UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

IN THE MATTER OF: Pennzoil-Quaker State Company dba SOPUS Products Pennzoil-Quaker State/Former Congo Refinery 1 Mile South State Route 2 Newell, West Virginia 26050 EPA I.D. No. WVD057634776 Pennzoil-Quaker State Company dba SOPUS Products Respondent Proceeding under Section 3008(h) of the Resource Conservation and Recovery Act, 42 U.S.C. § 6928(h)	RCRA Docket No. RCRA-03-2022-0061CA **ADMINISTRATIVE ORDER ON CONSENT**

TABLE OF CONTENTS

I. JURISDICTION

1. This Administrative Order on Consent ("Order") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and Pennzoil-Quaker State company dba SOPUS Products ("Respondent") regarding the former Quaker State Corporation, Congo Refinery, now known as the Ergon Refinery, located at 1 Mile S State Route 2, Newell, WV 26050 ("the Facility").

2. This Order applies to the Facility and requires the performance of remaining work arising out of the Initial Administrative Order (U.S. EPA Docket No. RCRA-III-074-CA, December 30, 1993). A map presenting the Facility property line/boundary and coordinates is attached as Figure 1 in Appendix A.

3. This Order is issued under Section 3008(h) of the Solid Waste Disposal Act, commonly referred to as the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended by the Hazardous and Solid Waste Amendments of 1984, as amended 42 U.S.C. § 6928(h). The Administrator of EPA has delegated the authority to issue orders under Section 3008(h) to the Regional Administrator of Region III by EPA Delegation Nos. 8-31, dated Jan. 17, 2017, and 8-32, dated May 11, 1994, and this authority has been further delegated by the Regional Administrator for Region III to the Director of the Land, Chemical and Redevelopment Division ("LCRD") by EPA Delegations Nos. 8-31 and 8-32, both dated April 15, 2019.

4. On May 29, 1986, EPA granted the State of West Virginia ("the State") authorization to operate a state hazardous waste program in lieu of the federal program, pursuant to Section 3006(b) of RCRA, 42 U.S.C. § 6926(b). The State, however, does not have the authority to enforce Section 3008(h) of RCRA. The State has been given notice of the issuance of this Order.

5. EPA and Respondent recognize that this Order has been negotiated in good faith. Respondent consents to, and agrees not to contest, EPA's jurisdiction to issue this Order or to enforce its terms. Further, Respondent will not contest EPA's jurisdiction to: compel compliance with this Order in any subsequent enforcement proceedings, either administrative or judicial; require Respondent's full or interim compliance with the terms of this Order; or impose sanctions for violations of this Order. Respondent waives any right to request a hearing on this Order pursuant to Section 3008(b) of RCRA, 42 U.S.C. § 6928(b), and 40 C.F.R. Part 24, and consents to the issuance of this Order without a hearing under Section 3008(b) of RCRA, 42 U.S.C. § 6928(b), as an Administrative Order on Consent issued pursuant to Section 3008(h) of RCRA, 42 U.S.C. § 6928(h).

6. Respondent waives any and all remedies, claims for relief, and otherwise available rights to judicial or administrative review that Respondent may have with respect to any issue of fact or law set forth in this Order, including any right of judicial review under Chapter 7 of the Administrative Procedures Act, 5 U.S.C. §§ 701-706, and 40 C.F.R. Part 24 providing for review of final agency action.

II. PARTIES BOUND

7. This Order is binding upon EPA and upon Respondent and its agents, successors, and assigns. For purposes of this Order, any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property, shall not alter Respondent's responsibilities under this Order. Any conveyance of title, easement, or other interest in the Facility shall not affect Respondent's obligations under this Order.

8. The undersigned representative of Respondent certifies that she or he is fully authorized to enter into the terms and conditions of this Order and to execute and legally bind Respondent to this Order.

9. Respondent shall provide a copy of this Order to each contractor hired to perform the Work and to each person representing Respondent with respect to the Facility or the Work and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Order. Respondent or its contractors shall provide written notice of this Order to all subcontractors hired to perform any portion of the Work required by this Order. Respondent shall nonetheless be responsible for ensuring that its contractors and subcontractors perform the Work in accordance with the terms of this Order.

III. STATEMENT OF PURPOSE

10. In entering into this Order, the mutual objectives of EPA and Respondent are:

a. To have Respondent implement the corrective measures for the Facility, as selected in the March 12, 2020, Final Decision and Response to Comments ("FDRTC"), attached hereto as Appendix B; and

b. To have Respondent perform any other activities necessary to correct or evaluate actual or potential threats to human health or the environment resulting from the Existing Hazardous Constituents.

IV. DEFINITIONS

11. Unless otherwise expressly provided in this Order, terms used in this Order that are defined in RCRA, 42 U.S.C. §§ 6901-6992k, shall have the meaning assigned to them in RCRA. Whenever terms listed below are used in this Order or its Appendices, the following definitions shall apply solely for purposes of this Order:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9601-9675.

"Day or day" shall mean a calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or federal or State holiday, the period shall run until the close of business of the next working day.

"Effective Date" shall mean the date EPA signs this Order.

"EPA" shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

"Existing Hazardous Constituents" shall mean those Hazardous Constituents from Respondent's ownership and/or operation of the Facility prior to the sale of the Facility to Ergon-West Virginia, Inc. ("EWVI") in July 1997, which consist of those Hazardous Constituents identified in the 1993 UAO, identified and investigated in the RCRA Facility Investigation Report and Memos, and summarized in the FDRTC, as may be modified by EPA.

"Hazardous Constituents" shall mean those constituents listed in Appendix VIII to 40 C.F.R. Part 261 or any constituent identified in Appendix IX to 40 C.F.R. Part 264.

"Hazardous Waste(s)" shall mean any hazardous waste as defined in 1004(5) and 3001 of RCRA. This term includes Hazardous Constituents as defined above.

"Institutional Controls" or "ICs" shall mean Proprietary Controls and state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices of contamination, notices of administrative action, or other notices that: limit land, water, or other resource use to minimize the potential for human exposure to contaminants at or in connection with the Facility; limit land, water, or other resource use to implement, ensure non-interference with; or provide information intended to modify or guide human behavior at or in connection with the Facility.

"Order" shall mean this Administrative Order on Consent and any appendices attached hereto (listed in Section XXIII (Integration/Appendices)). Deliverables approved, conditionally-approved, or modified by EPA also will be incorporated into and become enforceable parts of this Order.

"Paragraph" shall mean a portion of this Order identified by an Arabic numeral or an upper or lower case letter.

"Parties" shall mean EPA and Respondent.

"Proprietary Controls" or "PCs" shall mean easements or covenants running with the land that: (i) limit land, water or other resource use and/or provide access rights; and (ii) are created pursuant to common law or statutory law by an instrument that is recorded in the land records office against the Facility.

"RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901-6992, as amended by the Hazardous and Solid Waste Amendments of 1984 (also known as the Resource Conservation and Recovery Act).

"Respondent" shall mean Pennzoil-Quaker State company dba SOPUS Products.

"Section" shall mean a portion of this Order identified by a Roman numeral.

"Solid Waste Management Unit(s)" or "SWMU(s)" shall mean any discernable unit(s) at which solid wastes have been placed at any time irrespective of whether the unit was intended for the management of solid waste or Hazardous Waste. Such units include any area at a Facility where solid wastes have been routinely or systematically released.

"State" shall mean the State of West Virginia.

"Scope of Work" or "SOW" shall mean a document or documents prepared by EPA describing the activities Respondent must perform to implement the Work required by this Order.

"Transfer" shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.

"United States" shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA.

"Work" shall mean all activities and obligations Respondent is required to perform under this Order, except those required by Section XII (Record Retention).

V. FINDINGS OF FACT

12. Respondent neither admits nor denies the following Findings of Fact:

a. Respondent is a corporation and is a person as defined in Section 1004(15) of RCRA, 42 U.S.C. § 6903(15).

b. Respondent is the former owner and/or operator of a Hazardous Waste management facility located at 1 Mile South State Route 2, Newell, West Virginia 26050.

c. The Facility was a facility authorized to operate under Section 3005(e) of RCRA, 42 U.S.C. § 6925(e), for purposes of Section 3008(h) of RCRA, 42 U.S.C. § 6928(h).

d. In July 1997, EWVI purchased the Facility from Respondent. EWVI currently operates a refinery at the Facility, but is not considered a successor or assign, for purposes of this Order, based on its acquisition of the Facility from Respondent in July 1997.

e. The environmental history and investigations conducted at the Facility are further described in the Unilateral Administrative Order that EPA issued to Respondent on December 30, 1993 ("1993 UAO").

f. The Findings of Fact set out in the 1993 UAO are incorporated by reference herein as though fully set forth at length. The 1993 UAO is attached herein and made a part hereof as Appendix C to this Order.

g. The FDRTC selecting the Final Remedy for the Facility was issued on March 12, 2020 and is incorporated by reference herein as though fully set forth at length and is attached herein and made a part hereof as Appendix B to this Order.

h. On February 2, 2021, Respondent executed and recorded in the Hancock County, WV property records, an environmental covenant ("Covenant") on the title to the Facility property pursuant to the West Virginia Uniform Environmental Covenants Act, W.Va. Code § 22-22.B-1 et seq. ("UECA") (Instrument Number 202100000475).

i. The Covenant includes the following restrictions and requirements:

(1) The Facility property shall only be used for non-residential purposes. Non-residential uses include commercial, industrial, manufacturing or any other activity to further development, manufacturing or distribution of goods and services; intermediate and final business activities; research and development; warehousing, shipping, transport, remanufacturing; raw material storage; commercial machinery/equipment storage; repair and maintenance and solid waste management. Non-residential uses do not include schools, day care centers, nursing homes or other residential-style facilities or recreational areas;

(2) Controlled access (security gates) and fencing must be used and maintained to restrict Facility-wide access from trespassers; and

(3) Facility groundwater shall not be used for any purpose other than industrial purposes and the maintenance and monitoring activities required by EPA, unless prior written approval is obtained from West Virginia Department of Environmental Protection and EPA.

j. Based on the findings above, EPA has determined that there are potential adverse environmental or human health impacts associated with the Hazardous Wastes which are present at or released at or from the Facility.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

13. EPA hereby determines that there has been a release of Hazardous Waste within the meaning of 3008(h) of RCRA, 42 U.S.C. § 6928(h), into the environment from the Respondent's ownership and/or operation of the Facility and that the corrective action and/or other response measures required by this Order are necessary to protect human health or the environment.

VII. DESIGNATION OF CONTRACTOR, PROJECT COORDINATOR, AND EPA PROJECT COORDINATOR

14. Respondent has designated, and EPA has not disapproved, the following individual as Project Coordinator, who shall be responsible for administration of all actions by Respondent required by this Order: Dan Kirk, Principal Program Manager, Downstream Soil and Groundwater Focus Delivery Group, Major Projects, Shell Oil Products US, 150 N. Dairy Ashford, Building A 5th Floor, Houston, TX 77079, Phone: 281-544-9796, E-mail:

Dan.Kirk@shell.com. The Project Coordinator must have sufficient expertise to coordinate the Work and must be present at the Facility or readily available during implementation of the Work. If EPA disapproves of the designated Project Coordinator, Respondent shall designate and notify EPA of an alternate within 45 days. EPA has designated Caitlin Elverson of the Land, Chemicals and Redevelopment Division, Region III as EPA's Project Coordinator. EPA and Respondent shall have the right, subject to this Paragraph, to change their designated Project Coordinators. Respondent shall notify EPA 45 days before such a change is made. The initial notification by Respondent of a change in the Project Coordinator may be made orally, but shall be promptly followed by a written notice.

15. Respondent shall retain one or more contractors to perform the Work and shall, within 45 days after the Effective Date, notify EPA of the name(s), title(s), and qualifications of such contractor(s). Respondent shall also notify EPA of the name(s), title(s), and qualification(s) of any other contractor(s) or subcontractor(s) retained to perform the Work at least 60 days prior to commencement of such Work. EPA retains the right to disapprove any or all of the contractors and/or subcontractors retained by Respondent. If EPA disapproves a selected contractor, Respondent shall retain a different contractor and shall notify EPA of that contractor's name and qualifications within 60 days after EPA's disapproval. With respect to any proposed contractor, Respondent shall demonstrate that the proposed contractor demonstrates compliance with ASQ/ANSI E4:2014 "Quality management systems for environmental information and technology programs – Requirements with guidance for use" (American Society for Quality, February 2014), by submitting a copy of the proposed contractor's Quality Management Plan (QMP). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, Mar. 2001, reissued May 2006) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the Work for Respondent shall be subject to EPA review for verification that such persons meet objective assessment criteria (*e.g.*, experience, capacity, technical expertise) and do not have a conflict of interest with respect to the project.

16. Except as otherwise provided in this Order, Respondent shall direct all submissions required by this Order to EPA's Project Coordinator in accordance with Section XIII (Reporting and Document Certification). EPA's Project Coordinator has the authority to oversee Respondent's implementation of this Order. The absence of EPA's Project Coordinator from the Facility shall not be cause for the stoppage of Work unless specifically directed by EPA's Project Coordinator.

VIII. WORK TO BE PERFORMED

17. **General Work Requirements**

a. Pursuant to Section 3008(h) of RCRA, Respondent agrees to and is hereby ordered to perform the Work in accordance with any Scope of Work ("SOW"), workplan, or schedule developed pursuant to this Order. Respondent shall perform all Work undertaken pursuant to this Order in a manner consistent with RCRA and other applicable federal and state laws and their implementing regulations; applicable EPA guidance documents, including but not limited to those available at: https://www.epa.gov/hwcorrectiveactionsites/corrective-action-resources-specific-epas-region-3.

b. For any regulation or guidance referenced in the Order, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after Respondent receives notification from EPA of the modification, amendment, or replacement.

c. EPA acknowledges that Respondent may have completed some of the tasks required by this Order. Respondent may also have made available some of the information and data required by this Order. This previous work may be used to meet the requirements of this Order upon submission to and formal approval by EPA.

d. Within 120 days of scheduled fieldwork, Respondent shall submit to EPA a Health and Safety Plan ("HASP") that describes all activities to be performed to protect all persons on and off site from physical, chemical, and all other hazards posed by the Work. Respondent shall develop the HASP in accordance with EPA's Emergency Responder Health and Safety and Occupational Safety and Health Administration ("OSHA") requirements under 29 C.F.R. §§ 1910 and 1926. The HASP should cover all Work and should be updated, as appropriate, to cover activities after Work completion. EPA does not approve the HASP but will review it to ensure that all necessary elements are included and that the HASP provides for the protection of human health or the environment.

e. All written documents prepared by Respondent pursuant to this Order shall be submitted according to the procedures set forth in Section XIII (Reporting and Document Certification). With the exception of progress reports and the HASP, all such submittals will be reviewed and approved by EPA in accordance with Section XIV (Agency Approvals/Additional Work/Modifications).

f. Respondent will communicate frequently and in good faith with EPA to assure successful completion of the requirements of this Order. At a minimum, Respondent shall provide EPA with annual progress reports commencing on the last day of the month that is one year after the Effective Date and throughout the period that this Order is effective.

18. **Corrective Measures Implementation ("CMI")**

a. **CMI Workplan**

(1) On December 15, 2020, Respondent submitted to EPA for review and approval a CMI Workplan and project schedule that implements the selected corrective measures and additional work requirements of this Order. Once approved by EPA, Respondent shall implement the CMI Workplan according to the approved project schedule.

(2) At a minimum, the CMI Workplan shall include: a Groundwater Monitoring Plan, an Institutional Control Implementation and Assurance Plan ("IC Plan"), and a Cost Estimate prepared in accordance with Paragraph 41.

b. **CMI Assessment Report**

Every five years from the Effective Date of this Order, Respondent shall submit to EPA for review and approval a CMI Assessment Report. The CMI Assessment Report shall include whether each component of the Order is being complied with, whether the Final Remedy continues to protect human health and the environment, whether the Final Remedy or any amendment thereto is expected to achieve media cleanup objectives within a reasonable time frame given existing and reasonably anticipated future circumstances, whether revisions to the Final Remedy are recommended, and/or whether revisions to the groundwater monitoring plan are needed.

IX. QUALITY ASSURANCE

19. As part of the CMI Workplan, Respondent shall include and maintain an updated Quality Assurance Project Plan ("QAPP") for EPA review and approval. The QAPP shall address all sampling, monitoring, and analyses activities to be performed pursuant to the CMI Workplan.

20. Commencing on the date of EPA approval of the initial QAPP and continuing thereafter, Respondent shall ensure all work performed pursuant to the CMI Workplan is conducted in accordance with the current EPA-approved QAPP.

21. The QAPP shall address quality assurance and quality control procedures for all sampling, monitoring and analyses activities performed pursuant to the CMI Workplan including but not limited to groundwater level monitoring, sample collection, sample analysis, sample management, chain of custody, data management, data validation, and data reporting.

22. Respondent shall develop the QAPP in accordance with "EPA Requirements for Quality Assurance Project Plans," QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006), "Guidance for Quality Assurance Project Plans," QA/G-5, EPA/240/R 02/009 (Dec. 2002), and other applicable guidance as identified by EPA. The QAPP also must include procedures:

a. To ensure that all analytical data used in decision making relevant to this Order are of known and documented quality;

b. To ensure that EPA and its authorized representatives have reasonable access to laboratories used by Respondent ("Respondent's Labs") in implementing the Order;

c. To ensure that Respondent's Labs analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring;

d. To ensure that Respondent's Labs perform all analyses using EPA-accepted methods according to the latest approved edition of "Test Methods for Evaluating Solid Waste (SW-846)" or other methods approved by EPA;

e. To ensure that Respondent's Labs participate in an EPA-accepted quality assurance/quality control (QA/QC) program or other QA/QC program acceptable to EPA.

f. For Respondent to provide EPA with notice at least 28 days prior to any sample collection activity;

g. For Respondent to provide split samples or duplicate samples to EPA upon request; any analysis of such samples shall be in accordance with the approved QAPP;

h. For EPA to take any additional samples that it deems necessary;

i. For EPA to provide to Respondent, upon request, split samples or duplicate samples in connection with EPA's oversight sampling; and

j. For Respondent to submit to EPA all sampling and test results and other data in connection with the implementation of this Order.

X. PROPERTY REQUIREMENTS

23. **Agreements Regarding Access and Non-Interference**. Respondent shall use "best efforts," as defined in Paragraph 24, with respect to providing EPA and its representatives, contractors, and subcontractors with access at all reasonable times to the Facility to conduct any activity regarding the Order, including those activities listed in Paragraph 23.b (Access Requirements).

a. The Covenant recorded in Hancock County, WV property records on February 2, 2021 (Instrument Number 202100000475) requires that EPA be granted full right of access for implementation and enforcement of the Covenant.

b. **Access Requirements**. The following is a list of activities for which access is required regarding the Order:

(1) Monitoring the Work;

(2) Verifying any data or information submitted to EPA or the State;

(3) Conducting investigations regarding contamination at or near the Facility;

(4) Obtaining samples;

(5) Assessing the need for, planning, or implementing additional corrective action activities at or near the Facility;

(6) Assessing implementation of quality assurance and quality control practices as defined in the approved QAPP;

(7) Assessing Respondent's compliance with the Order;

(8) Determining whether the Facility property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under the Order; and

(9) Implementing, monitoring, maintaining, reporting on, and enforcing any land, water, or other resource use restrictions and Institutional Controls.

24. **Best Efforts**. As used in this Section, "best efforts" means the efforts that a reasonable person in the position of Respondent would use so as to achieve the goal in a timely manner, including the cost of employing professional assistance and the payment of reasonable sums of money to secure access or record Institutional Controls that affect the title to the Facility property. If Respondent is unable to accomplish what is required through "best efforts" in a timely manner, Respondent shall notify EPA, and include a description of the steps taken to comply with the requirements. If EPA deems it appropriate, it may assist Respondent, or take independent action, in obtaining such access or recording Institutional Controls that affect the title to the Facility property.

25. If EPA determines that, in addition to the recorded Covenant, ICs in the form of state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls, or notices of contamination, notices of administrative action, or other notices are needed, Respondent shall cooperate with EPA's and the State's efforts to secure and ensure compliance with such ICs.

26. **Notice to Successors-in-Title**

a. Within 45 days of the Effective Date of this Order, Respondent shall submit to EPA for review and approval a notice to be recorded in the Facility property records, which would notify successors in title that (1) EPA has determined that corrective action activities are needed at the Facility and (2) that Respondent has entered into an Order requiring implementation of such selected corrective action activities.

b. Within thirty (30) days of EPA's approval of the notice in Paragraph 26.a, Respondent shall use best efforts, as defined in Paragraph 24, to execute and record the notice with the Recorder's Office of Hancock County, WV and submit to EPA a file-stamped copy of the recorded notice.

27. In the event of any Transfer of the Facility, unless EPA otherwise consents in writing, Respondent shall continue to comply with its obligations under the Order, including its obligation to secure access and ensure compliance with any use restrictions regarding the Facility and to implement, maintain, monitor, and report on ICs.

28. Notwithstanding any provision of the Order, EPA retains all of its access authorities and rights, as well as all of its rights to require land, water, or other resource use restrictions and ICs, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute or regulations.

XI. ACCESS TO INFORMATION

29. Respondent shall provide to EPA, upon request, copies of all records, reports, documents, and other information (including in electronic form) (hereinafter referred to as "Records") within Respondent's possession or control or that of its contractors or agents relating to activities at the Facility or to the implementation of this Order, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also, upon request, make available to EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

30. **Privileged and Protected Claims**

a. Respondent may assert all or part of a Record requested by EPA is privileged or protected as provided under federal law, in lieu of providing the Record, provided Respondent complies with Paragraph 30.b and except as provided in Paragraph 30.c.

b. If Respondent asserts such a privilege or protection, Respondent shall provide EPA with the following information regarding such Record: its title; its date; the name, title, affiliation (e.g., company or firm), and address of the author, each addressee, and each recipient; a description of the Record's contents; and the privilege or protection asserted. If a claim of privilege or protection applies only to a portion of a Record, Respondent shall provide the Record to EPA in redacted form to mask the privileged or protected portion only. Respondent shall retain all Records that Respondent claims privileged or protected until EPA has had a reasonable opportunity to dispute the privilege or protection claim and any such dispute has been resolved in Respondent's favor.

c. Respondent may make no claim of privilege or protection regarding:

(1) Any data regarding the Facility, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, radiological, or engineering data, or the portion of any other Record that evidences conditions at or around the Facility; or

(2) The portion of any Record that Respondent is required to create or generate pursuant to this Order.

31. **Business Confidential Claims**. Respondent may assert that all or part of a Record provided to EPA under this Section or Section XII (Record Retention) is business confidential to the extent permitted by and in accordance with 40 C.F.R. §§ 2.203 and 270.12(a). Respondent shall segregate and clearly identify all Records or parts thereof submitted under this Order for which Respondent asserts business confidentiality claims. Records claimed as confidential business information will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records when they are submitted to EPA, or if EPA has notified Respondent that the Records are not confidential under the standards of 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to Respondent.

32. Notwithstanding any provision on this Order, EPA retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under RCRA and any other applicable statutes or regulations.

XII. RECORD RETENTION

33. **Record Retention**

a. Until ten years after EPA issues the Acknowledgement of Termination pursuant to Paragraph 76, Respondent shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control or that come into its possession or control, that relate in any manner to this Order or to Hazardous Waste management and/or disposal at the Facility. Respondent must also retain, and instruct its contractors and agents to preserve, for the same time period specified above, all non-identical copies of the last draft or final version of any Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to performance of the Work, provided, however, that Respondent (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned Records required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

b. At the conclusion of this record retention period, Respondent shall notify EPA at least 90 days prior to the destruction of any such Records, and, upon request by EPA and except as provided in Paragraph 30 (Privileged and Protected Claims), Respondent shall deliver any such records to EPA.

c. Respondent certifies that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to its potential liability regarding the Facility since notification of potential liability by EPA or the State and that it has fully complied with any and all EPA and State requests for information regarding the Facility pursuant to Section 3007 of RCRA, 42 U.S.C. § 6927, and state law.

XIII. REPORTING AND DOCUMENT CERTIFICATION

34. **General Requirements for Deliverables**. Respondent shall submit all deliverables in electronic form. Technical specifications for sampling and monitoring data and spatial date are addressed in Paragraph 35. All other deliverables shall be submitted to EPA in the electronic form specified by EPA's Project Coordinator. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5" by 11," Respondent shall contact EPA for a mailing address to send paper copies of such exhibits. All documents submitted pursuant to this Order shall be sent to:

Caitlin Elverson
Telephone: 215-814-5455
E-mail: elverson.caitlin@epa.gov

All electronic messages and submittals additionally are to be submitted to:
R3_RCRAPOSTREM@epa.gov

With a courtesy copy to EWVI:
Jake Neihaus
Telephone: 601-933-3123
E-mail: Jake.Neihaus@ergon.com

Documents to be submitted to Respondent shall be sent to:

Project Coordinator:

Dan Kirk, Principal Program Manager
Downstream Soil and Groundwater Focus Delivery Group, Major Projects
Shell Oil Products US
150 N. Dairy Ashford
Building A 5th Floor
Houston, TX 77079
Telephone: 281-544-9796
Email: Dan.Kirk@shell.com

With a courtesy copy to EWVI:
Jake Neihaus
Telephone: 601-933-3123
E-mail: Jake.Neihaus@ergon.com

In addition, documents pursuant to Section XV (Financial Assurance) and any notice of destruction of documents pursuant to Section XII (Record Retention) shall be submitted to EPA's Project Coordinator.

35. Technical Specifications.

a. Sampling and monitoring data should be submitted in standard Electronic Data Deliverable ("EDD") format. Other delivery methods may be allowed upon EPA approval if electronic direct submission presents a significant burden or as technology changes.

b. Spatial data, including spatially-referenced data and geospatial data, should be submitted:

(1) in the ESRI File Geodatabase format; and

(2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 ("NAD83") or World Geodetic System 1984 ("WGS84") as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee ("FGDC")

Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor ("EME"), complies with these FGDC and EPA metadata requirements and is available at https://edg.epa.gov/EME/.

c. Each file must include an attribute name for each unit or sub-unit submitted. Consult https://www.epa.gov/geospatial/geospatial-policies-and-standards for any further available guidance on attribute identification and naming.

d. Spatial data submitted by Respondent does not, and is not intended to, define the boundaries of the Facility.

36. All deliverables that are submitted pursuant to Section VIII (Work To Be Performed) must be signed by Respondent's Project Coordinator, or other responsible official of Respondent, and must contain the following statement:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
>
> Signature: _____
> Name: _____
> Title: _____
> Date: _____

XIV. AGENCY APPROVALS/ADDITIONAL WORK/MODIFICATIONS

37. **EPA Approvals**

a. **Initial Submissions**

(1) After review of any deliverable that is required to be submitted for EPA approval under this Order, EPA will: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.

(2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause disruption to the Work; or (ii) previous

submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

b. **Resubmission**. Upon receipt of a notice of disapproval under Paragraph 37.a (Initial Submissions), or if required by a notice of approval upon specified conditions under Paragraph 37.a(1), Respondent shall, within 45 days, or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may:

(1) Approve, in whole or in part, the resubmission;

(2) Approve the resubmission upon specified conditions;

(3) Modify the resubmission;

(4) Disapprove, in whole or in part, the resubmission, requiring Respondent to correct the deficiencies; or

(5) Any combination of the foregoing.

c. **Implementation**. Upon approval, approval upon conditions, or modification by EPA under Paragraph 37.a or 37.b, of any such deliverable, or portion thereof: (1) such deliverable, or portion thereof, will be incorporated into and become an enforceable part of this Order; and (2) Respondent shall take any action required by the deliverable, or portion thereof. The implementation of any non-deficient portion of a deliverable submitted or resubmitted under Paragraph 37.a or resubmitted under Paragraph 37.b does not relieve Respondent of any liability for stipulated penalties under Section XVI (Delay in Performance/Stipulated Penalties).

38. **Additional Work**

a. EPA may determine that certain tasks, including investigatory work, engineering evaluation, procedure/methodology modifications, or land, water, or other resource use restrictions or ICs, are necessary in addition to or in lieu of the tasks included in any EPA-approved workplan to meet the purposes set forth in Section III (Statement of Purpose). If EPA makes such a determination, EPA will notify Respondent in writing. Unless otherwise stated by EPA, within 45 days after the receipt of such determination, Respondent shall submit for EPA approval a workplan for the Additional Work. The workplan shall conform to the applicable requirements of Section VIII (Work To Be Performed). Upon approval of the workplan by EPA, Respondent shall implement it in accordance with the schedule and provisions contained therein. This Section does not alter or diminish EPA's Project Coordinator's authority to make oral modifications to any plan or schedule pursuant to Paragraph 39.a.

39. **Modifications**

a. EPA's Project Coordinator may modify any workplan, schedule, or SOW, in writing or by oral direction. Any oral modification will be memorialized in writing by EPA promptly, but shall have as its effective date the date of EPA's Project Coordinator's oral direction. Any other requirements of this Order may be modified in writing by mutual agreement of the parties.

b. If Respondent seeks permission to deviate from any approved workplan, schedule, or SOW, Respondent's Project Coordinator shall submit a written request to EPA for approval outlining the proposed modification and its basis. Respondent may not proceed with the requested deviation until receiving oral or written approval from EPA's Project Coordinator pursuant to Paragraph 39.a.

c. No informal advice, guidance, suggestion or comment by EPA's Project Coordinator or other EPA representatives regarding reports, plans, specifications, schedules or any other writing submitted by Respondent shall relieve Respondent of its obligation to obtain any formal approval required by this Order, or to comply with all requirement of this Order, unless it is modified in writing pursuant to Paragraph 39.a.

XV. FINANCIAL ASSURANCE

40. Commencing annually from the effective date of EPA approval of the initial financial assurance instrument under this Order, Respondent shall submit to EPA certification and supporting documentation that financial assurance to address work remaining in this Order remains in place, and that such financial assurance is valid, accessible to EPA, and reasonably addresses the cost of work remaining in this Order.

41. **Estimated Cost of the Work**

a. As part of the CMI Workplan submitted in accordance with Paragraph 18.a, Respondent shall submit to EPA for review and approval detailed written estimates, in current dollars, of the cost of hiring a third party to perform the Work to be performed under this Order (hereafter "Estimated Cost of the Work"). The Estimated Cost of the Work shall account for the total costs of the work activities that they cover, as described in Section VIII and the SOW(s), and any EPA-approved work plan(s), including any necessary long term costs, such as operation and maintenance costs and monitoring costs. A third party is a party who (i) is neither a parent nor a subsidiary of Respondent and (ii) does not share a common parent or subsidiary with Respondent. The cost estimates shall not incorporate any salvage value that may be realized from the sale of wastes, facility structures or equipment, land or other assets associated with the Facility.

b. Respondent shall annually adjust the Estimated Cost of the Work for inflation within 30 days before the close of Respondent's fiscal year until the Work required by this Order is completed. In addition, Respondent shall adjust the Estimated Cost of the Work if EPA determines that any Additional Work is required, pursuant to Paragraph 38, or if any other condition increases the cost of the Work to be performed under this this Order.

c. Respondent shall submit each Estimated Cost of the Work to EPA for review annually within 30 calendar days before the close of Respondent's fiscal year. EPA will review each cost estimate and notify Respondent in writing of EPA's approval, disapproval, or modification of the cost estimate.

42. **Assurances of Financial Responsibility for Completing the Work**

a. Within 60 days after EPA approves the initial Estimated Cost of the Work, Respondent shall establish financial assurance for the benefit of the EPA. In the event that EPA approval of Respondent's initial Estimated Cost of the Work is not received within 30 days after close of Respondent's fiscal year, Respondent shall establish and maintain the financial assurance in the amount of the Estimated Cost of the Work submitted pursuant to Paragraph 40.a within 90 days of the end of its fiscal year. Respondent shall maintain adequate financial assurance until EPA releases Respondent from this requirement pursuant to Section XXII (Termination). Respondent shall update the financial instrument or financial test demonstration to reflect changes to the Estimated Cost of the Work within 90 days after the close of the Respondent's fiscal year. Respondent may use one or more of the financial assurance forms described in subparagraphs (1) – (6) immediately below. Any and all financial assurance documents shall be satisfactory in form and substance as determined by EPA.

(1) A trust fund established for the benefit of EPA, administered by a trustee;

(2) A surety bond unconditionally guaranteeing performance of the Work in accordance with this Order, or guaranteeing payment at the direction of EPA into a standby trust fund that meets the requirements of the trust fund in subparagraph (1) above;

(3) An irrevocable letter of credit, payable at the direction of the Director, Land, Chemicals and Redevelopment Division, into a standby trust fund that meets the requirements of the trust fund in subparagraph (1) above;

(4) An insurance policy that provides EPA with rights as a beneficiary, issued for a face amount at least equal to the current Estimated Cost of the Work, except where costs not covered by the insurance policy are covered by another financial assurance instrument;

(5) A corporate guarantee, executed in favor of the EPA by one or more of the following: (1) a direct or indirect parent company, or (2) a company that has a "substantial business relationship" with Respondent (as defined in 40 C.F.R. § 264.141(h)), to perform the Work to Be Performed under Section VIII of this Order or to establish a trust fund as permitted by subparagraph (1) above; provided, however, that any company providing such a guarantee shall demonstrate to the satisfaction of the EPA that it satisfies the financial test requirements of 40 C.F.R. § 264.143(f) with respect to the portion of the Estimated Cost of the Work that it proposes to guarantee; or

(6) A demonstration by Respondent that it meets the financial test criteria of 40 C.F.R. § 264.143(f) with respect to the Estimated Cost of the Work, provided that all other requirements of 40 C.F.R. § 264.143(f) are satisfied.

b. Respondent shall submit all original executed and/or otherwise finalized instruments to the EPA Region III RCRA Financial Assurance Administrator, Claudia Scott, Scott.Claudia@epa.gov, 215-814-3240, within thirty (30) days after date of execution or finalization as required to make the documents legally binding. The RCRA Financial Assurance Administrator will provide Respondent with a mailing address to send paper copies. Respondent shall also provide copies to the EPA Project Coordinator.

c. If at any time Respondent provides financial assurance for completion of the Work by means of a corporate guarantee or financial test, Respondent shall also comply with the other relevant requirements of 40 C.F.R. § 264.143(f), 40 C.F.R. § 264.151(f), and 40 C.F.R. § 264.151(h)(1) relating to these methods, and will promptly provide any additional information requested by EPA from Respondent or corporate guarantor within seven calendar days of its receipt of such request from EPA or the corporate guarantor.

d. For purposes of the corporate guarantee or the financial test described above, references in 40 C.F.R. § 264.143(f) to "the sum of current closure and post-closure costs and the current plugging and abandonment Estimated Cost of the Works" shall mean "the sum of all environmental remediation obligations, including, but not limited to, obligations under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9601 et seq., RCRA, the Underground Injection Control Program promulgated pursuant to the Safe Drinking Water Act, 42 U.S.C. §§ 300f et seq., and the Toxic Substances Control Act, 42 U.S.C. §§ 2601, et seq., and any other federal or state environmental obligation guaranteed by such company or for which such company is otherwise financially obligated in addition to the Estimated Cost of the Work.

e. Respondent may combine more than one mechanism to demonstrate financial assurance for the Work To Be Performed under Section VIII of this Order.

f. Respondent may satisfy its obligation to provide financial assurance for the Work To Be Performed under Section VIII herein by providing a third party who assumes full responsibility for said Work and otherwise satisfies the obligations of the financial assurance requirements of this Order; however, Respondent shall remain responsible for providing financial assurance in the event such third party fails to do so and any financial assurance from a third party shall be in one of the forms provided in subparagraphs 42.a (1) through (6) above.

g. If at any time EPA determines that a financial assurance mechanism provided pursuant to this Paragraph 42 is inadequate, EPA shall notify Respondent in writing. If at any time Respondent becomes aware of information indicating that any financial assurance mechanism(s) provided pursuant to this Paragraph 42 is inadequate, Respondent shall notify EPA in writing of such information within ten days of Respondent's becoming aware of such information. Within 90 days of receipt of notice of EPA's determination, or within 90 days of Respondent's becoming aware of such information, Respondent shall establish and maintain adequate financial assurance for the benefit of the EPA which satisfies all requirements set forth

in this Section. Every financial assurance document provided pursuant to this Order shall be submitted to EPA for review in draft form at least 45 days before they are due to be filed and shall be satisfactory in form and substance as determined by EPA.

h. Respondent's inability or failure to establish or maintain financial assurance for completion of the Work to be Performed under Section VIII of this Order shall in no way excuse performance of any other requirements of this Order.

i. Release of Financial Assurance. Respondent may submit a written request to the Director, Land, Chemicals and Redevelopment Division that EPA release Respondent from the requirement to maintain financial assurance under this Section XV upon receipt of written notice from EPA pursuant to Section XXII that, as set forth therein, the terms of this Order have been satisfactorily completed. If said request is granted, the Director, Land, Chemicals and Redevelopment Division shall notify both the Respondent and the provider(s) of the financial assurance that Respondent is released from all financial assurance obligations under this Order.

43. **Access to Financial Assurance**

a. In the event that EPA determines that Respondent (i) has ceased implementation of any portion of the Work, (ii) is significantly or repeatedly deficient or late in its performance of the Work, or (iii) is implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Performance Failure Notice") to both the Respondent and the financial assurance provider of Respondent's failure to perform. The notice issued by EPA will specify the grounds upon which such a notice was issued and will provide the Respondent with a period of ten days within which to remedy the circumstances giving rise to the issuance of such notice.

b. Failure by the Respondent to remedy its failure to perform to EPA's satisfaction before the expiration of the ten-day notice period specified in Paragraph 43.a, shall trigger EPA's right to have immediate access to and benefit of the financial assurance provided pursuant to Paragraphs 42.a(1) – (6). EPA may at any time thereafter direct the financial assurance provider to immediately (i) deposit into the standby trust fund, or a newly created trust fund approved by EPA, the remaining funds obligated under the financial assurance instrument (ii) or arrange for performance of the Work in accordance with this Order.

c. If EPA has determined that any of the circumstances described in clauses (i), (ii), or (iii) of Paragraph 43.a have occurred, and if EPA is nevertheless unable after reasonable efforts to secure the payment of funds or performance of the Work in accordance with this Order from the financial assurance provider pursuant to this Order, then, upon receiving written notice from EPA, Respondent shall within ten days thereafter deposit into the standby trust fund, or a newly created trust fund approved by EPA, in immediately available funds and without setoff, counterclaim, or condition of any kind, a cash amount equal to the estimated cost of the remaining Work to be performed in accordance with this Order as of such date, as determined by EPA.

d. If EPA is notified by the issuer of a financial assurance mechanism that it intends to cancel such mechanism, and Respondent fails to provide an alternative financial assurance mechanism in accordance with this Section at least 45 days prior to the cancellation date, the funds guaranteed under such mechanism must be paid prior to cancellation into the relevant standby trust fund or a newly created trust fund approved by EPA to facilitate performance of the Work in accordance with this Order**.**

e. Respondent may invoke the procedures set forth in Section XVII (Dispute Resolution) to dispute EPA's determination that any of the circumstances described in clauses (i), (ii), or (iii) of Paragraph 43.a has occurred. Invoking the dispute resolution provisions shall not excuse, toll, or suspend the obligation of the financial assurance provider under Paragraph 42.b of this Section to fund the trust fund or perform the Work. Furthermore, notwithstanding Respondent's invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion direct the trustee of such trust fund to make payments from the trust fund to any person that has performed the Work in accordance with this Order until the earlier of (i) the date that Respondent remedies, to EPA's satisfaction, the circumstances giving rise to EPA's issuance of the relevant Performance Failure Notice; or (ii) the date that a final decision is rendered in accordance with Section XVII (Dispute Resolution), that Respondent has not failed to perform the Work in accordance with this Order.

44. **Modification of Amount, Form, or Terms of Financial Assurance**

a. **Reduction of Amount of Financial Assurance**. If Respondent believes that the estimated cost to complete the remaining Work has diminished below the amount covered by the existing financial assurance provided under this Order, Respondent may, at the same time that Respondent submits the annual cost adjustment, pursuant to Paragraph 41.c, or at any other time agreed to by EPA, submit a written proposal to EPA to reduce the amount of the financial assurance provided under this Section so that the amount of the financial assurance is equal to the estimated cost of the remaining Work to be performed. The written proposal shall specify, at a minimum, the cost of the remaining Work to be performed and the basis upon which such cost was calculated. In seeking approval of a revised financial assurance amount, Respondent shall follow the procedures set forth in Paragraph 44.b(2) of this Section. If EPA decides to accept such a proposal, EPA shall notify Respondent of its decision in writing. After receiving EPA's written decision, Respondent may reduce the amount of the financial assurance only in accordance with and to the extent permitted by such written decision. In the event of a dispute, Respondent may reduce the amount of the financial assurance required hereunder only in accordance with the final EPA Dispute Decision resolving such dispute. No change to the form or terms of any financial assurance provided under this Section, other than a reduction in amount, is authorized except as provided in Paragraph 44.b below.

b. **Change of Form of Financial Assurance**

(1) If Respondent desires to change the form or terms of financial assurance, Respondent may, at the same time that Respondent submits the annual cost adjustment, pursuant to Paragraph 41.c of this Section, or at any other time agreed to by EPA, submit a written proposal to EPA to change the form of financial assurance. The submission of such proposed revised or alternative form

of financial assurance shall be as provided in Paragraph (2) below. The decision whether to approve a proposal submitted under this Paragraph 44 shall be made in EPA's sole and unreviewable discretion and such decision shall not be subject to challenge by Respondent pursuant to the dispute resolution provisions of this Order or in any other forum.

(2) A written proposal for a revised or alternative form of financial assurance shall specify, at a minimum, the cost of the remaining Work to be performed, the basis upon which such cost was calculated, and the proposed revised form of financial assurance, including all proposed instruments or other documents required in order to make the proposed financial assurance legally binding. The proposed revised or alternative form of financial assurance shall satisfy all requirements set forth or incorporated by reference in this Section. EPA shall notify Respondent in writing of its decision to accept or reject a revised or alternative form of financial assurance submitted pursuant to this Paragraph. Within ten days after receiving a written decision approving the proposed revised or alternative financial assurance, Respondent shall execute and/or otherwise finalize all instruments or other documents required in order to make the selected financial assurance legally binding in a form substantially identical to the documents submitted to EPA as part of the proposal and such financial assurance shall be fully effective. Respondent shall submit all executed and/or otherwise finalized instruments or other documents required in order to make the selected financial assurance legally binding to the EPA Regional Financial Assurance Administrator within 30 days of receiving a written decision approving the proposed revised or alternative financial assurance, with a copy to EPA's Project Coordinator and the State. EPA shall release, cancel, or terminate the prior existing financial assurance instruments only after Respondent has submitted all executed and/or otherwise finalized new financial assurance instruments or other required documents to EPA.

c. **Release of Financial Assurance**. Respondent may submit a written request to the Director, Land, Chemicals and Redevelopment Division that EPA release the Respondent from the requirement to maintain financial assurance under this Section at such time as EPA and Respondent have both executed an "Acknowledgment of Termination and Agreement to Record Preservation and Reservation of Right" pursuant to Paragraph 76 of this Order. The Region III Director of the Land, Chemicals and Redevelopment Division shall notify both the Respondent and the provider(s) of the financial assurance that Respondent is released from all financial assurance obligations under this Order. Respondent shall not release, cancel, or terminate any financial assurance provided pursuant to this Section except as provided in this Paragraph or Paragraph 44.b(2). In the event of a dispute, Respondent may release, cancel, or terminate the financial assurance required hereunder only in accordance with a final administrative or judicial decision resolving such dispute.

XVI. DELAY IN PERFORMANCE/STIPULATED PENALTIES

45. Respondent shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraph 46 for failure to comply with the requirements of this Order specified below, unless

excused under Section XVIII (Force Majeure and Excusable Delay). "Comply" as used in the previous sentence, includes compliance by Respondent with all applicable requirements of this Order, within the deadlines established under this Order. If (i) an initially submitted or resubmitted deliverable contains a material defect and the conditions are met for modifying the deliverable under Section XIV (Agency Approvals/Additional Work/Modifications); or (ii) a resubmitted deliverable contains a material defect; then the material defect constitutes a lack of compliance for purposes of this Paragraph.

46. **Stipulated Penalty Amounts**

a. For failure to commence, perform or complete Work as prescribed in this Order: $500 per day for one to seven days or part thereof of noncompliance, and $1,000 per day for each day of noncompliance, or part thereof, thereafter;

b. For failure to comply with the provisions of this Order after receipt of notice of noncompliance by EPA: $1,000 per day for one to seven days or part thereof of noncompliance, and $1,500 per day for each day of noncompliance, or part thereof, thereafter; in addition to any stipulated penalties imposed for the underlying noncompliance;

c. For failure to submit deliverables as required by this Order, or for failure to comply with this Order not described in subparagraphs a. and b. immediately above: $250 per day for one to seven days or part thereof of noncompliance, and $500 per day for each day of noncompliance, or part thereof, thereafter.

47. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. Penalties shall continue to accrue during any dispute resolution period, and shall be paid within 15 days after the agreement or the receipt of EPA's decision or order. However, stipulated penalties shall not accrue: (i) with respect to a deficient submission under Section XIV (Agency Approvals/Additional Work/Modifications), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Respondent of any deficiency, or (ii) with respect to a decision under Section XVII (Dispute Resolution), during the period, if any, beginning the 21st day after the Negotiation Period begins until the date that EPA issues a final decision regarding such dispute. Nothing in this Order shall prevent the simultaneous accrual of separate penalties for separate violations of this Order.

48. Following EPA's determination that Respondent has failed to comply with a requirement of this Order, EPA may give Respondent written notification of such noncompliance. EPA may send Respondent a written demand for payment of the penalties. However, penalties shall accrue as provided in Paragraph 47 regardless of whether EPA has notified Respondent of a violation.

49. All penalties accruing under this Section shall be due and payable to EPA within 30 days after Respondent's receipt from EPA of a demand for payment of the penalties, unless Respondent invokes the dispute resolution procedures under Section XVII (Dispute Resolution) within the 30-day period.

50. If Respondent fails to pay stipulated penalties when due, Respondent shall pay interest on the unpaid stipulated penalties as follows: interest shall begin to accrue on any unpaid stipulated penalty balance beginning on the 31st day after Respondent's receipt of EPA's demand. Interest shall accrue at the Current Value of Funds Rate established by the Secretary of the Treasury. Pursuant to 31 U.S.C. § 3717, an additional penalty of 6% per annum on any unpaid principal shall be assessed for any stipulated penalty payment which is overdue for 90 or more days. In addition, a handling fee of $15 per month shall be assessed beginning on the 31st day after Respondent's receipt of EPA's demand.

51. All payments to EPA under this Section shall indicate that the payment is for stipulated penalties and shall be paid to "Treasurer, United States" by Automated Clearinghouse ("ACH") to:

U.S. Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
PO Box 979077
St. Louis, MO 63197-9000

Payments shall include a reference to the name of the Facility, Respondent's name and address, email address and telephone number, the EPA docket number of this action, and the amount and method of payment. A copy of the transmittal request shall be sent simultaneously to EPA's Project Coordinator, the EPA Cincinnati Finance Office by email at cinwd_acctsreceivable@epa.gov, and the EPA Regional Hearing Clerk by email at R3_Hearing_Clerk@epa.gov.

52. The payment of penalties and interest, if any, shall not alter in any way Respondent's obligation to complete the performance of Work required under this Order.

53. Nothing in this Order shall be construed as prohibiting, altering or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this Order or of the statutes and regulations upon which it is based, including but not limited to 42 U.S.C. § 6928(h)(2); however, EPA shall not seek civil penalties pursuant to 42 U.S.C. § 6928(h)(2) for any violation for which a stipulated penalty is provided in this Order, except in the case of a willful violation of this Order.

54. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Order.

XVII. DISPUTE RESOLUTION

55. The dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes regarding this Order. The parties shall attempt to resolve any disagreements concerning this Order expeditiously and informally.

56. **Informal Dispute Resolution**. If Respondent objects to any EPA action taken pursuant to this Order, it shall notify EPA in writing of its objection(s) within 45 days after such

action. EPA and Respondent shall have 45 days from EPA's receipt of Respondent's written objection(s) to resolve the dispute through informal negotiations (the "Negotiation Period"). Upon request of Respondent, the Negotiation Period may be extended at the sole discretion of EPA. Any agreement reached by the Parties pursuant to this Section shall be in writing and shall, upon signature by the Parties, be incorporated into and become an enforceable part of this Order.

57. **Formal Dispute Resolution**. If the Parties are unable to reach an agreement within the Negotiation Period, Respondent shall, within 45 days after the end of the Negotiation Period, submit a statement of position to EPA's Project Coordinator. EPA may, within 45 days thereafter, submit a statement of position. Thereafter, an EPA management official at the Division Director level or higher will issue a written decision on the dispute to Respondent. EPA's decision shall be incorporated into and become an enforceable part of this Order. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs.

58. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone, or affect in any way any obligation of Respondent under this Order not directly in dispute, unless EPA provides otherwise in writing. Except as provided in Paragraph 47, stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of the Order. In the event that Respondent does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XVI (Delay in Performance/Stipulated Penalties).

XVIII. FORCE MAJEURE

59. "Force majeure," for purposes of this Order, is defined as any event arising from causes beyond the control of Respondent, of any entity controlled by Respondent, or of Respondent's contractors that delays or prevents the performance of any obligation under this Order despite Respondent's best efforts to fulfill the obligation. The requirement that Respondent exercise "best efforts to fulfill such obligation" includes using best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (a) as it is occurring and (b) following the potential force majeure such that the delay and any adverse effects of the delay are minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the Work.

60. If any event occurs or has occurred that may delay the performance of any obligation under this Order for which Respondent intends or may intend to assert a claim of force majeure, Respondent shall notify EPA's Project Coordinator orally or, in her or his absence, the Director of the Land, Chemicals and Redevelopment Division, EPA Region III, within seven days of when Respondent first knew that the event might cause a delay. Within seven days thereafter, Respondent shall provide in writing to EPA an explanation of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a

force majeure; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health or welfare, or the environment. Respondent shall include with any notice available documentation supporting its claim that the delay was attributable to a force majeure. Respondent shall be deemed to know of any circumstance of which Respondent, any entity controlled by Respondent, or Respondent's contractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude Respondent from asserting any claim of force majeure regarding that event, provided, however, that if EPA, despite the late or incomplete notice, is able to assess to its satisfaction whether the event is a force majeure under Paragraph 59 and whether Respondent has exercised its best efforts under Paragraph 59, EPA may, in its unreviewable discretion, excuse in writing Respondent's failure to submit timely notices under this Paragraph.

61. If EPA agrees that the delay or anticipated delay is attributable to a force majeure, EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure. An extension of the time for performance of the obligations affected by the force majeure shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure, EPA will notify Respondent in writing of its decision.

62. If Respondent elects to invoke the dispute resolution procedures set forth in Section XVII (Dispute Resolution) regarding EPA's decision, Respondent shall do so no later than 45 days after receipt of EPA's notice. In any such proceeding, Respondent shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Respondent complied with the requirements of Paragraph 60. If Respondent carries this burden, the delay at issue shall be deemed not to be a violation by Respondent of the affected obligation(s) of this Order identified to EPA.

63. The failure by EPA to timely complete any obligation under the Order is not a violation of the Order, provided, however, that if such failure prevents Respondent from meeting one or more deadlines, Respondent may seek relief under this Section.

XIX. RESERVATION OF RIGHTS

64. Notwithstanding any other provisions of this Order, EPA retains all of its authority to take, direct, or order any and all actions necessary to protect public health or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste or constituents of such wastes, on, at, or from the Facility, including but not limited to the right to bring enforcement actions under RCRA, CERCLA, and any other applicable statutes or regulations.

65. EPA reserves all of its statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable, that may pertain to Respondent's failure to comply with any of the requirements of this Order, including without limitation the assessment of penalties under Section 3008(h)(2) of RCRA, 42 U.S.C. § 6928(h)(2).

66. This Order shall not be construed as a covenant not to sue, release, waiver, or limitation of any rights, remedies, powers, claims, and/or authorities, civil or criminal, which EPA has under RCRA, CERCLA, or any other statutory, regulatory, or common law authority of the United States.

67. This Order is not intended to be nor shall it be construed to be a permit. Respondent acknowledges and agrees that EPA's approval of the Work and/or workplan does not constitute a warranty or representation that the Work and/or workplans will achieve the corrective measures completion criteria. Compliance by Respondent with the terms of this Order shall not relieve Respondent of its obligations to comply with RCRA or any other applicable local, state, or federal laws and regulations.

68. Respondent agrees not to contest this Order or any action or decision by EPA pursuant to this Order, including without limitation, decisions of the Regional Administrator, the Director, Land, Chemicals and Redevelopment Division, or any authorized representative of EPA prior to EPA's initiation of a judicial action to enforce this Order, including an action for penalties or an action to compel Respondent's compliance with the terms and conditions of this Order. In any action brought by EPA for violation of this Order, Respondent shall bear the burden of proving that EPA's actions were arbitrary and capricious and not in accordance with law.

XX. OTHER CLAIMS

69. By issuance of this Order, EPA assumes no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. EPA will not be deemed a party to any contract, agreement or other arrangement entered into by Respondent or its officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, contractors, or consultants in carrying out actions pursuant to this Order.

70. Respondent waives all claims against the United States relating to or arising out of this Order, including, but not limited to, contribution and counterclaims.

71. Each Party will bear its own litigation costs.

72. In any subsequent administrative or judicial proceeding initiated by EPA for injunctive or other appropriate relief relating to the Facility, Respondent shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been raised in the present matter.

XXI. INDEMNIFICATION

73. Respondent shall indemnify, save, and hold harmless the United States, its officials, agents, contractors, subcontractors, employees, and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on Respondent's behalf or under their control, in carrying out actions

pursuant to this Order. In addition, Respondent agrees to pay the United States all costs incurred by the United States, including but not limited to attorneys' fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Order. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Order. Neither Respondent nor any such contractor shall be considered an agent of the United States.

74. The United States shall give Respondent notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondent prior to settling such claim.

75. Respondent agrees not to assert any claims or causes of action against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Facility, including, but not limited to, claims on account of construction delays. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Facility, including, but not limited to, claims on account of construction delays.

XXII. TERMINATION

76. This Order shall be deemed satisfied upon Respondent's and EPA's execution of an "Acknowledgment of Termination and Agreement to Record Preservation and Reservation of Rights" ("Acknowledgment of Termination"). EPA will prepare the Acknowledgment of Termination for Respondent's signature. The Acknowledgment of Termination will specify that Respondent has demonstrated to the satisfaction of EPA that the terms of this Order, including any additional tasks determined by EPA to be required pursuant to this Order, have been satisfactorily completed. Respondent's execution of the Acknowledgement of Termination will affirm Respondent's continuing obligation to preserve all records as required in Section XII (Record Retention), to maintain any necessary Property Requirements as required in Section X, to recognize EPA's Reservation of Rights as required in Section XIX, and to comply with Section XX (Other Claims) and Section XXI (Indemnification).

XXIII. INTEGRATION/APPENDICES

77. This Order and its Appendices constitute(s) the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Order. The Parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Order. The following Appendices are incorporated into this Order: Appendix A (Facility Map), Appendix B (FDRTC), Appendix C (1993 UAO).

IT IS SO AGREED AND ORDERED:

U.S. ENVIRONMENTAL PROTECTION AGENCY:

DANA AUNKST

Digitally signed by DANA AUNKST
Date: 2022.03.31 08:10:43 -04'00'

(Digital Signature and Date)
Dana Aunkst
Director
Land, Chemicals and Redevelopment Division
Region III

Signature Page for Administrative Order on Consent regarding the Former Pennzoil-Quaker State Company Facility, EPA Docket No. RCRA-03-2022-0061CA

3-8-22
Dated

BY: _____

Name: Wm E Platt
Title: Sr. Mgr.
RESPONDENT
Pennzoil-Quaker State Company

APPENDIX A


Shell Lubricants
(Formerly Pennzoil-Quaker State)
Newell, WV
EPA ID: WVD057634776
TI ZONE 1
TI ZONE 2
ENTIRE FACILITY
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W
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500
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Feet
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX B

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

FINAL DECISION and RESPONSE TO COMMENTS

Former Quaker State/Ergon Refinery Facility
Newell, West Virginia

EPA ID: WVD 057 634 776

I. FINAL DECISION

The United States Environmental Protection Agency (EPA) has selected the Final Remedy for RCRA Corrective Action for the Former Quaker State/Ergon Refinery (Facility), located near the town of Newell, West Virginia.

EPA's Final Remedy consists of:

(1) Establishment of technical impracticability zones at the two areas depicted in Figure 4 of the Statement of Basis (SB), with long-term groundwater monitoring; and (2) land and groundwater use restrictions on the Facility.

This Final Remedy is based on EPA's findings as detailed in the SB, dated January 2020, included as Attachment 1.

II. PUBLIC COMMENT PERIOD

EPA issued a notice soliciting public comment on its proposed remedy for this Facility in the *Weirton Daily News*, a local newspaper. The notice provided the website where the SB could be accessed. The 30-day public comment period opened February 6, 2020 and ended March 7, 2020.

III. RESPONSE TO COMMENTS

EPA received no comments on the proposed remedy. Therefore, the Final Remedy is unchanged from the remedy proposed in the SB. The SB is attached to this Final Decision and Response to Comments (FDRTC) as Attachment 1 and is incorporated herein.

IV. AUTHORITY

EPA is issuing this FDRTC under the authority of the Solid Waste Disposal Act, as amended by RCRA, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901 to 6992k.

V. DECLARATION

EPA has determined that the Final Remedy selected in this FDRTC is protective of human health and the environment. EPA's determination is based on the Administrative Record of Corrective Actions taken at the Former Quaker State/Ergon Refinery Facility near the town of Newell, West Virginia.

Date: 3.12.20

John A. Armstead, Director
Land, Chemicals and Redevelopment Division
U.S. Environmental Protection Agency, Region III

Attachment 1: Statement of Basis (January 2020)

ATTACHMENT 1

UNITED STATES

ENVIRONMENTAL PROTECTION AGENCY

REGION III

STATEMENT OF BASIS

Former Quaker State/Ergon Refinery Facility

Newell, West Virginia

EPA ID: WVD057634776

Prepared by

RCRA Corrective Action Branch 1
Land, Chemicals and Redevelopment Branch

January 2020

Table of Contents

I. Introduction

The United States Environmental Protection Agency (EPA) prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the facility now known as Ergon West Virginia, Inc., Newell Refinery (Ergon) (Facility), located near the town of Newell, West Virginia. The Facility was previously built, owned and operated by Quaker State Corporation (Quaker State) and was named Congo Refinery. Ergon West Virginia Inc. (EWVI) currently owns and operates the Facility as an active refinery.

EPA's proposed remedy for this Facility includes: (1) establishing Technical Impracticability (TI) Zones for two areas of contaminated groundwater; (2) long-term monitoring of groundwater to document plume stability and natural attenuation of contaminated groundwater; and (3) implementing use controls that will limit land and groundwater use.

The Facility is subject to EPA's Corrective Action (CA) Program under the Solid Waste Disposal Act, as amended, commonly referred to as the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 et seq. The CA Program requires that owners/operators of facilities subject to certain provisions of RCRA investigate and address releases of hazardous waste and hazardous constituents that have occurred on or from their properties. Although West Virginia is authorized for implementation of the CA Program under Section 3006 of RCRA, EPA is the lead for this Facility under the Unilateral Administrative Order issued to Quaker State in February 1994 (1994 UAO).

This SB summarizes the information submitted to EPA in work plans and reports by Pennzoil/Quaker State and Shell Oil Products US (SOPUS Products) pursuant to the 1994 UAO. This SB presents EPA's basis or rationale for selecting the proposed remedy and includes the Administrative Record (AR) for the Facility, which is composed of all documents, including data and quality assurance information that EPA relied on in proposing the final remedy. Public participation information is provided in Section IX of this SB for those interested in reviewing the AR. Information on the Corrective Action Program as well as a fact sheet for the Facility can be found at https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-shell-lubricants-formerly-penzoil-quaker-state.

EPA is providing a thirty (30)-day public comment period on this SB. EPA may modify its proposed remedy based on comments received during this period. EPA will announce its selection of a Final Remedy for the Facility in a Final Decision and Response to Comments (FDRTC) after the public comment period has ended.

II. Facility Background

A. Site History

The Facility was previously owned by Quaker State and was called the Congo Refinery. EPA issued a Unilateral Administrative Order to Quaker State, Congo Plant under RCRA Section 3008(h) in February 1994. In July 1997, EWVI purchased the Facility from Quaker State and operates it at this time. In 1999 Pennzoil and Quaker State merged, forming Pennzoil-Quaker State Company (PQS). In 2002, SOPUS Products acquired PQS and began doing business as SOPUS Products in 2003. SOPUS Products continues to implement the requirements of the 1994 UAO.

The Facility is comprised of 70 acres, located on the southern bank of the Ohio River, near the town of Newell in Hancock County, WV (Figure 1). The Refinery was constructed on the Facility between 1970 to 1972 and refining began in April 1972. The Facility's primary functions are crude oil refining and storage and distribution of petroleum products. Processes include:

- Storage of crude oil and petroleum products in above ground tanks;
- Crude oil desalting and then distillation to create multiple fractionations or products;
- Reformulation of gasoline from low-octane into high-octane gasoline;
- Extraction of propane from vacuum tower bottoms;
- Hydrotreating of lube oil stocks;
- Wax removal from lube oil stocks; and
- Blending additives with gasoline to meet quality specifications.

Raw materials include crude oil and additives for lube oil and gasoline. Crude oil is delivered to the Facility in bulk by Ohio River barges. A small amount of crude is delivered by truck and additives are delivered by truck or rail. The eastern portion of the Facility is leased and operated by SOPUS Products, which blends, packages and ships lubricating oil and other products.

Facility buildings include buildings for petroleum product processing and storage, administration/staff and a laboratory and machine shop. There are many aboveground storage tanks for product storage. A large building on the SOPUS Products leased property is used for administration, packaging, blending and storage of oil products.

The Facility is bordered by the Ohio River to the north/northwest and State Route 2 and railroad tracks to the south. Industrial properties are on the eastern border, along State Route 2, and include SH Bell Company and DE Minerals Processing, Inc. Two residences are located approximately 200 feet from the Facility's eastern boundary.

B. Physiographic Setting

The Facility is located in the unconsolidated alluvial sediments of the Ohio River bottom lands. The surficial portion of these deposits are referred to as glacial outwash. The glacial outwash deposits overlie sedimentary bedrock, which occurs at depths ranging from less than 35 ft to at least 75 ft below ground surface. Bedrock consists of massive sandstones, siltstones and shale. The overlying outwash deposits provide the matrix for the most prolific aquifer in the Ohio River Valley called the outwash aquifer. Under natural conditions the outwash aquifer is recharged by precipitation and groundwater that discharges from the upgradient bedrock systems. Under pumping conditions, substantial amounts of water are drawn into the glacial outwash aquifer from the Ohio River. This aquifer is highly permeable and is capable of sustaining substantial ongoing groundwater withdrawal.

Elevation across the Facility averages approximately 681 to 682 feet (ft) above mean sea level (amsl) and is essentially flat. South of the Facility is the Ohio River Valley wall, a steep rock cliff with an elevation of approximately 300 ft above the Facility (980 ft amsl).

The Facility's shallow unconsolidated aquifer is approximately 8 to 26 ft below ground surface (fbgs). Facility groundwater is shallowest at the southern corner and deepest at its

northern corner. The aquifer is recharged by precipitation, upward flow from underlying bedrock and inflow from the Ohio River. The Ohio River is dammed approximately 5 miles downstream from the Facility to maintain a water elevation high enough to support commercial barge traffic. River water is commonly at a slightly higher elevation than the Facility's shallow aquifer. This means that the shallow aquifer is substantially recharged from River inflow also when the Facility's high-volume groundwater pumping wells induced inflow from the River.

The water table is flat throughout most of the Facility, with an average horizontal gradient of 0.0003 feet per foot according to 2019 groundwater monitoring data. Generally, groundwater flows from the central part of the Facility to the west. High volume groundwater production wells in the Facility's northern corner create a northern gradient in this area. In the north central part of the Facility, groundwater movement is commonly from the River towards the Facility, based on river water elevation compared to groundwater elevations. These conditions indicate inflow of River water, which creates a hydraulic boundary that prevents Facility groundwater from discharging to the River. The groundwater gradient is reversed in this area when River levels are occasionally lower than water table levels.

There are five on-site groundwater production wells (NW-1 to NW-5) that produce water for non-potable industrial uses. The wells extract groundwater from the lower part of the unconsolidated aquifer from 50 to 70 fbgs depths (approximate). Figures 2 and 3 show the production well locations. NW-3, -4 and -5 are the most commonly used production wells. The production wells yield 300 to over 400 gallons per minute (gpm). Short-term yield tests indicate specific capacity values between 28 and 56 gpm per foot of drawdown. Pumping rates range from 100 to 350 gpm. During pumping, a horizontal cone of depression has an interpreted radius of approximately 100 to 150 feet around wells NW-3 and NW-4 in the northeast corner of the Refinery. In the northwestern corner, a cone of depression with an interpreted horizontal radius of approximately 150 feet is created by NW-5, and a cone of depression with an interpreted horizontal radius of less than 100 feet is created around well NW-1.

C. Environmental History and Assessment Overview

In 1987, EPA performed a Site Inspection. In 1988, a Visual Site Inspection of the Refinery was performed by Versar, Inc. who prepared a RCRA Facility Assessment (RFA) Report for EPA. The RFA identified 19 Solid Waste Management Units (SWMUs) and four potential Areas of Concern (AOCs).

Although SWMUs and AOC were identified in the RFA Report, not all units were recommended for further investigation. Nine SWMUs were recommended for No Further Action (NFA). Based on the RFA Report, SOPUS Products submitted NFA requests to EPA for SWMUs 2, 3, 5 and 13-18. EPA approved the NFA requests because there was no evidence of releases. Two AOCs did not require sampling or were regulated under another program. The remaining 10 SWMUs and 2 AOCs were investigated as part of the RCRA Facility Investigation (RFI). Soil and groundwater were sampled for site related contaminants for the RFI. In addition, in 2000, PQS began performing interim remedial measures and groundwater monitoring which provided data for further evaluation of site-wide groundwater including areas of floating free-phase hydrocarbons in groundwater, called separate phase liquid (SPL).

In June 2009, SOPUS Products submitted a draft RFI Report to EPA. EPA approved the RFI Report in May 2019. The 2009 RFI Report identified low level petroleum volatile organic

compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) in soils in some Facility areas. The VOCs and PAHs found are constituents consistently associated with crude oil and refining processes. The RFI Report included a human health risk assessment (HHRA) to determine whether VOCs and PAHs identified in soil at SWMUs and AOCs warranted further investigation or action. The HHRA also assessed site-wide groundwater conditions including groundwater beneath SWMUs and AOCs and vapor intrusion (VI) data.

III. Summary of Environmental Investigations and Interim Measures

A. Soil

Table 1, below, lists the 10 SWMUs and 2 AOCs recommended for investigation. Soil results were screened using EPA Regional Screening Levels (RSLs) for industrial settings. Constituents that exceeded EPA's screening levels for industrial soil are identified as contaminants of potential concern (COPCs). The areas with COPCs are then evaluated in the HHRA (see Section III.D).

Table 1. Soil Screening Results

SWMU/AOC	COPCs
SWMU 1: Plant Boilers	benzo(a)pyrene, iron, manganese
SWMU 4: Satellite Storage Area	Iron (Fe), manganese (Mn)
SWMU 6: Old Heat Exchanger Cleaning Pads	1 of 34 samples exceeded the Mn screening level.
SWMU 7: Tank Bottoms Disposal Areas 4 & 6	Fe, Mn
SWMU 8: New Heat Exchanger Cleaning Pad & Drum Cleaning Area	PAHs, Fe, Mn
SWMU 9: Old Drum Storage Area	Fe, Mn, mercury
SWMUs 10,11,12: Wastewater Treatment Area	PAHs, Fe, Mn, chromium
SWMU 19: Oily Wastewater Sewer System Treatment Area	PAHs, Fe, Mn, lead
AOC 1: Tank Areas 1, 2, 5, 7, 7A	No exceedances
AOC 1: Tank Area 3	PAHs in shallow soil only
AOC 1: Tank Areas 4 & 6	BTEX, naphthalene
AOC 1: Tank Area 8 & Lube Blending Area	Fe, Mn
AOC 2: Process Pipeways & MEK Area	Process Pipeways: PAHs; MEK Area: toluene, Mn

Some metals were found in soil at levels greater than EPA's industrial screening levels at various locations at the Facility and include: arsenic, chromium, lead, iron, and manganese. However, arsenic, iron, and manganese were found in Facility soils at levels that indicate natural conditions or background, although exceeding screening levels. Arsenic was detected in every soil sample, where analyzed, at levels exceeding the screening value. The arsenic levels reflect natural site-wide soil conditions because of its ubiquity in shallow and deeper soil. Also, arsenic is not currently used, or historically used in the Facility refining processes. EPA concluded that arsenic is not a site-related COC in soil.

B. Groundwater

Groundwater sampling was conducted in multiple phases during the RFI because COCs detected during initial sampling required more investigation to define the plumes. Groundwater sample results were screened using federal maximum contaminant levels (MCLs) promulgated pursuant to 42 U.S.C. § 300f et seq. of the Safe Drinking Water Act and codified at 40 CFR Part 141 or were screened using EPA RSLs for constituents with no MCL.

Site-wide groundwater COCs are benzene, toluene, ethylbenzene, and xylene (BTEX), methyl tertiary-butyl ether (MTBE) and methyl-ethyl ketone (MEK or 2-butanone). During the RFI, benzene levels exceeding the MCL of 5 micrograms per liter (ug/l) were detected in two areas in the northern half of the Facility. MTBE was the next most prevalent COC, with RSL exceedances in five wells located in two discrete areas north of the MEK dewaxing area.

Arsenic was the most common groundwater metal detected above the MCL. Dissolved arsenic levels were historically found at 0.75 µg/l to 235 µg/l. Arsenic is naturally occurring in Facility soils and groundwater; however, in specific areas its presence at elevated levels is likely caused by reduced oxygen (anaerobic) groundwater conditions. Anaerobic conditions are created when naturally-occurring anaerobic bacteria biochemically degrade petroleum hydrocarbons in groundwater. Elevated dissolved arsenic levels are localized to the anaerobic footprints induced by the bacterial degradation of petroleum COCs.

Dissolved COCs were correlated to historical release locations and to areas where COCs migrated from release locations. Significantly, since the groundwater gradient beneath the majority of the Facility is flat, movement of dissolved COCs has been minimal and remains contained within Facility boundaries. To investigate whether COCs were discharging to the Ohio River or surrounding properties, monitoring wells were installed along the Facility's 2,400-ft boundary along the Ohio River and along the Facility's southwestern and northeastern boundaries. Sampling showed that COCs in groundwater were only found in the central part of the Facility with no evidence of off-site migration. Sampling data also show that current areas of dissolved phase constituents are significantly smaller than when monitored from 2004 to 2006 during the RFI.

Groundwater monitoring reports (2015-2019) show that COCs levels have been declining in the 22 monitoring wells used to characterize the dissolved contaminant plumes. According to 2019 data (summarized in Table 2), VOC exceedances are currently found at MW-38R (toluene and MEK). Dissolved arsenic, which is not a COC, exceeds the MCL in eight of the 22 monitoring wells. Figures 2 and 3 show SPL areas in 2013 and 2019, respectively. There are three main areas of SPL and seven small SPL areas limited to one well, where isolated SPL occurrences have been observed. The presence and thickness of SPL in most wells in the main areas and at other locations have been either generally stable or declining during the past several years.

Table 2. Summary of COC Detections in Groundwater Samples (2019)				
Analyte	**Detections**	**Detection Range** (ug/l)	**MCL/RSL** (ug/l)	**Number of Exceedances & MW ID**
Benzene	0 of 22	None	5 MCL	None
Toluene	3 of 22	28 – 90,000	1,000 MCL	1: MW-38R
Ethylbenzene	0 of 22	None	700 MCL	None
Total Xylenes	0 of 22	None	10,000 MCL	None
MEK	1 of 4	28,600	560 RSL	1: MW-38R
MTBE	0 of 22	None	14 RSL	None
Arsenic, dissolved	15 of 22	1.93 – 57.4	10 MCL	8: MWs-29, 38R, -42, -43, SCAV-13, -16, -17, -20

The groundwater plumes with COC exceeding MCLs/RSLs are located far from the Facility's groundwater production wells (NW-1 to NW-5) (Figures 2 and 3). Groundwater plumes with VOC exceedances are located 1,000 ft away from production wells and groundwater plumes with arsenic exceedances are 600 ft away from production wells. The main pumping wells are NW-3, -4 and -5, and COCs were not found in samples collected from several monitoring wells in the vicinity of these production wells, indicating that COCs are not being drawn to the NW wells.

Natural attenuation parameters (pH, redox, dissolved oxygen, total and dissolved iron, sulfate, nitrate/nitrite, alkalinity) were collected from monitoring wells during 2015 to 2019 monitoring events. The data was evaluated for indications of biochemical degradation of COCs in the dissolved plumes. This evaluation of COC concentration trends over time provides evidence that COC plumes are shrinking through biochemical degradation.

In summary, data show that dissolved COCs in groundwater are not migrating off-site, nor discharging to the Ohio River, based on the RFI and recent data collected from newer monitoring wells installed near the Facility property boundaries. Groundwater plumes of dissolved COCs are located in the center of the Facility, are stationary and are shrinking through biochemical degradation. Also, groundwater production wells (located adjacent the Ohio River) are not drawing COCs toward them.

C. Interim Remedial Measures for Groundwater

An interim remedial measure (IM) was implemented to address an ongoing source of groundwater contamination at the Facility, i.e., floating hydrocarbons or separate-phase liquid (SPL). SPL at the Facility is mostly heavy petroleum, such as lube oil and weathered fuel oil, except at AOC-2 (MEK dewaxing area), where SPL is mainly MEK and toluene.

SPL was recovered from groundwater from 1994 to 2012 by pumping, using scavenger wells equipped with total fluid pumps and sorbent socks. SPL recovery began in 1994 in areas of known historical releases. The goal for removing floating hydrocarbon from the shallow aquifer was to reduce or eliminate potential hydrocarbon loading to groundwater and potential plume spread. Recovered SPL and groundwater were discharged to the on-site wastewater treatment plant via the oily water sewer system. Recovered fluids were treated prior to surface water discharge under Ergon's NPDES permit. Thirty-one scavenger wells were installed, and as SPL

recovery was completed, were taken offline. By 2012, only two scavenger wells were in continuous operation. Residual SPL not recoverable by pumping was removed by placing sorbent socks into 12 monitoring and scavenger wells.

The IM was successful in removing recoverable free phase SPL and dissolved-phase concentrations in many of the impacted areas and stabilized areas where minor unrecoverable SPL remained. By 2012, SPL recovery had reached the limit of its effective capability. In July 2012, SPL recovery was discontinued for a period of one year, with EPA approval. At the end of the one-year shutdown, SPL footprint and thickness data were compared to historical SPL data. Results of the shutdown were presented in the Fourth Quarter 2013 Groundwater Monitoring Report. The data showed that SPL thicknesses had decreased, or, where thicknesses were fluctuating, no lateral expansion of the SPL areas were observed. The data indicated that continued recovery efforts could not diminish SPL levels any further. SPL recovery was terminated, with EPA's approval, with continued SPL thickness monitoring.

By 2015, two years after terminating SPL recovery, SPL thickness had increased. To address this increased thickness, SPL removal by manual bailing began. Bailing is currently done during annual groundwater monitoring events. Wells with SPL thickness greater than 0.1 ft. are bailed. The bailing continues until no measurable SPL remains in the well. SPL recovery by bailing only removes a minimal amount. Manual SPL recovery appears to have minimal effect in reducing remaining residual SPL mass in the subsurface. Figure 3 shows current SPL areas.

D. Vapor Intrusion (VI) Investigation

SOPUS Products conducted an evaluation of forty-six Facility buildings potentially impacted by VI. VI is a process by which vapors from VOC COCs move from subsurface soil and groundwater to indoor air. From the building evaluation, SOPUS Products identified four buildings to target for VI investigation. Additionally, 12 exterior or outdoor locations were selected for soil gas sampling near or over top known SPL/dissolved plume areas and at possible future building sites. In October 2015, interior building sub-slab Vapor Pins™ and exterior soil gas sampling points were installed. In November, sub-slab samples were collected from three buildings, with two soil gas samples collected outside a fourth building because of floor slab drilling concerns. For exterior samples, a soil gas sample was collected from 5 to 6 fbgs at each of the 12 outdoor locations.

The sub-slab and soil gas samples were analyzed for BTEX, MTBE, MEK, naphthalene and atmospheric gases (AGs) (oxygen, nitrogen, methane, carbon dioxide). AGs are indicators of natural attenuation potentials of VOC COPCs. Sample results showed that only benzene exceeded EPA's vapor intrusion screening levels (VISL) for residential or industrial exposures. Benzene exceeded the industrial VISL at one exterior soil gas sample/location (at the building where floor slab drilling was a concern) and exceeded the residential VISL in one sub-slab sample location and five exterior soil gas sample locations. These sampling results indicate that VI does not pose an unacceptable risk to workers or future workers in the sampled locations.

E. Human Health Risk Assessment (HHRA)

The HHRA is an evaluation of current and future human exposure risk to Facility-related COPC in soil, groundwater, and indoor air. A Draft Human Health and Ecological Risk Assessment Report was submitted to EPA in June 2009. EPA approved the ecological portion on February 25, 2015. SOPUS Products submitted a Revised HHRA in August 2016 to address EPA

comments on the HHRA. A Final Revised HHRA was submitted August 17, 2017, which EPA approved on March 27, 2018.

To determine soil COPCs, soil sample results are compared to EPA RSLs for industrial soil. To determine COPCs in groundwater, data were compared to MCLs and EPA tap water RSLs. Facility soil impacted by COCs are localized and associated with individual SWMUs and AOCs. For screening vapor intrusion data, EPA's VISLs for commercial/industrial exposure scenarios were used (i.e., target cancer risk of $1x10^{-6}$ and a non-cancer hazard quotient of 0.1 using an average West Virginia groundwater temperature of 12.5 degrees Celsius).

The EPA-approved HHRA concluded that there is negligible potential for adverse effects to current workers exposed to soil or groundwater from the eight exposure areas. There is also negligible potential for adverse effects to workers from indoor air in current Facility buildings and future indoor workers potentially exposed to indoor air constituents in buildings hypothetically located at the exterior soil gas sampling locations. Only theoretical potable use of groundwater by hypothetical future adult and child residents yielded an unacceptable potential risk. Potential risk from consumption of off-site groundwater does not pose a risk because dissolved COCs in groundwater have not migrated off-site and are not expected to in the future.

F. Ecological Survey and Risk Assessment (ERA)

SOPUS Products conducted an ERA that included a site visit to inventory plant and wildlife habitat at the Facility and in its vicinity. The ERA evaluated data collected from the site inventory and from the local listings of threatened and endangered species and sensitive ecological receptor areas. The ERA concluded that Facility operations preclude wildlife activity due to limited habitat. The Facility is an active industrial facility with tall chain link fencing with three strand barbed wire that inhibits wildlife access to the site. Terrestrial wildlife is unlikely to use the Facility for primary nesting or foraging habitat. There are isolated wet areas on-site but are not conducive to aquatic wildlife nesting. There are no known endangered or threatened species on-site or in the vicinity and a small off-site wetland appeared unaffected by Facility operations. The ERA concluded that there is negligible potential for adverse effects to ecological receptors of concern, exceptional value wetlands or other sensitive habitats present on or in the vicinity of the Facility.

IV. Corrective Action Objectives

The results of the HHRA show that COCs in groundwater, surface water, soil, and sediment do not pose unacceptable risk to human health or the environment under current and presumed future industrial land-use scenarios. The HHRA determined exposure to site soil did not cause unacceptable risk to current and future site workers and ecological receptors. EPA considers unacceptable risk as greater than one excess cancer incidence in 10,000 people ($1x10^{-4}$) and an excess non-cancer health effect (hazardous index) greater than 1. A residential scenario was not evaluated because of the Facility's intended long-term industrial use. EPA has identified the following Corrective Action Objectives (CAOs) for soils and groundwater at the Facility:

1. Soils

EPA's CAO for soil is to prevent human exposure to contaminant concentrations above the

EPA allowable risk range of $1x10^{-4}$ to $1x10^{-6}$ and non-cancer HI of greater than 1 for an industrial exposure scenario.

2. Groundwater

EPA expects final remedies to return usable groundwater to its maximum beneficial use within a reasonable timeframe, given the particular circumstances of the site. For sites where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA uses drinking water standards, or MCLs, as the standards for determining when cleanup has been achieved.

A Technical impracticability (TI) determination for contaminated groundwater refers to situations where achieving groundwater cleanup standards is not practicable from an engineering perspective. The term 'engineering perspective' refers to factors such as feasibility, reliability, scale or magnitude of a project, and safety of achieving cleanup standards. At this Facility, EPA has determined that restoration of groundwater to MCLs is technically impracticable in a reasonable time frame at the two TI areas depicted on Figure 4 because of unrecoverable SPL, also known as free floating hydrocarbons, which makes treatment of certain dissolved-phase COCs not practicable from an engineering perspective.

The two proposed TI Zones include the monitoring wells with dissolved-phase COC concentrations greater than their MCLs/RSLs and observed residual SPL, based on the last ten years of groundwater monitoring. The TI boundaries encompass an area at least 100 ft from wells with dissolved-phase COCs exceeding MCLs and wells with measurable SPL. The proposed TI Zones for the Facility extend to the bottom of the uppermost groundwater zone, approximately 605 ft amsl or approximately 70 fbgs, which will fully encompass known impacted groundwater and SPL (Figure 4).

SPL recovery by pumping was effective in removing floating hydrocarbons, but is no longer effective in removing residual SPL, which continues to be a source of localized groundwater MCL and RSL exceedances. There are no other practicable, available treatment technologies for the remaining SPL recovery, and the presence of residual SPL makes treatment of the dissolved-phase COCs exceeding MCLs and RSLs impracticable. Consequently, TI Zones are appropriate for the areas depicted in Figure 4.

Some natural attenuation is occurring in groundwater at the Facility. Results from annual groundwater monitoring confirm that dissolved-phase COCs, including arsenic, benzene, toluene and MEK are anaerobically degrading. COCs are not impacting the Ohio River. Dissolved arsenic levels will decrease as the dissolved VOC COC levels decrease. However, these processes are not sufficient to meet groundwater standards for unrestricted use in a reasonable timeframe, in part because of SPLs. Therefore, EPA is not selecting a monitored natural attenuation remedy for this Facility, even though natural attenuation is occurring.

Therefore, EPA's CAOs for Facility-wide groundwater are to:

1) Control exposure to COCs remaining in groundwater via engineering controls and land and groundwater use restrictions;

2) Ensure that groundwater containing elevated concentrations of COCs will not cause unacceptable risk to receptors (ecological or human);

3) Ensure that the groundwater plumes are contained and will not migrate beyond their current extent; and

4) Ensure that no groundwater discharge concentrations would result in surface water concentrations exceeding WVDEP surface water criteria.

V. Proposed Remedy

The proposed remedy for the Facility consists of:

1) Establishment of TI Zones at the two areas depicted on Figure 4, with long-term groundwater monitoring; and

2) Land and groundwater use restrictions.

A. Establishment of a TI Zone with Long-Term Groundwater Monitoring

EPA is proposing that long-term groundwater monitoring, along with the establishment of a TI Zone is the remedy that meets EPA's remedy selection criteria. In addition to the factors discussed in this SB, the proposed remedy is considered protective of human health and the environment because access to source areas is controlled; other groundwater remedies, i.e. groundwater extraction, are impractical; and removal of residual SPL has been completed to the extent possible. On-going natural attenuation of COCs in groundwater is expected to continue in source areas and thereby reduce plume areas. There are no exposures to contaminated groundwater nor discharges to the Ohio River. The plumes are demonstrably shrinking and pose no future risk to the River.

The TI Zones are depicted on Figure 4. SOPUS Products will be required to submit a report to EPA that: (1) documents groundwater plume stability and/or reduction and (2) confirms that groundwater from wells along the Ohio River do not exceed concentrations established in a Corrective Measures Implementation (CMI) Plan that would cause unacceptable risk to human health or the environment. Historical groundwater reports have shown that the COCs levels in groundwater are diminishing, to some extent, by natural attenuation processes and the extent of groundwater contamination is decreasing.

B. Facility Land and Groundwater Use Restrictions

Because COCs remain in Facility groundwater at levels above drinking water standards in areas associated with SPL and potentially in the soils above levels appropriate for residential use, EPA's proposed remedy requires land and groundwater use restrictions for activities that may result in exposure to those contaminants. EPA is proposing the following land and groundwater use restrictions be implemented at the Facility:

1) The Facility property shall only be used for non-residential purposes. Non-residential uses include commercial, industrial, manufacturing or any other activity to further development, manufacturing or distribution of goods and services; intermediate and final business activities; research and development; warehousing, shipping, transport, remanufacturing; raw material storage; commercial machinery/equipment storage; repair and maintenance and solid waste management. Non-residential uses do not

include schools, day care centers, nursing homes or other residential-style facilities or recreational areas;

2) Controlled access (security gates) and fencing must be used and maintained to restrict Facility-wide access from trespassers; and

3) Facility groundwater shall not be used for any purpose other than industrial purposes and the maintenance and monitoring activities required by EPA, unless prior written approval is obtained from West Virginia Department of Environmental Protection (WVDEP) and EPA.

EPA proposes that the land and groundwater use restrictions listed above are necessary to prevent human exposure to remaining Facility contaminants. EPA proposes that the use restrictions and other remedy obligations be implemented through an Order and/or an Environmental Covenant pursuant to the West Virginia Environmental Covenant Act (W.Va. Code § 22-22.B-1 et seq.).

C. Corrective Measures Implementation (CMI) Plan

SOPUS Products will be required to submit a CMI Plan for Final Remedy implementation to EPA for approval. The EPA approved CMI Plan will be incorporated into and become enforceable under the Order and or Environmental Covenant. The CMI Plan shall include, at a minimum:

1) A Site-wide Groundwater Monitoring Plan;

2) An Institutional Controls (ICs) Implementation Plan: The ICs Implementation Plan will establish the schedule and document the methods to be used to record, implement and monitor compliance with on-site land and groundwater use restrictions, and ensure they remain in effect and run with the land as appropriate; and

3) A cost estimate for the final remedy, as described in Section VI.B.5.

If EPA determines that additional maintenance and monitoring activities, use restrictions, or other corrective actions are necessary to protect human health or the environment, EPA has the authority to require and enforce such additional corrective actions through an enforceable instrument, provided any necessary public participation requirements are met.

VI. Evaluation of the Proposed Remedy

This section provides a description of EPA's criteria for evaluating proposed remedies. The evaluation has two phases. First, EPA evaluates three threshold criteria as general goals. Then, for remedies that meet the threshold criteria, EPA evaluates these remedies according to seven balancing criteria to determine which proposed remedy provides the best combination of attributes.

A. Threshold Criteria

1. Protect Human Health and the Environment: No unacceptable human health or environmental risks are present at the Facility; however, by implementing controls for restricting

land and groundwater use, protection from potential unacceptable risks are ensured.

2. **Achieve Media Cleanup Objectives:** EPA's clean-up objectives are based on risk-reduction. Proposed remedies should meet cleanup objectives appropriate for current and reasonably anticipated future land and groundwater use. The proposed remedy does not meet groundwater cleanup standards that would allow for the beneficial use of groundwater at the Facility. Achieving groundwater MCLs is technically impracticable because of residual SPL. Objectives are to protect workers from potential exposures to Facility-related groundwater constituents at levels that may result in an unacceptable risk of adverse health effects. The proposed remedy should attain groundwater objectives, given controlled access and use restrictions.

3. **Control the Source of Releases:** Controlling sources of contamination includes reducing or eliminating further releases to the maximum extent practicable. Currently, there are no known continuing releases or leaks of contamination at the Facility.

B. Balancing/Evaluation Criteria

1. **Long-Term Reliability and Effectiveness:** The proposed remedy will protect human health and the environment over time by controlling exposure to the hazardous constituents remaining in soils and groundwater. Long-term effectiveness is considered high because use restrictions are readily implementable and easily maintained. Natural attenuation of groundwater contaminants, as documented by periodic monitoring, is expected to be effective and reliable in the long-term because dissolved-phase COCs have shown stable and decreasing trends.

2. **Reduction of Toxicity, Mobility, or Volume of Waste:** The proposed remedy will not actively further reduce the toxicity, mobility, or volume of the remaining groundwater COCs. However, COC concentrations in groundwater have generally demonstrated decreasing and stable trends over time, which will likely continue long-term.

3. **Short-Term Effectiveness:** EPA's proposed remedy does not involve any additional activities that may pose short-term risks to workers, residents and the environment. EPA has determined that Facility-related contamination does not pose a risk to adjacent residents or on-site workers. Existing engineering control measures are in place, and once use restrictions are in place, the proposed remedy will be short-term effective.

4. **Implementability:** EPA's proposed remedy is readily implementable. Existing monitoring wells will be used. The ICs will be implemented under an Order and/or an Environmental Covenant. Facility access is already restricted. The proposed control measures are compatible with current Facility uses and operations and can be implemented, maintained, and monitored effectively under an implementation plan.

5. **Cost:** Major cost components for the proposed remedy include remedy monitoring, reporting and implementation of remedy controls which are estimated to be $30,000 to 40,000 per monitoring and reporting event. SOPUS Products will develop a cost estimate for the final remedy as outlined in the CMI Plan, which will provide a basis for financial assurance compliance. EPA considers the proposed remedy to be cost-effective.

6. **Community Acceptance:** Community acceptance of the proposed remedy will be evaluated based on comments received during the public comment period and will be described in EPA's Final Decision and Response to Comments.

7. **State/Support Agency Acceptance:** WVDEP has reviewed and evaluated this proposed remedy and concurs with its issuance.

Overall, based on the information currently available, the proposed remedy meets all threshold criteria and provides the best combination of attributes with respect to the balancing criteria.

VII. Environmental Indicators

Under the Government Performance and Results Act (GPRA), EPA has set national goals to address RCRA Corrective Action facilities. Under GPRA, EPA evaluates two key environmental clean-up indicators for each Facility: (1) Current Human Exposures Under Control and (2) Migration of Contaminated Groundwater Under Control. The Facility met these indicators on April 14, 2004, and March 24, 2007, respectively. The environmental indicators are available at https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-shell-lubricants-formerly-penzoil-quaker-state.

VIII. Financial Assurance

SOPUS Products will be required to demonstrate and maintain financial assurance for completion of the Final Remedy in an amount included in the CMI Plan in accordance with 40 CFR 264.143 and 264.145.

IX. Public Participation

Before EPA makes a final decision on its proposed remedy for the Facility, the public may participate in the remedy decision process by reviewing this SB and documents contained in the Administrative Record (AR) for the Facility. The AR contains all information considered by EPA in reaching this proposed remedy. It is available for public review during normal business hours at:

U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103
Contact: Ms. Barbara Smith (3LD10)
Phone: (215) 814-5786
Fax: (215) 814-3113; Email: smith.barbara@epa.gov

X. Signature

John A Armstead

1.24.20

John Armstead, Director
Land, Chemicals and Redevelopment Division
USEPA, Region III

Date

ATTACHMENT 1

ADMINISTRATIVE RECORD

1. AECOM, 2015. "Annual Groundwater Monitoring Report," Former Quaker State/Ergon Refinery, Newell, WV. October 2015.

2. AECOM, 2016. "Annual Groundwater Monitoring Report," Former Quaker State/Ergon Refinery, Newell, WV. October 2016.

3. AECOM, 2016. Vapor Intrusion Data Summary Report. Submitted February 25, 2016.

4. AECOM, 2017a. "Revised Human Health and Ecological Risk Assessment Report," Former Quaker State/Ergon Refinery, Newell, WV. August 17, 2017.

5. AECOM, 2017b. "Annual Groundwater Monitoring Report," Former Quaker State/Ergon Refinery, Newell, WV. October 2017.

6. AECOM, 2018. "2018 Annual Groundwater Monitoring Report," Former Quaker State/Ergon Refinery, Newell, WV. November 2018.

7. AECOM, 2019. "Revised Ohio River Discharge Technical Memorandum for the Former Quaker State/Ergon Refinery." May 28, 2019.

8. AECOM, 2019. "Revised Corrective Measures Study Report," Former Quaker State/Ergon Refinery, Newell, WV. August 2019.

9. AECOM, 2019. "2019 Annual Groundwater Monitoring Report," Former Quaker State/Ergon Refinery, Newell, WV. December 2019.

10. Hydrosystems Management, Inc. (HMI), 1994a, RCRA Facility Investigation Work Plan, April.

11. HMI, 1994b, Interim Measures Work Plan and Interim Measures Monitoring, May.

12. HMI, 1995a, Proposed MW-5 Area Geoprobe Investigation, December.

13. HMI, 1995b, RCRA Closure Plan for the Stormwater Basin, December.

14. HMI, 1997a, Aeration Basin Equivalent Closure Plan, March.

15. HMI, 1997b, Soil Sampling Work Plan, API Separators, and New Heat Exchanger Bundle Cleaning Pad, March.

16. HMI, 1998, Draft RCRA Facility Investigation Report, November.

17. HMI, 1999. Aeration Basin Equivalent Closure Data Report. July 15, 1999.

18. RUST Environmental & Infrastructure, 1997. Phase II Subsurface Investigation, Quaker State Congo Refinery and Terminal, Newell, West Virginia, June.

19. Shaw, 2003, Final RCRA Facility Investigation Work Plan Addendum, Ergon West Virginia, Inc., Newell Refinery, Newell, West Virginia, August.

20. Shaw, 2005, Proposed Locations for Additional Borings and Monitoring Wells. May.

21. Shaw, 2006a, Background Data Evaluation, June.

22. Shaw, 2006b, Request for Industrial Land Use Designation, October.

23. Shaw, 2006c, Work Plan for Field Verification of Sewer Manholes and Catch Basins in the Oily Water Sewer System, May.

24. Shaw, 2007, Proposed Locations for Additional Wells, letter submittal to EPA on April 17, 2007.

25. URS, 2008. Memo: Ergon Refinery, Newell WV Site Product Thickness Evaluation Results and Interim Measures Recommendations. Submitted to the EPA on December 1, 2008.

26. URS, 2009a, No Further Action Determination Request SWMUs 14, 16, 17, and 18 Letter dated February 11, 2009.

27. URS, 2009b, Draft Human Health and Ecological Risk Assessment Report, Ergon of West Virginia. Newell, Hancock County, WV. June 2009.

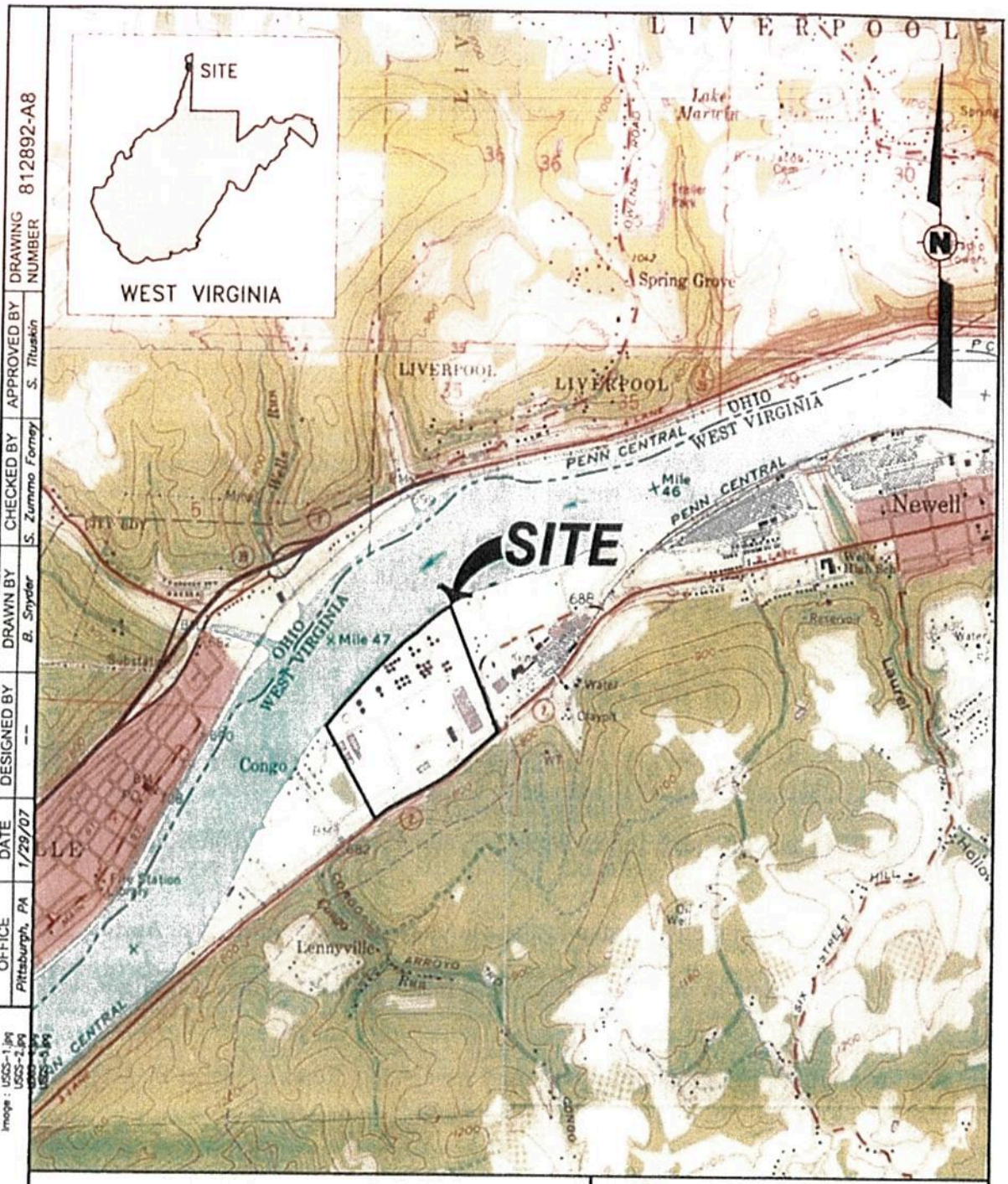
28. URS, 2009c, Revised Draft RCRA Facility Investigation Report. Ergon of West Virginia, Newell, Hancock County, WV. July 2009.

29. URS, 2009d. NFA Request for SWMUs 2, 3, and 5 was submitted on August 28, 2009 Email.

30. URS, 2014. Quarter 4 2013 Groundwater Monitoring Report. Submitted April 9, 2014.

31. URS, 2015. "Groundwater Monitoring Work Plan," Former Quaker State/Ergon Refinery, Newell, WV. April 2015.

32. Versar, 1989, Draft Interim RCRA Facility Assessment Report, Quaker State Oil Refining Corporation, Congo Plant, Newell West Virginia, April.



OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Pittsburgh, PA	1/29/07	--	B. Snyder	S. Zummo Forney	S. Thuskin	812892-A8

SCALE

0 2000 4000 FEET

REFERENCE:

U.S.G.S. 7.5 MIN TOPOGRAPHIC MAP OF EAST LIVERPOOL SOUTH, OHIO – WEST VIRGINIA, EAST LIVERPOOL NORTH, OHIO – WEST VIRGINIA, PA AND WELLSVILLE, OHIO – WEST VIRGINIA, AND WESTPOINT, OHIO QUADRANGLES.

Shaw Shaw Environmental, Inc.

FORMER QUAKER STATE FACILITY
ERGON WEST VIRGINIA, INC.
NEWELL REFINERY, NEWELL, WEST VIRGINIA

FIGURE 1

SITE LOCATION AND TOPOGRAPHIC MAP

NEWELL REFINERY
NEWELL, WEST VIRGINIA

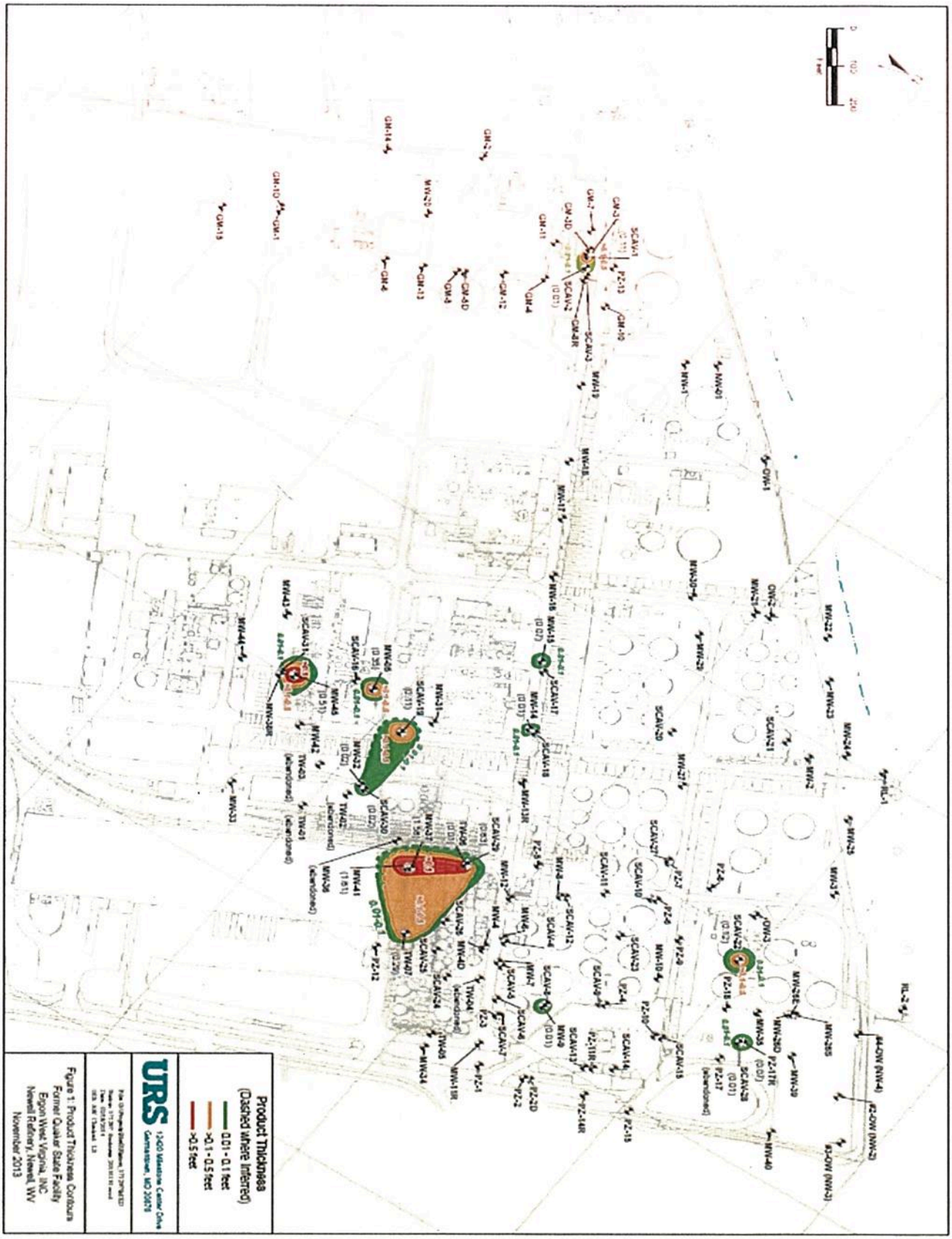


FIGURE 2 - Product Thickness (SPL) Contours, November 2013

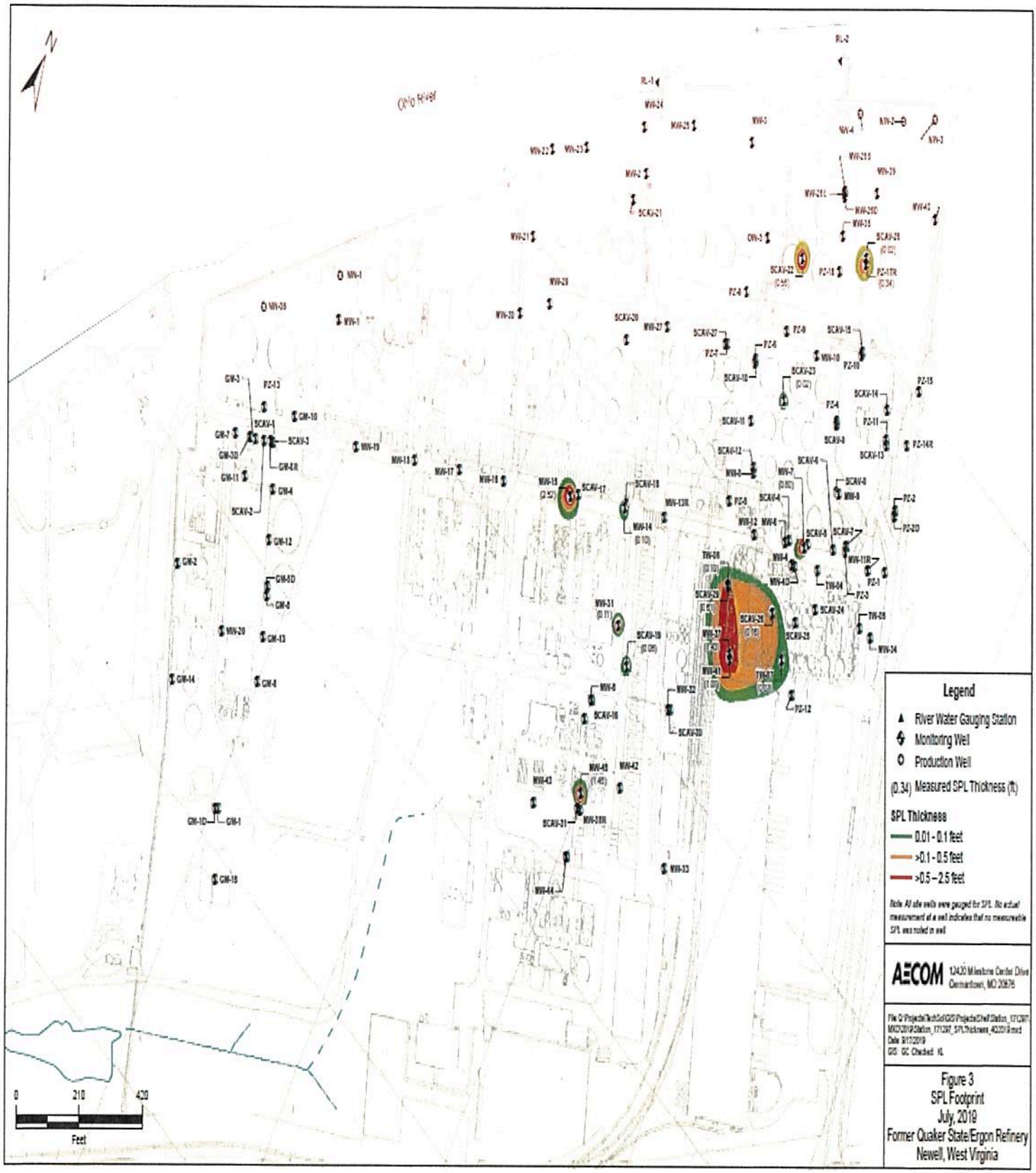


FIGURE 3: Product Thickness (SPL) Footprint, July 2019

Figure 4: Technical Impracticability Zone

APPENDIX C

UNITED STATES

ENVIRONMENTAL PROTECTION AGENCY

REGION III

IN THE MATTER OF:	INITIAL ADMINISTRATIVE ORDER
Quaker State Corporation Congo Plant Route 2 Newell, West Virginia 26050	U.S. EPA Docket No. RCRA-III-074-CA
EPA I.D. No. WVD057634776	
RESPONDENT	Proceeding under Section 3008(h) of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. Section 6928(h).

I. JURISDICTION

This Initial Administrative Order ("Order") is issued pursuant to the authority vested in the Administrator of the United States Environmental Protection Agency ("EPA") by Section 3008(h) of the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984 (collectively referred to hereinafter as "RCRA"), 42 U.S.C. § 6928(h). The authority vested in the Administrator has been delegated to the Regional Administrators by EPA Delegation Nos. 8-31 and 8-32, dated March 6, 1986. This authority has been further delegated to the Director, Hazardous Waste Management Division, by EPA delegation Nos. 8-31 and 8-32, dated January 24, 1989 and to the Associate Director, Office of RCRA Programs by EPA Delegation Nos. 8-31 and 8-32, dated November 22, 1989.

On May 29, 1986, the EPA granted the State of West Virginia (the "State") authorization to operate a state hazardous waste program in lieu of the federal program, pursuant to Section 3006(b) of RCRA, 42 U.S.C. § 6926(b). The State, however, does not have authority to enforce Section 3008(h) of RCRA.

This Order is issued to Respondent, the Quaker State Corporation ("Respondent"), owner and operator of a facility located in Newell, West Virginia. The State of West Virginia has been given notice of the issuance of this Order.

II. PARTIES BOUND

1. This Order shall apply to and be binding upon Respondent.

2. No change in ownership or corporate or partnership status relating to the Facility as defined below, will in any way alter Respondent's responsibility under this Order.

3. Respondent shall provide a copy of this Order to all supervisory personnel, contractors, subcontractors, laboratories, and consultants retained to conduct and/or monitor any portion of the work performed pursuant to this Order within seven (7) calendar days of the effective date of this Order or date of such retention, whichever is later. All contracts, agreements or other arrangements with such persons shall require such persons to conduct and/or monitor the work in accordance with the requirements of this Order. Notwithstanding the terms of any such contract, agreement or arrangement, Respondent is responsible for complying with this Order and for ensuring that all such persons perform such work in accordance with this Order.

4. Respondent shall provide a copy of this Order to any successor in interest at least thirty (30) calendar days prior to transfer of ownership or operation of the Facility, as defined below. Respondent shall notify EPA in writing, at least thirty (30) calendar days prior to such transfer, of the nature and effective date of such transfer and the name and address of such successor.

III. STATEMENT OF PURPOSE

The purpose of this Order is to require Respondent: (1) to perform (if appropriate) Interim Measures ("IM") at the Facility to prevent or mitigate threats to human health or the environment; (2) to perform a RCRA Facility Investigation ("RFI") to determine fully the nature and extent of any releases of hazardous waste and/or hazardous constituents at or from the Facility; and (3) to perform a Corrective Measures Study ("CMS") to identify and evaluate alternatives for corrective action necessary to prevent or mitigate migration or releases of hazardous wastes and/or hazardous constituents at or from the Facility.

IV. FINDINGS OF FACT

A. Respondent is a corporation doing business in the State of West Virginia and is a "person" as defined in Section 1004(15) of RCRA, 42 U.S.C. § 6903(15).

B. Respondent is the owner and operator of an oil refinery which is located on Route 2 in Newell, Hancock County, West Virginia. The property on which the refinery is located, and all contiguous property under the ownership or control of Respondent, is hereinafter referred to as the "Facility."

C. On November 14, 1980 Respondent submitted to EPA a Notification of Hazardous Waste Activity for the Facility, pursuant to Section 3010 of RCRA, 42 U.S.C. § 6930. In the Notification, Respondent identified itself as a generator of hazardous waste and an owner/operator of a hazardous waste treatment, storage and/or disposal facility.

D. Respondent submitted to EPA a Part A Permit Application (hereafter "Part A") for hazardous waste activities at the Facility on November 18, 1980. In the Part A, Respondent indicated that it treated or stored the following hazardous wastes at the Facility:

(1) Hazardous wastes exhibiting the characteristic of toxicity identified at 40 C.F.R. § 261.23 (D004, D008).

(2) Commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products identified at 40 C.F.R. § 261.33(e) (P110).

E. In a letter to Respondent dated August 6, 1981, EPA acknowledged that Respondent's Facility qualified for interim status under Section 3005(e) of RCRA, 42 U.S.C. § 6925(e). EPA assigned the Facility EPA Identification Number WVD 05 763 4776 on August 6, 1981.

F. On June 3, 1983, Respondent submitted to EPA a revised Part A to add the following hazardous waste to those used at the Facility:

(1) Hazardous wastes from non-specific sources identified at 40 C.F.R. § 261.31 (F005).

(2) Hazardous wastes from specific sources identified at 40 C.F.R. § 261.32 (K048, K050, K051).

G. In a letter to Respondent dated February 27, 1986, West Virginia's Chief of the Division of Water Resources of the

Department of Natural Resources ("DNR")[1] requested that Respondent submit Part B of its Hazardous Waste Management Permit Application (hereafter "Part B").

H. By letter dated September 15, 1986, Respondent submitted to DEP a revised Notification of Hazardous Waste Activity which indicated that the Facility generated the hazardous wastes F005, K048, K050, K051, and K052 at the Facility.

I. In a letter to DEP dated September 19, 1986, Respondent requested withdrawal of its Part A as a Treatment/Storage/Disposal ("TSD") Facility. Respondent claimed that it was operating as a generator only and no longer planned to store hazardous waste for more than ninety (90) days. Respondent also claimed that the treatment units in its waste water treatment plant ("WWTP"), the discharge of which was authorized under a National Pollutant Discharge Elimination System ("NPDES") permit, WV0004626, were exempt from RCRA regulation because the units met the definition of "tanks" under 40 C.F.R. § 260.10. Respondent's request for withdrawal of the Part A was never granted.

J. By letter to Respondent dated September 9, 1987, DEP notified Respondent that the in-ground basins and the North API Separator did not meet the definition of tank. DEP also informed Respondent that it should revise its Part A for the Facility to include these units as surface impoundments and to submit a Part B.

K. On January 25, 1988, DEP issued an Administrative Order to Respondent ordering the Respondent to submit Part B of the Hazardous Waste Management Permit Application for the storage and treatment of hazardous waste in its WWTP. Respondent has not submitted a Part B for the treatment and storage of hazardous waste at its WWTP.

L. On December 12, 1988, the West Virginia Water Resources Board determined that the basins and API Separators in the WWTP fall within the RCRA definition of "surface impoundments" found at 40 C.F.R. § 260.10 and were not tanks.

M. During a DEP inspection of the Facility on May 16, 1991, a DEP inspector observed the cleaning of the heat exchanger bundles. During the process the heat exchanger bundles were hydro-blasted on a cement pad. The sludges generated

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[1] DNR was renamed the Division of Environmental Protection ("DEP") in 1992 and will be subsequently referred to herein as "DEP".

from the washing process are listed as hazardous waste number K050 (see 40 C.F.R. § 261.32, "heat exchanger bundle cleaning sludge from the petroleum refining industry"). The DEP inspector also noted that the gravel around the pad showed significant staining. Run-off water from the pad was further observed by the DEP inspector to be flowing off the pad over a small bank to a low lying area which exhibited signs of stressed vegetation.

N. In December, 1991, Respondent installed groundwater monitoring wells at the Facility. An immiscible layer of petroleum was discovered in two of the Facility's groundwater monitoring wells. In GM-3, the groundwater monitoring well located downgradient of the WWTP, a floating layer of petroleum, measuring 1.9 feet in thickness. A 0.6 feet layer of petroleum was also detected floating in well MW-4, located in the process area of the Facility. (See Map set forth in Attachment F to this Order)

O. In May, 1992 Respondent submitted a Part B permit application for container storage pad for greater than 90 days storage of hazardous waste.

P. On May 5, 1992, EPA and DEP conducted a joint inspection of the Facility. The inspectors observed cracks in the concrete walls and loose caulking in the seams of the stormwater/equalization basin at the WWTP. Discolored soil and gravel were observed around all of the five basins at the WWTP.

Q. The Respondent has sampled monitoring and production wells at the Facility. Hazardous waste constituents were detected in certain monitoring wells. Tables I through IV summarize Respondent's data for four (4) consecutive quarters from December 1991 through September 1992. The applicable Maximum Contaminant Level ("MCL") for specific contaminants established under the Safe Drinking Water Act, 42 U.S.C. §§ 300f et seq., and set forth in 40 C.F.R. Part 141, Subpart B, are listed below. The MCL is the maximum permissible level of a contaminant in water which may be delivered to any user of a public drinking water system.

Sampling conducted from December 10-11, 1991

TABLE I

SAMPLE ID:[2]	MCL	GM-1	GM-3	MW-4	MW-5
Benzene	5	–	280	680	–
1,2-Dichloropropane	5	23	–	–	–
Methyl Chloride	–	–	–	–	39
Toluene	1000	–	–	120	–
Nickel	100	80	–	–	–
Arsenic	50	–	5	–	–

Units, micrograms/liter (µg/l)

Sampling conducted from March 26-27, 1992

TABLE II

SAMPLE ID:	MCL	GM-1	GM-3	MW-2	MW-4
Acrolein	–	–	–	–	320
Benzene	5	–	360	–	1800
1,2-Dichloropropane	5	17	–	–	–
Phenol	–	–	–	–	140
2,4-Dimethylphenol	–	–	–	–	52
Toluene	1000	–	9	–	–
1,1,1-Trichloroethane	200	–	–	19	–
Xylene	1000	–	71	–	100
Phenol	–	–	–	–	140
Ethylbenzene	700	–	35	–	–

Units, µg/l

Sampling conducted from June 24-25, 1992

TABLE III

SAMPLE ID:	MCL	GM-1	GM-1D	GM-3	MW-2	MW-4
Benzene	5	–	–	370	930	930
1,2-Dichloropropane	5	15	17	–	–	–
Toluene	1000	–	–	–	–	45
Nickel	100	130	130	–	–	–

Units, µg/l

Sampling conducted from September 17, 18 and 21, 1992

TABLE IV

SAMPLE ID:	MCL	GM-1	GM-1D	GM-3	MW-4
Benzene	5	–	–	380	1500
1,2-Dichloropropane	5	15	15	–	–
Toluene	1000	–	–	–	200

Units, µg/l

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[2] GM wells are at the WWTP and MW wells are in the production area of the Facility.

R. During a September 14-18, 1992 EPA inspection, EPA and the Respondent collected soil and groundwater samples from all monitoring and production wells in place in September 1992 as well as from units in the WWTP and the soil around the heat exchanger bundle cleaning pad unit. Results of EPA's analysis of the samples collected from the monitoring and production wells on these dates are included in Table V.

TABLE V

SAMPLE ID:[3]	MCL	GM-3	MW-4	PW-1	GM-1	GM-2	PW-3
Arsenic	50	48	16.2	-	11.5	12	-
Barium	2000	486	605	-	-	-	-
Lead	15[4]	-	-	3.2	16.1	22.2	-
Cadmium	5	-	-	-	6.2	-	-
Chromium	100	-	-	-	19.4	19	-
Nickel	100	-	-	-	124	51.3	-
Benzene	5	330	1500	-	-	-	58
Toluene	1000	-	230	-	-	-	57
1,1-Dichloroethene	7	-	-	-	-	-	46
Trichloroethene	5	-	-	-	-	-	52
Chlorobenzene -	-	-	-	-	-	55	

Units, µg/l

S. On March 23, 1993 Respondent submitted to DEP a Closure Plan for the Stormwater Basin.

T. Benzene, 1,2-dichloropropane, methyl chloride, toluene, nickel, arsenic, 2,4-dimethylphenol, barium, lead, cadmium, chromium, 1,1-dichloroethene, trichloroethene and chlorobenzene are "hazardous wastes" as defined in Section 1004(5) of RCRA, 42 U.S.C. § 6903(5) and/or "hazardous constituents" as defined in 40 C.F.R. Part 261, App. VIII.

U. The human health impacts of the substances referred to above in Paragraphs Q, R and T of this Order are described below, as taken from "Chemical, Physical and Biological Properties of Compounds Present at Hazardous Waste Sites" (EPA, 1985). Further information on these impacts may be found in the Administrative Record which supports the issuance of this Order. Specifically:

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[3] PW wells are production, drinking and process wells.

[4] Denotes Action level - i.e., The concentration that must not be exceeded in greater than 10 percent of tap water samples.

1. Benzene (C_6H_6) is a colorless, flammable liquid with an aromatic odor. Benzene is a known human carcinogen and exposure has been linked to increased risk of several forms of leukemia. With inhalation benzene may produce nerve and blood effects. Additionally, irritation of the nose, throat and lungs may occur. Long-term exposure may cause loss of appetite, nausea, weight loss, fatigue, muscle weakness, headaches, dizziness, nervousness and irritability.

2. 1,2-Dichloropropane ($ClCH_2CHClCH_3$) also called propylene dichloride is a flammable liquid, which has an unpleasant odor. Propylene dichloride may cause dermatitis by defatting the skin, and may also cause reversible or irreversible changes to tissue via oral, inhalation or dermal exposure. Animals exposed to high concentrations often showed marked visceral congestion, fatty degeneration of the liver, kidney and less frequently, the heart. Propylene dichloride is suspected of being an animal carcinogen.

3. Methyl chloride (CH_3Cl) is a colorless liquified gas with a faint, sweet odor. It is carcinogenic in male mice, causing tumors of the kidney and liver. Exposure to high concentrations adversely affects the central nervous system, kidney, and liver in humans.

4. Toluene ($C_6H_5CH_3$) is a clear, colorless, noncorrosive liquid with a sweet, pungent, benzene-like odor. Toluene has been shown to be embryotoxic in experimental animals. In humans, acute exposure depressed the central nervous system and caused narcosis.

5. Nickel (Ni) can cause a sensitization dermatitis in humans. Studies indicate that nickel compounds can produce various types of malignant tumors in experimental animals. Mammalian cell transformation data has shown that several nickel compounds are mutagenic.

6. Arsenic (As) is a human carcinogen which causes skin tumors when it is ingested and lung tumors when it is inhaled. Arsenic compounds are teratogenic and have adverse reproductive effects in animals. Chronic exposure to arsenic is associated with polyneuropathy and skin lesions. It is acutely toxic to some early life stages of aquatic organisms at levels as low as 40 ug/l.

7. 2,4-Dimethylphenol ($(CH_3)_2C_6H_3OH$) has been shown to promote cancer in skin painting studies on rats, but it has not been tested for carcinogenicity in a complete bioassay. Pathological changes in the heart, liver and kidneys have been shown with other dimethylphenols.

8. Barium (Ba) is an extremely reactive metal which decomposes in water, and readily forms insoluble carbonate and sulfate salts. There are no reports of carcinogenicity, mutagenicity, or teratogenicity associated with exposure to barium or its compounds. Effects on gametogenesis and on the reproductive organs are reported in male and female rats after inhalation of barium carbonate; intratesticular injection of barium chloride affects the male reproductive organs.

9. Lead (Pb) is a heavy metal which can cause kidney damage and anemia, and may have adverse effects on the immune system. Lead is also a reproductive hazard and can adversely affect the brain and central nervous system by causing encephalopathy and peripheral neuropathy. Learning disabilities in children can be caused by chronic exposure to low levels of lead. There is evidence that several lead salts are carcinogenic in mice or rats, causing tumors of the kidneys after either oral or parenteral administration.

10. Cadmium (Cd) is a soft, bluish white metal that can be present in a variety of chemical forms in wastes or in the environment. Cadmium is carcinogenic in animals exposed by inhalation and may also be carcinogenic in humans. Cadmium is a known animal teratogen and reproductive toxin. There is evidence to suggest that cadmium is linked to prostate cancer in humans.

11. Chromium (Cr) is a heavy metal that generally exists in either a trivalent or hexavalent oxidation state. A number of salts of hexavalent chromium (Cr VI) are carcinogenic in rats. Cr VI also produces kidney damage in animals and humans. The liver is also sensitive to the toxic effects of hexavalent Cr. Trivalent chromium (Cr III) is less toxic than hexavalent chromium; its main effect is contact dermatitis in sensitive individuals.

12. 1,1-dichloroethene (CH_2CCl_2), also known as vinylidene chloride, is a volatile liquid with a mild, sweet odor resembling that of chloroform. 1,1-dichloroethene caused kidney tumors in males and leukemia in males and females in one study of mice exposed by inhalation. Acute exposure to high doses

causes central nervous system depression.

13. Trichloroethene (C_2HCl_3), also known as TCE, is carcinogenic to mice after oral administration, producing hepatocellular carcinomas. TCE has been found to be mutagenic using several microbial assay systems.

14. Chlorobenzene (C_6H_5Cl) is a colorless liquid with a mild aromatic odor. A study of the carcinogenicity of chlorobenzene was recently completed by the National Toxicology Program and preliminary results show that chlorobenzene caused neoplastic nodules in the liver of male rats but was not carcinogenic in female rats or in mice. Chronic exposure may cause blood dyscrasia, hyperlipidemia, and cardiac dysfunction in humans.

V. The environmental impacts of the substances referred to in Paragraphs Q, R, and T of this Order are described below. Further information on these impacts may be found in the Administrative Record to the Order.

1. The toxicity of lead to aquatic organisms is greater in water with low pH (pH 2-3), elevated water temperatures and soft waters. Lethal solutions of lead cause increased mucus formation in fishes. The excess coagulated mucus covering the gills interferes with respiratory function and results in death by anoxia. The chronic toxicity value for lead is 3.2 parts per billion ("ppb"). (Chronic toxicity is defined as long-term adverse effects of small doses of a contaminant and their cumulative adverse effects over time. These effects may lead to death of the organism or disruption of such vital functions as reproduction. Acute toxicity is defined as the effects that result from very short-term, usually single dose, exposure to a material.)

2. Nickel tends to be more toxic in softer water. Acute values for exposure to a variety of nickel salts, expressed as nickel, range from 510 ug/l for Daphnia magna to 42,600 ug/l for banded killfish at comparable hardness levels. Chronic toxicity values range from 14.8 ug/l for Daphnia magna in soft water to 530 ug/l for the fathead minnow in hard water. Freshwater algae experience reduced growth at nickel concentrations as low as 100 ug/l. For total recoverable nickel the criterion to protect saltwater aquatic life is 7.1 ug/l as a 24-hour average, and the concentration should not exceed 140 ug/l at any time.

3. Arsenic can be found in the environment in any of

four valence states (-3, 0, +3, and +5) depending on the pH and other factors. It can exist as either inorganic or organic compounds and often will change forms as it moves through the various media. Acute toxicity, defined in IV U.1 above to adult freshwater animals occurs at levels of arsenic trioxide as low as 812 ug/l and at levels as low as 40 ug/l in the early life stages of aquatic organisms. Acute toxicity to saltwater fish occurs at levels around 15000 ug/liter, while some invertebrates are affected at much lower levels (508 ug/l).

4. Cadmium may have adverse effects on reproduction in fish present in lightly to moderately polluted waters. Acute toxicity, (defined in paragraph V.1 above) to saltwater fish occurs at 38 ug/l and chronic toxicity occurs at 12 ug/l.

5. Chromium is an essential nutrient and is accumulated in a variety of aquatic and marine biota, especially benthic organisms, to levels much higher than in ambient water. Acute toxicity (defined in paragraph V.1 above) to freshwater animals occurs at levels as low as 11 ug/l and chronic toxicity occurs at 7.2 ug/l. Acute toxicity occurs in saltwater fish at 1,200 ug/l and chronic toxicity occurs at 54 ug/l.

W. There are potential human and environmental receptors located near the Facility, as described below:

1. Residential housing is located 0.1 miles southwest of the Facility and residential wells are within 300 feet of the Facility's border, southwest of the Facility.

2. There are three (3) on-site groundwater wells which were previously used for potable water and are currently used as an industrial source.

3. Surface waters which flow adjacent to the Facility include the Ohio River and Congo Run. The Ohio River is used for water recreational purposes which include boating and fishing.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

A. Respondent is a "person" within the meaning of Section 1004(15) of RCRA, 42 U.S.C. Section 6903(15).

B. Respondent is the owner and/or operator of an existing facility subject to Section 3008(h) of RCRA, 42 U.S.C. Section 6928(h). Such facilities include those which have complied with the requirements of Section 3005(e) of RCRA, 42 U.S.C. Section

6925(e), and those, such as Quaker State Corporation, which have failed to submit a timely notification of hazardous waste activity under Section 3010 of RCRA, 42 U.S.C. Section 6930, and/or have failed to submit a RCRA permit application under Section 3005 of RCRA, 42 U.S.C. Section 6925.

C. The substances referred to in Section IV, paragraph T, are "hazardous waste" within the meaning of Section 3008(h) of RCRA, 42 U.S.C. Section 6928(h).

D. There is or has been a "release of hazardous waste into the environment from a facility" within the meaning of Section 3008(h) of RCRA, 42 U.S.C. Section 6928(h).

E. The actions required by this Order are necessary to protect human health or the environment.

VI. WORK TO BE PERFORMED

Pursuant to Section 3008(h) of RCRA, 42 U.S.C. Section 6928(h), Respondent is hereby ordered to perform the following tasks in the manner and by the dates specified herein. All work undertaken pursuant to this Order shall be developed and performed in accordance with, at a minimum: the Scope of Work for Interim Measure(s) set forth in Attachment A; the Scope of Work for a RCRA Facility Investigation set forth in Attachment B; the Scope of Work for a Corrective Measures Study set forth in Attachment C; the Health and Safety Plan set forth in Attachment D; RCRA, its implementing regulations and relevant EPA guidance documents. All Scopes of Work and other Attachments to this Order are incorporated herein by reference. Relevant guidance may include, but is not limited to, the "RCRA Facility Investigation (RFI) Guidance" (Interim Final, May 1989, EPA 530/SW-89-031, vol. I-IV, OSWER Directive 9502.00-6D Vol.1-4), "RCRA Ground Water Monitoring Technical Enforcement Guidance Document" (OSWER Directive 9950.1, September 1986), "Test Methods For Evaluating Solid Waste" (SW-846, November 1986), "Construction Quality Assurance for Hazardous Waste Land Disposal Facilities" (EPA 530/SW-85-031, July 1986), "OWRS Guidance for Preparation of QA Project Plans" (OWRS QA-1, May 1984); and "Risk Assessment Guidance for Superfund Volume I, Human Health Evaluation Manual & Volume II, Environmental Evaluation Manual Interim Final" (EPA/540/1-89/022 and 001), March 1989. "Days" as used herein shall mean calendar days unless specifically stated otherwise.

A. INTERIM MEASURES ("IM")

1. Within thirty (30) calendar days of the effective date of this Order, Respondent shall submit to EPA for approval an IM

Workplan in accordance with Attachment A and the information required under paragraphs 3 and 4 of this Section VI.A. for a pump and treat groundwater remediation system ("groundwater remediation system") which will address the hydrocarbon contamination of the groundwater at and/or from the Facility. Upon receipt of EPA approval of the groundwater remediation system interim measure workplan, Respondent shall implement this EPA approved IM Workplan in accordance with the requirements and schedule contained therein.

2. If at any time during the pendency of this Order Respondent obtains or discovers information concerning a release of any hazardous waste or hazardous waste constituent at and/or from the Facility into the environment in addition to or different from that described in Section IV, "FINDINGS OF FACT" above, Respondent shall immediately notify EPA orally of such release and in writing within three (3) calendar days of providing oral notification. The notifications shall describe the nature and extent of the release and any threat or potential threat to human health or the environment posed by such release. If EPA determines that corrective action for such release is necessary to protect human health or the environment, EPA shall notify Respondent. Within ten (10) calendar days of receipt of such notice from EPA, Respondent shall submit to EPA for approval an IM Workplan in accordance with Attachment A to this Order, which identifies Interim Measures which will protect human health and the environment from such release and which are, to the extent practicable, consistent with and integrated into any long-term remediation at the Facility.

3. Each IM Workplan shall be developed in accordance with the IM Scope of Work in Attachment A to this Order. Each IM Workplan shall document the procedures to be used by Respondent for the implementation of Interim Measures and shall include, but not be limited to, a Community Relations Plan and IM Objectives. In addition to an IM Workplan, Respondent shall submit in accordance with Attachment A to this Order: a Data Collection Quality Assurance Plan; a Data Management Plan; Design Plans and Specifications; an Operation and Maintenance Plan; a Project Schedule for expeditious completion of Interim Measures; an Interim Measures Construction Quality Assurance Plan; and Reporting Requirements.

4. Concurrent with submission of an IM Workplan, Respondent shall submit to EPA an IM Health and Safety Plan in accordance with Attachment D of this Order.

5. Upon receipt of EPA approval of the IM Workplan, Respondent shall implement the EPA-approved IM Workplan in accordance with the requirements and schedules contained therein.

B. RCRA FACILITY INVESTIGATION ("RFI")

6. Within sixty (60) calendar days of the effective date of this Order, Respondent shall submit to EPA for approval a Description of the Current Conditions at the Facility ("Description"). This Description shall be developed in accordance with the RFI Scope of Work contained in Attachment B.

7. Within sixty (60) calendar days of the effective date of this Order, Respondent shall submit to EPA for approval a Pre-Investigation Evaluation of Corrective Measure Technologies ("Evaluation"). This Evaluation shall be developed in accordance with the RFI Scope of Work contained in Attachment B.

8. Within sixty (60) calendar days of the effective date of this Order, Respondent shall submit to EPA a Workplan for a RCRA Facility Investigation ("RFI Workplan"). The RFI Workplan is subject to approval by EPA and shall be developed in accordance with, at a minimum, the RFI Scope of Work contained in Attachment B, RCRA, its implementing regulations, and relevant EPA guidance documents.

9. The RFI Workplan shall be designed to determine the presence, magnitude, extent, direction, and rate of movement of any hazardous wastes or hazardous waste constituents within and beyond the Facility boundary. The RFI Workplan shall document the procedures Respondent shall use to conduct those investigations necessary to: (a) characterize the potential pathways of contaminant migration; (b) characterize the source(s) of contamination; (c) define the degree and extent of contamination; (d) identify actual or potential human and/or ecological receptors; and (e) support the development of alternatives from which a corrective measure(s) will be selected by EPA. A specific schedule for expeditious implementation of all activities shall be included in the RFI Workplan.

10. In accordance with the provisions of Attachment B hereto, the RFI Workplan shall include: (a) a Project Management Plan; (b) a Data Collection Quality Assurance Plan; (c) a Data Management Plan; and (d) a Community Relations Plan, and shall provide for the submission of a draft and final RFI report.

11. Concurrent with the submission of the RFI Workplan, Respondent shall submit an RFI Health and Safety Plan in accordance with the provisions of Attachment D of this Order.

12. Upon receipt of EPA approval of the RFI Workplan, Respondent shall implement the EPA-approved RFI Workplan in accordance with the terms and schedule contained therein. Upon completion of implementation of the RFI Workplan, Respondent shall submit to EPA for approval draft and final RFI Reports and

draft and final Laboratory and Bench Scale Studies Reports in accordance with the requirements and schedule contained in the RFI Workplan.

C. CORRECTIVE MEASURES STUDY ("CMS")

13. Within sixty (60) calendar days of receipt of EPA approval of the Final RFI Report, Respondent shall submit to EPA for approval a Draft CMS Report in accordance with the CMS Scope of Work in Attachment C.

14. Within thirty (30) calendar days of receipt of EPA's comments on the Draft CMS Report, Respondent shall submit to EPA for approval the Final CMS Report, revised to respond to all comments received from, and/or remedy all deficiencies identified by, EPA on the Draft CMS Report.

D. PUBLIC COMMENT AND PARTICIPATION

15. After approval of the Final CMS Report, EPA will make the Final RFI Report and the Final CMS Report, a description of EPA's proposed corrective measure(s), and EPA's justification for proposing selection of such corrective measure(s) in a Statement of Basis available to the public for review and comment in accordance with applicable EPA guidance and regulations.

16. Following the public review and comment period, EPA shall notify Respondent of the corrective measure(s) selected by EPA in a RCRA decision document called a "Final Decision and Response to Comments." If the corrective measure(s) selected by EPA after consideration of public comments differ(s) significantly from the corrective measure(s) recommended in the Statement of Basis, EPA will explain in its Final Decision and Response to Comments the basis for such difference.

E. CORRECTIVE MEASURE(S) IMPLEMENTATION

17. After selection by EPA of the corrective measures and issuance of the Final Decision and Response to Comments, EPA may in its discretion, provide Respondent with an opportunity to negotiate the terms of an administrative order on consent for implementation of such corrective measures. Nothing in this Order shall limit EPA's authority to implement the selected corrective measure(s) or to take any other appropriate action under RCRA, the Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. § 9601 et seq. ("CERCLA") or any other legal authority, including issuance of a unilateral administrative order or the filing of a civil

action seeking a judicial order directing Respondent to implement the selected corrective measures(s).

F. SUBMISSIONS/EPA APPROVAL/ADDITIONAL WORK

18. EPA will review Respondent's IM and RFI Workplans, Draft and Final RFI and CMS Reports and any other documents submitted pursuant to Attachments A through C of this Order ("Submissions") and will notify Respondent in writing of EPA's approval or disapproval of each such Submission, with the exception of progress reports. In the event of EPA's disapproval, EPA shall specify in writing any deficiencies in the Submission.

19. Within thirty (30) calendar days of receipt of EPA's comments on the Submission, or ten (10) calendar days in the case of an IM Workplan, Respondent shall submit to EPA for approval a revised Submission, which responds to any comments received and/or corrects any deficiencies identified by EPA. In the event EPA disapproves the revised Submission, EPA reserves the right to revise such Submission and to seek to recover from Respondent the costs thereof, in accordance with the Comprehensive Environmental Response, Compensation and Liability Act, as amended ("CERCLA"), 42 U.S.C. §§ 9601 et seq., and any other applicable law. Any Submission approved or revised by EPA under this Order shall be deemed incorporated into and made an enforceable part of this Order.

20. Beginning with the first day of the second full month following the effective date of this Order, and every two months thereafter on the first day of the second month, and throughout the period that this Order is effective, Respondent shall provide EPA with bimonthly (every two months) progress reports. The bimonthly progress reports shall contain the information required in the relevant Scope(s) of Work attached hereto.

21. Four (4) copies of all Submissions required by this Order shall be hand-delivered or sent by Certified Mail, Return Receipt Requested, to the Project Coordinator designated pursuant to Section XII, "PROJECT COORDINATOR," below.

22. All work performed pursuant to this Order shall be under the direction and supervision of a professional engineer or geologist with expertise in hazardous waste site investigation. Within ten (10) calendar days after the effective date of this Order, Respondent shall submit to EPA, in writing, the name, title, and qualifications of the engineer or geologist and of any contractors or subcontractors to be used in carrying out the terms of this Order. Notwithstanding Respondent's selection of an engineer, geologist, contractor or subcontractor, nothing herein shall relieve Respondent of its obligation to comply with

the terms and conditions of this Order. EPA shall have the right to disapprove at any time the use of any professional engineer, geologist, contractor or subcontractor selected by Respondent. Within fifteen (15) calendar days of receipt from EPA of written notice disapproving the use of any professional engineer, geologist, contractor or subcontractor, Respondent shall notify EPA, in writing, of the name, title and qualifications of the personnel who will replace the personnel disapproved by EPA. Respondent shall notify EPA ten (10) days prior to changing voluntarily its engineer or geologist, and/or contractors or subcontractors to be used in carrying out the terms of this Order, and shall submit to EPA in writing, the name, title, and qualifications of such person(s).

VII. QUALITY ASSURANCE

Throughout all sample collection and analysis activities, Respondent shall use EPA-approved quality assurance, quality control, and chain-of-custody procedures, as specified in the approved Workplans. In addition, Respondent shall:

1. Ensure that laboratories used by Respondent for analyses perform such analyses according to the EPA methods included in "Test Methods for Evaluating Solid Waste" (SW-846, November 1986) or other methods deemed satisfactory to EPA. If methods other than EPA methods are to be used, Respondent shall submit all analytical protocols to be used for analyses to EPA for approval at least thirty (30) calendar days prior to the commencement of analyses and shall obtain EPA approval prior to the use of such analytical protocols.

2. Ensure that laboratories used by Respondent for analyses participate in a quality assurance/quality control program equivalent to that which is followed by EPA. As part of such a program, and upon request by EPA, such laboratories shall perform analyses of samples provided by EPA to demonstrate the quality of the analytical data.

3. Inform the EPA Project Coordinator at least fourteen (14) days in advance of any laboratory analysis regarding which laboratory will be used by Respondent and ensure that EPA personnel and EPA authorized representatives have reasonable access to the

laboratories and personnel used for analysis.

VIII. PUBLIC REVIEW OF ADMINISTRATIVE RECORD

The Administrative Record supporting the issuance of this Order and any decisions or determinations made by EPA pursuant to the Order will be available for public review on Mondays through Fridays, from 9:00 a.m. to 5:00 p.m., by contacting the EPA Project Coordinator, Estena A. McGhee, at:

U.S. Environmental Protection Agency
Region III
Mail Code 3HW61
841 Chestnut Building
Philadelphia, Pennsylvania 19107
Telephone: 215-597-7584

IX. ON-SITE AND OFF-SITE ACCESS

A. EPA and/or its authorized representatives shall have the authority to enter and freely move about all property at the Facility at all reasonable times and upon reasonable notice during the effective dates of this Order for the purposes of, inter alia: interviewing Facility personnel and contractors; inspecting records, operating logs, and contracts related to the Facility; reviewing the progress of Respondent in carrying out the terms of this Order; conducting such tests, sampling or monitoring as EPA or its Project Coordinator deem necessary; using a camera, sound recording, or other documentary type equipment; and verifying the reports and data submitted to EPA by Respondent. Respondent shall permit such persons to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, that pertain to work undertaken pursuant to this Order.

B. To the extent that work required by this Order, or by any approved Workplan prepared pursuant hereto, must be done on property not owned or controlled by Respondent, Respondent shall use its best efforts to obtain site access agreement(s) from the present owner(s) and/or lessee(s) of such property, as appropriate, within thirty (30) calendar days of receipt of EPA approval of any Workplan pursuant to this Order which requires work on such property. For purposes of this paragraph, "best efforts," shall include, at a minimum, but shall not be limited to: a certified letter from Respondent to the present owner(s) or lessee(s) of such property, as appropriate, requesting agreements to permit Respondent, EPA, and its authorized representatives access to such property; and b) the payment of

reasonable sums of money in consideration of access. "Reasonable sums of money" means the fair market value of the right of access necessary to implement the requirements of this Order. In the event that such agreements for access are not obtained within thirty (30) calendar days after receipt of EPA approval of any Workplan pursuant to this Order which requires work on property which is not owned or controlled by Respondent, Respondent shall notify EPA, in writing, within seven (7) calendar days after inability to obtain such agreements, regarding both the efforts undertaken to obtain access and the inability to obtain such agreements. In the event that Respondent fails to obtain off-site access, despite the exercise of best efforts, EPA, in its discretion, may assist Respondent in obtaining off-site access for Respondent. EPA reserves the right to seek reimbursement for all cost incurred by EPA in obtaining access, including, but not limited to, attorneys fees and the amount of just compensation and costs incurred by EPA.

C. Nothing in this Order limits or otherwise affects EPA's right of access and entry pursuant to applicable law including, but not limited to, RCRA and CERCLA.

X. SAMPLING AND DATA/DOCUMENT AVAILABILITY

A. Respondent shall submit to EPA the results of all sampling and/or tests or other data generated by, or on behalf of, Respondent in accordance with the requirements of this Order and the Attachments appended hereto and incorporated herein.

B. Respondent shall notify EPA, in writing, at least fourteen (14) calendar days in advance of any field activities, such as well drilling, installation of equipment, or sampling. At the request of EPA, Respondent shall provide or allow EPA or its authorized representatives to take split or duplicate samples of all samples collected by Respondent pursuant to this Order. Nothing in this Order shall limit or otherwise affect EPA's authority to collect samples pursuant to applicable law, including, but not limited to, RCRA and CERCLA.

C. Respondent may assert a business confidentiality claim covering all or part of any information submitted to EPA pursuant to this Order in the manner described in 40 C.F.R. § 2.203(b). Any assertion of confidentiality shall be adequately substantiated by Respondent when the assertion is made in accordance with 40 C.F.R. § 2.204(e)(4). Information subject to a confidentiality claim shall be disclosed only to the extent and by the means of the procedures set forth in 40 C.F.R. Part 2, Subpart B. If no such confidentiality claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to Respondent.

Respondent shall not assert any confidentiality claim with regard to any physical, sampling, monitoring or analytical data.

D. If Respondent wishes to assert a privilege with regard to any document which EPA seeks to inspect or copy pursuant to this Order, Respondent shall identify the document, the privilege claimed, and the basis therefor in writing. For the purposes of this Order, privileged documents are those documents exempt from discovery from the United States in litigation under the Federal Rules of Civil Procedure. Respondent shall not assert as privileged any analytical, sampling and monitoring data.

XI. RECORD PRESERVATION

Respondent shall preserve, during the pendency of this Order and for a minimum of six (6) years after its termination, all data, records and documents ("records") in its possession and shall use its best efforts to ensure any such documents in the possession of its divisions, officers, directors, employees, agents, contractors, successors, and assigns which relate in any way to this Order or to hazardous waste management and/or disposal at the Facility are preserved as specified above. After six (6) years, Respondent shall make such records available to EPA for inspection or shall provide copies of any such records to EPA. Respondent shall notify EPA at least thirty (30) calendar days prior to the proposed destruction of any such records, and shall provide EPA with a reasonable opportunity to inspect, copy and/or take possession of any such records. Respondent shall not destroy any record to which EPA has requested access for inspection and/or copying until EPA has obtained such access or withdrawn its request for such access. Nothing stated in this Section XI shall in any way limit the authority of EPA under Section 3007 of RCRA, 42 U.S.C. § 6927, or any other access or information-gathering authority.

XII. PROJECT COORDINATOR

A. EPA hereby designates Estena A. McGhee as the EPA Project Coordinator. Within ten (10) calendar days of the effective date of this Order, Respondent shall notify EPA, in writing, of the Project Coordinator it has selected. Each Project Coordinator shall be responsible for overseeing the implementation of this Order. The EPA Project Coordinator will be EPA's primary designated representative at the Facility. To the maximum extent possible, all communications between Respondent and EPA, and all documents, reports, approvals, submissions and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the Project Coordinators.

B. Each party shall provide at least seven (7) calendar days written notice to the other party prior to changing its Project Coordinator.

C. If EPA determines that conditions or activities at the Facility, whether or not in compliance with this Order, have caused or may cause a release or threatened release of hazardous wastes, hazardous waste constituents, hazardous substances, pollutants or contaminants which threaten or may pose a threat to the public health or welfare or to the environment, EPA may direct that Respondent stop further implementation of this Order for such period of time as may be needed to abate any such release or threatened release and/or to undertake any action which EPA determines is necessary to abate such release or threatened release.

D. The absence of the EPA Project Coordinator from the Facility shall not be cause for the delay or stoppage of work required by this Order.

XIII. NOTIFICATION

A. Unless otherwise specified, reports, correspondence, approvals, disapprovals, notices or other submissions relating to or required under this Order shall be in writing and shall be sent as follows:

1. Four copies of all documents to be submitted to the EPA shall be sent to:

   Estena A. McGhee
   U.S. Environmental Protection Agency
   Region III
   Mail Code 3HW61
   841 Chestnut Building
   Philadelphia, PA 19107

2. Documents to be submitted to Respondent shall be sent to:

   Gene Tripp, Plant Manager
   Quaker State Corporation
   Congo Plant
   P.O. Box 336
   Newell, West Virginia 26050

3. One copy of each document required to be submitted to EPA shall also be sent simultaneously to:

   Mr. Carroll Cathers
   West Virginia Division of Environmental Protection

Office of Waste Management
1356 Hansford Street
Charleston, West Virginia 25301

B. Any notice, report, certification, data presentation, or other document submitted by Respondent pursuant to this Order which discusses, describes, demonstrates, supports any finding or makes any representation concerning Respondent's compliance or noncompliance with any requirement of this Order shall be certified in the manner specified in Paragraph XIII. C below by a responsible corporate officer or a duly authorized representative of a responsible corporate officer. A "responsible corporate officer" means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (b) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $35 million (in 1987 dollars when the Consumer Price Index was 345.3), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. A person is a "duly authorized representative" only if: (1) the authorization is made in writing by a person described above; (2) the authorization specifies either an individual or position having responsibility for overall operation of the regulated facility or activity (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and (3) the written authorization is submitted to the Project Coordinator designated by EPA in Section XII ("Project Coordinator") of this Order.

C. The certification required by paragraph B, above, shall be in the following form:

> I certify that the information contained in or accompanying this **[type of submission]** is true, accurate, and complete.
>
> As to [the/those identified portion(s)] of this **[type of submission]** for which I cannot personally verify **[its/their]** accuracy, I certify under penalty of law that this **[type of submission]** and all attachments were prepared in accordance with procedures designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility

of fines and imprisonment for knowing violations.

Signature : _____

Name : _____

Title : _____

XIV. PENALTIES FOR NONCOMPLIANCE

If Respondent fails to comply with the terms and provisions of this Order, EPA may commence a civil action to require compliance and to assess a civil penalty not to exceed $25,000 per day of violation for each day of noncompliance pursuant to its authority under Section 3008(h)(2) of RCRA, 42 U.S.C. § 6982(h)(2).

XV. RESERVATION OF RIGHTS

A. EPA expressly reserves all rights and defenses that it may have, including the right to disapprove of work performed by Respondent pursuant to this Order, to require that Respondent correct and/or perform any work disapproved by EPA, and to request that Respondent perform tasks in addition to those stated in the Scope(s) of Work, Workplans, or this Order.

B. EPA hereby reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, including any which may pertain to Respondent's failure to comply with any of the requirements of this Order, including without limitation, the assessment of penalties under Section 3008(h)(2) of RCRA, 42 U.S.C. § 6928(h)(2). This Order shall not be construed as a covenant not to sue, release, waiver or limitation of any rights, remedies, powers and/or authorities, civil or criminal, which EPA has under RCRA, CERCLA, or any other statutory, regulatory or common law authority.

C. Compliance by Respondent with the terms of this Order shall not relieve Respondent of its obligations to comply with RCRA or any other applicable local, state or federal laws and regulations.

D. The issuance of this Order and Respondent's compliance with the same shall not limit or otherwise preclude the EPA from taking additional enforcement action pursuant to Section 3008(h) of RCRA, 42 U.S.C. § 6928(h), or any other authority, should EPA determine that such action is warranted.

E. This Order is not intended to be, nor shall it be

construed as, a permit. This Order does not relieve Respondent of any obligation to obtain and comply with any local, state, or federal permits.

F. EPA reserves the right to perform any portion of the work required herein or any additional site characterization, feasibility study, and response/corrective actions it deems necessary to protect human health or welfare or the environment. EPA may exercise its authority under RCRA, CERCLA and any other authority to undertake or require the performance of response actions at any time. EPA reserves the right to seek reimbursement from Respondent for costs incurred by the United States in connection with any such response actions. Notwithstanding compliance with the terms of this Order, Respondent is not released from liability, if any, for the costs of any response actions taken by EPA.

G. EPA reserves whatever rights it may have under CERCLA or any other law, or in equity, to recover from Respondent any costs incurred by EPA in overseeing the implementation of this Order.

XVI. OTHER CLAIMS

Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership, or corporation or other entity for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous waste constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

XVII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations. Respondent shall obtain or require its authorized representatives to obtain all permits and approvals necessary under such laws and regulations.

XVIII. NONLIABILITY OF THE UNITED STATES

Neither EPA nor the United States, by issuance of this Order, assumes any liability, for any acts or omissions by Respondent or by Respondent's employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order, nor shall EPA or the United

States be held as a party, to any contract entered into by Respondent, Respondent's employees, agents, successors, assigns, contractors, or consultants in carrying out activities pursuant to this Order.

XIX. AMENDMENTS/INCORPORATION

A. This Order may be amended in writing by EPA in accordance with the provisions Section 3008(h) of RCRA and 40 C.F.R. Part 24.

B. Any reports, plans, specifications, schedules, other submissions and attachments required by this Order are, upon written approval by EPA, incorporated into this Order. Any noncompliance with such EPA-approved reports, plans, specifications, schedules, other submissions and attachments shall be considered a violation of this Order and shall subject Respondent to the statutory penalty provisions included in Section XIV, "PENALTIES FOR NONCOMPLIANCE."

C. Minor modifications in the studies, techniques, procedures, designs or schedules utilized in carrying out this Order and necessary for the completion of the project may be made by written agreement of the Project Coordinators. Such modifications shall have as an effective date the date on which the agreement is signed by the EPA Project Coordinator.

D. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondent shall be construed as relieving Respondent of its obligation to obtain written approval, if and when required by this Order.

XX. SEVERABILITY

If any provision or authority of this Order or the application of this Order to any party or circumstance is challenged by Respondent or any other person or is held by any judicial or administrative authority to be invalid, the application of such provision to other parties or circumstances and the remainder of this Order shall not be affected thereby and shall remain in full force.

XXI. NOTICE OF OPPORTUNITY TO REQUEST A HEARING

A. In accordance with Section 3008(b) of RCRA, 42 U.S.C. § 6928(b) and 40 C.F.R. Section 24.05, this Initial Administrative Order shall become final and effective no later than thirty (30) calendar days after service unless Respondent files with the Clerk a response and requests a public hearing in

writing within thirty (30) calendar days after service of this Order. The response and request for hearing must be filed with:

Regional Hearing Clerk (3RC00)
Office of Regional Counsel
US EPA Region III
841 Chestnut Building
Philadelphia, PA 19107
Attn: RCRA 3008(h)

B. All subsequent documents filed in this action must be sent to the Clerk at the address specified above. Copies of the response and request for hearing and all subsequent documents filed in this action shall be sent to Samantha Phillips Fairchild, Office of Regional Counsel at the address specified in Section XXII, below. The response must specify each factual or legal determination or relief provision in the Order that the Respondent disputes and shall specify the basis upon which it disputes such determination or provision. The response shall also include any proposals for modification of the Order. Any hearing on this Order will be conducted in accordance with the final hearing procedures contained in 40 C.F.R. Part 24. A copy of these final hearing procedures are contained in Attachment E.

C. If Respondent fails to file a response and request for hearing within thirty (30) calendar days after service of this Initial Administrative Order, Respondent will be deemed to have waived its right to a hearing and the Order will become a Final Administrative Order in accordance with 40 C.F.R. Section 24.05(a).

XXII. SETTLEMENT CONFERENCE

Whether or not Respondent requests a hearing, an informal conference may be requested to discuss the facts of this case and to arrive at settlement. To request an informal conference contact:

Samantha Phillips Fairchild, Esq. (3RC33)
U.S. EPA Region III
841 Chestnut Building
Philadelphia, PA 19107
(215) 597-6568

A request for an informal conference does not extend the thirty (30) calendar day period during which a written response and request for a hearing must be submitted. The informal conference procedure may be pursued simultaneously with the public hearing procedure.

XXIII. TERMINATION AND SATISFACTION

The provisions of this Order shall be deemed satisfied and this Order shall terminate upon Respondent's receipt of written notice from EPA that Respondent has demonstrated, to the satisfaction of EPA, that the terms of this Order, including any additional tasks determined by EPA to be required pursuant to this Order, have been satisfactorily completed. This notice shall not, however, terminate Respondent's obligation to comply with any continuing obligations hereunder including, but not limited to, Sections XI ("RECORD PRESERVATION"), XV ("RESERVATION OF RIGHTS"), XVI ("OTHER CLAIMS"), XVII ("OTHER APPLICABLE LAWS"), AND XVIII ("NONLIABILITY OF UNITED STATES").

XXIV. SURVIVABILITY/PERMIT INTEGRATION

A. Subsequent to the issuance of this Order, a RCRA permit may be issued to the Facility incorporating the requirements of this Order by reference into the permit.

B. No requirement of this Order shall terminate upon the issuance of a RCRA permit unless such requirement is expressly replaced by a requirement in the permit.

XXV. FINAL/EFFECTIVE DATE

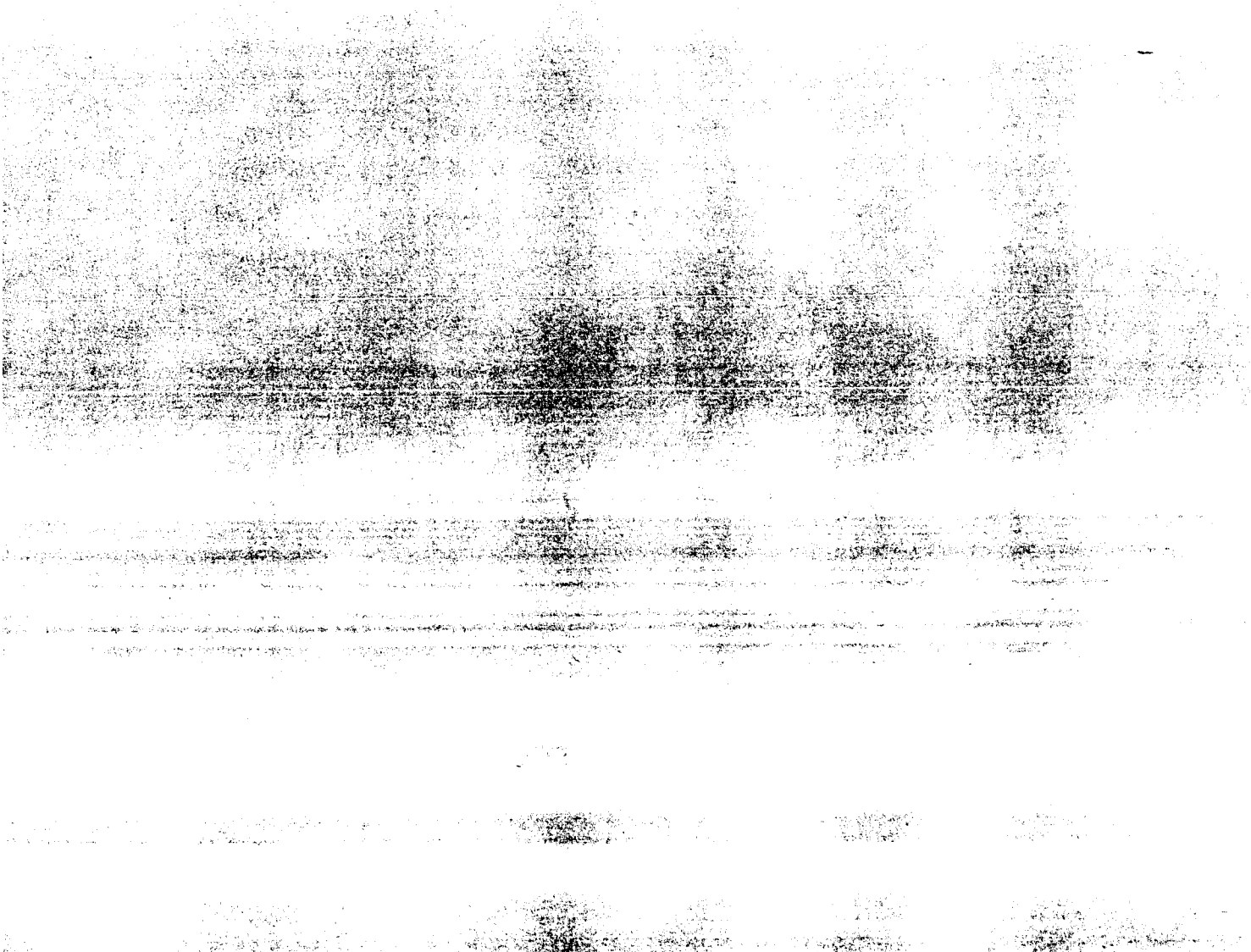
This Initial Administrative Order shall become a Final Administrative Order and become effective thirty (30) calendar days after it is served, unless Respondent files a response and requests a hearing pursuant to Section 3008(b) of RCRA, 42 U.S.C. § 6928(b) and 40 C.F.R. Section 24.05.

IT IS SO ORDERED:

BY: Maria Parisi Vickers Dec. 30th, 1993

MARIA PARISI VICKERS
ASSOCIATE DIRECTOR, OFFICE OF RCRA PROGRAMS Date
U.S. ENVIRONMENTAL PROTECTION AGENCY,
REGION III

Final/Effective Date:



Attachment A

INTERIM MEASURES
SCOPE OF WORK

PURPOSE

The purpose of Interim Measures are to identify and correct any actual or potential releases of hazardous waste or constituents from regulated units, solid waste management units, and other sources or areas at the facility which may present an endangerment to human health or the environment.

SCOPE

The Interim Measures consist of five tasks:

TASK I: INTERIM MEASURES WORKPLAN

A. Interim Measures Objectives
B. Community Relations Plan

TASK II: INTERIM MEASURES INVESTIGATION PROGRAM

A. Data Collection Quality Assurance Plan
B. Data Management Plan

TASK III: INTERIM MEASURES DESIGN PROGRAM

A. Design Plans and Specifications
B. Operation and Maintenance Plan
C. Project Schedule
D. Final Design Documents

TASK IV. INTERIM MEASURES CONSTRUCTION QUALITY ASSURANCE PLAN

A. Construction Quality Assurance Objectives
B. Inspection Activities
C. Sampling Requirements
D. Documentation

TASK V. REPORTS

A. Progress
B. Interim Measures Workplan
C. Final Design Documents
D. Draft Interim Measures Report
E. Final Interim Measures Report

TASK I: INTERIM MEASURES WORKPLAN

Respondent shall prepare an Interim Measures Workplan. The workplan shall include the development of several plans which shall be prepared concurrently.

A. Interim Measures Objectives

The workplan shall specify the objectives of the interim measures, demonstrate how the interim measures will abate releases and threatened releases, and, to the extent possible, be consistent and integrated with any long term solution at the facility. The Interim Measures Workplan will include a discussion of the technical approach, engineering design, engineering plans, schedules, budget, and personnel. The Workplan will also include a description of qualifications of personnel performing or directing the interim measures, including contractor personnel. This plan shall also document the overall management approach to the interim measures.

B. Community Relations Plan

Respondent shall prepare a plan for the dissemination of information to the public regarding interim measure activities and results. These activities shall include the preparation and distribution of fact sheets and participation in public meetings.

TASK II: INTERIM MEASURES INVESTIGATION PROGRAM

A. Data Collection Quality Assurance Plan

The Respondent shall prepare a plan to document all monitoring procedures: sampling, field measurements, and sample analysis performed during the investigation to characterize the source and contamination, so as to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented.

1. Data Collection Strategy

The strategy section of the Data Collection Quality Assurance Plan shall include, but not be limited to, the following:

a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

b. Description of methods and procedures to be used

to assess the precision, accuracy, and completeness of the measurement data;

c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Examples of factors which shall be considered and discussed include:

   i) Environmental conditions at the time of sampling;

   ii) Number of sampling points;

   iii) Representativeness of selected media; and

   iv) Representativeness of selected analytical parameters.

d. Description of the measures to be taken to assure that the following data sets can be compared to each other:

   i) Data generated by the Respondent over some time period;

   ii) Data generated by an outside laboratory or consultant versus data generated by the Respondent;

   iii) Data generated by separate consultants or laboratories; and

   iv) Data generated by an outside consultant or laboratory over some time period.

e. Details relating to the schedule and information to be provided in quality assurance reports. The reports should include, but not be limited to:

   i) Periodic assessment of measurement data accuracy, precision, and completeness;

   ii) Results of performance audits;

   iii) Results of system audits;

   iv) Significant quality assurance problems and recommended solutions; and

v) Resolutions of previously stated problems.

2. Sampling and Field Measurements

The Sampling and Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate sampling and field measurement locations, depths, etc.;

b. Providing a statistically sufficient number of sampling and field measurement sites;

c. Measuring all necessary ancillary data;

d. Determining which media are to be sampled (e.g., ground water, soil, sediment, etc.);

e. Determining which parameters are to be measured and where;

f. Selecting the frequency of sampling and field measurement and the length of sampling period;

g. Selecting the types of sample (e.g., composites vs. grabs) and the number of samples to be collected;

h. Documenting field sampling and field measurement operations and procedures, including;

i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters and adsorbing reagents);

ii) Procedures and forms for recording the exact location and specific considerations associated with sample and field measurement data acquisition;

iii) Documentation of specific sample preservation method;

iv) Calibration of field devices;

v) Collection of replicate samples;

vi) Submission of field-biased blanks, where

appropriate;

vii) Potential interferences present at the facility;

viii) Construction materials and techniques, associated with monitoring wells and piezometers;

ix) Field equipment listing and sample containers;

x) Sampling and field measurement order; and

xi) Decontamination procedures.

i. Selecting appropriate sample containers;

j. Sample preservation; and

k. Chain-of-custody, including:

i) Standardized field tracking reporting forms to establish sample custody in the field prior to shipment; and

ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Sample Analysis

The Sample Analysis section of the Data Collection Quality Assurance Plan shall specify the following:

a. Chain-of-custody procedures, including:

i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

iii) Specification of laboratory sample custody procedures for sample handling, storage, and dispersement for analysis.

b. Sample storage and holding times;

c. Sample preparation methods;

d. Analytical procedures, including:

i) Scope and application of the procedure;

ii) Sample matrix;

iii) Potential interferences;

iv) Precision and accuracy of the methodology; and

v) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation and reporting;

g. Internal quality control checks, laboratory performance and systems audits and frequency, including:

i) Method blank(s);

ii) Laboratory control sample(s);

iii) Calibration check sample(s);

iv) Replicate sample(s);

v) Matrix-spiked sample(s);

vi) "Blind" quality control sample(s);

vii) Control charts;

viii) Surrogate samples;

ix) Zero and span gases; and

x) Reagent quality control checks.

A performance audit may be conducted by EPA on the laboratories selected by the Respondent.

h. Preventive maintenance procedures and schedules;

i. Corrective action (for laboratory problems); and

j. Turnaround time.

B. Data Management Plan

The Respondent shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement code;

b. Sampling or field measurement location and sample or measurement type;

c. Sampling or field measurement raw data;

d. Laboratory analysis ID number;

e. Property or component measured; and

f. Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

a. Unsorted (raw) data;

b. Results for each medium, or for each constituent monitored;

c. Data reduction for numerical analysis;

d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

e. Summary data.

3. Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

a. Display sampling location and sampling grid;

b. Indicate boundaries of sampling area, and areas where more data are required;

c. Display levels of contamination at each sampling location;

d. Display geographical extent of contamination;

e. Display contamination levels, averages, and maxima;

f. Illustrate changes in concentration in relation to distance from the source, time, depth, or other parameters; and

g. Indicate features affecting intramedia transport and show potential receptors.

TASK III: INTERIM MEASURES DESIGN PROGRAM

A. Design Plans and Specifications

Respondent shall develop clear and comprehensive design plans and specifications which include, but are not limited to, the following:

1. Discussion of the design strategy and the design basis, including:

a. Compliance with all applicable or relevant environmental and public health standards; and

b. Minimization of environmental and public impacts.

2. Discussion of the technical factors of importance, including:

a. Use of currently accepted environmental control measures and technology;

b. The constructability of the design; and

c. Use of currently acceptable construction practices and techniques.

3. Description of assumptions made and detailed justification of these assumptions;

4. Discussion of the possible sources of error and references to possible operation and maintenance problems;

5. Detailed drawings of the proposed design, including:

   a. Qualitative flow sheets;

   b. Quantitative flow sheets;

   c. Facility layouts;

   d. Utility locations.

6. Tables listing materials, equipment, and specifications;

7. Tables giving material balances; and

8. Appendices, including:

   a. Sample calculations (one example presented and explained clearly for a significant or unique design calculation);

   b. Derivation of equations essential to understanding the report; and

   c. Results of laboratory or field tests.

General correlation between drawings and technical specifications, is a basic requirement of any set of working construction plans and specifications. Before submitting the project specifications, Respondent shall coordinate and cross-check the specifications and drawings and complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

B. Operation and Maintenance Plan

Respondent shall prepare an Operation and Maintenance Plan to cover both implementation and long term maintenance of the interim measure(s). The plan shall be composed of the following elements:

1. Equipment start-up and operator training;

Respondent shall prepare, and include in the technical specifications governing treatment systems, contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, startup, and operation of the treatment systems, and training covering appropriate operational procedures once the startup has been accomplished successfully.

2. Description of normal operation and maintenance (O&M), including:

   a. Description of tasks for operation;

   b. Description of tasks for maintenance;

   c. Description of prescribed treatment or operation conditions;

   d. Schedule showing frequency of each O&M task; and

   e. Common and/or anticipated remedies.

3. Description of routine monitoring and laboratory testing, including:

   a. Description of monitoring tasks;

   b. Description of required laboratory tests and their interpretation;

   c. Required QA/QC; and

   d. Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.

4. Description of equipment, including:

   a. Equipment identification;

   b. Installation of monitoring components;

   c. Maintenance of site equipment; and

   d. Replacement schedule for equipment and installed components.

5. Records and reporting mechanisms required, including:

   a. Daily operating logs;

   b. Laboratory records;

c. Mechanism for reporting emergencies;

d. Personnel and maintenance records; and

e. Monthly/annual reports to Federal/state agencies.

The Operation and Maintenance Plan shall be submitted with the Final Design Documents.

C. Project Schedule

Respondent shall develop a detailed Project Schedule for construction and implementation of the interim measure(s) which identifies timing for initiation and completion of all critical path tasks. Respondent shall specifically identify dates for completion of the project and major interim milestones which are enforceable terms of this order. A Project Schedule shall be submitted simultaneously with the Final Design Documents.

be sure to note WVD W/RT NPD

D. Final Design Documents (NA)

The Final Design Documents shall consist of the Final Design Plans and Specifications (100% complete), the Final Draft Operation and Maintenance Plan, and the Project Schedule. Respondent shall submit the final documents, 100% complete, with reproducible drawings and specifications. The quality of the design documents should be such that Respondent would be able to include them in a bid package and invite contractors to submit bids for the construction project.

TASK IV: INTERIM MEASURES CONSTRUCTION QUALITY ASSURANCE PLAN (—?)

A. Construction Quality Assurance Objectives

In the CQA plan, Respondent shall identify and document the objectives and framework for the development of a construction quality assurance program including, but not limited to the following: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; and documentation. The responsibility and authority of all organizations (i.e., technical consultants, construction firms, etc.) and key personnel involved in the construction of the interim measures shall be described fully in the CQA plan. Respondent must identify a CQA officer and the necessary supporting inspection staff.

B. Inspection Activities

The observations and tests that will be used to monitor the construction and/or installation of the components of the interim measure(s) shall be summarized in the CQA plan. The

plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with all environmental requirements and include, but not be limited to, air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. The inspection should also ensure compliance with all health and safety procedures. In addition to oversight inspections, Respondent shall conduct the following activities:

1. Preconstruction inspection and meeting;

   Respondent shall conduct a preconstruction inspection and meeting to:

   a. Review methods for documenting and reporting inspection data;

   b. Review methods for distributing and storing documents and reports;

   c. Review work area security and safety protocol;

   d. Discuss any appropriate modifications of the construction quality assurance plan to ensure that site-specific considerations are addressed; and

   e. Conduct a site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

   The preconstruction inspection and meeting shall be documented by a designated person and minutes should be transmitted to all parties.

2. Prefinal inspection;

   Upon preliminary project completion, Respondent shall notify EPA for the purposes of conducting a prefinal inspection. The prefinal inspection will consist of a walk-through inspection of the entire project site. The inspection is to determine whether the project is complete and consistent with the contract documents and with the EPA approved interim measure(s). Any outstanding construction items discovered during the inspection will be identified and noted. Additionally, treatment equipment will be operationally tested by Respondent. Respondent will certify that the equipment has performed to meet the purpose and intent of the specifications. Retesting will be completed where deficiencies are revealed. The prefinal

inspection report should outline the outstanding construction items, actions required to resolve items, completion date for these items, and date for final inspection.

3. Final inspection;

Upon completion of any outstanding construction items, Respondent shall notify EPA for the purposes of conducting a final inspection. The final inspection will consist of a walk-through inspection of the project site. The prefinal inspection report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the pre-final inspection. Confirmation shall be made that outstanding items have been resolved.

C. Sampling Requirements

The sampling and testing activities, sample size, sample and test locations, frequency of testing, acceptance and rejection criteria, and plans for correcting problems should be presented in the CQA plan.

D. Documentation

Reporting requirements for CQA activities shall be described in detail in the CQA plan. This plan shall include such items as daily summary reports, inspection data sheets, problem identification and interim measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records shall be presented in the CQA plan.

TASK V: REPORTS

A. Progress

Respondent shall at a minimum provide the EPA with signed, bimonthly progress reports containing:

1. A description and estimate of the percentage of the interim measures completed;

2. Summaries of all findings;

3. Summaries of all changes made in the interim measures during the reporting period;

4. Summaries of all contacts with representative of the local community, public interest groups, or state government during the reporting period;

5. Summaries of all problems or potential problems encountered during the reporting period;

6. Actions being taken to rectify problems;

7. Changes in personnel during the reporting period;

8. Projected work for the next reporting period; and

9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

B. Interim Measures Workplan

Respondent shall submit an Interim Measures Workplan as described in this Attachment.

C. Final Design Documents

Respondent shall submit the Final Design Documents as described in this Attachment.

D. Draft Interim Measures Report

At the "completion" of the construction of the project (except for long term operation, maintenance, and monitoring), Respondent shall submit an Interim Measures Implementation Report to the Agency. The Report shall document that the project is consistent with the design specifications and that the interim measures are performing adequately. The Report shall include, but not be limited to the following elements:

1. Synopsis of the interim measures and certification of the design and construction;

2. Explanation of any modifications to the plans and why these were necessary for the project;

3. Listing of the criteria, established before the interim measures were initiated, for judging the functioning of the interim measures and also for explaining any modification to these criteria;

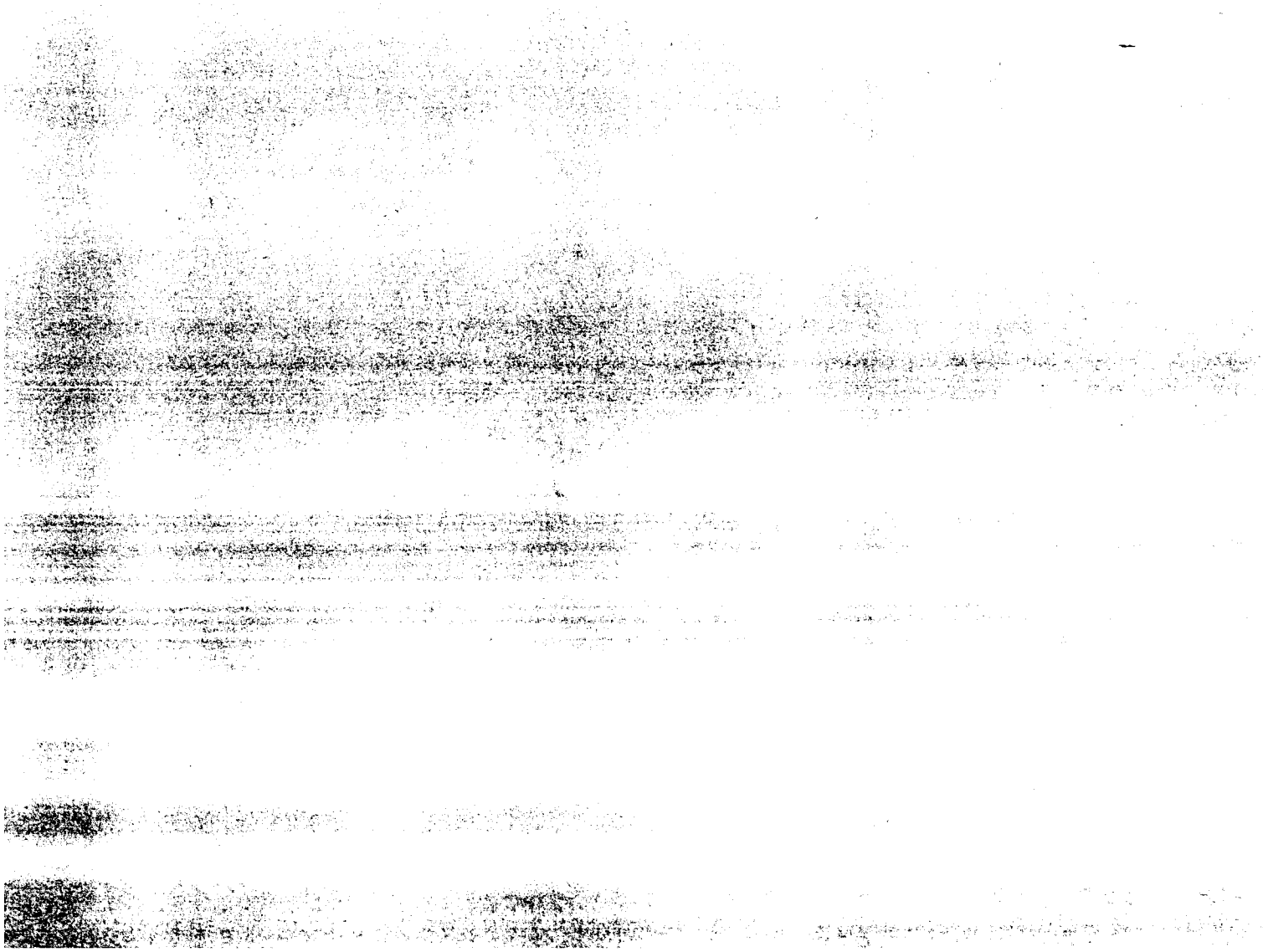
4. Results of facility monitoring, indicating that the interim measures will meet or exceed the performance criteria; and

5. Explanation of the operation and maintenance (including monitoring) to be undertaken at the facility.

This report shall include the inspection summary reports, inspection data sheets, problem identification and corrective reporting data sheets, design engineers' acceptance reports, deviations from design and material specifications (with justifying documentation), and as-built drawings.

E. Final Interim Measures Report

Respondent shall finalize the Interim Measures Workplan and the Interim Measures Implementation Report incorporating comments received on the draft submissions.



Attachment B

RCRA FACILITY INVESTIGATION
SCOPE OF WORK

PURPOSE

The purpose of this RCRA Facility Investigation ("RFI") is to determine the nature and extent of releases of hazardous waste or constituents from regulated units, solid waste management units, and other source areas at the facility,and to gather all necessary data to support the Corrective Measures Study. The RFI includes the collection of site specific data to evaluate any human health and or ecological impacts of contamination from the site. The Respondent shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RCRA remedial investigation.

SCOPE

The RCRA Facility Investigation consists of seven tasks:

TASK I: DESCRIPTION OF CURRENT CONDITIONS

A. Facility Background
B. Nature and Extent of Contamination — HMI will assist w IBZ
C. Implementation of Interim Measures

TASK II: PRE-INVESTIGATION EVALUATION OF CORRECTIVE MEASURES TECHNOLOGIES ✓ SETech

TASK III: RFI WORKPLAN REQUIREMENTS

A. Project Management Plan
B. Data Collection Quality Assurance Plan 75-85
C. Data Management Plan 90 ±
D. Community Relations Plan 75-85

TASK IV: FACILITY INVESTIGATION

A. Environmental Setting
B. Source Characterization
C. Contamination Characterization
D. Potential Receptor Identification
E. Risk Assessment

TASK V: INVESTIGATION ANALYSIS

A. Data Analysis
B. Protection Standards

TASK VI: LABORATORY AND BENCH-SCALE STUDIES

TASK VII: REPORTS
- A. Preliminary (Task) I Report and RFI Workplan
- B. Progress
- C. Draft and Final

TASK I: DESCRIPTION OF CURRENT CONDITIONS

The Respondent shall submit for EPA approval a report providing the background information pertinent to the facility, the nature of contamination, and the interim measures as set forth below. The data gathered during any previous investigations or inspections and other relevant data shall be included.

A. Facility Background

The Respondent's report shall summarize the regional location, pertinent boundary features, general facility physiography, hydrogeology, and historical use of the facility for the treatment, storage, or disposal of solid and hazardous waste. The Respondent's report shall include:

1. Map(s) depicting the following:

   a. General geographic location;

   b. Property lines, with the owners of all adjacent property clearly indicated;

   c. Topography (with a contour interval of 10 feet and a scale of 1 inch = 100 feet), waterways, all wetlands, floodplains, water features, drainage patterns;

   d. All tanks, buildings, utilities, paved areas, easements, rights-of-way, and other features;

   e. All solid or hazardous waste treatment, storage, or disposal areas active after November 19, 1980;

   f. All known past solid or hazardous waste treatment, storage, or disposal areas and all known spill, fire, or other accidental release locations regardless of whether they were active on November 19, 1980;

   g. All known past and present product and waste underground tanks or piping;

   h. Surrounding land uses (residential, commercial,

agricultural, recreational); and

i. Location of all production and ground water monitoring wells. These wells shall be clearly labeled. Ground and top of casing elevations shall be included (these elevations may be included as an attachment).

All maps shall be consistent with the requirements set forth in 40 C.F.R. Section 270.14 and be of sufficient detail and accuracy to locate and report all current and future work performed at the site;

2. History and description of ownership and operation, solid and hazardous waste generation, and treatment, storage, and disposal activities at the facility;

3. Approximate dates or periods of past product and waste spills, identification of the materials spilled, the amount spilled, the location of the spills, and a description of the response actions conducted (local, state, or Federal response units or private parties), including any inspection reports or technical reports generated as a result of the response; and

4. Summary of past permits requested and/or received, any enforcement actions and their subsequent responses.

B. Nature and Extent of Contamination

The Respondent shall prepare and submit for EPA approval a preliminary report describing the existing information on the nature and extent of contamination.

1. The Respondent's report shall summarize all possible source areas of contamination. This, at a minimum, should include all regulated units, solid waste management units, spill areas, and other suspected source areas of contamination. For each area, the Respondent shall identify the following:

   a. Location of unit/area (which shall be depicted on a facility map);

   b. Quantities of solid and hazardous wastes;

   c. Hazardous waste or hazardous constituents, to the extent known; and

   d. Identification of areas where additional information is necessary.

2. The Respondent shall prepare an assessment and description of the existing degree and extent of contamination. This should include:

   a. Available monitoring data and qualitative information on locations and levels of contamination at the facility;

   b. All potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality; and

   c. Potential impact(s) on human health and the environment, including demography, ground water and surface water use, and land use.

HMI

C. Implementation of Interim Measures

The Respondent's report shall document interim measures which were, or are, being undertaken at the facility. This report shall include:

1. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;

2. Design, construction, operation, and maintenance requirements;

3. Schedules for design, construction, and monitoring; and

4. Schedule for progress reports.

TASK II: PRE-INVESTIGATION EVALUATION OF CORRECTIVE MEASURES TECHNOLOGIES

Prior to starting the facility investigation, the Respondent shall submit to EPA a report that identifies the potential corrective measures technologies known to Respondent at the time of report submittal that may be used on site or off site for the containment, treatment, remediation, and/or disposal of contamination. This report also shall identify any field, laboratory, bench- or pilot-scale data that needs to be collected in the facility investigation to facilitate the evaluation and selection of the final corrective measure or measures (e.g., compatibility of waste and construction materials, information to evaluate effectiveness, treatability of wastes, etc.).

TASK III: RFI WORKPLAN REQUIREMENTS

The Respondent shall prepare a RCRA Facility Investigation Workplan. This RFI Workplan shall include the development of several plans, which shall be prepared concurrently. During the RCRA Facility Investigation, it may be necessary to revise the RFI Workplan to increase or decrease the detail of information collected to accommodate the facility-specific situation. The RFI Workplan shall include the following:

A. Project Management Plan

The Respondent shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.

B. Data Collection Quality Assurance Plan

The Respondent shall prepare a plan to document all monitoring procedures: sampling, field measurements, and sample analysis performed during the investigation to characterize the environmental setting, source, and contamination, so as to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented.

1. Data Collection Strategy

The Data Collection Strategy section of the Data Collection Quality Assurance Plan shall include, but not be limited to, the following:

a. Description of the intended uses for the data and of the necessary level of precision and accuracy for these intended uses;

b. Description of methods and procedures to be used to assess the precision, accuracy, and completeness of the measurement data;

c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Examples of factors which shall be considered and

discussed include:

i) Environmental conditions at the time of sampling;

ii) Number of sampling points;

iii) Representativeness of selected media; and

iv) Representativeness of selected analytical parameters.

d. Description of the measures to be taken to assure that the following data sets can be compared to each other:

i) RFI data generated by the Respondent over some time period;

ii) RFI data generated by an outside laboratory or consultant versus data generated by the Respondent;

iii) Data generated by separate consultants or laboratories; and

iv) Data generated by an outside consultant or laboratory over some time period.

e. Details relating to the schedule of and information to be provided in quality assurance reports. The reports should include, but not be limited to:

i) Periodic assessment of measurement data accuracy, precision, and completeness;

ii) Results of performance audits;

iii) Results of system audits;

iv) Significant quality assurance problems and recommended solutions; and

v) Resolutions of previously stated problems.

2. Sampling

The Sampling section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate sampling locations, depths, etc.;

b. Providing a statistically sufficient number of sampling sites;

c. Measuring all necessary ancillary data;

d. Determining conditions under which sampling should be conducted;

e. Determining which media are to be sampled (e.g., ground water, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of sampling and length of sampling period;

h. Selecting the types of sample (e.g., composites vs. grabs) and number of samples to be collected;

i. Documenting field sampling operations and procedures, including:

   i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters and adsorbing reagents);

   ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;

   iii) Documentation of specific sample preservation method;

   iv) Calibration of field devices;

   v) Collection of replicate samples;

   vi) Submission of field-biased blanks, where appropriate;

   vii) Potential interferences present at the facility;

viii) Construction materials and techniques associated with monitoring wells and piezometers;

ix) Field equipment listing and sample containers;

x) Sampling order; and

xi) Decontamination procedures.

j. Selecting appropriate sample containers;

k. Sample preservation; and

l. Chain-of-custody, including:

i) Standardized field tracking reporting forms to establish sample custody in the field prior to shipment; and

ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Field Measurements

The Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate field measurement locations, depths, etc.;

b. Providing a statistically sufficient number of field measurements;

c. Measuring all necessary ancillary data;

d. Determining conditions under which field measurement should be conducted;

e. Determining which media are to be addressed by appropriate field measurements (e.g., ground water, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of field measurement and length of field measurement periods; and

h. Documenting field measurement operations and procedures, including:

i) Procedures and forms for recording raw data and the exact location, time, and facility-specific considerations associated with the data acquisition;

ii) Calibration of field devices;

iii) Collection of replicate measurements;

iv) Submission of field-biased blanks, where appropriate;

v) Potential interferences present at the facility;

vi) Construction materials and techniques associated with monitoring wells and piezometers used to collect field data;

vii) Field equipment listing;

viii) Order in which field measurements will be made; and

ix) Decontamination procedures.

4. Sample Analysis

The Sample Analysis section of the Data Collection Quality Assurance Plan shall specify the following:

a. Chain-of-custody procedures, including:

i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, to obtain documents of shipment, and to verify the data entered onto the sample custody records;

ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

iii) Specification of laboratory sample custody procedures for sample handling, storage, and dispersement for analysis.

b. Sample storage;

c. Sample preparation methods;

d. Analytical procedures, including:

i) Scope and application of the procedure;

ii) Sample matrix;

iii) Potential interferences;

iv) Precision and accuracy of the methodology; and

v) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation, and reporting;

g. Internal quality control checks, laboratory performance and systems audits, and frequency, including:

i) Method blank(s);

ii) Laboratory control sample(s);

iii) Calibration check sample(s);

iv) Replicate sample(s);

v) Matrix-spiked sample(s);

vi) "Blind" quality control sample(s);

vii) Control charts;

viii) Surrogate samples;

ix) Zero and span gases; and

x) Reagent quality control checks.

A performance audit will be conducted by EPA on the laboratories selected by the Respondent. If EPA requires, this audit must be completed and approved prior to the facility investigation.

h. Preventive maintenance procedures and schedules;

i. Corrective action (for laboratory problems); and

j. Turnaround time.

C. Data Management Plan

The Respondent shall develop and initiate a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement code;

b. Sampling or field measurement location and sample or measurement type;

c. Sampling or field measurement raw data;

d. Laboratory analysis ID number;

e. Property or component measured; and

f. Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

a. Unsorted (raw) data;

b. Results for each medium, or for each constituent monitored;

c. Data reduction for statistical analysis;

d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

e. Summary data.

in accordance with the Data Collection Quality Assurance Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting

The Respondent shall collect information to supplement and verify existing information on the environmental setting at the facility. The Respondent shall characterize the following:

1. Hydrogeology

The Respondent shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

a. Description of the regional and facility-specific geologic and hydrogeologic characteristics affecting ground water flow beneath the facility, including:

i) Regional and facility-specific stratigraphy: description of strata, including strike and dip, and identification of stratigraphic contacts;

ii) Structural geology: description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);

iii) Depositional history;

iv) Identification and characterization of areas and amounts of recharge and discharge;

v) Regional and facility-specific ground water flow patterns;

vi) Facility-specific ground water flow patterns in the saturated soil horizon, the shallow bedrock aquifer, and the deep bedrock aquifer systems; and

vii) Characterization of seasonal variations in each ground water flow regime.

b. Analysis of any topographic features that might influence the ground water flow system. (Note: Stereographic analysis of aerial photographs may aid in this analysis.)

c. Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:

i) Hydraulic conductivity and porosity (total and effective);

ii) Lithology, grain size, sorting, and degree of cementation;

iii) Interpretation of hydraulic interconnections between saturated zones; and

iv) Attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content etc.).

d. Based on field studies and cores, structural geology and hydrogeologic cross sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways, identifying:

i) Sand and gravel deposits in unconsolidated deposits;

ii) Zones of fracturing or channeling in unsolidated or unconsolidated deposits;

iii) Zones of high permeability or low permeability that might direct and/or restrict the flow of contaminants;

iv) The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs; and

v) Water-bearing zones above the first confining layer that may serve as a

pathway for contaminant migration, including perched zones of saturation.

e. Based on data obtained from ground water monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring, including:

i) Water-level contour and/or potentiometric maps;

ii) Hydrologic cross-sections showing vertical gradients;

iii) The flow system, including the vertical and horizontal components of flow; and

iv) Any temporal changes in hydraulic gradients, for example, due to seasonal influences.

f. Description of man-made influences that may affect the hydrogeology of the site, identifying:

i) Active and inactive local water supply and production wells with an approximate schedule of pumping; and

ii) Man-made hydraulic structures (pipelines, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention areas, etc.).

2. Soils

The Respondent shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). Such characterization shall include, but not be limited to, the following information:

a. Soil Conservation Service (SCS) soil classification;

b. Surface soil distribution;

c. Soil profile, including American Standard Test Method (ASTM) classification of soils;

d. Transects of soil stratigraphy;

e. Hydraulic conductivity (saturated and unsaturated);

f. Relative permeability;

g. Bulk density;

h. Porosity;

i. Soil sorptive capacity;

j. Cation exchange capacity (CEC);

k. Soil organic content;

l. Soil pH;

m. Particle size distribution;

n. Depth of water table;

o. Moisture content;

p. Effect of stratification on unsaturated flow;

q. Infiltration;

r. Evapotranspiration;

s. Storage capacity;

t. Vertical flow rate; and

u. Mineral content.

3. Surface Water and Sediment

The Respondent shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization shall include, but not be limited to, the following activities and information:

a. Description of the temporal and permanent surface water bodies including:

i) For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;

ii) For impoundments: location, elevation, surface area, depth, volume, freeboard, and purpose of impoundment;

iii) For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., 100-year event);

iv) Drainage patterns; and

v) Evapotranspiration.

b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients (NH3, NO3-/NO2- PO4-3), chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.

c. Description of sediment characteristics, including:

i) Deposition area;

ii) Thickness profile; and

iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)

4. Air

The Respondent shall provide information characterizing the climate in the vicinity of the facility. Such information shall include, but not be limited to:

a. Description of the following parameters:

i) Annual and monthly rainfall averages;

ii) Monthly temperature averages and extremes;

iii) Wind speed and direction;

iv) Relative humidity/dew point;

v) Atmospheric pressure;

vi) Evaporation data;

vii) Development of inversions; and

viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.

b. Description of topographic and man-made features which affect air flow and emission patterns, including:

i) Ridges, hills, or mountain areas;

ii) Canyons or valleys;

iii) Surface water bodies (e.g., rivers, lakes, bays, etc.);

iv) Wind breaks and forests; and

v) Buildings.

B. Source Characterization

The Respondent shall collect analytical data to supplement and update the description prepared pursuant to Task I.B. herein. The data shall completely characterize the wastes and the areas where wastes have been placed, including: type; quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security and engineered barriers). This information shall include quantification of the following specific characteristics at each source area:

1. Unit/Disposal Area Characteristics:

a. Location of unit/disposal area;

b. Type of unit/disposal area;

c. Design features;

d. Operating practices (past and present);

e. Period of operation;

f. Age of unit/disposal area;

g. General physical conditions; and

h. Method used to close the unit/disposal area.

2. Waste Characteristics:

a. Type of waste/product placed in the unit:

i) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing, or reducing agent);

ii) Quantity; and

iii) Chemical composition.

b. Physical and chemical characteristics:

i) Physical form (solid, liquid, gas);

ii) Physical description (e.g., powder, oily sludge);

iii) Temperature;

iv) pH;

v) General chemical class (e.g., acid, base, solvent);

vi) Molecular weight;

vii) Density;

viii) Boiling point;

ix) Viscosity;

x) Solubility in water;

xi) Cohesiveness of the waste; and

xii) Vapor pressure.

c. Migration and dispersal characteristics of the waste/product:

i) Sorption;

ii) Biodegradability, bioconcentration, biotransformation;

iii) Photodegradation rates;

iv) Hydrolysis rates; and

v) Chemical transformations.

The Respondent shall document the procedures used in making the above determinations.

C. Contamination Characterization

The Respondent shall collect analytical data on ground water, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility. This data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Respondent shall address the following types of contamination at the facility:

1. Ground Water Contamination

The Respondent shall conduct a ground water investigation to fully characterize all plumes of contamination at the facility. This investigation shall, at a minimum, provide the following information:

a. Specific origin (source) of each contaminant plume;

b. Description of the full horizontal and vertical extent of each immiscible or dissolved plume(s) originating from the facility;

c. Horizontal and vertical direction of contaminant movement;

d. Velocity of contaminant movement;

e. Horizontal and vertical concentration profiles of "Appendix IX constituents" (see 40 C.F.R. Section Part 264, App. IX) in the plume(s);

f. Evaluation of factors influencing the plume movement; and

g. Extrapolation of future contaminant movement.

The Respondent shall document the procedures used to characterize contaminant plume(s), for example, geophysics, modeling, pump tests, slug tests, nested piezometers, etc.

2. Soil Contamination

The Respondent shall conduct an investigation to characterize the contamination of the soil and rock units above the water table in the vicinity of the contaminant release. The investigation shall include the following information:

a. Specific origin (source) of each soil contamination area;

b. Description of the full vertical and horizontal extent of contamination;

c. Description of contaminant and soil chemical properties within the contaminant source area and plume. This includes contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, and other factors that might affect contaminant migration and transformation;

d. Specific contaminant concentrations;

e. Velocity and direction of contaminant movement; and

f. Extrapolation of future contaminant movement.

The Respondent shall document the procedures used in making the above determinations.

3. Surface Water and Sediment Contamination

The Respondent shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from contaminant releases at the facility. The investigation shall include, but not be limited to, the following information:

a. Specific origin (source) of each contaminant release to surface water;

b. Description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;

c. Horizontal and vertical direction of contaminant movement;

d. Contaminant velocity;

e. Evaluation of the physical, biological, and chemical factors influencing contaminant movement;

f. Extrapolation of future contaminant movement; and

g. Description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.

The Respondent shall document the procedures used in making the above determinations.

4. Air Contamination

The Respondent shall conduct an investigation to characterize the particulate and gaseous contaminants released into the atmosphere. This investigation shall provide the following information:

a. Specific origin (source) of each contaminant release to the air;

b. Description of the horizontal and vertical extent and velocity of contaminant movement;

c. Rate and amount of the release; and

d. Chemical and physical composition of the contaminants(s) released, including horizontal and vertical concentration profiles.

The Respondent shall document the procedures used in making the above determinations.

5. Subsurface Gas Contamination

The Respondent shall conduct an investigation to characterize subsurface gases emitted from buried hazardous waste and hazardous constituents in the ground water. This investigation shall include the following information:

a. Specific origin (source) of each release of subsurface gas contaminants;

b. Description of the horizontal and vertical extent of subsurface gas mitigation;

c. Chemical composition of the gases being emitted;

d. Rate, amount, and density of the gases emitted; and

e. Horizontal and vertical concentration profiles of the subsurface gases emitted.

The Respondent shall document the procedures used in making the above determinations.

D. Potential Receptor Identification

The Respondent shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples may be needed. Data on observable effects in ecosystems may also be obtained. The following characteristics shall be identified:

1. Local uses and possible future uses of ground water:

   a. Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and

   b. Location of ground water users, including wells and discharge areas.

2. Local uses and possible future uses of surface waters draining from the facility:

   a. Domestic and municipal (e.g., potable and lawn/garden watering);

   b. Recreational (e.g., swimming, fishing);

   c. Agricultural;

   d. Industrial; and

   e. Environmental (e.g., fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including, but not limited to:

   a. Recreation;

   b. Hunting;

   c. Residential;

   d. Commercial;

e. Zoning; and

f. Relationship between population locations and prevailing wind direction.

4. A description of the ecology overlying and adjacent to the facility must include:

a. Location and size of each identified habitat (e.g., stream reaches, roads, wetlands, or forested areas) within the physical boundaries defined for the assessment; and

b. Listing and physical assessment of the ecosystems and population potentially exposed to contamination.

5. An evaluation of the pollutant impacts on the ecosystems/populations potentially exposed to contamination. This evaluation may be accomplished through the use of toxicity test (acute and chronic) population surveys and literature reviews.

6. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age, sex, and sensitive subgroups.

7. A description of the significance, uniqueness, or protected status of potentially exposed ecosystems.

E. Risk Assessment

The baseline risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases (under the assumption of no action). The baseline risk assessment contributes to the site characterization and subsequent development, evaluation, and selection of appropriate response alternatives. There are four steps in the risk assessment process:

1. Determine contaminants of concern: Data collection and evaluation involves gathering and analyzing the site data relevant to the human health evaluation and identifying the substances present at the site that are the focus of the risk assessment process.

2. Exposure assessment: Using the procedure outlined in Section D for determining potential receptors, estimate the magnitude of actual and/or potential human exposures, the frequency and duration of these

exposures, and the pathways by which humans are potentially exposed. In the exposure assessment, reasonable maximum estimates of exposure are developed for both current and future land-use assumptions.

3. Toxicity assessment: This component of the risk assessment considers the types of adverse health effects associated with chemical exposures and the relationship between the magnitude of exposure and adverse effects.

4. Risk Characterization: This summarizes and combines outputs of the exposure and toxicity assessments to characterize baseline risk, both in quantitative expressions and qualitative statements.

TASK V: INVESTIGATION ANALYSIS

The Respondent shall prepare an analysis and summary of all facility investigations and the results of such investigations. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support the Corrective Measures Study.

A. Data Analysis

The Respondent shall analyze all facility investigation data outlined in Task IV "FACILITY INVESTIGATION" and prepare a report on the type and extent of contamination at the facility, including sources and migration pathways. The report shall describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative of the area.

B. Protection Standards

1. Ground Water Protection Standards

For regulated units, the Respondent shall provide information to support the Agency's selection/ development of Ground Water Protection Standards for all of the Appendix VIII constituents found in the ground water during the RCRA Facility Investigation (Task IV).

a. The Ground Water Protection Standards shall consist of:

i) Maximum Contaminant Level (MCL) for any constituents with an EPA promulgated Maximum Contaminant Level (MCL), if the background level of the constituent is below the value of the EPA-approved MCL; or

ii) Background level of that constituent in the ground water; or

iii) EPA-approved Alternate Concentration Limit (ACL).

b. Information to support the EPA's selection of Alternate Concentration Limits (ACLs) shall be developed by the Respondent in accordance with applicable EPA guidance. For any proposed ACLs, the Respondent shall include a justification based upon the criteria set forth in 40 C.F.R. Section 264.94(b).

c. The EPA shall notify the Respondent, in writing, of approval, disapproval, or modifications. The EPA shall specify, in writing, the reason(s) for any disapproval or modification.

d. Within thirty (30) calendar days of receipt of EPA's notification of disapproval of any proposed ACLs, the Respondent shall amend and submit revisions to EPA.

2. Other Relevant Protection Standards

The Respondent shall identify all relevant and applicable standards for the protection of human health and the environment (e.g., National Ambient Air Quality Standards, Federally-approved state water quality standards, etc.).

TASK VI: LABORATORY AND BENCH-SCALE STUDIES

Based on the EPA approved report submitted pursuant to Task II of this order, the Respondent shall conduct laboratory and/or bench-scale studies to determine the applicability of corrective measures technology or technologies to facility conditions. The Respondent shall analyze the technologies, based on literature review, vendor contracts, and past experience, to determine the testing requirements.

The Respondent shall develop a testing plan identifying the types(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and

interpretation. Upon completion of the testing, the Respondent shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Respondent shall prepare a report summarizing the testing program and its results, both positive and negative.

TASK VII: REPORTS

A. Preliminary (Task I) Report and RFI Workplan

The Respondent shall submit to the EPA reports on Tasks I and II when it submits the RCRA Facility Investigation Workplan (Task III).

B. Progress

The Respondent shall, at a minimum, provide the EPA with signed, bimonthly progress reports containing:

1. Description and estimate of the percentage of the RFI completed;

2. Summaries of all findings;

3. Summaries of all changes made in the RFI during the reporting period;

4. Summaries of all contacts with representatives of the local community, public interest groups, or state government during the reporting period;

5. Summaries of all problems or potential problems encountered during the reporting period;

6. Actions being taken to rectify problems;

7. Changes in personnel during the reporting period;

8. Projected work for the next reporting period; and

9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

C. Draft and Final

Upon EPA approval, the Respondent shall prepare a RCRA Facility Investigation Report to present Tasks IV-V. The RCRA Facility Investigation Report shall be developed in draft form for EPA review. The RCRA Facility Investigation Report shall be developed in final format, incorporating

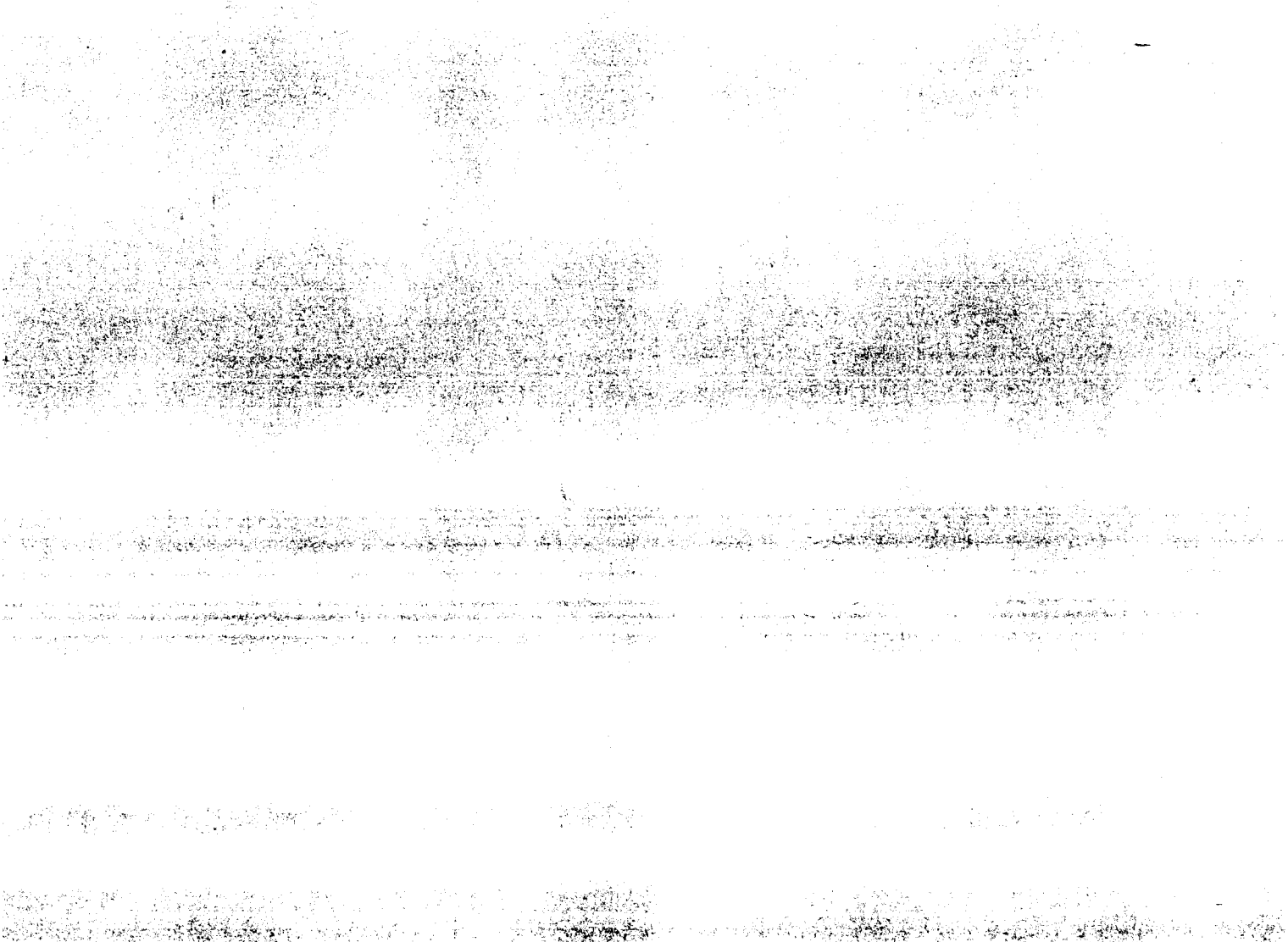
comments received on the Draft RCRA Facility Investigation Report. Task VI shall be submitted as a separate report when the Final RCRA Facility Investigation Report is submitted.

Four copies of all reports, including the Task I report, Task II report, Task III workplan, Task VI report and both the Draft and Final RCRA Facility Investigation Reports (Tasks IV-V) shall be provided by the Respondent to EPA.

Facility Submission Summary

A summary of the information reporting requirements contained in the RCRA Facility Investigation Scope of Work is presented below:

Facility Submission	Due Date
Description of Current Conditions (Task I)	Sixty (60) calendar days from the effective date of this order
Pre-investigation Evaluation of Corrective Measures Technologies (Task II)	Sixty (60) calendar days from the effective date of this order
Draft RFI Workplan (Task III)	Sixty (60) calendar days from the effective date of this order
Final RFI Workplan (Task III)	Thirty (30) calendar days after receipt of EPA comments on the Draft RFI Workplan
Draft RFI Report (Tasks IV-V)	According to the schedule in the EPA-approved RFI Workplan or alternate date approved by EPA
Laboratory and Bench-Scale Studies (Task VI)	Concurrent with the Draft RFI Report
Final RFI Report (Tasks IV-V)	Thirty (30) calendar days after receipt of EPA comments on the Draft RFI Report
Progress Reports	Bimonthly



Attachment C

CORRECTIVE MEASURES STUDY
SCOPE OF WORK

PURPOSE

The purpose of this Corrective Measures Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken at the facility. The Respondent shall furnish the personnel, materials, and services necessary to prepare the Corrective Measures Study, except as otherwise specified.

SCOPE

The Corrective Measures Study consists of four tasks:

TASK I: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE MEASURES ALTERNATIVE OR ALTERNATIVES

A. Description of Current Situation
B. Establishment of Corrective Action Objectives
C. Screening of Corrective Measures Technologies
D. Identification of the Corrective Measures Alternative or Alternatives

TASK II: EVALUATION OF THE CORRECTIVE MEASURES ALTERNATIVE OR ALTERNATIVES

A. Technical/Environmental/Human Health/Institutional
B. Cost Estimate
C. Waste Minimization Plan

TASK III: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

A. Technical
B. Human Health
C. Environmental

TASK IV: REPORTS

A. Progress
B. Draft
C. Final

TASK I: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified Preliminary Corrective Measures Technologies (Task II), Respondent shall identify, screen, and develop the alternative or alternatives for removal, containment, treatment, and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

Respondent shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation Report. Respondent shall provide an update to information presented in Task I of the RCRA Facility Investigation, "DESCRIPTION OF CURRENT CONDITIONS," to the Agency regarding previous response activities and any interim measures which have or are being implemented at the facility. Respondent shall also make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

Respondent, in conjunction with the EPA, shall establish site specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RCRA Facility Investigation, EPA guidance, and the requirements of any applicable Federal statutes. At a minimum, all corrective actions concerning ground water releases from regulated units must be consistent with, and as stringent as, those required under 40 C.F.R. 264.100.

C. Screening of Corrective Measures Technologies

Respondent shall review the results of the RCRA Facility Investigation and reassess the technologies specified in the Task II report as approved by EPA and identify additional technologies which are applicable at the facility. Respondent shall screen the preliminary corrective measures technologies identified in Task II of the RCRA Facility investigation and any supplemental technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measures objective

within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations. Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. The use of technologies which are clearly precluded by site characteristics should be eliminated from further consideration.

2. Waste Characteristics

Waste characteristics particularly affect the feasibility of remediating waste by utilizing in-situ methods, direct treatment methods, or land disposal (on-/off-site) methods. Therefore, identification of waste characteristics that limit the effectiveness or feasibility of remediating technologies is an important part of the screening process. Remediating technologies clearly limited by these waste characteristics should be eliminated from consideration.

3. Technology Limitations

During the screening process, the level of technological development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. <u>Identification of the Corrective Measures Alternative or Alternatives</u>

Respondent shall develop the corrective measures alternative or alternatives based on the corrective action objectives and analysis of Preliminary Corrective Measures Technologies as presented in Task II of the RCRA Facility Investigation and as supplemented following the preparation of the RCRA Facility Investigation Report. Respondent shall rely on

engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a workable number of option(s) that each appear to address adequately all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. Respondent shall document the reasons for excluding technologies, identified in Task II, as supplemented in the development of the alternative or alternatives.

TASK II: EVALUATION OF THE CORRECTIVE MEASURES ALTERNATIVE OR ALTERNATIVES

Respondent shall describe each corrective measures alternative that passes through the initial screening in Task I and evaluate each corrective measures alternative and its components. The evaluation shall be based on technical, environmental, human health, and institutional concerns. Respondent shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Respondent shall provide a description of each corrective measures alternative which includes, but is not limited to, the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. Respondent shall evaluate each alternative in the following four areas:

1. Technical

Respondent shall evaluate each corrective measure alternative based on performance, reliability, implementability, and safety.

a. Respondent shall evaluate performance based on the effectiveness and useful life of the corrective measures, described below:

i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which

could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measures technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technologies, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

b. Respondent shall provide information on the reliability of each corrective measure, including their operation and maintenance requirements and their demonstrated reliability, described below:

i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. Respondent should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies has been used effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the

flexibility to deal with uncontrollable changes at the site.

c. Respondent shall describe the implementability of each corrective measure, including the relative ease of installation (constructability) and the time required to achieve a given level of response, described below:

i) Constructability is determined by conditions both internal and external to the facility conditions and includes such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). Respondent shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually obtain beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. Respondent shall evaluate each corrective measures alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments, as well as to the safety of workers during implementation. Factors to consider include, but are not limited to, fire, explosion, and exposure to hazardous substances.

2. Environmental

Respondent shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will

include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health

Respondent shall assess each alternative in terms of the extent to which it mitigates short- and long-term potential exposure to any residual contamination and protects human health, both during and after implementation of the corrective measures. The assessment will describe the levels and characterizations of contaminants on site, potential exposure routes, and potentially affected populations. Each alternative will be evaluated to determine the level of exposure to contaminants and its reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. Institutional

Respondent shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, state, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations, including requirements for construction and operating permits, on the design, operation, and timing of each alternative.

B. Cost Estimate

Respondent shall develop an estimate of the cost of each corrective measures alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

   a. Direct capital costs include:

      i) Construction costs: costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measures;

ii) Equipment costs: costs of treatment, containment, disposal, and/or service equipment necessary to implement the action;

iii) Land and site-development costs: expenses associated with purchase of land and development of existing property; and

iv) Buildings and services costs: costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

i) Engineering expenses: costs of administration, design, construction supervision, drafting, and testing of corrective measures alternatives;

ii) Legal fees and license or permit costs: administrative and technical costs necessary to obtain licenses and permits for installation and operation;

iii) Startup and problem solving immediately following startup (shakedown) costs: costs incurred during corrective measures startup; and

iv) Contingency allowances: funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. Respondent shall consider the following operation and maintenance cost components:

a. Operating labor costs: wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

b. Maintenance materials and labor costs: costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

c. Auxiliary materials and energy: costs of items such as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

d. Purchased services: sampling costs, laboratory fees, and professional fees for which the need can be predicted;

e. Disposal and treatment costs: costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;

f. Administrative costs: costs associated with administration of corrective measures operation and maintenance not included under other categories;

g Insurance, taxes, and licensing costs: costs of such items as liability and sudden accident insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

h. Maintenance reserve and contingency funds: annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

i. Other costs: items that do not fit any of the above categories.

C. Waste Minimization Plan

Respondent shall consider waste minimization options as part of the evaluation of the Corrective Measures Alternatives (CMAs). Respondent shall provide for each CMA per year of operation: an estimate and analysis of the quantity, volume and/or toxicity of the waste generated, including but not limited to, contaminated soil, sludge, ground water, etc.; methods to minimize the quantity, volume, toxicity and/or mobility of the waste to be generated, treated, stored or disposed of off site; the economic cost and benefits; and any other benefit, including, but not limited to, compliance benefits, liability benefits, safety benefits, etc.

TASK III: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

Respondent shall justify and recommend a corrective measures alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors among the alternatives evaluated shall be highlighted. The EPA will select the corrective measures alternative or alternatives to be implemented, based on the results of Tasks I and II. At a minimum, the following criteria shall be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective in performing the intended functions and maintaining the performance over extended periods of time shall be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have been proven to be effective under waste and facility conditions similar to those anticipated shall be given preference;

3. Implementability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time shall be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments, as well as to workers, during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure over time shall be preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time, on the environment, shall be favored.

TASK IV: REPORTS

Respondent shall prepare a Corrective Measures Study Report presenting the results of Tasks I through III and recommending a corrective measures alternative. Four copies of the preliminary report shall be provided by Respondent.

A. Progress

Respondent shall, at a minimum, provide the EPA with signed, bimonthly progress reports containing:

1. Description and estimate of the percentage of the CMS completed;

2. Summaries of all findings;

3. Summaries of all changes made in the CMS during the reporting period;

4. Summaries of all contacts with representatives of the local community, public interest groups, or state government during the reporting period;

5. Summaries of all problems or potential problems encountered during the reporting period;

6. Actions being taken to rectify problems;

7. Changes in personnel during the reporting period;

8. Projected work for the next reporting period; and

9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

B. Draft

The Report shall, at a minimum, include:

1. Description of the facility:

   a. Site topographic map and preliminary layouts.

2. Summary of the corrective measure or measures:

   a. Description of the corrective measure or measures and rationale for the selection(s);

   b. Performance expectations;

   c. Preliminary design criteria and rationale;

d. General operation and maintenance requirements; and

e. Long-term monitoring requirements.

3. Summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures:

a. Field studies (ground water, surface water, soil); and

b. Laboratory studies (bench scale, pick scale).

4. Design and implementation precautions:

a. Special technical problems;

b. Additional engineering data required;

c. Permits and regulatory requirements;

d. Access, easements, right-of-way;

e. Health and safety requirements; and

f. Community relations activities.

5. Cost estimates and schedules:

a. Capital cost estimate;

b. Operation and maintenance cost estimate; and

c. Project schedule (design, construction, operation).

Four copies of the draft shall be provided by Respondent to EPA.

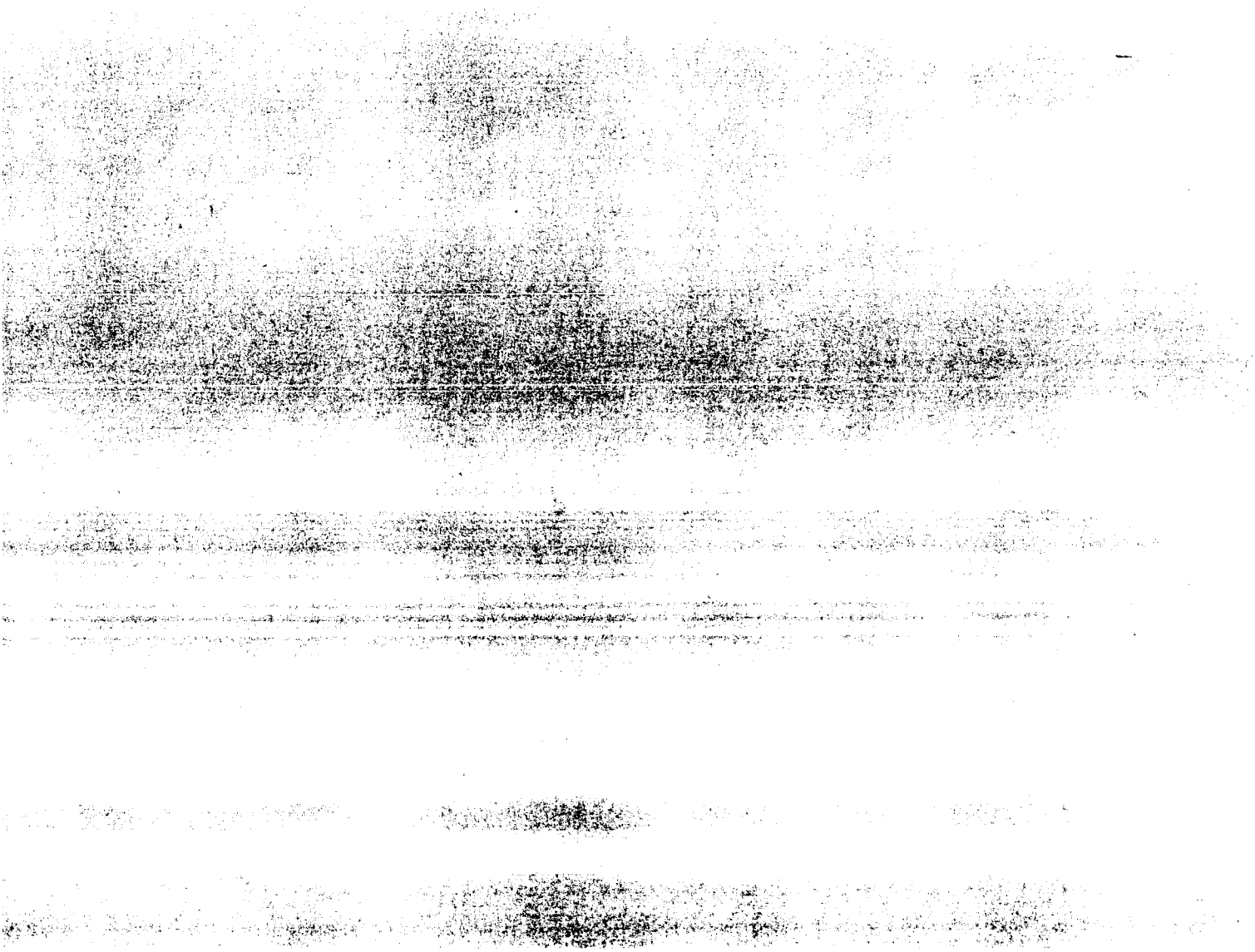
C. Final

Respondent shall finalize the Corrective Measures Study Report, incorporating comments received from EPA on the Draft Corrective Measures Study Report.

Facility Submission Summary

A summary of the information reporting requirements contained in the Corrective Measure Study Scope of Work is presented below:

Facility Submission	Due Date
Draft CMS Report (Tasks I, II, and III)	Sixty (60) calendar days after receipt of EPA approval of the Final RFI
Final CMS Report (Tasks I, II, and III)	Thirty (30) calendar days after EPA comment on the Draft CMS
Modification of Final CMS Report (if required by EPA)	Thirty (30) calendar days after the 21-day public comment period on the Final CMS Report
Progress Reports	Bimonthly



Attachment D

HEALTH AND SAFETY PLAN

The Respondent shall prepare a facility Health and Safety Plan.

1. Major elements of the Health and Safety Plan shall include:

   a. Facility description including availability of resources such as roads, water supply, electricity, and telephone service;

   b. Description of the known hazards and evaluations of the risks associated with the incident and with each activity conducted, including, but not limited to, on- and off-site exposure to contaminants;

   c. List of key personnel and alternates responsible for site safety, response operations, and protection of public health;

   d. Delineation of work area;

   e. Description of levels of protection to be worn by personnel in work area;

   f. Establishment of procedures to control site access;

   g. Description of decontamination procedures for personnel and equipment;

   h. Establishment of site emergency procedures;

   i. Emergency medical care for injuries and toxicological problems;

   j. Description of requirements for an environmental surveillance program;

   k. Routine and special training required for responders; and

   l. Establishment of procedures for protecting workers from weather-related problems.

2. The facility Health and Safety Plan shall be consistent with:

   a. NIOSH Occupational Safety and Health Guidance Manual For Hazardous Waste Site Activities (1985);

   b. EPA Order 1440.3 - Respiratory Protection;

c. EPA Order 1440.2 - Health and Safety Requirements for Employees Engaged in Field Activities;

d. Facility Contingency Plan;

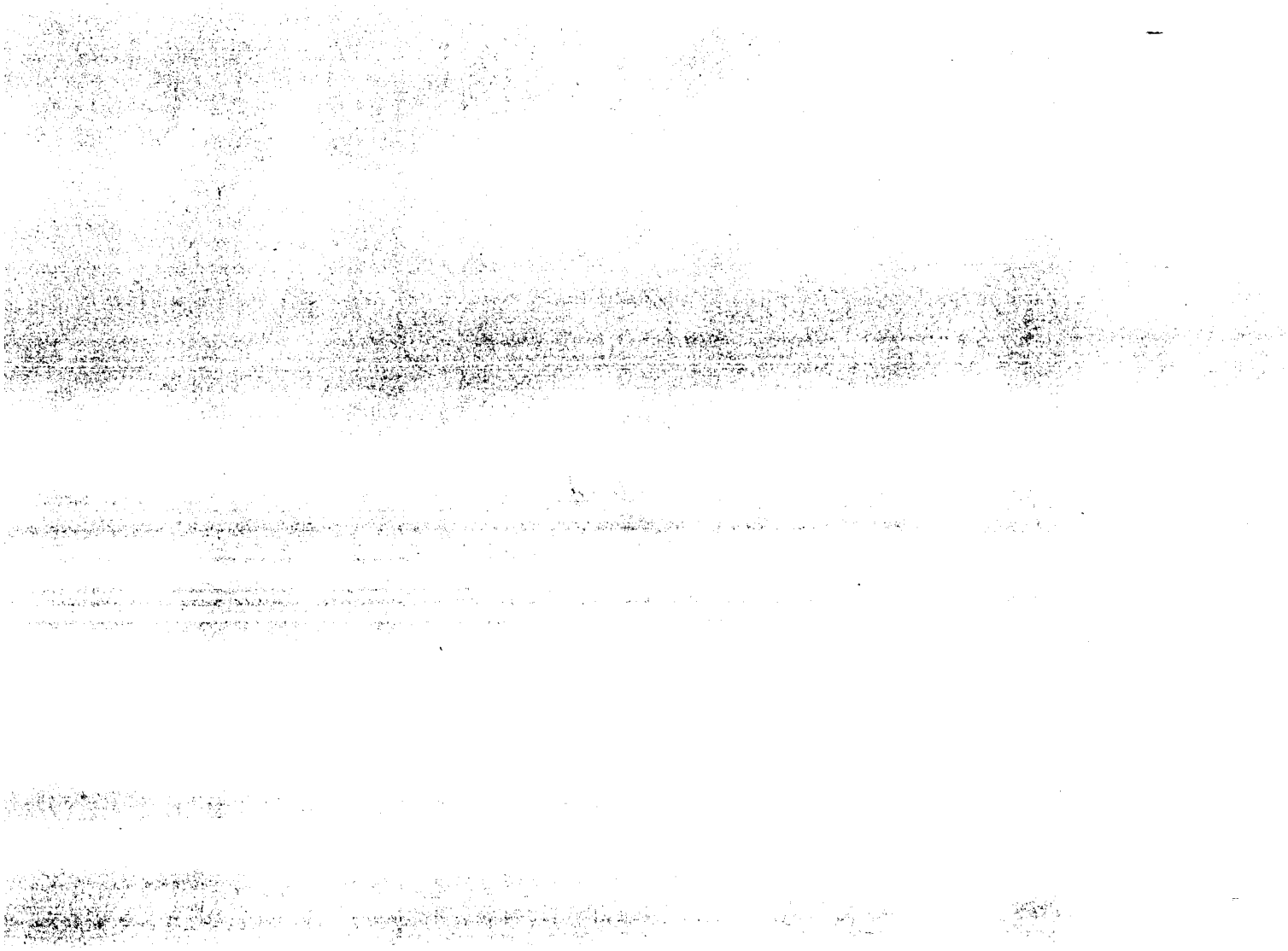
e. EPA Standard Operating Safety Guide (1984);

f. OSHA regulations, particularly in 29 C.F.R. 1910 and 1926;

g. State and local regulations; and

h. Other EPA guidance as provided.

3. The Health and Safety Plan must be revised to address any additions and/or changes in planned activities.



QUAKER STATE CORPORATION
ADMINISTRATIVE RECORD FILE *
INDEX OF DOCUMENTS

1) U.S. EPA Notification of Hazardous Waste Activity form, 11/14/80. P. 000001-000002.

2) U.S. EPA Hazardous Waste Permit Application forms 1 and 3, 11/18/80. P. A copy of an aerial photograph and a sketch of the facility layout are attached. P. 000003-000008.

3) Letter to Mr. W. Helsley, Quaker State Oil Refining Corporation (Quaker State Corp.), from Ms. Shirley Bulkin, U.S. EPA, re: Transmittal of the Conditions of Operation Under Interim Status guidelines, 08/06/81. P. 000009-000010. The guidelines are attached.

4) U.S. EPA Notification of Hazardous Waste Activity form, 06/03/83. P. 000011-000012.

5) U.S. EPA Hazardous Waste Permit Application forms 1 and 3, 06/03/83. P. A copy of an aerial photograph and a location map are attached. P. 000013-000022.

6) Letter to the Division of Water Resources, WVDNR, from Mr. M. McDowell, Quaker State Corp., re: Transmittal of the NPDES Water Pollution Control Permit Application, 08/12/83. P. 000023-000038. A copy of the application is attached.

7) Letter to Mr. Roy Pollock, Quaker State Corp., from Mr. Thomas Maslany, U.S. EPA, re: Transmittal of regulations of the National Emission Standards for Hazardous Air Pollutant; Benzene Equipment Leaks, 09/21/84. P. 000039-000040.

8) Memorandum to Mr. Victor Leon, West Virginia Department of Natural Resources (WVDNR), from Ms. Debbie Cheetham, WVDNR, re: Site visit to inspect effects of caustic spill and pH excursion at Quaker State Corp., 05/17/85. P. 000041-000046.

9) Letter to Mr. Ray Mihailovich, U.S. EPA, from Mr. M. McDowell, Quaker State Corp., re: Notification of non-compliance of current NPDES daily maximum limitations, 06/19/85. P. 000046-000048.

* Administrative Record File available 11/18/93, updated 12/03/93.

Note: Company name or organizational affiliation is identified in the index only when it appears in the record.

10) Letter to WVDNR from Mr. Daniel Hawthorne, Quaker State Corp., re: Notification of a sulfuric acid leak, 09/23/85. P. 000049-000051.

11) Log of telephone calls concerning the Water Bypassing Waste Treatment, 11/04/85. P. 000052-000052.

12) Letter to Ms. Patricia Keffer, WVDNR, from W. Johnston, Quaker State Corp., re: Response to concerns regarding the 1984 annual report of hazardous waste activities, 11/21/85. P. 000053-000068. The annual report is attached.

13) Letter to Mr. M. McDowell, Quaker State Corp., from Mr. David Robinson, WVDNR, re: Request for submission of the Part B permit application, 02/27/86. P. 000069-000070.

14) Letter to Mr. W. Helsley, Quaker State Corp., from Mr. Stephen Wassersug, U.S. EPA, re: Request for information in order to determine the location and releases from any facility solid waste management units (SWMUs), 02/27/86. P. 000071-000073. Definitions of a release and a SWMU are attached.

15) U.S. EPA Notification of Hazardous Waste Activity form, 08/12/86. P. A transmittal letter is attached. P. 000074-000077.

16) Letter to Mr. Ronald Shipley, WVDNR, from Mr. Vasil Mriz, Quaker State Corp., re: Request for an extension of the Part B application due date, 09/19/86. P. 000078-000079.

17) Letter to Mr. Dan Hawthorne, Quaker State Corp., from Mr. Curtis A. McKey, ARI Technologies, Inc., re: API separator conformance to requirements of ACI350R-83, 04/16/87. P. 000080-000083. Handwritten calculation notes are attached.

18) Letter to Mr. Reza Jafari, WVDNR, from Mr. Daniel Hawthorne, Quaker State Corp., re: Written notification of a partial bypassing of the waste water treatment plant, 04/30/87. P. 000084-000085. A copy of the documented telephone report is attached.

19) Letter to Mr. Ray Jafari, WVDNR, from Mr. Daniel Hawthorne, Quaker State Corp., re: Notification of a bypass of waste water from the API discharge pumps to the final effluent sump, 08/05/87. P. 000086-000086.

20) Letter to Mr. Vasil Mriz, Quaker State Corp., from Mr. Robert Jelacic, WVDNR, re: Request for revision of the Part A application and submission of the Part B application, 09/09/87. P. 000087-000088.

21) Letter to Mr. Vasil Mriz, Quaker State Corp., from Ms. Ava Zeitz, WVDNR, re: Transmittal of the Administrative Order, Order No. HW-127-88, 01/25/88. P. 000089-000092. A copy of the order is attached.

22) Report: Spill Investigation Report, Congo Oil Refinery, prepared by West Virginia Division of Waste Management, 05/18/88. P. 000093-000093.

23) Letter to Mr. Ray Jafari, WVDNR, from Mr. Vasil Mriz, Quaker State Corp., re: Written follow-up to telephone report of a solvent discharge, 05/23/88. P. 000094-000095.

24) Memorandum to Mr. Vasil Mriz, Quaker State Corp., from Mr. R. Ryan, Quaker State Corp., re: Partial by-pass of waste water treatment, 07/21/88. P 000096-000096.

25) Letter to Mr. Ried Tannir [sic], WVDNR, from Mr. Vasil Mriz, Quaker State Corp., re: Notification that facility has exceeded its 90-day storage limitation on two drums of contaminated soil, 09/15/88. P. 000097-000097.

26) Report: Proposed Ground-Water Monitoring at the Congo Plant Waste Water Treatment Area, prepared by Geraghty & Miller, Inc., 10/88. P. 000098-000130.

27) Memorandum to CARE staff from Mr. Joseph Kotlinski, U.S. EPA, re: Standard operating procedures for corrective action, 12/02/88. P. 000131-000159.

28) Letter to Mr. James Bollenbacher, Esq., Babst Calland Clement and Zomnir, from Ms. Frances Hunter, State Water Resources Board, re: Transmittal of a copy of the order in appeal which denies Quaker State Corp.'s motion for summary judgment, 12/12/88. P. 000160-000163. A copy of the appeal is attached.

29) Report: Draft Interim RCRA Facility Assessment Report for Quaker State Oil Refining Corporation, Congo Plant, prepared by CDM Federal Programs Corporation, 04/21/89. P. 000164-000302.

30) Report: Interim Final RCRA Facility Investigation (RFI) Guidance, prepared by U.S. EPA, 05/89. P. 000303-001331.

31) Letter to Mr. Ray Jafari, WVDNR, from Mr. Vasil Mriz, Quaker State Corp., re: Notification of a by-pass of waste water due to heavy rain, 05/17/89. P. 001332-001334.

32) Letter to Mr. Jafari, WVDNR, from W. Taft, Quaker State Corp., re: Notification of a by-pass of waste water due to heavy rain, 06/06/89. P. 001335-001336.

33) Letter to Mr. Ray Jafari, WVDNR, from Mr. Vasil Mriz, re: Notification of a by-pass of waste water, 06/23/89. P. 001337-001337.

34) Report: Federal Register, 40 CFR Part 261 et al, Hazardous Waste Management System,; Identification and Listing of Hazardous Waste; Toxicity Characteristics Revisions; Final Rule, prepared by U.S. EPA, 03/29/90. P. 001338-001426.

35) Memorandum to Ms. Marcia Mulkey, U.S. EPA, from Mr. Edwin Erickson, U.S. EPA, re: Transmittal of Delegation Manual: Solid Waste Disposal Act (SWDA), 11/05/90. P. 001427-001436. The manual is attached.

36) Letter to Mr. Michael Dorsey, WVDNR, from Mr. R. Ryan, Quaker State Corp., re: Facility exceeding its 90-day accumulation limits for API bottoms and DAF float, 01/31/91. P. 001437-001438.

37) Letter to Mr. Naresh Shah, WVDNR, from, E. Fleischer, Quaker State Corp., re: Response to Mr. Shah's May 6, 1991 letter concerning the removal of contaminated soils, 05/16/91. P. 001439-001440.

38) Report: Inspection Report for Quaker State Corporation, prepared by Mr. James Gaston, WVDNR, 05/17/91. P. 001441-001449.

39) Letter to Mr. Ron Ryan, Quaker State Corp., from Mr. H. Dorsey, WVDNR, re: Transmittal of the May 16, 1991 Compliance Evaluation Inspection (CEI) Report and the resulting Notice of Violation (NOV), 07/24/91. P. 001450-001466. The CEI, NOV, and area maps are attached.

40) Letter to Mr. E. Fleisher, Quaker State Corp., from Mr. Laidley McCoy, WVDNR, re: Request for an aggressive plan to address the results of the groundwater report for the NPDES permit, 03/25/92. P. 001467-001467.

41) Report: Resource Conservation and Recovery Act (RCRA) Part B Permit Application for Quaker State Corporation, Congo Refinery, prepared by Killam Associates, 05/92. P. 001468-001925.

42) Report: Inspection Report for Quaker State Corporation, (author unknown), 05/05/92. P. 001926-001929.

43) Letter to Mr. Naresh Shah, West Virginia Department of Environmental Protection, from Mr. Kyle Lengauer, Geraghty & Miller, Inc., re: Transmittal of progress reports, 12/22/92. P. 001930-001970. The following are attached:

   a) Report: Fourth Quarter 1991 Groundwater Monitoring Report for Quaker State Corporation, prepared by Geraghty & Miller, Inc., 12/11/91;
   b) Report: First Quarter 1992 Groundwater Monitoring Report for Quaker State Corporation, prepared by Geraghty & Miller, Inc., 03/26/92;
   c) Report: Second Quarter 1992 Groundwater Monitoring Report for Quaker State Corporation, prepared by Geraghty & Miller, Inc., 06/24/92;
   d) Report: Third Quarter 1992 Groundwater Monitoring Report for Quaker State Corporation, prepared by Geraghty & Miller, Inc., 12/92.

44) Report: Field Trip Report for Quaker State Congo Refinery, prepared by CDM Federal Programs Corporation, 01/07/93. P. 001971-002656. Photographs of the structural evaluation of API separators, storm water basin and digestion basin are attached.

45) Report: Annual Ground Water Monitoring Report, Quaker State Corporation, Congo Refinery, prepared by Geraghty & Miller, Inc., 03/93. P. 002657-002664.

46) Report: Closure Plan for Stormwater Basin, Quaker State Corporation, Congo Refinery, (no author noted), 03/23/93. P. 002665-002901. A transmittal letter is attached.

47) Memorandum to Ms. Betty Barnes, U.S. EPA, from Mr. Joel Hennessy, U.S. EPA, re: Comments on the Stormwater Basin Closure Plan for Quaker State Corp., 05/04/93. P. 002902-002903.

48) Letter to Mr. Edward Fleischer, Quaker State Corp., from Mr. Robert Greaves, U.S. EPA, re: Transmittal of the 3008(h) consent order, 06/28/93. P. 002904-003002. The consent order and certified mail receipts are attached.

49) Facsimile transmission of letter to Messrs. Naresh Shah and C. Wokpara, WVDNR, from Mr. Kyle Lengauer, Geraghty & Miller, Inc., re: Transmittal of the First Quarter 1993 Ground Water Monitoring Report, 07/19/93. P. 003003-003017. The report is attached.

50) Letter to Ms. Samantha Fairchield [sic], U.S. EPA, from Mr. Dean Calland, Babst Calland Clements and Zomnir, re: Concerns regarding issuance of 3008(h) consent order, 07/30/93. P. 003018-003020.

51) Report: Second Quarter 1993 Ground Water Monitoring Report, Quaker State Corporation, Congo Refinery, prepared by Geraghty & Miller, Inc., 08/93. P. 003021-003030.

52) Letter to Ms. Samantha Fairchild, U.S. EPA, from Mr. Dean Calland, Babst Calland Clements and Zomnir, re: Transmittal of draft Statement of Work, 08/13/93. P. 003031-003042.

53) Letter to Mr. Edward Fleischer, Quaker State Corp., from Mr. Robert Greaves, U.S. EPA, re: Transmittal of revised 3008(h) consent order, 09/13/93. P. 003043-003047. A Federal Express receipt is attached.

54) Memorandum to File from Ms. Estena McGhee, U.S. EPA, re: Quaker State negotiating meeting scheduled for September 13, 1993, 09/13/93. P. 003048-003048.

55) Letter to Ms. Samantha Fairchild, U.S. EPA, from Mr. Dean Calland, Babst Calland Clements and Zomnir, re: Response to the revised 3008(h) consent order, 09/24/93. P. 003049-003050.

56) Record of communication to Delaware Department of State - Bureau of Corporation, from Ms. Estena McGhee, U.S. EPA, re: Incorporation date of Quaker State Corp., 11/15/93. P. 003051-003051.

57) Memorandum to Ms. Estena McGhee, U.S. EPA, from Mr. Joel Hennessy, U.S. EPA, re: Comments on the Interim Measures & RFI Workplan for Quaker State Corp., 11/16/93. P. 003052-003052.

58) Memorandum to Ms. Estena McGhee, U.S. EPA, from Ms. Mary Beck, U.S. EPA, re: Determination that Quaker State Corp.'s in-ground concrete Units are surface impoundments, 12/02/93. P. 003053-003053.

59) Human Health and Environmental Impacts, Chemical, Physical and Biological Properties of Compounds Present at Hazardous Waste Sites, U.S. EPA, 1985 and Handbook of Toxic and Hazardous Chemicals and Carcinogens. P. 003054-003115.

I hereby certify that the within is a true and correct copy of the original Initial Admin Sanction order filed in this matter.

Samantha Phillips Fairchild
Attorney for
by DKA

Not included in Final Version of CO

Attachment E

WASTE MINIMIZATION PROGRAM
SCOPE OF WORK

SCOPE

The Waste Minimization Program consists of two tasks:

TASK I. MANAGEMENT INITIATIVES PROGRAM

A. Employee Training
B. Incentives
C. Waste Audits

TASK II. WASTE MINIMIZATION OPTIONS PROGRAM

A. Reduction Options
B. Recycling Options
C. Treatment Options
D. Waste Exchange Options

TASK I. MANAGEMENT INITIATIVES PROGRAM

The objective of this program will be to encourage employees to strive conscientiously to reduce waste. This program should consist of the following:

A. Employee Training

Training should be developed and implemented to increase employee awareness of operating practices that reduce both solid and hazardous waste generation. A training program should include:

1. Occupational health and plant safety;

2. Company regulatory compliance requirements; and

3. A statement of the company's approach to waste minimization and/or it's waste minimization plan.

B. Incentives

An incentive program should be developed and implemented to provide motivation and to boost employees cooperation and participation in waste minimization. This incentive program should include:

1. Providing incentives for the development of useful waste minimization ideas;

2. Providing recognition and financial awards for outstanding waste minimization programs, practices,

and/or suggestions; and

3. Implementing or revising the operational supervisory structure and/or management procedures.

C. Waste Audits

A program of waste audits should be developed and implemented to provide a systematic and periodic survey of the company's operations designed to identify areas of potential waste reduction. This program should include:

1. Identification of hazardous substances in waste and the sources of these substances;

2. Prioritization of various waste reduction actions to be undertaken;

3. Evaluation of some technically, economically, and ecologically feasible approaches to waste minimization;

4. Development of an economic comparison of waste minimization and waste management options; and

5. Evaluation of waste minimization modification results.

TASK II. WASTE MINIMIZATION OPTIONS PROGRAM

This program should be developed to investigate, evaluate and recommend waste minimization options. This program should include a step-by-step analysis of waste reduction options, recycling options, and finally, only after acceptable waste minimization techniques have been investigated and evaluated, waste treatment options.

A. Reduction Options

These options would be characterized as good operating practices (also know as good housekeeping practices), material substitutions, and technology changes. These techniques avoid the generation of hazardous waste, thereby eliminating the problems associated with handling these waste.

1. Good operating practices;

These practices involve the procedural or organizational aspects of a manufacturing process and, in some areas, changes in operating practices, in order to reduce the amount of waste generated. These practices would include, at a minimum, the following elements:

a. Material handling improvements;

b. Scheduling improvements;
c. Spill and leak prevention;
d. Preventive maintenance;
e. Corrective maintenance;
f. Material/waste tracking or inventory control;
g. Communication documentation; and
h. Waste stream segregation according to toxicity, type of contaminant, and physical state.

2. Material substitution practices;

The purpose of these practices is to find substitute process/manufacturing materials which are less hazardous than those currently utilized and which result in the generation of waste in smaller quantities and/or of less toxicity.

3. Technological modification practices;

These practices should be oriented toward process and equipment modification to reduce waste, primarily in a production setting. These practices can range from changes that can be implemented in a matter of days at low cost to the replacement of processes involving large capital cost. These modifications include changes in the following:

a. Processes;
b. Equipment;
c. Process automation;
d. Operation settings, including, but not limited to, flow rates, temperatures, pressures, and/or residence times;
e. Water conservation; and
f. Energy conservation.

B. Recycling Options

These options are characterized as use/reuse and resource recovery techniques.

1. Use and reuse practices;

These practices involve the return of a waste material either to the originating process or to another process as a substitute for an input material.

2. Reclamation practices;

These practices differ from the use and reuse practices in that the recovered material is not used in the facility, but is sold to another company.

C. Treatment Options

These options should be oriented to the changes of the physical, chemical, or biological character of any hazardous waste in order to reduce the toxicity and the volume to render such waste more available for storage and safer to manage.

D. Waste Exchange Options

These options are attempts to match the waste from one business with the raw material requirements of another business, thereby finding a market for what one business sees as a waste but what another business sees as a material.