1 or Class 2 Groundwater ingestion PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with 30 TAC Section 350.72(b), ^{GW}In_g PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1×10^{-4}) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 noncarcinogenic chemicals of concern within a source medium.

^{GW}Class3 ACL pursuant to 30 TAC Section 335.160(b) based upon the PCL determined under RSA or RSB (Residential or C/I), Tier I for Class 3 Groundwater ingestion PCL of 30 TAC Chapter 350. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

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**CP Table IV: Compliance Monitoring Program Table of Hazardous and Solid Waste
Constituents and Quantitation Limits - Reserved**

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**CP Table IVA: Compliance Monitoring Program Table of Detected Hazardous Constituents
and the Groundwater Protection Standard - Reserved**

CP Table V: Designation of Wells

Point of Compliance Wells

1. RCRA-Regulated Waste Management Unit (WMU) 001 (SWMU 1) - only
A-TZ: MW-01A, MW-02, MW-07, MW-10A, and MW-11A
B-TZ: MW-10B, MW-11B and P-10

Point of Exposure Wells: None

Alternate Point of Exposure Wells

1. A-TZ:
On-Site PMZ: MW-12A, MW-13, MW-15A, MW-50A, MW-69A, MW-88A, MW97A, and MW-98A.
Off-Site PMZ: **MW-101A, MW32AR, MW-33A, **MW-71A, **MW-34A, MW-36A, MW-25A, MW-61A, MW-59A, and MW-47A.
2. B-TZ/B-CZ:
On-Site (Main) PMZ: MW-14, MW-15B, MW-50B, MW-80B, MW-88B and MW-98B.
On-Site (West) PMZ: MW22BR, MW38B, MW-39B, MW-42B, MW-62B, P-10, and P-12.
Off-Site PMZ: **RW-1B, MW-32B, MW36B, MW54B, MW-59B, MW-60B, MW-61B, MW-70B and MW-71B
3. C-TZ:
On-Site PMZ: MW-15C, MW-47C, MW-19C and MW-88C.
Off-Site PMZ: **MW-32C, **MW-71C, MW-34CR, MW-54C, MW-48C, and MW-70C.

Background Wells:

1. RCRA-Regulated Waste Management Unit (WMU) 001 (SWMU 1) - only
A-TZ: MW-8
B-TZ: P-12

Note:

** - Proposed APOE wells will be installed in accordance with the revised Response Action Plan (RAP), Permit application Attachment XI.D. which shall be approved upon issuance of this Permit Renewal application

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

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CP Table VI: Compliance Period for RCRA-Regulated Units

RCRA-Regulated Waste Management Unit 001- Closed Surface Impoundment/ SWMU 1	Year or Number of Years
Year Waste Management Activities Initiated	1979
Year Closed (Certified Closed)	April 18, 1984
Compliance Period	5 Years
Compliance Period Began	1994

CP Table VII: Reporting Requirements

Item	Program	Reporting Frequency	Requirements
1.	All programs	Annually by March 31	Each report shall be certified by a qualified engineer and/or geoscientist.
2.	Corrective Action Monitoring	Annually by March 31	A table of all modifications and amendments made to this Compliance Plan with their corresponding approval dates by the Executive Director or the Commission and a brief description of each action;
3.	Corrective Action Monitoring	Annually by March 31	A summary of any activity within an area subject to institutional control.
4.	Corrective Action Monitoring	Annually by March 31	Tabulation of well casing elevations in accordance with CP Attachment C;
5.	Corrective Action Monitoring	Annually by March 31	Certification and well installation diagram for any new well installation or replacement and certification for any well plugging and abandonment;
6.	Corrective Action Monitoring	Annually by March 31	Recommendation for any changes to the program;
7.	Corrective Action Monitoring	Annually by March 31	Any other items requested by the Executive Director;
8.	Corrective Action Monitoring	Annually by March 31	Water table maps shall be prepared from the groundwater data collected pursuant to Permit Provision XI.G. and shall be evaluated by the permittee with regard to the following parameters: <ol style="list-style-type: none"> a. Development and maintenance of a cone of depression during operation of the system, if applicable; b. Direction and gradient of groundwater flow; c. Effectiveness of hydrodynamic control of the contaminated zone during operation; and d. Estimation of the rate and direction of groundwater contamination migration.
9.	Corrective Action Monitoring	Annually by March 31	The permittee shall submit a report to each recipient listed in <u>Provision XLI.3.</u> , which includes the information in items 3 through 29 determined since the previously submitted report, if those items are applicable. If both Corrective Action and Compliance Monitoring Programs are authorized, then the March 31st report shall contain information required for both programs.

Item	Program	Reporting Frequency	Requirements
10.	Corrective Action Monitoring	Annually by March 31	The Corrective Action System(s) authorized under <u>Provision XI.B.3.</u> in operation during the reporting period and a narrative summary of the evaluations made in accordance with Permit Sections XI.E., XI.F., and XI.G. for the preceding reporting period. The reporting periods shall be January 1 through June 30 and July 1 through December 31 for Corrective Action Monitoring, unless an alternative semiannual schedule is approved by the Commission.
11.	Corrective Action Monitoring	Annually by March 31.	The method(s) utilized for management of recovered/purged groundwater shall be identified in accordance with <u>Provision XI.B.8.</u> The permittee shall maintain this list as part of the facility operating record and make it available for inspection upon request.
12.	Corrective Action Monitoring	Annually by March 31	An updated table and map of all monitoring and corrective action system wells. The wells to be sampled shall be those wells proposed in the Compliance Plan Application referenced in <u>Provision I.B.</u> and any changes subsequently approved by the Executive Director pursuant to <u>Provision XI.B.3.</u> Provide in chronological order, a list of those wells which have been added to, or deleted from, the groundwater monitoring and remediation systems since original issuance of the Compliance Plan. Include the date of the Commission's approval for each entry;
13.	Corrective Action Monitoring	Annually by March 31	The results of the chemical analyses, submitted in a tabulated format acceptable to the Executive Director which clearly indicates each parameter that exceeds the Groundwater Protection Standard (GWPS). Copies of the original laboratory report for chemical analyses showing detection limits and quality control and quality assurance data shall be provided if requested by the Executive Director;
14.	Corrective Action Monitoring	Annually by March 31	Tabulation of all water level elevations required in <u>Provision XI.F.3.d.(1)</u> , depth to water measurements, and total depth of well measurements collected since the data that was submitted in the previous monitoring report;
15.	Corrective Action Monitoring	Annually by March 31	Potentiometric surface maps showing the elevation of the water table at the time of gauging or sampling, delineation of the radius of influence of the Corrective Action System, and the direction of groundwater flow gradients outside any radius of influence;
16.	Corrective Action Monitoring	Annually by March 31	Tabulation of all data evaluation results pursuant to <u>Provision XI.F.4.</u> and status of each well with regard to compliance with the Corrective Action objectives and compliance with the GWPS;

Item	Program	Reporting Frequency	Requirements
17.	Corrective Action Monitoring	Annually by March 31	An updated summary as required by CP Table VIII;
18.	Corrective Action Monitoring	Annually by March 31	Summary of any changes made to the monitoring/corrective action program and a summary of well inspections, repairs, and any operational difficulties;
19.	Corrective Action Monitoring	Annually by March 31	A notation of the presence or absence of non-aqueous phase liquids (NAPLs), both light and dense phases, in each well listed on CP Table V and shown in CP Attachment A during each sampling event since the last event covered in the previous monitoring report and tabulation of depth and thickness of NAPLs, if detected;
20.	Corrective Action Monitoring	Annually by March 31	Quarterly tabulations of quantities of recovered groundwater and NAPLs, and graphs of monthly recorded flow rates versus time for the Recovery Wells during each reporting period. A narrative summary describing and evaluating the NAPL recovery program shall also be submitted;
21.	Corrective Action monitoring	Annually by March 31	Tabulation of the total contaminant mass recovered from each recovery system for each reporting period;
22.	Corrective Action Monitoring	Annually by March 31	Maps of the contaminated area where GWPSs are exceeded depicting concentrations of CP Table IIIA constituents and any newly detected CP Table III constituents as isopleth contours or discrete concentrations if isopleth contours cannot be inferred. Areas where concentrations of constituents exceed the GWPS should be clearly delineated. Depict the boundary of the plume management zone (PMZ), if applicable;
23.	Corrective Action Monitoring	Annually by March 31	Maps and tables indicating the extent and thickness of the NAPLs both light and dense phases, if detected;
24.	Corrective Action Monitoring	Annually by March 31	Corrective Measures Implementation (CMI) Progress Report or Response Action Effectiveness Report or Response Action Completion Report to be submitted as a section of the Compliance Plan report in accordance with <u>Provision XI.H.6.</u> , if necessary. The permittee will include a narrative summary of the status of the approved final corrective measures conducted in accordance with the approved CMI Workplan or RAP, and that the requirements of <u>Provision XI.H.7.</u> are being met.

Item	Program	Reporting Frequency	Requirements
25.	Corrective Action Monitoring	Annually by March 31	The permittee will include a narrative summary of the status of each Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) subject to the requirements of <u>Permit Provision XI.H.</u> and ICM Program for a SWMU and/or AOC which documents that the objectives of <u>Provision XI.H.8.b.</u> are being achieved. This summary shall be included as a section of the Compliance Plan groundwater monitoring report.
26.	PMZ	Annually by March 31	A summary evaluating the effectiveness of the corrective action system in controlling migration beyond the downgradient boundary and vertical limit of the PMZ to achieve the GWPS. The summary shall include an evaluation of whether the attenuation action levels are not exceeded at their respective attenuation monitoring points pursuant to 30 TAC Sections 350.33(f)(4)(A) and 350.33(f)(4)(D)(ii), if applicable;
27.	PMZ	Annually by March 31	An estimate of the percentage of the response action which has been completed within the PMZ, if applicable;
28.	PMZ	Annually by March 31	An estimate in years of the additional time necessary to complete the response actions for the PMZ, if applicable;
29.	PMZ	Annually by March 31	A determination whether sufficient progress is being made to achieve the selected remedy standard within a reasonable time frame given the circumstance of the affected property in the PMZ, if applicable.

CP Table VIII: Compliance Schedule

Item	Compliance Schedule (from the date of issuance of the Permit/Compliance Plan unless otherwise specified)	Regulatory Citation	Requirement
A.	Within 60 days	Permit Provision XI (Compliance Plan)	Submit to the Executive Director a schedule summarizing all activities required by the Compliance Plan. The schedule shall list the starting dates of all routine activities. The permittee shall include an updated schedule in the groundwater monitoring report required by <u>Provision XI.G.3</u> . The schedule shall list the activity or report, the Compliance Plan Section which requires the activity or report and the calendar date the activity or report is to be completed or submitted (if this date can be determined.)
B.	Within 120 days from issuance of the Permit/Compliance Plan conditionally approving the Revised Response Action Plan (RAP)	30 TAC §350.31(g) & §350.111	<p>Submit to the Executive Director proof of compliance with institutional control (IC) requirements. The IC provides notice of the existence and location of the Plume Management Zone (PMZ) proposed in the Revised RAP dated 8/31/20 which prevents exposure to groundwater until such a time as constituents of concern may be reduced to below the GWPS of CP Table III.</p> <ul style="list-style-type: none"> • Filing of deed notice for the on-site Union Pacific Railroad (UPRR) - owned properties requiring commercial/industrial land use and prohibiting groundwater use. Deed notice will also restrict excavation activities over the capped areas. • Filing of restrictive covenant prohibiting groundwater use for the off-site PMZ City of Houston owned Right of Way (ROW).
C.1	Weekly unless an alternate schedule is approved by the executive director.	30 TAC §335.167	<p><u>Englewood Intermodal Yard</u>: Continued inspection of seeps and removal of Non-Aqueous Phased Liquid (NAPL) as necessary from collections sumps.</p> <p>UPRR shall continue to evaluate the effectiveness of the NAPL collection system in monthly status updates and propose necessary changes to improve system effectiveness/efficiency.</p>

Item	Compliance Schedule (from the date of issuance of the Permit/Compliance Plan unless otherwise specified)	Regulatory Citation	Requirement
C.2	Within 60 Days of completion of the Englewood Intermodal Yard Pilot Test.	30 TAC §335.167	<p><u>Englewood Intermodal Yard</u>: Submit to the Executive Director for review the <i>Englewood Intermodal Yard Test Pit Evaluation Report</i> (Report) detailing the pilot test results which began in July 2020 that included: installation of seven test pits, additional assessment of NAPL and chemicals of concern (COC) in soil to evaluate potential impacts to the underground utilities.</p> <p>The Report should include necessary changes to improve system effectiveness/efficiency and/or alternative response actions (such as in-situ chemical oxidation, thermal treatment, and/or other response actions) as necessary to address the NAPL seeps. Activities involving corrective action program changes shall be documented in the monthly status update required by CP Table VIII.C.1.</p>
D.	Within 90 days from issuance of the Permit/Compliance Plan conditionally approving the Revised RAP or unless an alternate schedule is approved by the executive director.	30 TAC §335.167 and Chapter 350	<p><u>Total Petroleum Hydrocarbon (TPH)</u>: Submit to the Executive Director for review a TPH Assessment Report Addendum detailing the additional TPH sampling results proposed in the Revised RAP and <i>May 29, 2020, Interim Non-Aqueous Phase Liquid (NAPL) and Total Petroleum Hydrocarbon - NAPL Assessment Report</i>.</p>
E.	Approved upon issuance of the Permit/ Compliance Plan	30 TAC §335.167 and Chapter 350	<p><u>Soil Vapor Intrusion (VI) Assessment</u>: The permittee submitted the <i>Updated VI Assessment Report to the TCEQ</i> on December 21, 2020. The <i>Updated Soil VI Assessment Report</i> summarized the VI assessment activities performed between January and November 2020, and addressed the data gaps in the TCEQ August 31, 2020 letter.</p>

Item	Compliance Schedule (from the date of issuance of the Permit/Compliance Plan unless otherwise specified)	Regulatory Citation	Requirement
F.	Quarterly and after all major storm events.	30 TAC §335.167	<p><u>Physical Controls</u>: Continued inspection and necessary maintenance of physical barriers - containment caps (vegetated clay cap, asphalt roadway cap, Englewood Intermodal Yard concrete cap and City of Houston Right-of-Way (ROW) concrete sidewalk) as depicted in CP Attachment A.</p> <p>Results of post response action inspection and necessary maintenance shall be included as an addendum to the Corrective Action Monitoring Report required by CP Table VII.</p>
G.	During the first thirty (30) days of the first and third quarter of each year.	30 TAC §335.166, §335.167 & §350.33(4)(D).	<p><u>Groundwater Corrective Action Monitoring</u> shall be conducted on a semiannual basis for all the units/areas listed in CP Table I.A and I.C until the corrective action objectives and performance requirements are met in accordance with Permit Provisions XI.D and XI.E.</p> <p>*In addition, off-site well MW-33BR and on-site wells MW-18A and MW-17C shall be sampled for Vinyl chloride.</p>
H.	Annually	30 TAC §335.166, §335.167 and Chapter 350.	<p><u>Corrective Action Monitoring Report</u> shall be submitted as required by CP Table VII and shall include the necessary information to satisfy Response Action Effectiveness Reports (RAER) requirements. All remediation and post response action activities completed during the reporting period shall be included as an addendum to the Corrective Action Monitoring Report per CP Table VII.</p>
I.	Monthly unless an alternate schedule is approved by the executive director.	30 TAC §335.166, & §335.167	<p><u>Status Updates</u>: Submit detailed status updates on the implementation of response action activities as outlined CP Table VIII, Items J.1 through L.1, Q and R.</p>

Item	Compliance Schedule (from the date of issuance of the Permit/Compliance Plan unless otherwise specified)	Regulatory Citation	Requirement
J.1	Within 150 days from issuance of the Permit/Compliance Plan conditionally approving the Revised RAP unless an alternate schedule is approved by the executive director	30 TAC §335.167	<u>Slurry Wall:</u> Submit a Slurry Wall Pre-Design Assessment for the construction/installation of the proposed 3,400 linear foot subsurface slurry wall barrier that shall run along the northern and eastern UPRR property boundary as depicted in CP Attachment A and detailed in the Revised RAP.
J.2.	Within 120 days of completing slurry wall design/bid contract unless an alternate schedule is approved by the executive director.	30 TAC §335.167	<u>Slurry Wall:</u> Begin construction/ installation of slurry wall.
J.3	Within 90 days of completing slurry wall installation/ construction unless an alternate schedule is approved by the executive director.	30 TAC §335.167 and Chapter 350.	<u>Slurry Wall:</u> Submit a Response Action Completion Report (RACR) to the Executive Director for review. The RACR shall include details of slurry wall installation/ construction activities and final slurry wall design schematics sealed and signed by a Professional Engineer (PE) registered in the State of Texas.
K.1	Within 120 days from issuance of the Permit/Compliance Plan conditionally approving the Revised RAP unless an alternate schedule is approved by the executive director.	30 TAC §335.166, & §335.167	<p><u>Additional Wells:</u> Complete installation of the following proposed permanent recovery wells and monitoring wells depicted in CP Attachment A. Wells shall be installed and constructed in accordance with the design specifications outlined in Permit Section XI.C, CP Attachment C and as detailed in the Revised RAP:</p> <p><u>Recovery wells:</u> <u>A-TZ:</u> RW-11A and RW-14A; <u>B-TZ/B-CZ:</u> RW-1B, RW-2B, RW-3B, RW-4B, RW-5B, RW-6B, RW-7B, RW-8B, RW-9B, RW-10B, RW-12B, and RW-13B; <u>C-TZ:</u> RW-15C and RW-16C.</p> <p><u>Monitoring Wells:</u> <u>A-TZ:</u> PMW-34A, PMW-101A, PMW-71A, and PMW-102A. <u>C-TZ:</u> PMW-32C, PMW-71C and PMW-100C.</p>

Item	Compliance Schedule (from the date of issuance of the Permit/Compliance Plan unless otherwise specified)	Regulatory Citation	Requirement
K.2.	Within 45 days of additional well installation unless an alternate schedule is approved by the executive director.	16 TAC Chapter 76.	<u>Additional Wells:</u> Submit to the Executive Director for review and approval a Well Completion Construction Report as required Permit Provision XI.C and CP Attachment C.
L.1	Within 60 days completion of recovery well installation per CP Table VIII, Item K.1 unless an alternate schedule is approved by the executive director.	30 TAC §335.166, & §335.167	<p><u>Mobile Multi-Phase Extraction (MPE) System:</u> Implement on-site/off-site mobile MPE pilot test events to remediate NAPL from 16 newly installed recovery wells (RW-11A, RW-14A, RW-1B, RW-2B, RW-3B, RW-4B, RW-5B, RW-6B, RW-7B, RW-8B, RW-9B, RW-10B, RW-12B, RW-13B, RW-15C and RW-16C) and the 15 existing recovery wells (MW-57A, MW-78A, MW12B, MW-32B, MW41B, MW49B, MW57B, MW-68B, MW-70B, MW-75B, MW-23C, MW34CR, MW44 C, MW-45C, and MW-46C) and any additional wells that have measurable NAPL. NAPL removal shall be conducted in accordance with the following schedule unless a more frequent schedule is directed by the Executive Director to improve system performance:</p> <ul style="list-style-type: none"> • <u>Year 1</u> conduct monthly removal in all recovery wells listed above; and, • <u>Years 2 and 3</u> conduct quarterly removal in all recovery wells listed above. <p>Upon Completion of the 3-year MPE System pilot test, the response action objectives shall be evaluated following the ITRC - Integrated DNAPL Site Strategy (IDSS) approach with a recommendation to continue with Mobil MPE recovery operations and/or evaluate/ implement other NAPL technologies or remedial alternative (e.g. (such as in-situ chemical oxidation, thermal treatment, and/or other response actions). Results of the MPE System pilot test and recommendations to continue with Mobil MPE system and/or propose remedial alternatives shall be included in the Corrective Action Monitoring Report per CP Table VIII.H.</p>

Item	Compliance Schedule (from the date of issuance of the Permit/Compliance Plan unless otherwise specified)	Regulatory Citation	Requirement
M.	Ongoing	30 TAC §335.166, §335.167 & Chapter 350	In addition to <u>the Mobile MPE System</u> , natural attenuation is currently being evaluated through analysis of geochemical parameters including dissolved iron and manganese, sulfates, nitrate, alkalinity and total carbon as per TRRP Guidance <i>RG-/TRRP-33 - Monitored Natural Attenuation Demonstration</i> .
N.	Ongoing	30 TAC §335.166, §335.167 & Chapter 350	<u>Arsenic evaluation</u> : shall include analysis of the geochemical parameters and monitoring arsenic concentration trends to determine if the elevated arsenic concentrations are the result of naturally occurring arsenic mobilized under reducing conditions by the natural degradation of petroleum hydrocarbons.
O.	Notify within 30 days	30 TAC §350.33(k)	After an unexpected event occurs, or a condition is detected, during post-response action care period which indicates that additional response actions will be required at an affected property.
P.	Upon demonstration and achievement of a stable and shrinking plume.	30 TAC §350.33(f) and Permit Provision XI.B.2.	Designate/establish Attenuation Monitoring Point (AMP) well locations in a revised CP Attachment A figure Permit Provision XI.B.2. A sufficient number of AMP wells should be selected within the groundwater protective concentration level exceedance (PLCE) in accordance with 30 TAC Section 350.33(f)(4)(D). For each AMP well, establish/calculate an Attenuation Action Levels (AALs) in accordance with 30 TAC Section 350.33(f)(4)(D)(ii). AMP wells and their respective AAL's should be included in the Corrective Action Monitoring Report required by CP Table VII.

Item	Compliance Schedule (from the date of issuance of the Permit/Compliance Plan unless otherwise specified)	Regulatory Citation	Requirement
Q.	Notify 90 days prior to planned construction activities unless otherwise approved by the executive director.	30 TAC §335.167, & Chapter 350	In the event the capped areas (e.g. soil, asphalt, concrete, railroad ballast caps) will be disturbed during proposed future construction and excavation activities as part of railroad operations and/or facility improvements, the permittee shall provide notification to the Executive Director of planned construction activities. The notification shall include a construction schedule and plans pursuant to the notification components as described in the Revised RAP.
R	Within 60 days of completing construction and excavation activities as part of the railroad operations and/or facility improvements	30 TAC §335.167, & Chapter 350	The permittee shall submit to the Executive Director for review a RACR Addendum documenting construction and remediation activities.

Attachment A - Legal Description of Facility

Permit No. HW-50343
Union Pacific Railroad - Houston Wood Preserving Works

Revision 0
December 2014

ATTACHMENT B

Legal Description
Union Pacific Railroad Company
Houston Wood Preserving Works
And
Closed Surface Impoundment

Entire Site

The following descriptions were obtained from Harris County Appraisal District website (www.hcad.org) and in accordance with Part A, Section II.B, in lieu of a meet and bounds survey, the appropriate lot descriptions are provided for the facility.

4910 Liberty Rd.

HCAD ID 0402600000040

Tracts 11, 12, 13 & 14, Abstract 32 Harris & Wilson Survey

HCAD ID 0040600000001 (partial)

Tracts R100 in blocks 54, 55, 56 & 58, 59 & 60 & 62 thru 70, Augusta Survey

1st Street Properties

HCAD ID 0082430000002

Lot 2 Block 1, Busch & Kyle U/R Survey

HCAD ID 0082430000003

Lots 3 & 4 Block 1, Busch & Kyle U/R Survey

2nd Street Properties

HCAD ID 0082430000005

Lot 5 Block 1, Busch & Kyle U/R Survey

HCAD ID 0082440000004

Lot 4 Block 2, Busch & Kyle U/R Survey

HCAD ID 0082430000007

Lot 7 Block 1, Busch & Kyle U/R Survey

HCAD ID 0082440000005

Lot 5 Block 2, Busch & Kyle U/R Survey

HCAD ID 0082430000008

Lot 8 Block 1, Busch & Kyle U/R Survey

HCAD ID 0082440000007

Lot 7 Block 2, Busch & Kyle U/R Survey

HCAD ID 0082440000001

Lot 1 Block 2, Busch & Kyle U/R Survey

HCAD ID 0082440000008

Lot 8 Block 2, Busch & Kyle U/R Survey

HCAD ID 0082440000002

Lots 2 & 3 Block 2, Busch & Kyle U/R Survey

HCAD ID 0082440000009

Lot 6 Block 2, Busch & Kyle U/R Survey

Kirk Alley Properties

HCAD ID 0402530000186

Tracts 31A, 31B, 31G & 31H-1, Abstract 32
Harris & Wilson Survey

HCAD ID 0402530000188

Tract 31E, Abstract 32 Harris & Wilson Survey

HCAD ID 0402530000187

Tract 31F, Abstract 32 Harris & Wilson Survey

HCAD ID 0402530000190

Tract 31C, Abstract 32 Harris & Wilson Survey

Attachment A – Legal Description of Facility

*Permit No. HW-50343
Union Pacific Railroad – Houston Food Preserving Works*

*Revision 0
December 2014*

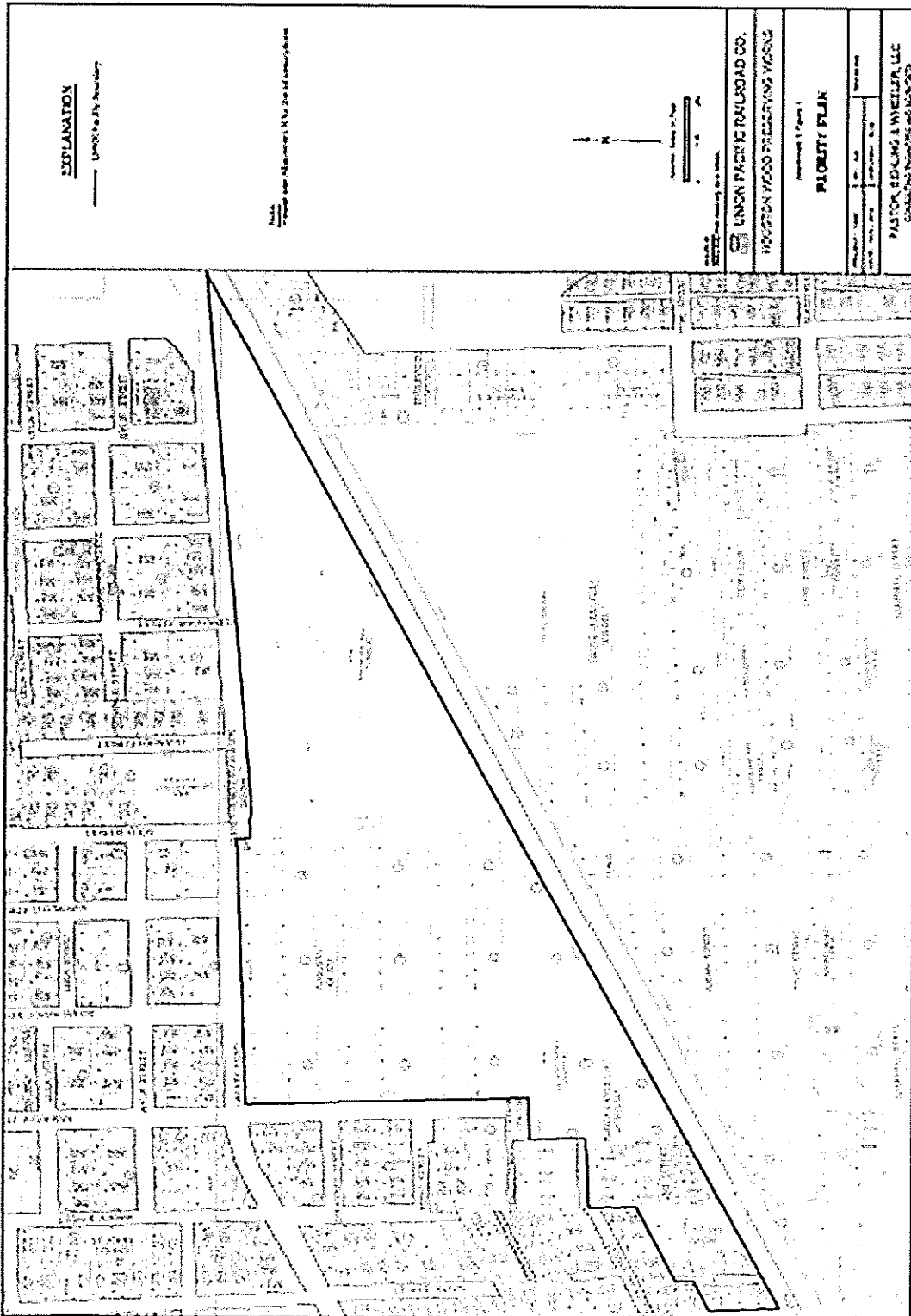
HCAD ID 0402530000206
Tract 31D, Abstract 32 Harris & Wilson Survey

HCAD ID 0402530000045
Tract 32, Kohn, Abstract 32 Harris & Wilson
Survey

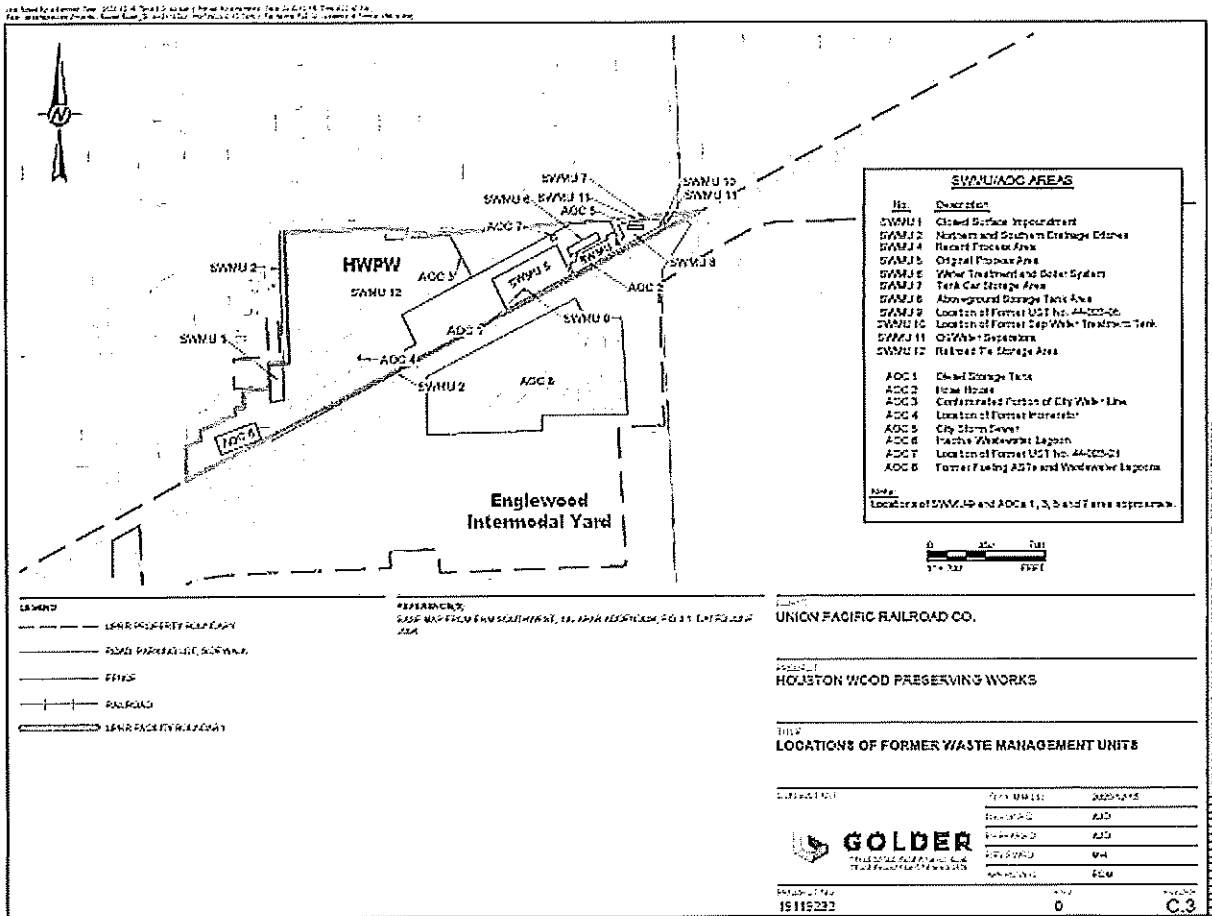
Closed Surface Impoundment

Being a parcel of land out of the Harris and Wilson Survey, Abstract 32, Harris County, Texas, same being all of fractional Block 65 lying east of and adjoining the east line of the E.A. Finn Addition recorded in Volume 73, Page 317 of the Harris County Deed Records (H.C.D.R.) and the east line of the Busch and Kyle Subdivision recorded in Volume 183, Page 69 H.C.D.R. and the adjoining closed and abandoned street between and adjoining Block 65 and Block 66 out of the Augusta Addition to the City of Houston per the map recorded in Volume 56, Page 139 of the Harris County Deed Records.

Attachment A - Legal Description of Facility



Attachment B – Facility Map



Attachment C - Permit Application Revision Chronology

Classification	Revision No. ¹	Application Date ²	Purpose
Permit Renewal	0	12/05/2014	Renewal of permit 50343
	1	1/16/2015	Admin - response to 12/7/2014 NOD
	2	11/13/2015	Response to NOD #1 dated 8/5/2015
	3	7/12/2016	Response to NOD #2 dated 6/2/2016
	4	2/2/2018	Response to NOD #3 dated 4/10/2017
	5	2/2/2018	Changes contact person in renewal application
	6	8/24/2020	Goldier response, dated 10/23/2019, to REM's Additional Comments to UPRR's 7/10/2019 response to 4 th NOD dated 4/11/2019
	7	10/16/2020	Response to Additional Comments to UPRR's response to 4 th NOD dated 4/11/2019
	8	1/8/2021	Response to additional information for IDP permit

¹ Start from Revision 0 using the new permit or permit renewal Application Date, and sequentially increase the revision numbers for each subsequent submittal.

² Use the application signature page date as the Application Date.

Attachment D - List of Incorporated Application Materials

The following is a list of Part A and Part B Industrial & Hazardous Waste Application elements which are incorporated into all Industrial & Hazardous Waste permits by reference as per Section I.B.

TCEQ Part A Application Form

- I. General Information
- II. Facility Background Information
- III. Wastes and Waste Management
- IV. Index of Attachments

TCEQ Part B Application Form

- I. General Information
 - A. Applicant Name
 - B. Facility Owner
 - C. Facility Contact
 - D. Application Type and Facility Status
 - E. Facility Siting Summary
 - F. Wastewater and Stormwater Disposition
 - G. Information Required to Provide Notice
 - H. TCEQ Core Data Form Requirements
 - I. Signature on Application
- II. Facility Siting Criteria
 - A. Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills
 - B. Additional Requirements for Land Treatment Facilities (Reserved)
 - C. Additional Requirements for Waste Piles (Reserved)
 - D. Additional Requirements for Storage Surface Impoundments (Reserved)
 - E. Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with Wastes in Place)
 - F. Flooding
 - G. Additional Information Requirements
- III. Facility Management
 - A. Compliance History and Applicant Experience
 - B. Personnel Training Plan
 - C. Security
 - D. Inspection Schedule
 - E. Contingency Plan (Reserved)
 - F. Emergency Response Plan (Reserved)

Table III.D. - Inspection Schedule
- IV. Wastes and Waste Analysis
 - A. Waste Management Information (Reserved)
 - B. Wastes Managed in Permitted Units
 - C. Sampling and Analytical Methods (Reserved)
 - D. Waste Analysis Plan (Reserved)

Attachment D - List of Incorporated Application Materials

Table IV.B. - Wastes Managed in Permitted Units

- V. Engineering Reports
 - A. General Engineering Reports
 - B. Container Storage Areas (Reserved)
 - C. Tanks and Tank Systems (Reserved)
 - D. Surface Impoundments
 - E. Waste Piles (Reserved)
 - F. Land Treatment Units (Reserved)
 - G. Landfills (Reserved)
 - H. Incinerators (Reserved)
 - I. Boilers and Industrial Furnaces
 - J. Drip Pads (Reserved)
 - K. Miscellaneous Units (Reserved)
 - L. Containment Buildings (Reserved)

Table V.D.1. - Surface Impoundments

Table V.D.6. - Surface Impoundment Liner System

VI. Geology Report

- A. Geology and Topography
- B. Facility Groundwater
- C. Exemption from Groundwater Monitoring for an Entire Facility
- D. Unsaturated Zone Monitoring (Reserved)

Table VI.A.1. - Major Geologic Formations

Table VI.A.4. - Waste Management Area Subsurface Conditions

VII. Closure and Post-Closure Plans

- A. Closure (Reserved)
- B. Closure Cost Estimate (Reserved)
- C. Post-closure
- D. Post-closure Cost Estimate
- E. Closure and Post-Closure Cost Summary

Table VII.D. - Unit Post-Closure Cost Estimate

Table VII.E.2. - Permitted Unit Post-Closure Cost Summary

VIII. Financial Assurance

- A. Financial Assurance Information Requirements for all Applicants
- B. Applicant Financial Disclosure Statements for a new permit, permit amendment, or permit modification, or permit renewal
- C. Applicants Requesting Facility Expansion, Capacity Expansion, or New Construction (Reserved)

Information for Applicants Subject to Financial Capability Requirements

Attachment D - List of Incorporated Application Materials

IX. Releases from Solid Waste Units and Corrective Action

A. Preliminary Review Checklists

For Applications for a New Hazardous Waste Permit (Reserved)

For Applications for a Renewal/Amendment/Modification of an Existing Hazardous Waste Permit

Instructions for Preliminary Review Facility Checklist

Instructions for Preliminary Review Unit Checklist (Continued)

Preliminary Review Facility Checklist

Preliminary Review Unit Checklist

Appendices to Preliminary Review (PR)

X. Air Emission Standards (Reserved)

XI. Compliance Plan

A. Site Specific Information

B. Groundwater Protection Standard

C. Compliance Monitoring Program

D. Corrective Action Program

E. Cost Estimates for Financial Assurance

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

Table XI.E.1. - Corrective Action Program Cost Estimate

Table XI.E.2. - Groundwater Monitoring Cost Estimate

Table XI.E.3. - Financial Assurance Summary

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

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

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

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

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

CP Table IVA - Compliance Monitoring Program Table of Detected Hazardous Constituents and the Groundwater Protection Standard

CP Table V - Designation of Wells by Function

CP Table VI - Compliance Period for RCRA-Regulated Units

CP Table VIII - Compliance Schedule

Attachment A

Alternate Concentration Limits

Alternate Concentration Limit Demonstration

Required Information for Alternate Concentration Limits

Attachment B

Well Design and Construction Specifications

Table of Well Construction Details

Attachment D - List of Incorporated Application Materials

Attachment C

Sampling and Analysis Plan

XII. Hazardous Waste Permit Application Fee

Table XII.A. - Hazardous Waste Units (For Application Fee Calculations)
Table XII.B. - Hazardous Waste Permit Application Fee Worksheet

XIII. Confidential Material (Reserved)

Attachment E - List of Permitted Facility Units

Authorized Permitted Units

TCEQ Permit Unit Number ¹	Unit Name	NOR No. ¹	Unit Description	Capacity	Unit Status ²
001	SWMU No. 1	001	Surface Impoundment in Post-Closure Care	5,065 cubic yards	Closed/PCC & CA groundwater monitoring

Historical Permitted Units No Longer Subject to this Permit⁴

TCEQ Permit Unit No. ¹	Unit Name	NOR No. ¹	Unit Description ³	Capacity	Unit Status ²

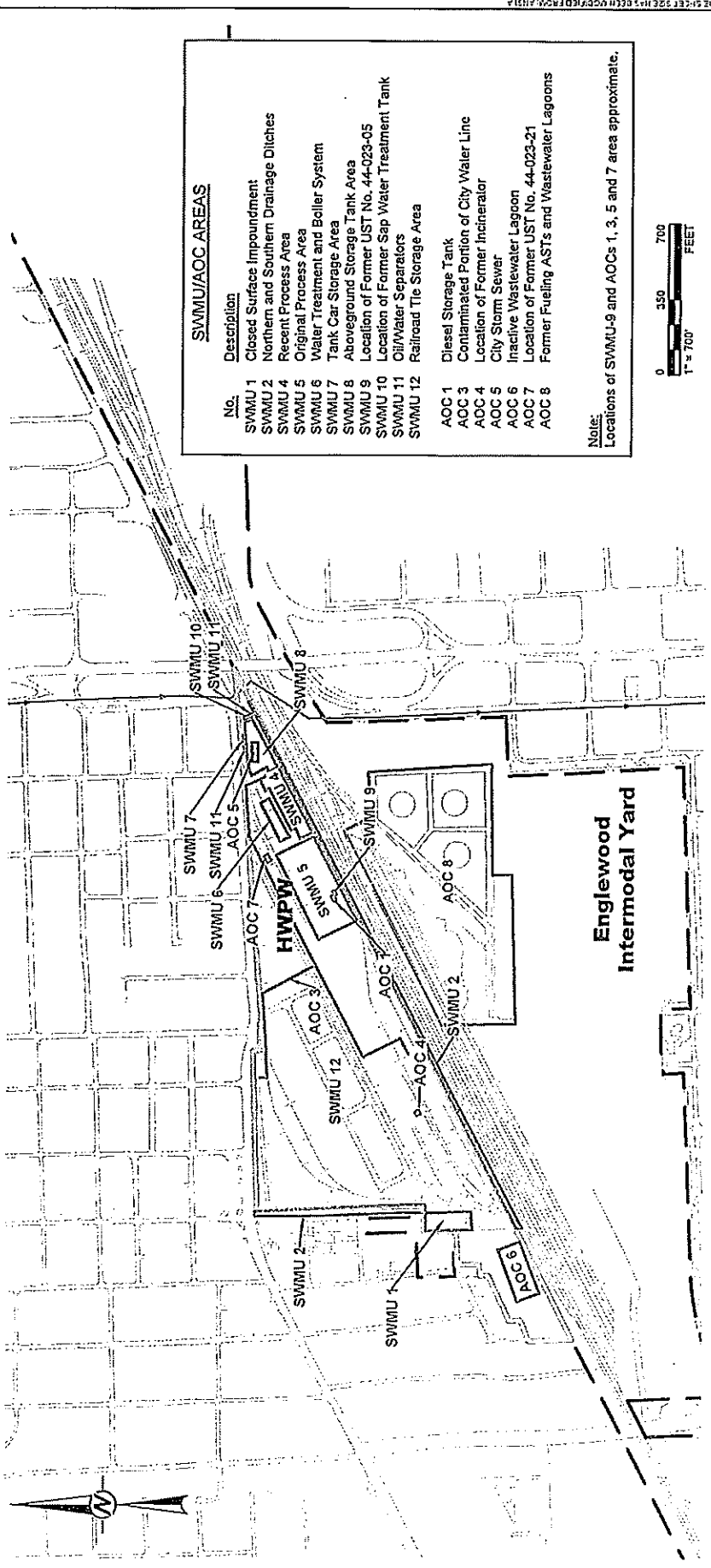
¹Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

²Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.

³If a unit has been transferred; the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of Table V.A.

⁴The historical units are closed and/or no longer subject to RCRA permit requirements and [is/are] included in this table for informational purposes.

DATE: 05/11/2020 10:43 AM, DRAWN BY: J. H. HARRIS, CHECKED BY: J. H. HARRIS, PROJECT NO.: 19119232, SHEET NO.: 2 OF 7, TITLE: HOUSTON WOOD PRESERVING WORKS, CLIENT: UNION PACIFIC RAILROAD CO., DESIGNER: GOLDER ASSOCIATES INC., PROJECT LOCATION: HOUSTON, TEXAS



SWMU/AOC AREAS	
No.	Description
SWMU 1	Closed Surface Impoundment
SWMU 2	Northern and Southern Drainage Ditches
SWMU 4	Recent Process Area
SWMU 5	Original Process Area
SWMU 6	Water Treatment and Boiler System
SWMU 7	Tank Car Storage Area
SWMU 8	Aboveground Storage Tank Area
SWMU 9	Location of Former UST No. 44-023-05
SWMU 10	Location of Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 3	Contaminated Portion of City Water Line
AOC 4	Location of Former Incinerator
AOC 5	City Storm Sewer
AOC 6	Inactive Wastewater Lagoon
AOC 7	Location of Former UST No. 44-023-21
AOC 8	Former Fueling ASTs and Wastewater Lagoons

Note:
Locations of SWMU-9 and AOCs 1, 3, 5 and 7 area approximate.

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
HOUSTON WOOD PRESERVING WORKS

TITLE
SOLID WASTE MANAGEMENT UNITS (SWMUS) / AREAS OF CONCERN (AOCs) LOCATION MAP

CONSULTANT
GOLDER
17000 BUCKINGHAM PARKWAY, SUITE 200
DENVER, CO 80238

DESIGNED
AJD

PREPARED
AJDRS

REVIEWED
MH

APPROVED
ECM

YYYY-MM-DD
2020-10-20

PROJECT NO.
19119232

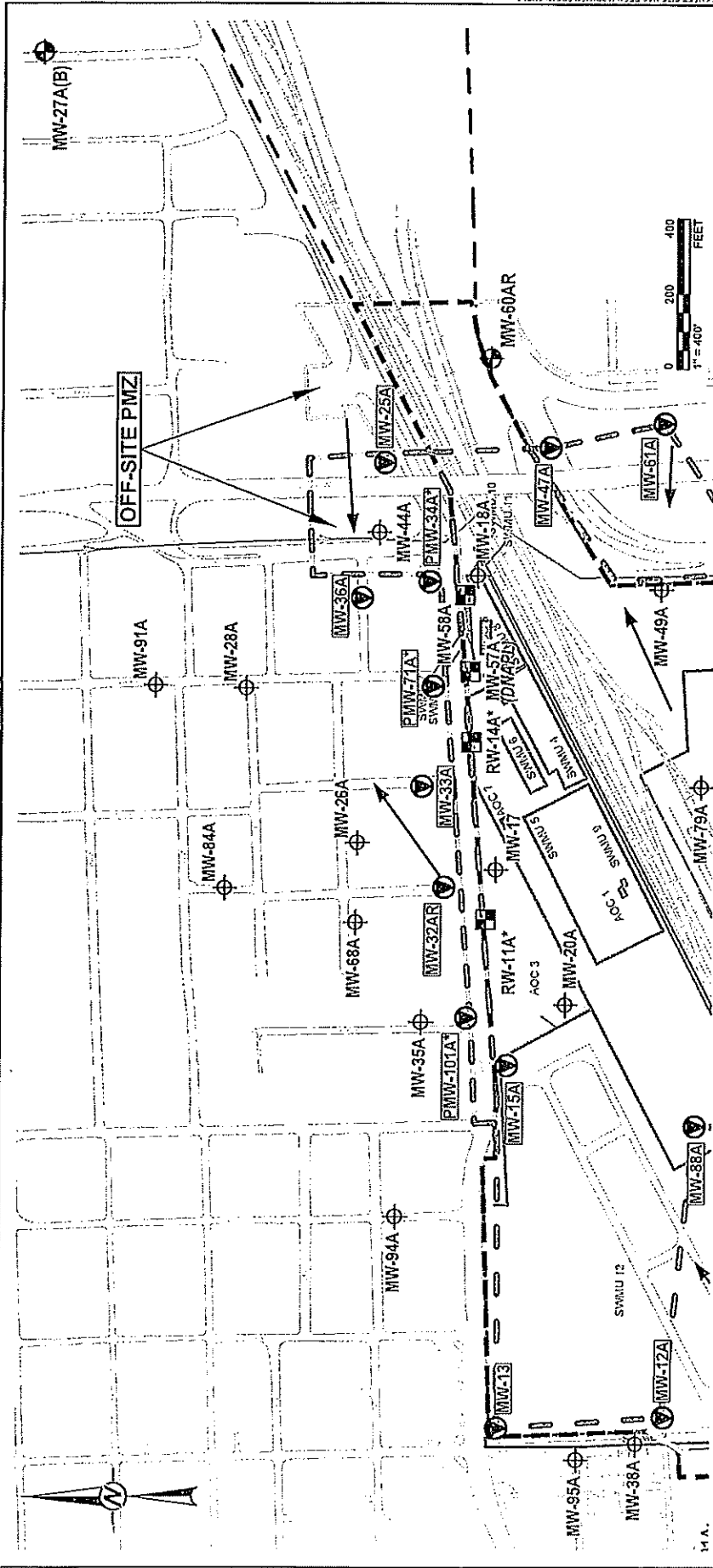
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CP ATTACHMENT A
SHEET 2 of 7

REFERENCE(S)
BASE MAP FROM ERM-SOUTHWEST, INC APAR ADDENDUM, FIG 3-1, DATED JUNE 2004.

- LEGEND
- UPRR PROPERTY BOUNDARY
 - ROAD, PARKING LOT, SIDEWALK
 - FENCE
 - RAILROAD
 - UPRR FACILITY BOUNDARY

Last Date by Johnson Date: 2020-10-19 Time: 2:59:07 AM | File: B:_Issued\DWG\2020-10-19\19119232.dwg
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 Plot Date: 2020-10-19 Time: 2:59:07 AM | File: B:_Issued\DWG\2020-10-19\19119232.dwg



CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
HOUSTON WOOD PRESERVING WORKS

TITLE
PMZ BOUNDARY MAP - A-TZ (NORTH)

CONSULTANT
YYYY-MM-DD 2020-10-19
DESIGNED AJD
PREPARED AIDRS
REVIEWED MH
APPROVED ECM

PROJECT NO.
19119232

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CP ATTACHMENT A
SHEET 4A of 7

GOLDER
TECHNICAL SERVICES
1000 EAST 17TH AVENUE, SUITE 200
DENVER, CO 80202
TEL: 303.733.2200
WWW.GOLDER.COM

LEGEND

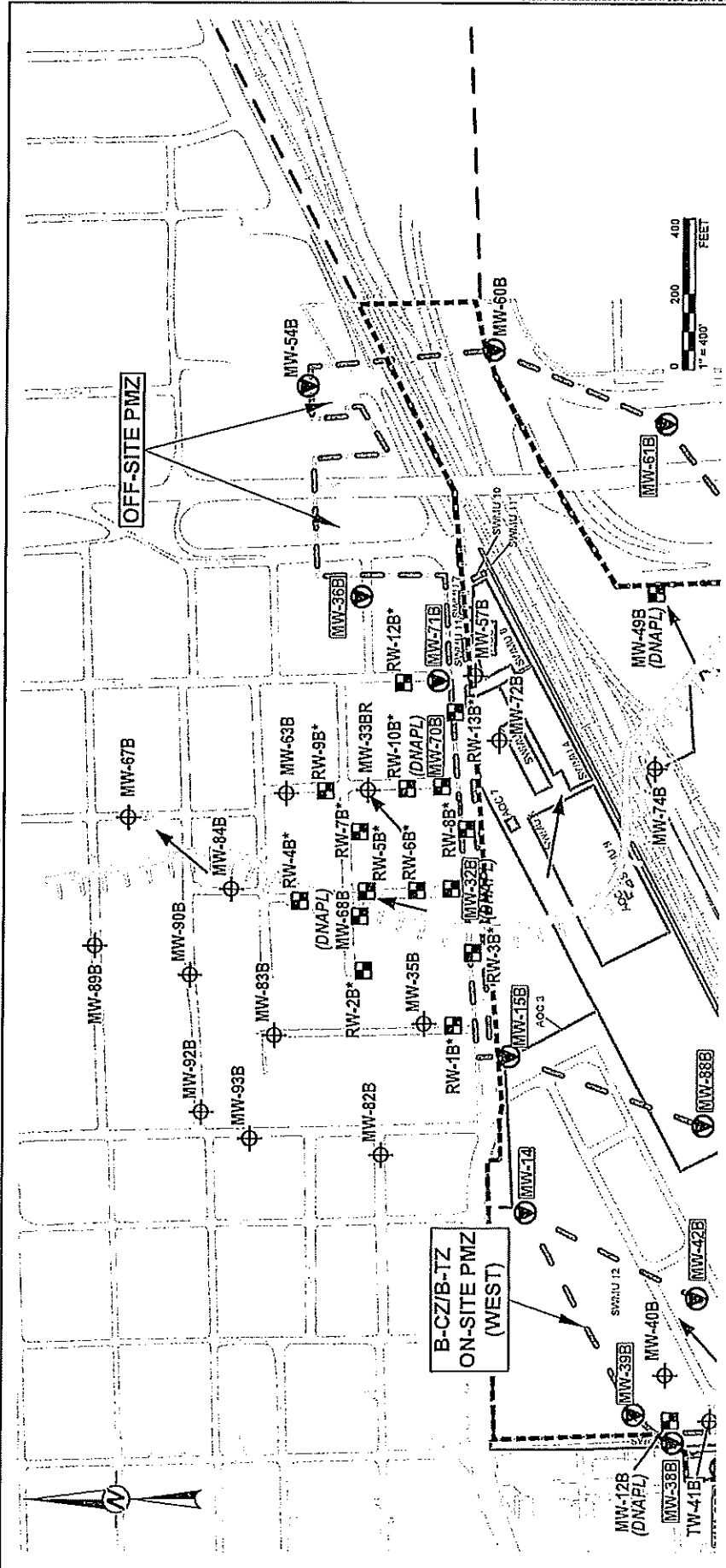
- UPRR PROPERTY BOUNDARY
- ROAD, PARKING LOT, SIDEWALK
- FENCE
- RAILROAD
- A-TZ MONITORING WELL LOCATION
- A-TZ CORRECTIVE ACTION SYSTEM WELLS (CAS) (DNAPL RECOVERY)
- A-TZ PMZ BOUNDARY (ON-SITE)
- A-TZ PMZ BOUNDARY (OFF-SITE)
- ALTERNATE POINT OF EXPOSURE (APOE)
- CORRECTIVE ACTION OBSERVATION WELLS (CAO)
- POINT OF COMPLIANCE WELLS (COC)
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPOSED CUMULATIVE PMZ (A-TZ, B-C2B-TZ, AND C-TZ)
- ON-SITE PMZ
- OFF-SITE PMZ

NOTES(S)

1. VERTICAL DATUM BASED ON CITY OF HOUSTON VERTICAL DATUM (HVD).
2. DNAPL = DENSE NON-AQUEOUS PHASE LIQUIDS DETECTED IN MONITORING WELL (JANUARY 2020).
3. (B) - BACKGROUND WELL.
4. * - PROPOSED WELL LOCATION.

REFERENCE(S)
BASE MAP FROM ERM-SOUTHWEST, INC APAR ADDENDUM, FIG 3-1, DATED JUNE 2004.

DATE: 06/14/2024 10:42 AM
 DRAWN BY: J. B. BROWN
 CHECKED BY: J. B. BROWN
 PROJECT: PMZ BOUNDARY MAP - B-CZ/B-TZ (NORTH)
 SHEET: 19119232



CLIENT
 UNION PACIFIC RAILROAD CO.

PROJECT
 HOUSTON WOOD PRESERVING WORKS

TITLE
 PMZ BOUNDARY MAP - B-CZ/B-TZ (NORTH)

CONSULTANT
 GOLDER
 17455 CROSSBREEZE DRIVE, SUITE 200
 FORT COLLINS, COLORADO 80526

DESIGNED A.J.D. 2020-10-20
PREPARED A.J.D.
REVIEWED M.H.
APPROVED E.G.M.

PROJECT NO. 19119232
REV. 0
CP ATTACHMENT A SHEET 5A OF 7

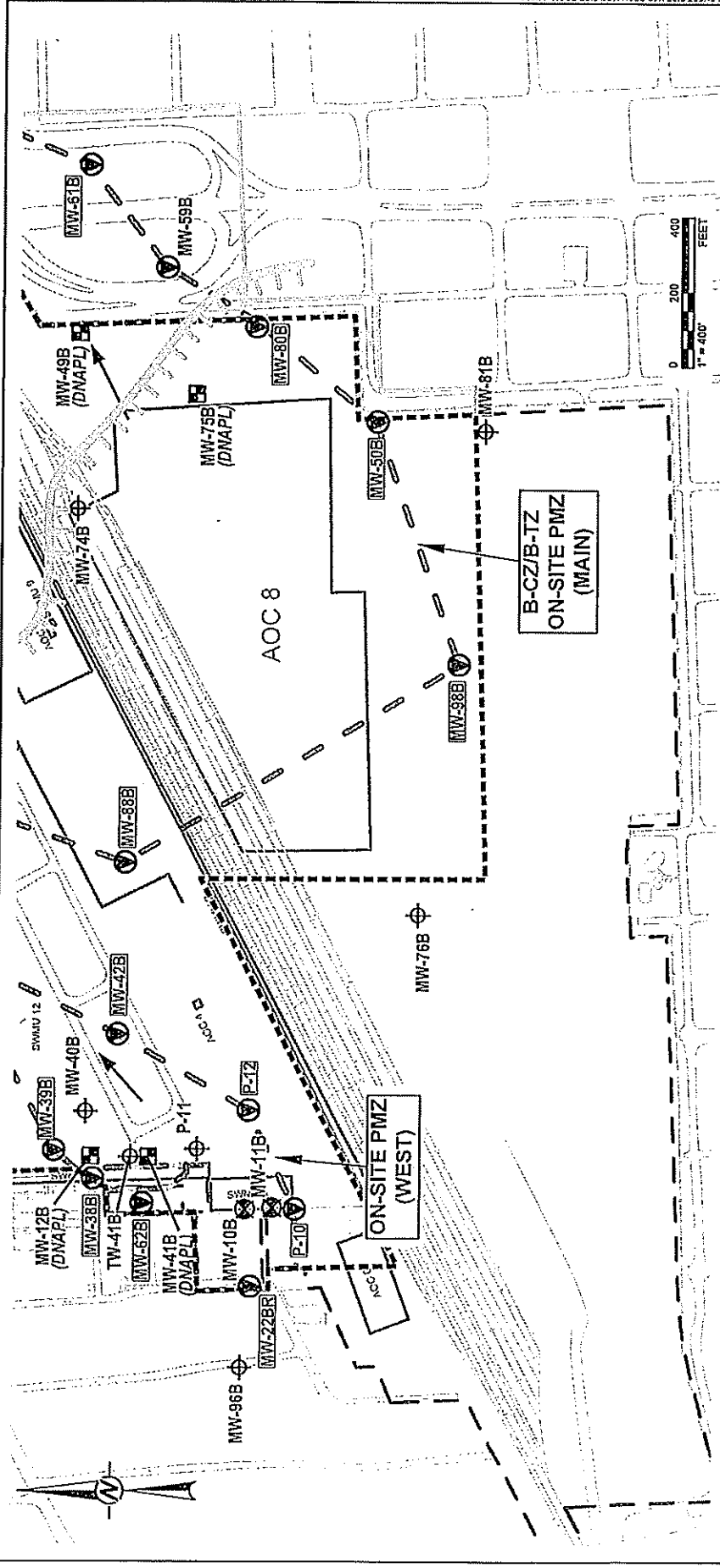
- LEGEND**
- UPRR PROPERTY BOUNDARY
 - ROAD, PARKING LOT, SIDEWALK
 - FENCE
 - RAILROAD
 - B UNIT MONITORING WELL LOCATION
 - B UNIT CORRECTIVE ACTION SYSTEM WELLS (CAS) (DNAPL RECOVERY)
 - B-CZ
 - B-TZ
 - B-TZ/B-CZ BOUNDARY
 - B-CZ/B-TZ PMZ BOUNDARY (ON-SITE)
 - B-CZ/B-TZ PMZ BOUNDARY (OFF-SITE)
 - MW-15B
 - MW-76B
 - MW-11B
 - POINT OF COMPLIANCE WELLS (POC)
 - INFERRED GROUNDWATER FLOW DIRECTION
 - PROPOSED CUMULATIVE PMZ (A-TZ, B-CZ/B-TZ, AND C-TZ)
 - ON-SITE PMZ
 - OFF-SITE PMZ
 - ALTERNATE POINT OF EXPOSURE (APOE)
 - CORRECTIVE ACTION OBSERVATION WELLS (CAO)

NOTES

1. VERTICAL DATUM BASED ON CITY OF HOUSTON VERTICAL DATUM (HVD).
2. DNAPL = DENSE NON-AQUEOUS PHASE LIQUIDS DETECTED IN MONITORING WELL (JANUARY 2020).
3. (B) - BACKGROUND WELL.
4. * - PROPOSED WELL LOCATION.

REFERENCE(S)
 BASE MAP FROM ERM-SOUTHWEST, INC. APAR. APPENDUM, FIG 3-1, DATED JUNE 2004.

Map Drawn by: JRM/MSW Date: 2020-10-23 Title: 15-23 PMZ I Perched EC - Houston City: 2020-10-23 Time: 6:17:07 PM
 Path: D:\Projects\GIS\Projects - Final\15-23 PMZ I Perched EC - Houston\15-23 PMZ I Perched EC - Houston.dwg | E:\B\B\B\CP\Assemblies\A\Sheet 5 of 7 PMZ I Perched EC - Houston.dwg



LEGEND

- UPPER PROPERTY BOUNDARY
- ROAD, PARKING LOT, SIDEWALK
- FENCE
- RAILROAD
- B UNIT MONITORING WELL LOCATION
- B UNIT CORRECTIVE ACTION SYSTEM WELLS (CAS) (DNAPL RECOVERY)
- B-CZ
- B-TZ
- B-TZ/B-CZ BOUNDARY
- B-CZ/B-TZ PMZ BOUNDARY (ON-SITE)
- B-CZ/B-TZ PMZ BOUNDARY (OFF-SITE)

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
HOUSTON WOOD PRESERVING WORKS

TITLE
PMZ BOUNDARY MAP - B-CZ/B-TZ (SOUTH)

CONSULTANT
YYYY-MM-DD 2020-10-20
DESIGNED AJD
PREPARED AJD/RS
REVIEWED MH
APPROVED ECM

PROJECT NO.
19119232

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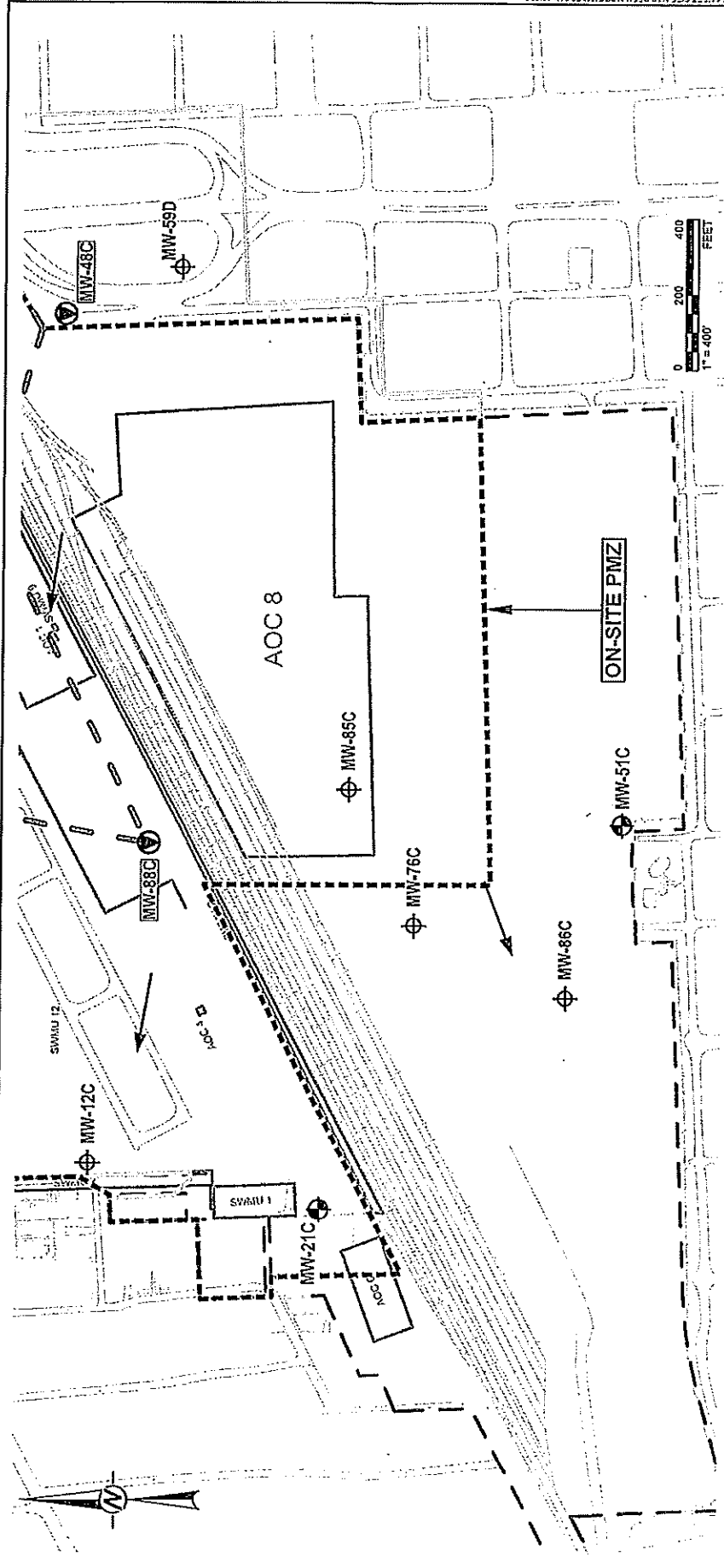
CP ATTACHMENT A
SHEET 5B of 7

NOTE(S)

- VERTICAL DATUM BASED ON CITY OF HOUSTON VERTICAL DATUM (HVD).
- DNAPL = DENSE NON-AQUEOUS PHASE LIQUIDS DETECTED IN MONITORING WELL (JANUARY 2020).
- (B) - BACKGROUND WELL
- .- PROPOSED WELL LOCATION.

REFERENCE(S)
BASE MAP FROM ERM-SOUTHWEST, INC. APAR ADDENDUM, FIG 3-1, DATED JUNE 2004.

GOLDER
TECHNOLOGICAL SERVICES
12700 UNIVERSITY AVENUE, SUITE 100
DENVER, CO 80202



CLIENT
 UNION PACIFIC RAILROAD CO.

PROJECT
 HOUSTON WOOD PRESERVING WORKS

TITLE
 PMZ BOUNDARY MAP - C-TZ AND D-TZ MONITORING WELLS (SOUTH)

CONSULTANT
 YYY-001-00 2023-10-19
 DESIGNED: AJD
 PREPARED: AJDIRS
 REVIEWED: MH
 APPROVED: ECH

PROJECT NO.
 19119232

REV.
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CP ATTACHMENT A
 SHEET 6B OF 7

LEGEND

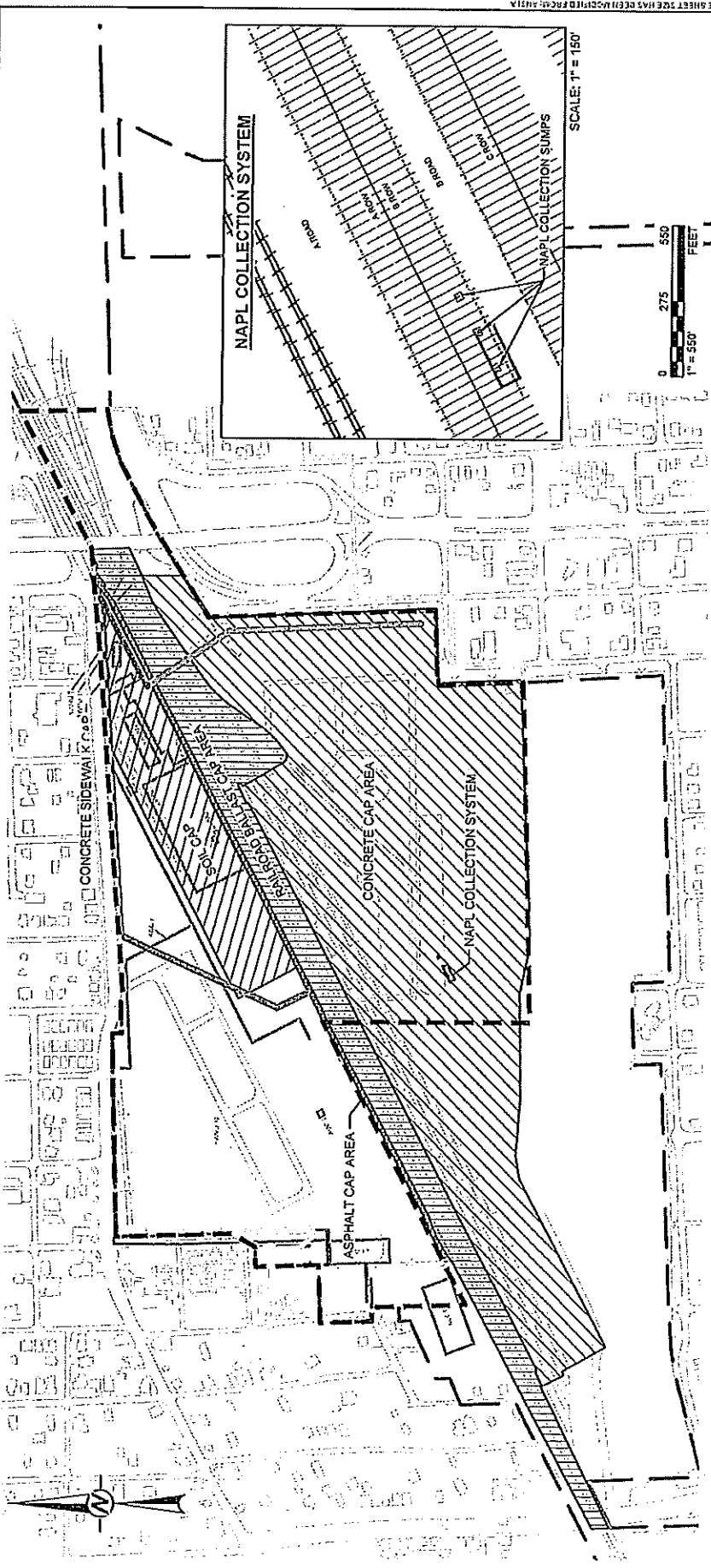
- UPRR PROPERTY BOUNDARY
- ROAD, PARKING LOT, SIDEWALK
- FENCE
- RAILROAD
- C-TZ MONITORING WELL LOCATION
- C-TZ CORRECTIVE ACTION SYSTEM WELLS (CAS) (DNAPL RECOVERY)
- C-TZ PMZ BOUNDARY (ON-SITE)
- C-TZ PMZ BOUNDARY (OFF-SITE)
- MW-12C
- MW-88C
- MW-01A
- ALTERNATE POINT OF EXPOSURE (APOE)
- CORRECTIVE ACTION OBSERVATION WELLS (CAO)
- POINT OF COMPLIANCE WELLS (POC) - UNIT 001
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPOSED CUMULATIVE PMZ (A-TZ, B-CZ/B-TZ, AND C-TZ)
- ON-SITE PMZ
- OFF-SITE PMZ

NOTE(S)
 1. VERTICAL DATUM BASED ON CITY OF HOUSTON VERTICAL DATUM (HVD).
 2. DNAPL = DENSE NON-AQUEOUS PHASE LIQUIDS DETECTED IN MONITORING WELL (JANUARY 2023).
 3. (B) - BACKGROUND WELL.
 4. *- PROPOSED WELL LOCATION.

REFERENCE(S)
 BASE MAP FROM ERM-SOUTHWEST, INC APAR ADDENDUM, FIG 3-1, DATED JUNE 2004.

GOLDER
 TECHNICAL CONSULTANTS
 10000 WEST 16TH AVENUE, SUITE 100
 DENVER, COLORADO 80202

19119232.dwg Date: 2020-10-19 Time: 11:23 PM | Project: Houston Wood Preserving Works - Post-Response Action Care - Capped Areas, NAPL Collection System, and Slurry Wall
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CLIENT
 UNION PACIFIC RAILROAD CO.

PROJECT
 HOUSTON WOOD PRESERVING WORKS

TITLE
 POST-RESPONSE ACTION CARE -
 CAPPED AREAS, NAPL COLLECTION SYSTEM,
 AND SLURRY WALL

CONSULTANT
 YYY-AAA-00 2020-10-19
 DESIGNED AJD
 PREPARED AJD
 REVIEWED MH
 APPROVED ECM

GOLDER

PROJECT NO.
 19119232

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CP ATTACHMENT A
 SHEET 7 of 7

LEGEND

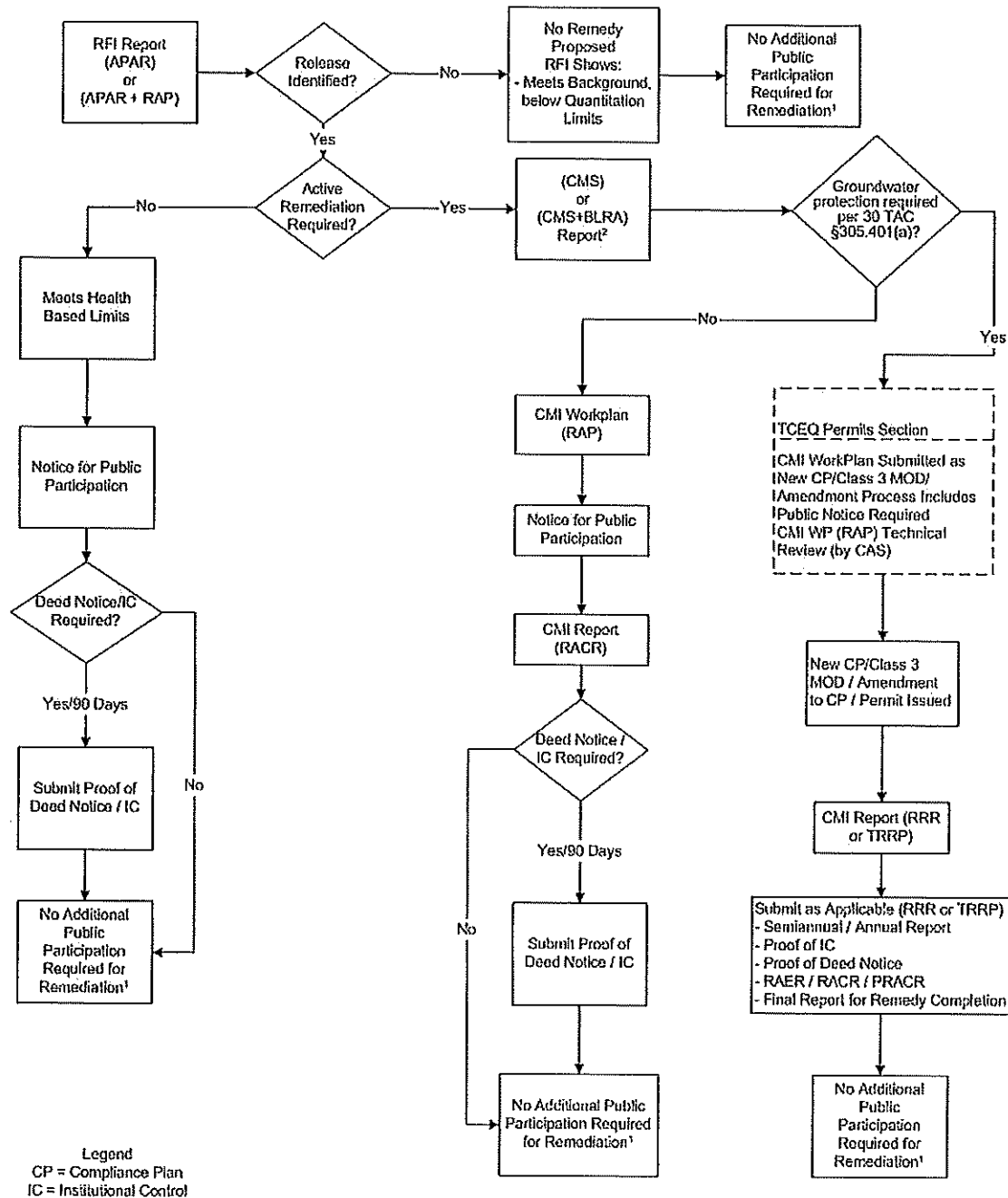
- UPRR PROPERTY BOUNDARY
- ROAD, PARKING LOT, SIDEWALK
- FENCE
- RAILROAD
- HISTORIC STRUCTURE AND FEATURE
- RAILROAD BALLAST CAP AREA
- ASPHALT CAP AREA
- SOIL CAP
- CONCRETE CAP AREA
- NAPL COLLECTION SYSTEM SUMP
- EXISTING NAPL COLLECTION SYSTEM (CONSTRUCTED FEB. 2019)
- PROPOSED SLURRY WALL (APPROX. 75 FT BGS)
- PROPOSED SLURRY WALL (APPROX. 50 FT BGS)
- PROPOSED CUMULATIVE PMZ (CITZ, B-CZ/BTZ, AND C/TZ)
- ON-SITE PMZ
- OFF-SITE PMZ

REFERENCE(S)
 BASE MAP FROM ERM-SOUTHEAST, INC APAR ADDENDUM, FIG 3-1, DATED JUNE 2004.

CP Attachment B, Sheet 1 of 1

Public Participation in HSWA Corrective Action

6/22/2005



1 To Incorporate a Status Change to RFI unit(s) in the Permit or CP Requires Modification and Public Notice through the Permits Section
 2 As Required by Rule, Permit, or CP

CP Attachment C: Well Design, Construction, Installation, Certification, Plugging and Abandonment Procedures and Specifications

1. The Permittee shall use well drilling methods that minimize potential adverse effects on the quality of water samples withdrawn from the well, and that minimize or eliminate the introduction of foreign fluids into the borehole.
2. All wells constructed to meet the terms of this Compliance Plan shall be constructed such that the wells can be routinely sampled with a pump, bailer, or alternate sampling device. Piping associated with recovery wells should be fitted with sample ports or an acceptable alternative sampling method to facilitate sampling of the recovered groundwater on a well by well basis.
3. Above the saturated zone, the well casing may be two (2)-inch diameter or larger Schedule 40 or 80 polyvinyl chloride (PVC) rigid pipe or stainless steel or polytetrafluoroethylene (PTFE or "Teflon®") or an approved alternate material. The PVC casing must bear the National Sanitation Foundation logo for potable water applications (NSF-pw). Solvent cementing compounds shall not be used to bond joints and all connections shall be flush-threaded. In and below the saturated zone, the well casing shall be stainless steel or PTFE.

The Permittee may use PVC or fiberglass reinforced resin as an alternate well casing material in and below the saturated zone provided that it yields samples for groundwater quality analysis that are unaffected by the well casing material.

4. The Permittee shall replace any well that has deteriorated due to incompatibility of the casing material with the groundwater contaminants or due to any other factors. Replacement of the damaged well shall be completed within ninety (90) days of the date of the inspection that identified the deterioration.
5. Well casings and screens shall be steam cleaned prior to installation to remove all oils, greases, and waxes. Well casings and screens made of fluorocarbon resins shall be cleaned by detergent washing.
6. For wells constructed after the date of issuance of this Compliance Plan, the screen length shall not exceed ten (10) feet within a given transmissive zone unless otherwise approved by the Executive Director. Screen lengths exceeding ten (10) feet may be installed in groundwater recovery or injection wells to optimize the groundwater remediation process in accordance with standard engineering practice.
7. The Permittee shall design and construct the intake portion of a well so as to allow sufficient water flow into the well for sampling purposes and minimize the passage of formation materials into the well during pumping. The intake portion of a well shall consist of commercially manufactured stainless steel or PTFE screen or approved alternate material. The annular space between the screen and the borehole shall be filled with clean siliceous granular material (i.e., filter pack) that has a proper size gradation to provide mechanical retention of the formation sand and silt. The well screen slot size shall be compatible with the filter pack size as determined by sieve analysis data. The filter pack should extend no more than three (3) feet above the well screen. A silt trap, no greater than one (1) foot in length, may be added to the bottom of the well screen to collect any silt that may enter the well. The bottom of the well casing shall be capped with PTFE or stainless steel or approved alternate material.

Groundwater recovery and injection wells shall be designed in accordance with standard engineering practice to ensure adequate well production and accommodate ancillary equipment. Silt traps exceeding one (1) foot may be utilized to accommodate ancillary

equipment. Well heads shall be fitted with mechanical well seals, or equivalent, to prevent entry of surface water or debris.

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

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

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

9. Water added as a drilling fluid to a well shall contain no bacteriological or chemical constituents that could interfere with the formation or with the chemical constituents being monitored. For groundwater recovery and injection wells, drilling fluids containing freshwater and treatment agents may be utilized in accordance with standard engineering practice to facilitate proper well installation. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.
10. Upon completion of installation of a well, the well must be developed to remove any fluids used during well drilling and to remove fines from the formation to provide a particulate-free discharge to the extent achievable by accepted completion methods and by commercially available well screens. Development shall be accomplished by reversing flow direction, surging the well or by air lift procedures. No fluids other than formation water shall be added during development of a well unless the aquifer to be screened is a low-yielding water-bearing aquifer. In these cases, the water to be added should be chemically analyzed to evaluate its potential impact on in-situ water quality, and to assess the potential for formation damage.

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

11. Each well shall be secured and/or designed to maintain the integrity of the well borehole and groundwater.
12. The Permittee shall protect the above-ground portion of the well by bumper guards and/or metal outer casing protection when wells are located in traffic areas or outside the secured plant area.
13. The attached Table of Well Construction Details is to be completed or updated for each well installed and kept on site. Items in the table that require a yes or no answer indicate diagrams, plans, or procedures that shall be kept on site and made available to inspection. The completed table and other records shall include all of the following information:
 - name/number of well (well designation);
 - intended use of the well (sampling, recovery, etc.);
 - date/time of construction;
 - drilling method and drilling fluid used;
 - well location (± 0.5 ft.);
 - borehole diameter and well casing diameter;
 - well depth (± 0.1 ft.);
 - drilling and lithologic logs;
 - depth to first saturated zone;
 - casing materials;
 - screen materials and design;
 - casing and screen joint type;
 - screen slot size/length;
 - filter pack material/size;
 - filter pack volume (how many bags, buckets, etc.);
 - filter pack placement method;
 - sealant materials;
 - sealant volume (how many bags, buckets, etc.);
 - sealant placement method;
 - surface seal design/construction;
 - well development procedure;
 - type of protective well cap;
 - ground surface elevation (± 0.01 ft. MSL);
 - top of casing elevation (± 0.01 ft. MSL); and,
 - detailed drawing of well (include dimensions).
14. The Permittee shall clearly mark and maintain the well number on each well at the site.
15. The Permittee shall measure and keep a record of the elevation of the top of each well casing in feet above mean sea level to the nearest 0.01 foot and permanently mark the measuring point on the well. The Permittee shall compare old and new elevations from previously surveyed wells and determine a frequency of surveying not to exceed five (5) year intervals.
16. A well's screened interval shall be appropriately designed and installed to meet the well's specific objective (i.e., recovery of either DNAPL, LNAPL, or both, or other objective of the well). All wells designed to detect, monitor, or recover DNAPL must be drilled to intercept the bottom confining layer of the aquifer. The screened interval to detect DNAPL should extend from the top of the lower confining layer to above the portion of the aquifer saturated with DNAPL. The screened interval for all wells designed to detect, monitor, or recover LNAPL must extend high enough into the vadose zone to provide for fluctuations in the seasonal water table. In addition, the filter pack

for the recovery or monitoring well's screened interval shall be coarser than surrounding media to ensure the movement of NAPL to the well.

Certification, Plugging and Abandonment Procedures

17. Prior to installation of a Point of Compliance (POC), FOA Boundary of Compliance (FBOC), Point of Exposure (POE), Alternate Point of Exposure (APOE) or Background replacement well listed in CP Table V, the Permittee shall submit to the Executive Director for approval, the replacement well specifications and an explanation of why the well is being replaced. For any such well to be considered as a replacement well and not as a new well, the well shall have no substantive design changes from the well being replaced as determined by the Executive Director. The well shall be drilled within fifteen (15) feet of the well being replaced unless an alternate location is authorized by the Executive Director. The Permittee shall submit a replacement well certification to the Executive Director in accordance with CP Table VII and CP Attachment C, Provision 19.
18. Plugging and abandonment of a Corrective Action System Background, POC, FBOC, POE, and/or APOE wells in Provision XI.B.1, shall be subject to the Compliance Plan modification provisions in 30 TAC Chapter 305 Subchapter D. Plugging and abandonment of Corrective Action Observation, Corrective Action System and/or Attenuation Monitoring Point wells in Provision XI.B.2, shall commence upon written approval of the Executive Director. The well shall be plugged and abandoned in accordance with requirements of this Attachment C. The Permittee shall certify proper plugging and abandonment in accordance with CP Table VII and CP Attachment C, Provision 19.
19. The Permittee shall complete construction or plugging and abandonment of each well in accordance with the requirements of this Permit and 16 TAC Chapter 76 and shall certify such proper construction or plugging and abandonment in the first report submitted pursuant to CP Table VII following installation or plugging and abandonment. Copies of the State of Texas Plugging Report filed with the Texas Department of Licensing and Regulation and completion logs for each newly installed or replaced well shall be included with the report. The certification shall be prepared by a qualified geoscientist or engineer. Each well certification shall be accompanied by a certification report, including an accurate log of the soil boring, which thoroughly describes and depicts the location, elevations, material specifications, construction details, and soil conditions encountered in the boring for the well. A copy of the certification and certification report shall be kept on-site, and a second copy shall be submitted to the Executive Director. Required certification shall be in the following format, edited as appropriate, and shall specify the Compliance Plan Number as indicated:

"This is to certify that installation (or plugging and abandonment) of the following facility components authorized or required by TCEQ Permit No. (Insert Permit number) has been completed, and that construction (or plugging) of said components has been performed in accordance with and in compliance with the design and construction specifications of this Permit No. (Insert Permit number):" (Add description of facility components with reference to applicable Compliance Plan provisions).
20. Wells may be replaced at any time the Permittee or Executive Director determines that the well integrity or materials of construction or well placement no longer enable the well to yield samples representative of groundwater quality.
21. The Permittee shall plug soil test borings and wells removed from service after issuance of the Compliance Plan with a cement/bentonite grout mixture so as to prevent the preferential migration of fluids in the area of the borehole. Certification of each plugging shall be reported in accordance with Provision 19 of CP Attachment C of this

Permit No. 50343
Permittee: Union Pacific Railroad Company

Continuation Sheets 5 of 7

Compliance Plan. The plugging of wells shall be in accordance with 16 TAC Chapter 76 dealing with Well Drilling, Completion, Capping and Plugging.

Table of Well Construction Details

Well number					
Borehole diameter (in)					
Well diameter (in)					
Total borehole depth (ft)					
Constructed well depth (ft)					
Well location available (Y/N)					
Intended Use of Well (sampling, recovery, etc.)					
Drilling & lithologic logs available (Y/N)					
Drill method					
Date drilled					
Casing I.D. (in)					
Casing type/materials					
How joined					
Stick-up length					
Top of casing (± 0.01 ft. MSL)					
Ground surface elevation (± 0.01 ft. MSL)					
Capped/lockable					
Surface pad size (ft)					
Detailed drawing of well (include dimensions) Y/N					
Depth to surface seal (ft)					
Surface seal design & construction available (Y/N)					
Well development procedure available (Y/N)					
Annulus fill					
Depth to annulus seal (ft)					
Depth to filter pack (ft)					

Depth to 1 st saturated zone					
Length of filter pack (ft)					
Size of filter pack					
Filter pack volume (how many bags, buckets, etc.)					
Filter pack placement method					
Depth to screen (ft)					
Sealant materials					
Sealant volume (how many bags, buckets, etc.)					
Sealant placement method					
Screen slot size/length (in)					
Screen type					
Screen length (ft)					
Blank length (ft)					
Development Method					
Well coordinates (lat & long)					