

**FILED**

WYOMING  
DEPARTMENT OF ENVIRONMENTAL QUALITY

OCT 17 2006

IN THE MATTER OF:

FRONTIER REFINING INC.  
Cheyenne, Wyoming

Respondent.

) FINAL ADMINISTRATIVE ORDER  
) ON CONSENT Environmental Quality Council  
) Lorenzon, Director

) DOCKET NO. \_\_\_\_\_

) Proceeding under Wyoming  
) Environmental Quality Act  
) §§ 35-11-101 *et seq.*

I. JURISDICTION

This Administrative Order on Consent ("Order" or "Consent Order") is issued pursuant to the authority vested in the Wyoming Department of Environmental Quality ("Department" or "WDEQ") by the provisions of Act No. 43, 1994 Budget Session, of the Fifty-second Legislature of the State of Wyoming. Among other things, this Act provides for Wyoming State primacy in the federal hazardous waste program that is authorized by the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. § 6928(h).

Except for certain provisions which have been changed to conform with state law, this Order corresponds, is equivalent to, and is intended to run concurrently with the Final Administrative Order on Consent, U.S. EPA Docket No. RCRA 3008(h)-VIII-88- 08 ("EPA Order"), that was entered into by the United States Environmental Protection Agency ("EPA") and Frontier Refining Inc. ("Frontier") in September of 1990. This Order is being issued pursuant to W.S. 35-11-518.

This Order is issued to Frontier, owner and operator of Frontier Refinery, Cheyenne, Wyoming (the "Facility"). Frontier consents to the issuance of this Consent Order and agrees to abide by its terms and conditions. Frontier agrees not to contest the Department's authority to bring, or any court's jurisdiction to hear, any action to enforce this Consent Order. In an action to enforce this Consent Order or any rights afforded hereunder, Frontier agrees not to contest the Department's jurisdiction in this matter pursuant to W.S. 35-11-518. Because this Consent Order was entered with the consent of the parties, Frontier waives any right it may have to a hearing to challenge the Department's issuance of the Consent Order.

II. PARTIES BOUND

1. This Order shall apply to and be binding upon Frontier and its officers, directors, employees, agents, successors and assigns. Frontier shall be responsible for ensuring that all contractors, consultants, firms, and other persons or entities acting on its behalf, with respect to matters included herein, comply with the terms of this Consent Order.

2. No change in ownership or corporate or partnership status relating to the Facility shall in any way alter Frontier's responsibility under this Order, unless any successor-in-interest demonstrates to the Department's satisfaction that it has the capability to perform and also consents to perform the obligations of this Order in lieu of Frontier. In any conveyance of Frontier's real

property, Frontier shall reserve the right to perform the obligations of this Order.

3. Within seven (7) calendar days of the effective date of this Consent Order or date of retention, Frontier shall provide a copy of this Consent Order to all primary contractors retained to conduct or monitor any portion of the work performed pursuant to this Consent Order. Additionally, Frontier shall inform all subcontractors, laboratories, and consultants utilized by Frontier's primary contractors about the name of the waste involved in the work being performed.

4. Frontier shall give notice of this Order to any successor in interest prior to transfer of ownership or operation of the Facility and shall notify the Department within thirty (30) calendar days prior to such transfer. In its discretion, the Department may shorten the advance notification period provided herein.

### III. STATEMENT OF PURPOSE

In entering into this Consent Order, the mutual objectives of the Department and Frontier are: (1) to complete a RCRA Facility Investigation (RFI) to determine fully the nature, concentration, rate, and extent of migration of any releases of hazardous waste or hazardous constituents at or from the Facility; (2) to plan and perform a Corrective Measure Study (CMS) to identify and evaluate corrective action alternatives necessary to prevent or mitigate any migration or releases of hazardous wastes or hazardous constituents at or from the Facility; (3) to perform Initial Measures at the Facility as provided in Attachment 1; and, (4) to perform Interim Measures at the Facility as necessary.

### IV. FINDINGS OF FACT

The following findings of fact have been made by the Department, without admission of any such findings by Frontier:

1. Frontier is a corporation organized under the laws of the State of Delaware, is authorized to do business in the State of Wyoming, and is a person as defined in section 1004(15) of RCRA, 42 U.S.C. § 6903(15).

2a. Frontier is a generator of hazardous waste and an owner and operator of a hazardous waste management facility located in Cheyenne, Wyoming. Specifically the Frontier Refinery is located at 2700 East Fifth Street, Cheyenne, Wyoming, and consists of 116.78 acres adjacent to Fifth Street and Camp Stool Road on the north, Morrie Avenue to the west, and the flood plain of Crow Creek to the south and east, as well as open fields to the east. The facility boundaries are as identified in its RCRA Part A Permit Application dated July 12, 1989 ("The Facility"). Frontier and its predecessors in ownership engaged in generation, treatment, storage, and disposal of hazardous waste at the Facility subject to interim status requirements under 40 C.F.R. Part 265. Frontier is engaged in refinery operations at the Facility including processing propane, gasoline and diesel fuels, heating oil, asphalt, residual oil, petroleum coke and sulfur.

2b. The Facility began operations in 1937. There has been a series of owners and operators of the Facility as summarized below:

Capitol Oil and Refining Company	1934
Bay Petroleum Refinery (SW portion)	1937-1942
(name changed to Frontier Refining Company in 1940 which is unrelated	

to the Respondent herein)	
Federal Defense Plant (built another refinery east of Frontier, operated by Frontier)	1943-1946
Frontier Oil (bought Federal Plant)	1946-1968
Husky Oil (bought entire facility and NW corner from Read Construction Co.)	1968-1984
Husky Oil Company transferred ownership to RMT Properties Inc.- a sister company of Husky Oil Company, both subsidiaries of Husky LTD.)	1984-1986
RMT Properties Inc.(related to Big West Oil Company) sold Cheyenne refinery assets to Cheyenne Oil which underwent a name change to Frontier Oil and Refining Company	1986-1988
Cheyenne Refinery assets transferred from Frontier Oil and Refining Company to Frontier Refining Inc.	1988-present

3. Frontier's predecessor(s) in ownership owned and operated the Facility as a hazardous waste management facility on and after November 19, 1980, the applicable date which renders facilities subject to interim status requirements or the requirement to have a permit under sections 3004 and 3005 of RCRA, 42 U.S.C. §§ 6924, 6925.

4. Pursuant to section 3010 of RCRA, 42 U.S.C. § 6930, Frontier's predecessor in ownership notified EPA of its hazardous waste activity. In its notification dated August 1980, Frontier's predecessor in ownership identified itself as a generator of hazardous waste and an owner/operator of a treatment, storage, and disposal facility for hazardous waste.

5a. In its notification dated August 1980, Frontier's predecessor in ownership identified itself as handling the following hazardous wastes at the Facility from specific sources identified at 40 C.F.R. § 261.32:

- (a) Slop oil emulsion solids (KO49);
- (b) Heat exchanger bundle cleaning sludge (KO50);
- (c) API separator sludge (KO51); and
- (d) Leaded tank bottoms (KO52).

Other hazardous wastes generated at the Facility include wastes that have the characteristic of extraction procedure toxicity for chromium (DO07) and selenium (DO10) identified in 40 C.F.R. §§ 261.20-261.24.

5b. On November 19, 1980, Frontier's predecessor in ownership of the refinery submitted a "Part A permit application for the operation of the Facility. The units identified on the Part A application were (a) containers; (b) tanks; and (c) waste piles. Several amended Part A permit applications have been filed since 1980, including the following:

<u>Date</u>	<u>Processes Listed</u>
August 17, 1981	Storage in a surface impoundment.
September 5, 1985	Storage in 6 additional surface impoundments.
November 8, 1985	Deletion of storage in 3 surface impoundments.

July 21, 1986  
July 12, 1989  
December 12, 1989

Storage in a waste pile.  
Storage in a surface impoundment.  
Disposal in a landfill.

5c. As a result of the submissions of such notification and Part A permit applications, Frontier's predecessor in ownership achieved interim status for its hazardous waste management facility pursuant to section 3005(e) of RCRA, 42 U.S.C. 6925(e).

5d. In November 1985, Frontier's predecessor in ownership submitted a Part B permit application and a certification of compliance with the interim status ground water monitoring and financial assurance requirements pursuant to section 3005(e)(2) of RCRA, as amended, thus retaining interim status for the facility. Frontier has assumed the status of "owner and operator" of the hazardous waste management facility at the Frontier Refinery within the meaning of section 3005(e) of RCRA, 42 U.S.C. §§ 6925(e). The units identified on the Part B application were (a) three waste water treatment ponds (Lower Pond No. 3, 4 and 5); and (b) two surface impoundments (API Separator Sludge Impoundment and Bundle Cleaning Sludge Impoundment).

5e. In March 1986, Frontier submitted an interim status closure plan for two hazardous waste management units at the Facility: an API Separator Sludge Impoundment and Bundle Cleaning Sludge Impoundment. In July 1986, Frontier submitted an interim status closure plan for three hazardous waste management units at the Facility: Lower Pond No. 3, 4 and 5. A modified, approved closure plan covering all five units was issued by EPA on October 7, 1988. Subsequently a new plan was approved on July 25, 1989.

6a. Solid waste management units (SWMUs) that have been identified to date at the facility by Frontier and the Department include those listed in Table I and shown on Figure 1 attached hereto as part of Attachment III and incorporated herein. Figure 1 also shows the location of the following hazardous waste management units identified to date, including: Unlined API Separator Sludge Impoundment, Unlined Bundle Cleaning Sludge Impoundment, Unlined Lower Pond No. 3, Unlined Lower Pond No. 4, Unlined Lower Pond No. 5, and the Waste Pile which contains API Separator Sludge and Bundle Cleaning Sludge. The Department and Frontier have also identified Areas of Concern (AOCs) that are also listed on Table 2 and shown on Figure 2 of Attachment III. The Department believes that releases of hazardous constituents may have occurred from one or more of the AOCs. Certain SWMUs and AOCs are listed in Table 1, but not shown on Figure I because the location of these areas has not been precisely determined.

6b. The site geology consists of the Ogallala Formation, Crow Creek alluvium and fill material. The Ogallala Formation consists of an upper coarse-grained interval, an upper fine-grained interval and a lower coarse-grained interval. The Crow Creek alluvium consists of gray, poorly-sorted to well-sorted, unconsolidated, fine to coarse grain sand with layers of clay, silt, and gravel. The fill material consists of soil ranging from permeable clay, to silty clay, to sand and gravel.

6c. Site hydrology consists of the surface water and alluvial aquifer of Crow Creek and the aquifers of the Ogallala Formation. Crow Creek flows west to east along the southern boundary of the facility. Ground-water under the facility flows generally to the southeast towards Crow Creek. The Crow Creek alluvial aquifer has an average horizontal permeability of  $4.6 \times 10^{-2}$  cm/sec (48,000 ft/yr). The Ogallala Formation is divided into three separate hydrogeologic units. The upper unconfined aquifer located in the upper coarse-grained interval has an average horizontal permeability value of  $1.4 \times 10^{-3}$  cm/sec (1,500 ft/yr). The upper aquifer is located in the upper fine-grained interval and has an average horizontal permeability value of  $1.2 \times 10^{-5}$  cm/sec (12 ft/yr).

The lower confined aquifer located in the lower coarse-grained interval has an average horizontal permeability of  $6.3 \times 10^{-4}$  cm/sec (650 ft/yr) ("Assessment of Site Conditions and Ground Water Contamination at the Husky Oil Company Cheyenne, Wyoming Refinery". Dames & Moore Job No. 7987012.-06, December 21, 1983 (Dames & Moore, 1983). The velocity of the ground water in the Crow Creek alluvial aquifer is approximately 550 ft/yr. The ground water from the upper unconfined Ogallala aquifer flows into the Crow Creek alluvial aquifer, and the ground water velocity is about 50 ft/yr (Dames & Moore, 1983).

7a. Frontier's predecessor in ownership of the refinery implemented a ground water monitoring system in the vicinity of the API Separator Sludge Impoundment and Bundle Cleaning Sludge Impoundment in November 1981. The upgradient well is DM-2 and the downgradient wells are DM-3, DM-4, and DM-5. All of these wells monitor the upper Ogallala aquifer. Depth to ground water in wells DM-3, DM-4, and DM-5 is less than 15'. Well DM-3 has a 3' to 7' of hydrocarbon phase floating on the ground water. As a result of the semiannual sampling program conducted on March 17, 1983, differences in ground water contamination parameters were detected downgradient of the two impoundments when compared to background ground water quality. The results were as follows:

	UPGRADIENT		DOWNGRADIENT		
	DM-2	DM-3	DM-4	DM-5	
pH (Standard Units)	7.04	7.26	7.14	7.27	
Specific Conductance (umhos/cm)	1606	5570	3375	3862	
Total Organic Carbon (mg/l)	26.44	89.00	199.62	250.53	
Total Organic Halogen (mg/l)	8.28	12.90	116.00	112.85	

On July 17, 1983, Frontier's predecessor in ownership of the refinery confirmed statistically significant differences between the upgradient and downgradient ground water quality. In compliance with the interim status ground water monitoring requirements, 40 C.F.R. § 265.90, et seq., Frontier's predecessor in ownership forwarded a ground water quality assessment plan to EPA on September 2, 1983.

7b. In December 1986, Frontier sampled ground water monitoring wells at the Facility (Ground Water Quality Monitoring Program Round #5). These monitoring wells included two upgradient wells (EEI-56 and EEI-57), and two wells immediately downgradient of the Bundle Cleaning Sludge Impoundment and API Separator Sludge Impoundment (EEI-80 and EEI-81). All four (4) of these wells monitor groundwater in the upper unconfined Ogallala aquifer. Analysis of these samples for the presence of hazardous constituents gave the following results:

	UPGRADIENT		DOWNGRADIENT	
	EEI-56	EEI-57	EEI-80	EEI-81
	<u>12/22/86</u>	<u>12/22/86</u>	<u>12/29/86</u>	<u>12/24/86</u>
Benzene (ug/l)	18	ND	3300	4000
Ethylbenzene (ug/l)	13	ND	700	700
Toluene (ug/l)	ND	ND	3600	4500
xylenes, m (ug/l)	23	ND	1900	2200
Xylenes, o & p (ug/l)	53	ND	1800	2200

ND = Not Detected

7c. There is or has been a release of hazardous wastes or hazardous constituents from Frontier's facility to the ground water in the upper Ogallala aquifer.

8. Ground water, surface water, and surface and subsurface soil provide routes for potential migration of hazardous waste or hazardous constituents from the Facility toward Crow Creek. Crow Creek receives ground water discharged from both the Ogallala Formation and Crow Creek alluvium. Ground water contaminated by hazardous waste constituents will eventually be discharged to Crow Creek. Downstream of the refinery, Crow Creek serves as the main source of recharge to the aquifer used for irrigation. Crow Creek eventually flows into the South Platte, which is used for recreation. Crow Creek is used for irrigation and stock watering.

9. The constituents released or potentially released to ground water and/or surface water due to waste management practices at Frontier's facility are listed as hazardous constituents in 40 CFR Part 261, Appendix VIII and pose a threat to human health or the environment. Reference to individual compounds such as, benzene, ethylbenzene, toluene, and xylene, which can be found at Frontier are located in the document entitled "Chemical, Physical, and Biological Properties of Compounds Present at Hazardous Waste Sites", September 27, 1985, EPA Contract No. 68-01-6769.

10. The Frontier Facility is located within one-half mile north of Crow Creek and within one-quarter mile of residential neighborhoods. Groundwater wells within the area approximately one-half mile upgradient and two miles downgradient are used for domestic, irrigation, stock watering, and industrial purposes. The migration of hazardous constituents from the facility may present a threat to human health or the environment.

11a. The Department has identified drinking water wells downgradient of Frontier's facility which withdraw water from the Crow Creek alluvial aquifer. Unless Frontier can demonstrate to the Department's satisfaction that groundwater contamination from Frontier facility will not adversely affect drinking water wells in the Crow Creek alluvial aquifer, the Crow Creek alluvial aquifer shall be considered a drinking water source.

11b. Releases of hazardous waste or hazardous constituents from Frontier's Facility have migrated to the uppermost Ogallala aquifer and are likely to migrate toward Crow Creek. Aquatic organisms in Crow Creek and humans and predators who may eat fish from Crow Creek are potential receptors of contaminants released from the Facility. Crow Creek has been designated as a Class IV stream by the Department.

#### V. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the foregoing findings of fact, and after consideration of the administrative record, the Department has made, but Frontier does not admit, the following conclusions of law and determinations:

1. Frontier is a "person" within the meaning of section 1004(15) of RCRA, 42 U.S.C. § 6903(15).

2. Frontier is the owner or operator of a facility that has operated or is operating subject to section 3005(e) of RCRA, 42 U.S.C. § 6925(e).

3. Certain wastes found at the Facility are hazardous wastes as defined by section 1004(5) of RCRA, 42 U.S.C. § 6903(5). These are also hazardous wastes or hazardous constituents within the meaning of section 3001 of RCRA, 42 U.S.C. § 6921 and regulations promulgated pursuant thereto in 40 CFR Part 261.

4. There is or has been a release of hazardous wastes and/or hazardous constituents into the environment from Frontier's Facility.

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

## VI. WORK TO BE PERFORMED

1. Pursuant to W.S. 35-11-518, Frontier is hereby ordered and agrees to perform the following acts in the manner and by the dates specified herein. All workplans developed and work undertaken pursuant to this Order shall be performed in a manner consistent with, at a minimum: the attached Scopes of Work; the Department approved workplans developed to meet the requirements of this Consent Order; RCRA and its implementing regulations and applicable EPA guidance. Relevant guidance may include, but is not limited to, the "RCRA Corrective Action Interim Measures" (OSWER Directive 9902.4, June 1987), "RCRA Ground Water Monitoring Technical Enforcement Guidance Document" (OSWER Directive 9950.1, September 1986), and "Test Methods for Evaluating Solid Waste" (EPA SW-846, November 1986). To the extent that Frontier has already performed some of the following acts and made submissions pursuant to the EPA Order, those acts and submissions shall be deemed timely acts and submissions for purposes of this Order.

2. The authority to administer existing groundwater remediation permit Nos. 90-051, 90-353, 91-214R, and 93-031R is hereby transferred to the Solid and Hazardous Waste Administrator. The Department shall have the authority, upon Frontier's petition, or on its own initiative subject to the dispute resolution procedures provided in Section XVI, to modify the aforementioned permits in order to conform to or promote the provisions of this Order for purposes of either interim or final corrective measures. All future corrective action at the facility shall be performed pursuant to this Order or a RCRA permit.

## INTERIM MEASURES (IM)

1. Within twenty-four (24) hours of the discovery or the occurrence of a new or previously unidentified event or condition that poses an existing or potential threat to human health, public welfare, or the environment, Frontier shall verbally notify the Department Project Coordinator. Thereafter, Frontier shall provide written notice within seven (7) calendar days of the occurrence of the pertinent times and location; causes, if known; consequences to human health, public welfare or to the environment; and any actions taken, or to be taken, to stop or mitigate the event or condition. The parties recognize that there are numerous factors associated with a determination of whether given circumstances or conditions present an existing or potential threat to human health, public welfare or the environment. The parties also recognize that this determination will have to be made in the first instance by Frontier based upon a good faith review of the relevant conditions and applicable and relevant factors.

2. Within forty-five (45) days of providing written notification to the Department as required in subparagraph 1 above, or receipt from EPA and the Department of written notification

to implement Interim Measures (IMs) after identification of conditions covered in the subparagraph 1 above, and/or confirmation by the Department of a new or previously unidentified existing or potential threat to human health, public welfare or the environment, Frontier shall submit a Work Plan for implementation of IMs for the Department's approval that describes the measure(s) that is required to mitigate release(s) of hazardous waste and/or hazardous constituents that may present a threat to human health or the environment. The Work Plan shall include the same elements for Work Plans described in this Section.

3. The IM Work Plan shall ensure that the IMs are designed to mitigate an existing or potential threat(s) to human health or the environment and are consistent with and integrated into any long term solution at the facility to the extent practicable. The IM Work Plan shall document the procedures to be used by Frontier for the implementation of IMs and shall include, but not be limited to: the objectives of the IMs' design, construction, operation, monitoring and maintenance requirements; and detailed schedules.

#### RCRA FACILITY INVESTIGATION (RFI)

4. The RFI Workplan shall address all solid waste management units (SWMUs), and areas of concern (AOCs) identified in Attachment III. Frontier shall be afforded the opportunity to demonstrate that SWMUs or AOCs should be deleted or reclassified. Frontier shall submit to the Department the portion of the RFI Workplan concerning SWMUs within ninety (90) days of the effective date of this Order. Frontier shall submit to the Department the portion of the RFI Workplan concerning AOCs within one hundred and twenty (120) days of the effective date of this Order. Frontier shall develop the RFI Workplan in accordance with Attachment I. Frontier shall have the burden of precisely locating those SWMUs and AOCs whose locations are not shown in the Figures in Attachment III. The Department recognizes that some SWMUs or AOCs may be physically the same unit. In this case the Department agrees to remove any redundant listings of SWMUs or AOCs. Within ninety (90) calendar days of the effective date of this Order, Frontier shall submit to the Department an RFI Workplan in accordance with Attachment I. Both portions of the RFI Workplan are subject to approval by the Department and shall be performed in a manner consistent with the RFI Scope of Work contained in Attachment I. Attachments I and III to this Order are incorporated by reference as if fully set forth herein.

5. The RFI Workplan shall be designed to define completely the presence, magnitude, extent, direction, and rate of movement of any hazardous wastes or hazardous constituents within and beyond the Facility boundary. The RFI Workplan shall document the procedures Frontier shall use to conduct those investigations necessary to: (1) characterize the potential pathways of contaminant migration; (2) characterize the source(s) of contamination; (3) define the degree and extent of contamination; (4) identify actual or potential receptors; and (5) support the development of alternatives from which a corrective measure will be selected by the Department. A specific schedule for implementation of all activities shall be included in the RFI Workplan.

6. If additional SWMUs or AOCs are found, Frontier shall notify the Department in writing within ten (10) business days of discovery, and the RFI Workplan shall be modified in accordance with the procedures specified in Section XXI of this Order.

7. In accordance with the provisions of Attachment I herein, the RFI Workplan shall include: (1) a Project Management Plan; (2) a Data Collection Quality Assurance Plan; (3) a Data Management Plan; (4) a Health and Safety Plan; and (5) a Public Involvement Plan. The RFI Workplan additionally shall identify all reports and other deliverables to be submitted under the RFI Workplan.



16. 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 cleanup. Frontier shall notify the Department in writing of the name, title, and qualifications of the engineer or geologist, and of any contractors or subcontractors and their personnel to be used in carrying out the terms of this Order within thirty (30) calendar days after the effective date of this Order or date of retention. If the Department objects to the qualifications of the engineer or geologist, the Department will notify Frontier within thirty (30) calendar days after receipt of Frontier's notification pursuant to this section.

17. Based on the results of the RFI, the Department may determine that some solid waste management units or areas of concern pose no significant risk of harm to human health and the environment. The Department shall inform Frontier of any such solid waste management units and areas of concern with no significant risk in the final RFI approval. Frontier may exclude any such solid waste management units or areas of concern with no significant risk from consideration under the CMS.

#### VII. ADDITIONAL WORK

The Department may determine that certain tasks, including investigatory work or engineering evaluations are necessary to effectuate the purposes of this Consent order, in addition to the tasks and deliverables specifically included in this Consent Order and the approved workplans. If the Department determines that such additional work is necessary, the Department shall request in writing that Frontier perform the additional work, and shall specify the basis and reasons for the Department's determination that the additional work is necessary. Frontier shall respond within fourteen (14) calendar days to the Department's request that Frontier perform additional work. If Frontier disagrees with the Department's determination that additional work is necessary, Frontier shall specify in its response the basis and reasons for disagreeing with the Department's determination. If within fourteen (14) calendar days of Frontier's response the parties are unable to resolve a dispute concerning additional work, the Dispute Resolution provisions in Section XVI may be invoked. Any additional work agreed upon by the parties or added as a result of the dispute resolution procedures shall be incorporated into this Consent Order pursuant to the provisions of Section XXI of this Consent Order, and shall be performed in a manner consistent with this Consent Order.

#### VIII. QUALITY-ASSURANCE

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

1. Ensure that laboratories used by Frontier 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, Frontier shall submit all protocols to be used for analyses to the Department for approval fourteen (14) calendar days prior to the commencement of analyses.

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

## CORRECTIVE MEASURES STUDY (CMS)

8. Frontier shall incorporate the CMS Workplan into the RFI Workplan required above. The CMS Workplan shall be submitted within 60 calendar days of EPA's and the Department's approval of the Final RFI Report. Upon completion of the RCRA Facility Investigation, Frontier shall conduct a Corrective Measure Study in accordance with the approved CMS Workplan and the CMS Scope of Work in Attachment II attached hereto and incorporated by reference as if fully set forth herein.

9. The purpose of the Corrective Measure 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 Frontier's facility. Frontier shall furnish the personnel, materials, and services necessary to prepare the CMS, except as otherwise specified in Attachment II.

### SUBMISSIONS/AGENCY APPROVAL/ADDITIONAL WORK

10. Within thirty (30) calendar days of approval or modification by EPA and the Department of any workplan, Frontier shall commence work and implement the tasks required by the workplan submitted pursuant to the Scopes of Work contained in Attachments I, II and III in accordance with the standards, specifications and schedule stated in the workplan as approved or modified by the Department.

11. Beginning with the month following the effective date of this Order, Frontier shall submit to the Department progress reports for each month on the tenth day of the following month. The progress reports shall conform to requirements in relevant Scopes of Work contained in Attachments I, II and III. Frontier may request in writing that the Department limit the scope or frequency of Progress Reports. Such modification of the scope or frequency of progress reports may only be made with the Department's approval.

12. Frontier shall submit draft and final RCRA Facility Investigation and Corrective Measure Study reports to the Department in accordance with the schedule contained in this Order and its attachments.

13. The Department will review all draft or final reports or workplans, and shall notify Frontier in writing of the Department's approval, disapproval or approval with modifications, of the report, workplan or any part thereof. In the event of any disapproval or approval with modification, the Department shall specify the deficiencies and reasons for such disapproval or approval with modification. Within ninety (90) calendar days of receipt of the Department's disapproval or approval with modification of any report or workplan, Frontier shall amend such report or workplan and submit a revised report or workplan. The Department approved reports shall be deemed incorporated into and part of this Order.

14. The Department shall coordinate review of all Frontier submissions with EPA, in conjunction with EPA's administration of the EPA Order, in order to ensure that review periods under this Order and the EPA Order run concurrently.

15. Two (2) copies of all documents, including workplans, preliminary and final reports, progress reports, and other correspondence to be submitted pursuant to this Order shall be hand delivered or sent by certified mail, return receipt requested, to the Department Project Coordinator designated pursuant to section XIII of this Order.

*- This will remain place at the EPA, order is not within*

3. Inform the Department Project Coordinator fourteen (14) calendar days in advance which laboratories will be used by Frontier and ensure that Department personnel and Department authorized representatives have reasonable access to the laboratories and personnel used for analyses.

4. Use relevant EPA and Department guidance to evaluate all data to be used in the proposed plans and the RFI Report required by Section VI of this Order. This evaluation shall be provided to the Department as part of the RFI Workplan required by Section VI of this Order, and shall be updated as required by the Department.

#### IX. PUBLIC COMMENT AND PARTICIPATION

1. Upon approval by the Department of a Corrective Measure Study Final Report, the Department shall make both the RCRA Facility Investigation Final Report (or summary of report) and the Corrective Measure Study Final Report (or summary of report) and a summary of the Department's proposed corrective measure and the Department's justification for proposing selection of that corrective measure available to the public for review and comment for at least twenty-one (21) calendar days.

2. Following the public review and comment period, the Department will notify Frontier of the corrective measure selected by the Department. If the corrective measure recommended in the Corrective Measure Study Final Report is not the corrective measure selected by the Department after consideration of public comments, the Department will notify Frontier in writing of the reasons for such decision, and Frontier, subject to its rights under Section XVI herein, shall modify the RFI/CMS as directed to do so by the Department, provided that nothing in this Consent Order shall limit or bar Frontier's right to contest the basis or justification for the Department's corrective measures determination in any subsequent proceedings or procedures for decisionmaking under state laws or regulations, including, but not limited to a Department initiated judicial proceeding associated with implementation or proposed implementation of such measures.

3. Final agency action shall occur when Frontier is subject to a final order directing Frontier to implement the measures in the Corrective Measure Study Final Report, provided that nothing herein shall alter rights of appeal as provided in Section XVI.

4. The Administrative Record supporting the selection of the corrective measure will be available for public review at the following location during normal business hours:

United States Environmental Protection Agency  
Region VIII, Library  
One Denver Place, 2nd Floor  
999 18th Street  
Denver, CO 80202-2405

and the

Solid and Hazardous Waste Division  
Wyoming Department of Environmental Quality  
Herschler Building, 4th Floor  
122 West 25th Street  
Cheyenne, Wyoming 82002

## X. ON-SITE AND OFF-SITE ACCESS

1. The Department and/or any duly authorized Department representative is authorized to enter and move about the Facility during the effective dates of this Order, at reasonable times and in a reasonable manner and without unnecessary interference with Frontier's operations. Upon gaining entrance to the facility, the Department and/or its designated representatives in non-emergency situations, will undergo an orientation briefing not to exceed fifteen minutes in duration on refinery safety rules. The Department's access to the Facility includes, but is not limited to, the following purposes: interviewing Facility personnel and contractors; inspecting records, operating logs, and contracts related to this Order; reviewing the progress of Frontier in carrying out the terms of this Order, using a camera, sound recording, or other documentary type equipment; and to verify any reports and data submitted to the Department by Frontier for purposes of this Order. Frontier shall permit such persons to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data that pertains to work undertaken pursuant to this Order, except for information or other materials subject to attorney-client or attorney work product privileges. The Department will afford Frontier the opportunity to be present during all phases of the Department's site visit or inspection. The Department also shall afford Frontier a reasonable opportunity to assert available business confidentiality claims pursuant to applicable state laws and regulations.

The Department will allow Frontier to collect split samples of any samples taken by the Department, and upon request by Frontier, will provide Frontier copies of raw data and/or analytical results, and copies or prints of any recordings, photographs, or other documented materials obtained or developed by the Department to the extent the Department would be required to provide such materials pursuant to applicable state laws or regulations.

2. To the extent that work required by this Order, or workplans prepared pursuant hereto, must be done on property not owned or controlled by Frontier, Frontier shall use its best efforts to obtain site access agreements from the present owner(s) and/or, if appropriate, other persons in control of such property within thirty (30) calendar days of approval of any workplan for which site access is required. Best efforts, as used in this paragraph shall include, at a minimum, a certified letter from Frontier to the present owners and other persons in control of such property requesting access agreements to permit Frontier and the Department and its authorized representatives to access such property. Any such access agreement shall be incorporated by reference into this Order. In the event that agreements for access are not obtained within thirty (30) calendar days of the approval by the Department of appropriate workplans or project plans requiring such access, Frontier shall notify the Department in writing within seven (7) calendar days thereafter regarding both the efforts undertaken to obtain access and its failure to obtain such agreements. In the event the Department obtains access, Frontier shall undertake Department approved work on such property. If the lack of access affects any requirement under this Order, Frontier and the Department agree to amend the work plan and its schedules pursuant to Section XXI herein.

3. Nothing in this section limits or otherwise affects the Department's rights of access and entry pursuant to applicable law or regulations.

## XI. SAMPLING AND DATA/DOCUMENT AVAILABILITY

1. Frontier shall submit to the Department the results of all sampling, tests, raw data, and all other data generated by or on its behalf pursuant to this Order, in accordance with the requirements of this Order and its attachments. Similarly, the Department shall make such

information available to Frontier within thirty (30) calendar days of its receipt by the Department.

2. Frontier shall notify the Department in writing at least seven (7) calendar days before engaging in any construction of any interim measures, well drilling, installation of equipment, or sampling. At the request of the Department, Frontier shall provide or allow the Department or its authorized representative to take split samples of all samples collected by Frontier pursuant to this Order.

3. Frontier may assert a business confidentiality claim covering all or part of any information submitted to the Department pursuant to this Order. Any assertion of confidentiality shall be adequately substantiated by Frontier when the assertion is made. Information determined to be confidential by the Department shall be disclosed only to the extent permitted by applicable state laws or regulations. If no such confidentiality claim accompanies the information when it is submitted to the Department, it may be made available to the public by the Department without further notice to Frontier. Physical or analytical data shall not be deemed confidential.

## XII. RECORD PRESERVATION

Frontier shall preserve, during the pendency of this Order and for a minimum of six (6) years after its termination, all non-privileged data records and documents in its possession or in the possession of its divisions, officers, directors, employees, agents and contractors which relate in any way to this Order or to hazardous waste management and/or disposal at the Facility. For a period of six (6) years after termination of this Order, Frontier shall make such non-privileged records available to the Department for inspection or shall provide copies of any such records to the Department. Frontier shall notify the Department in writing thirty (30) calendar days prior to the destruction of any such records, and shall provide the Department with the opportunity to take possession of any such records.

## XIII. PROJECT COORDINATOR

1. The respective Project Coordinators for Frontier and the Department are designated as follows:

a. For Frontier:

Tommy Woznick, Safety and Environmental Manager  
Frontier Refining, Inc.  
2700 East Fifth Street, Cheyenne, WY 82007  
(307) 634-3551

b. For the Department:

Deborah Myers  
Project Manager  
Solid and Hazardous Waste Division  
122 West 25th Street  
Cheyenne, WY 82002  
(307) 777-7752

Each Project Coordinator shall be responsible for overseeing the implementation of this Order. The Department Project Coordinator will be the Department's designated representative at

the Facility. All communications between Frontier and the Department, and all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the Project Coordinators.

2. The parties agree to provide at least seven (7) calendar days written notice prior to changing Project Coordinators.

3. If the Department determines that activities associated with this Order have caused or may cause a release of hazardous waste, hazardous constituents, or a pollutant or contaminant, which may pose a threat to human health or the environment or if the Department determines that Frontier is not capable of undertaking any studies or corrective measures ordered, the Department may order Frontier to stop further implementation of this Order for such period of time as the Department determines may be needed to abate any such release or threat and/or to undertake any action which the Department determines is necessary to abate such release or threat.

4. The absence of either Project Coordinator from the Facility shall not be cause for the stoppage of work.

#### XIV. NOTIFICATION

Unless otherwise specified, two (2) copies of all reports, correspondence, approvals, disapprovals, notices or other submissions relating to or required under this Order shall be in writing and shall be sent to the Project Coordinators identified in Section XIII of this Order.

#### XV. DELAY IN PERFORMANCE/STIPULATED PENALTIES

1. Except where performance is excused under Section XVII, "Force Majeure and Excusable Delay," or modified pursuant to Section XXI, "Subsequent Modification", for each day that some work product or task completion called for in a work plan is overdue, or for which Frontier fails to submit a report or document or otherwise fails to comply with the requirements of this Consent Order, Frontier shall pay the sums set forth below as stipulated penalties, except as provided in paragraph 6 of this Section. Compliance by Frontier shall include completion of an activity under this Order or approved workplans in an acceptable manner and within the specified time schedules in and approved under this Order. Stipulated penalties shall accrue in the following amounts:

a. For failure to commence or complete work as prescribed in this Consent Order and Department approved plans under this Order; or to submit any preliminary and final reports, except monthly reports:

\$750.00 each day for the first fifteen days of delay or part of day and \$1,500.00 per day for each day of delay after the fifteenth day or part of day thereafter;

b. For failure to submit monthly reports and other deliverables at the time required pursuant to this Consent Order:

\$100.00 per day for each day of delay or part of day thereafter;

c. For failure to comply with any other provisions of this Consent Order after written notice by the Department of noncompliance:

\$500.00 per day for each day of delay or part of day thereafter.

Notwithstanding this subparagraph (c), if Frontier achieves full and complete compliance within the time period specified by the written notice given by the Department, the stipulated penalty mentioned in this subparagraph (c) will not be assessed.

The parties recognize that the stipulated penalties provided under this Consent Order have been accepted by the Department in consideration of Frontier's financial status. The parties further agree that, should the assessment of stipulated penalties under this section present an economic hardship for Frontier, Frontier shall be afforded the opportunity to petition the Department for the abatement of same on such grounds. Such rights shall be in addition to and not in lieu of other dispute resolution rights afforded under this Consent Order.

2. Stipulated penalties shall not accrue in situations which are solely attributable to the Department's issuance of a stop work order. Nothing in this paragraph precludes the Department from seeking stipulated penalties for non-compliance with this Order.

3. All penalties shall begin to accrue on the date that complete performance is due or a violation occurs, and shall continue to accrue through the final day or correction of noncompliance. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Order.

4. Any stipulated penalties to be paid pursuant to this Consent Order shall be payable within ten (10) business days after Frontier's receipt of written demand by the Department. Interest at the rate of six percent (6%), simple interest shall begin to accrue on the unpaid balance at the end of the ten day period. Payment shall be paid by certified or cashier's check made payable to the State of Wyoming, and shall be remitted to:

Administrator  
Solid and Hazardous Waste Division  
Department of Environmental Quality  
122 West 25th Street  
Cheyenne, WY 82002

All payments shall reference the name of the facility, Frontier's name and address, and the Department docket number of this action. Copies of the transmittal of payment shall be sent simultaneously to:

Deborah Myers  
Project Manager  
Solid and Hazardous Waste Division  
122 West 25th Street  
Cheyenne, WY 82002

5. The stipulated penalties set forth in this section do not preclude the Department from pursuing any other remedies or sanctions which may be available to the Department by reason of Frontier's failure to comply with any of the requirements of this Consent Order, nor shall payment of said penalties relieve Frontier of the responsibility to comply with this Consent Order. However, should the Department elect to pursue penalties other than the stipulated penalties outlined herein for any period of non-compliance with respect to any particular violation(s), those other penalties shall be the only penalties available to the Department for that period of non-compliance with respect to that particular violation(s).

6. Frontier may dispute the Department's right to the stated amount of penalties by invoking the dispute resolution process under Section XVI of this Order. If Frontier does not prevail upon resolution of the dispute, including either administratively or judicially, the Department has the right to collect all penalties which accrued prior to and during the period of dispute. If Frontier prevails upon resolution of the dispute, no penalties shall be payable. Stipulated penalties shall not accrue during the initial five (5) business day period referenced in Section XVI. Nothing herein shall preclude the Department in its sole and absolute discretion from waiving stipulated penalties either in whole or in part.

7. Neither the filing of a petition to resolve a dispute nor the payment of penalties shall alter in any way Frontier's obligation to complete the performance required hereunder.

8. If stipulated penalties accrue under this Order, the Department shall take into account any stipulated penalties accruing under corresponding provisions of the EPA Order when seeking penalties under this Section.

#### XVI. DISPUTE RESOLUTION

1. The Project Coordinators shall work by consensus and when a dispute arises concerning specific activities required by this Consent Order, shall first attempt to resolve the matter informally. If the Project Coordinators cannot resolve a difference of opinion with respect to such matters within five (5) business days, the dispute shall be resolved in favor of the Department. In this event the Department shall give notice of that resolution to Frontier. If Frontier further objects or if Frontier objects to any Department notice of disapproval or other decision or directive made pursuant to this Consent Order, Frontier shall notify the Department in writing of its objections, and the reasons therefore, within seven (7) calendar days of its receipt of the Department's notification. The Department and Frontier shall endeavor to meet promptly and work in good faith for a period of ten (10) calendar days in an effort to reach a mutually agreeable resolution of the dispute. If agreement is not reached within the ten (10) day period, the Department shall then provide a written statement of its decision and the reasons therefore to Frontier signed by the Solid and Hazardous Waste Administrator. Within thirty (30) days of receiving the written statement of decision from the Department, if Frontier continues to disagree with the decision, Frontier may appeal the Department's decision to the Environmental Quality Council ("Council"), as provided by the Wyoming Environmental Quality Act, W.S. 35-11-101 *et seq.* The parties may, upon mutual agreement, extend any of the time periods herein to the extent allowed by state law. Frontier's right to judicial review of a final decision of the Council is governed by state law.

2. Notwithstanding the provisions of Section XXI, "Subsequent Modification", of this Consent Order, any agreement or decision made pursuant to this Section by the Department shall be reduced to writing, shall be deemed incorporated into this Consent Order without further order or process, and shall be binding on the parties.

3. Should the outcome of any dispute resolution proceeding under this Order conflict with requirements imposed under the EPA Order, then either party to this Order may seek review in accordance with state law in order to effect the purposes of this Order and the consistency of this Order with the EPA Order and/or RCRA.

#### XVII. FORCE MAJEURE AND EXCUSABLE DELAY



1. Frontier shall perform the requirements of this Consent Order within the time limits set forth herein or in any approved workplan schedules, unless performance is prevented or delayed by events which constitute a force majeure. Frontier shall have the burden of proving a force majeure. A force majeure is defined as any event arising from causes not foreseeable and beyond the control of Frontier which could not be overcome by due diligence and which delays or prevents performance by a date required by this Consent Order. Force majeure events are limited to extraordinary weather events, or weather events normal for the area but which prohibit work from proceeding safely, natural disasters, national emergencies, inability to otherwise perform due to any act of God, act of public enemy, war blockade, public riot, lightning, fire, tornado, blizzard, flood, explosion, labor disputes, or other such circumstance, delays in obtaining access to property not owned or controlled by Frontier despite best efforts to obtain such access in a timely manner and any delays directly resulting from Department failure to submit oral or written comments or approvals to Frontier within a reasonable time where the cause of such failure is not attributable to omissions or deficiencies in Frontier's work product.

2. Although they do not technically constitute force majeure events, any failure to obtain any necessary governmental permits and approvals shall be treated in the same manner as force majeure events pursuant to this Consent Order, provided that Frontier exercises due diligence in seeking to obtain such permits and approvals. For permits required by the Department for operation of ground water monitoring, or recovery wells or systems, due diligence shall include submission of the required permit application at least sixty (60) calendar days prior to the date required by this Consent Order for installation of the well or system. Due diligence for all permits required by this Consent Order shall also include Frontier regularly contacting the agency responsible for issuing the permit to ascertain the status of the permit application. There shall be a presumption against a finding of due diligence where Frontier has failed to have such contact at least semi-monthly from the time Frontier submits any required permit application until the responsible agency takes final action on the subject permit application. If the agency responsible for issuing the required permit determines Frontier's permit application is incomplete and informs Frontier of such, due diligence in seeking the permit application shall also include Frontier responding to the permit issuing agency within seven (7) calendar days of Frontier being informed of the deficiencies in the subject permit application.

3. Force majeure events do not include, and are not limited to, normal inclement weather other than as described above, increased costs or expenses of the work to be performed under the Order, the financial difficulty of Frontier to perform such work, the failure of Frontier to satisfy its obligations under the Order, and acts or omissions not otherwise force majeure attributable to Frontier's contractors or representatives.

4. Frontier shall notify the Department in writing within seven (7) calendar days after it becomes aware of events which Frontier knows or should know constitutes a force majeure. Such notice shall estimate the anticipated length of delay, including necessary demobilization and remobilization, its cause, measures taken to minimize the delay, and an estimated time table for implementation of these measures. Failure to comply with the notice provision of this Section, without good cause, shall constitute a waiver of Frontier's right to assert a force majeure.

5. If the Department determines that the delay has been or will be caused by a force majeure, the time for performance for that element of the relevant workplan shall be extended for a period equal to the delay resulting from such circumstances. This shall be accomplished through an amendment to this Consent Order pursuant to Section XXI. Such extension does not alter the schedule for performance or completion of other tasks required by any workplan unless these are dependent on the task delayed and are also altered by amendment of this Consent Order. In the

event that the parties cannot agree that any delay or failure has been or will be caused by a force majeure, or if there is no agreement on the length of the extension, the dispute shall be resolved in accordance with the Dispute Resolution provisions of Section XVI of this Consent Order.

### XVIII. RESERVATION OF RIGHTS

1. The Department expressly reserves all rights and defenses that it may have, including the right both to disapprove of work performed by Frontier pursuant to this Order and to request that Frontier perform tasks in addition to those stated in the workplans and Scopes of Work.

2. The Department hereby reserves all of its statutory and regulatory powers, authorities, rights, remedies, both legal and equitable, which may pertain to Frontier's failure to comply with any of the requirements of this Order, including without limitation the assessment of penalties under this Order, applicable state laws or regulations. 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 the Department has under any statutory, regulatory or common law enforcement authority.

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

4. This Order shall not limit or otherwise preclude the Agency from taking additional enforcement action pursuant to W.S. 35-11-518, W.S. 35-11-115, or other available legal authorities should the Department determine that such actions are warranted.

5. This Order is not intended to be nor shall it be construed as a permit. This Order does not relieve Frontier of any obligation to obtain and comply with any local, state or federal permits in existence or in the future.

6. The Department reserves the right to (1) perform any portion of the work herein or any additional site characterization, feasibility study and response/corrective actions as it deems necessary to protect human health and the environment, and (2) exercise its authority under applicable laws and regulations to undertake removal actions or remedial actions at any time. However, prior to taking any such actions, the Department shall notify Frontier and afford Frontier an opportunity to perform such actions. In any event, the Department reserves its right, if any, to seek reimbursement from Frontier for such additional costs incurred by the State of Wyoming. Notwithstanding compliance with the terms of this Order, Frontier is not released from liability, if any, for the costs of any response actions taken or authorized by the Department.

7. For the purposes of enforcing this Consent Order only, Frontier does not contest any of the findings of fact, conclusions of law, or determinations that the Department has stated in this Consent Order, nor does Frontier contest any of the requirements and tasks as stated in this Order. Frontier, however, expressly reserves all rights it has to contest such findings, conclusions, and determinations in any proceeding other than a proceeding to enforce this Consent Order. Frontier also reserves all rights it has to contest any claim by the Department of non-compliance with the terms of this Consent Order or the work plans. Frontier further reserves all rights and defenses it has under this Consent Order, CERCLA, RCRA, and any other legal or equitable rights or defenses. These reservations of rights by Frontier include actions and defenses that are capable of being asserted by Frontier against any party other than the Department, and

include, but are not limited to, the right to seek cost recovery from third parties for actions taken by Frontier.

#### XIX. 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 for any liability it may have arising out of or relating in any way to other generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

#### XX. 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. Frontier shall obtain or cause its representatives to obtain all permits and approvals necessary under such laws and regulations.

#### XXI. SUBSEQUENT MODIFICATION

1. This Consent Order may be amended by mutual agreement of the Department and Frontier. Such amendments shall be in writing, shall have as their effective date the date on which a fully executed copy is received by Frontier, and shall be incorporated into this Consent Order, unless expressly stated otherwise in the applicable agencies' approval notice. In the event that a mutual agreement of the parties to modify this Order is not reached and if the Department denies any request for modification by Frontier, or if Frontier denies any request for modification by the Department, such disagreement shall be subject to the dispute resolution provisions in Section XVI herein. If, however, the requirements in the EPA Order are amended, the corresponding provisions in this Order shall, consistent with state law, be amended in an equivalent manner. The parties shall promptly agree on the incorporation of the modified text from the EPA Order into this Order.

2. Any reports, plans, specifications, schedules, and attachments required by this Order are, upon written approval by the Department, incorporated into this Order. Any noncompliance with such Department approved reports, plans, specifications, schedules, and attachments shall be considered a violation of this Order and shall subject Frontier to the penalty provisions referenced in Section XV of this Order.

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

#### XXII. INDEMNIFICATION

1. Frontier agrees to indemnify and save and hold harmless the State of Wyoming, its agencies, departments, agents, and employees, from any and all claims or causes of action arising from or on account of any acts or omissions by Frontier, or Frontier's employees, agents, independent contractors, consultants, receivers, trustees, or assigns in carrying out any action or activity pursuant to this Order. This indemnification shall not be construed in any way as affecting or limiting the rights or obligations of the parties under their various contracts. This

indemnification, however, shall extend only that portion of any such claims or causes of action attributable to the acts or omissions of Frontier or its agents and contractors. Frontier does not agree to indemnify the State of Wyoming or its agencies, departments, agents, and employees for that portion of any claim or cause of action attributable to the actions or omissions of the Department or its representatives at the facility or in connection with this Consent Order.

2. In no event shall Frontier contend that the Department is or should be treated as a party to any contract entered into by Frontier, Frontier's officers, employees, agents, independent contractors, consultants, receivers, trustees, or assigns in carrying out any action or acting pursuant to this Order, or an owner or operator of the Facility.

### XXIII. TERMINATION AND SATISFACTION

The provisions of this Order shall be deemed satisfied upon Frontier's receipt of written notice from the Department that Frontier has demonstrated, to the satisfaction of the Department, that the terms of this Order, including any additional tasks determined by the Department to be required pursuant to this Order, but not including any continuing obligation (i.e., Record Retention), have been satisfactorily completed. The Department's determination under this section shall not be unreasonably withheld. The provisions of this Order shall be deemed superseded, and thereby terminated, in the event that they are incorporated into a post-closure or other RCRA permit. To the extent that provisions of this Order are incorporated into a state-issued post-closure or other state-issued RCRA permit, the corresponding provisions of this Order shall be concurrently terminated and incorporated into such permit.

### XXIV. SURVIVABILITY/PERMIT INTEGRATION

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

2. The parties agree that all corrective action investigations associated with this Order shall satisfy, and be incorporated into, any post-closure permit terms and conditions imposed by the Department at the facility and Frontier will not be required to re-perform or expand upon such activities except as may be necessitated by changes in law and regulations, discovery of conditions not previously identified, or work insufficiently performed by Frontier or its contractors.

3. Nothing in this Order restricts or precludes the Department from exercising its right to seek from Frontier, through a post-closure permit or through a subsequent administrative order or judicial action implementation of corrective measures (CMI) selected by the Department pursuant to this Order or other corrective action activities not covered by this Order.

### XXVI. FINANCIAL ASSURANCE

1. Frontier shall prepare a cost estimate for performance of the RFI, CMS, Initial Measure and/or Interim Measure activities. For purposes of preparing and updating this cost estimate, Frontier shall comply with provisions of 40 C.F.R. §§ 265.142(a)(2),(b),(b)(1),(b)(2), and (c) and applicable state law. In addition, Frontier shall provide financial assurance for (1) the aforementioned work and (2) third-party liability coverage, as provided in this Section XXVI. The purpose of the financial assurance mechanism is to guarantee performance and payment for the RFI, CMS, Initial Measure and/or Interim Measure activities and to provide liability coverage for

such activities in accordance with the terms and conditions of this Order. Any satisfactory financial assurance provided under the EPA Order shall satisfy the requirements of this section.

2. Within forty-five (45) calendar days of receipt of written approval from both the EPA and the Department of the Workplans including any interim measure Workplans approved under this Order or forty-five (45) calendar days after EPA has accepted certification of closure and released Frontier's existing financial assurance mechanisms for closure and third-party liability coverage, whichever comes last, Frontier shall provide to the Department the proposed method by which the company will comply with the requirements of this section using financial assurance mechanisms approved by the Department. If Frontier determines that a financial test is the most appropriate mechanism, and if Frontier can document an inability to comply with the existing requirements for such mechanism, the Department will adjust the applicable regulatory ratios therein.

3(a). The liability coverage for sudden and non-sudden occurrences associated with activities to be conducted under this Order shall consist of \$1 million per occurrence with \$2 million annual aggregate exclusive of legal defense costs. In the event Frontier is unable to provide a demonstration of financial assurance for such coverage, the Department will reduce the coverage levels upon presentation of documentation that Frontier is unable to comply with this requirement.

(b) If Frontier fails to perform the RFI, CMS, Initial Measure and/or Interim Measures activities in accordance with any of the terms or conditions of this Order, then the financial assurance shall be available to the Department to undertake such performance, following written notification from the Department to Frontier specifying in detail that Frontier has failed to comply properly with the terms and conditions of this Order regarding RFI, CMS, Initial Measure and/or Interim Measure activities, subject to Section XVI herein.

(c) If the Department determines that the levels of financial responsibility required by Paragraph 1 of this Section are not consistent with the degree and duration of risk associated with the RFI, CMS, Initial Measure and/or Interim Measure activities at the facility, the Department may adjust the level of financial responsibility required under Paragraph 1 as may be necessary to protect human health and the environment. This adjusted level will be based on the Department's assessment of the degree and duration of risk associated with RFI, CMS, Initial Measure and/or Interim Measure activities at the facility. Frontier must furnish to the Department, within a reasonable time, information which the Department requests which the Department does not possess related to RFI, CMS, Initial Measure and/or Interim Measure activities to determine whether cause exists for such adjustments of level or type of coverage.

4. Frontier may combine the financial assurance requirements of this Order with any instrument being used for post-closure. If a post-closure instrument is used, Frontier shall assure the monies for this Order are separate from post-closure and clearly identified as such.

5. Frontier is bound by the requirements of 40 C.F.R. § 265.148 which deal with the incapacity of owners or operators, guarantors, or financial institutions.

6. The term "RFI, CMS, Initial Measure and/or Interim Measure," as appropriate is substituted for the word "closure" when referring to 40 C.F.R. §§ 265.142 and 265.148. When using financial mechanisms allowed by 40 C.F.R. § 265.143 the same shall apply. And "Frontier" is substituted for the words "owner or operator" when referring to 40 C.F.R. §§ 265.142, 265.143, 265.147 and 265.148. Notwithstanding anything in this Paragraph 6, the Department has the discretion to approve alternative financial assurance mechanisms.

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XXVII. EFFECTIVE DATE

The effective date of this Consent Order shall be the date, following its execution by both parties, on which an Order Dismissing Consent Decree (Docket No. 104-437) is entered by the District Court, First Judicial District, Laramie County, Wyoming. Frontier shall be given prompt notice of entry of the Order of Dismissal.

XXVIII. AUTHORIZATION TO SIGN

The undersigned warrant that they are authorized to bind their respective principals to this Consent Order.

IT IS SO AGREED AND ORDERED:

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Date: March 15, 1995

By: [Signature]

Name: Dennis Hemmer

Title: Director, Wyoming Department of Environmental Quality

Date: March 16, 1995

By: [Signature]

Name: Carl Anderson

Title: for David Finley, Administrator Solid & Hazardous Waste Division

FRONTIER REFINING INC.

Date: March 10, 1995

By: [Signature]

Name: GERALD B. FAUDEL

Title: V.P., Safety, Environmental + External Affairs

C.

C.

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ATTACHMENT I  
SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION (RFI) AT  
FRONTIER REFINING INC.  
CHEYENNE, WYOMING

## 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. Frontier shall furnish all personnel, materials, and services necessary for, or incidental to, performing this RFI.

Frontier has previously collected some of the information required to complete the RFI. To the extent that previously collected information is available, Frontier may cite such information by reference to satisfy applicable requirements of the RFI. Frontier shall determine and report the reliability of all information so cited to satisfy RFI requirements. Upon request by the Department, Frontier shall provide the Department with copies of any information, publications, reports or other documentation cited by Frontier.

The Department has determined that, at a minimum, the following specific tasks must be conducted by Frontier and be incorporated into the RFI tasks described below:

1. Determination of the nature, extent and rate of migration of ground water contamination to the east, northeast and south of the Facility.
2. Determination of the existing or potential vertical migration of contamination into the lower confined Ogallala aquifer and the "Ogallala aquitard." This determination should specifically examine the possibility of ground water contamination that is both immiscible in water and heavier than water and would tend to settle to the bottom of the upper unconfined Ogallala aquifer. This determination shall include a review and evaluation of all existing boring logs that penetrate the "Ogallala Aquitard," and shall include sampling for a sinking immiscible phase.
3. Determination of existing and potential migration of ground water contamination into Crow Creek and the extent of surface water and sediment contamination in Crow Creek, and the Crow Creek alluvial aquifer. This determination shall include sampling and analysis of surface water and sediments in Crow Creek.
4. Determination of existing and potential soil contamination at the facility, with particular attention given to areas in and around SWMUs, HWMUs, and where an oily phase is present on top of the piezometric surface. Frontier shall evaluate all SWMUs and areas of concern for their potential to release hazardous constituents. Where available this evaluation shall include documentation of the structure, capacity and types of wastes for each SWMU.
5. Determination of the potential for continuing contamination from the five (5) surface impoundment HWMU and the wastepile HWMU areas after wastes are removed from those units in accordance with a Department approved closure plan.
6. Determination of the extent of and potential contamination from immiscible contaminants that float on the ground water surface.
7. Frontier shall not undertake any sampling activities relevant to the RFI investigation without prior approval of such sampling by the Department.
8. Frontier shall implement Initial Measures as described below.

## SCOPE

The RCRA Facility Investigation shall consist of eight tasks:

- Task I: Description of Current Conditions
  - A. Facility Background
  - B. Nature and Extent of Contamination
- Task II: Initial Measures
  - A. Phase I - Initial Recovery Measures
  - B. Phase II - Containment of Existing Contamination
- Task III: Pre-Investigation of Corrective Measure Technologies
- Task IV: Workplan Requirements
  - A. Project Management Plan
  - B. Data Collection and Quality Assurance Plan
  - C. Data Management Plan
  - D. Health and Safety Plan
  - E. Schedule for RFI Completion
- Task V: Facility Investigation
  - A. Environmental Setting
  - B. Source Characterization
  - C. Contamination Characterization
  - D. Potential Receptor Identification
- Task VI: Investigation Analysis
  - A. Data Analysis
  - B. Protection Standards
- Task VII: Laboratory and Bench-Scale Studies
- Task VIII: Reports
  - A. Workplan
  - B. Progress
  - C. Draft and Final

### TASK I: DESCRIPTION OF CURRENT CONDITIONS

On March 15, 1989, Frontier provided EPA with a report titled: "Historical Summary and Status of Facility Investigations and Corrective Actions." EPA commented on this report in correspondence to Frontier dated May 5, 1989. In subsequent meetings and correspondence, Frontier responded to EPA's comments. The above report and associated comments largely satisfy

the requirement for a report describing current conditions at Frontier. However, as stated in EPA's May 5, 1989 correspondence the above Frontier report does not satisfy the requirements for an RFI or a CMS. Additional requirements for the site background information, the RFI and the CMS are described below.

## TASK II: Initial Measures

Frontier shall implement Initial Measures as described in the following Frontier and Enecotech correspondence: Frontier letter to EPA and WDEQ dated January 3, 1990 and associated enclosure; Frontier letter to WDEQ dated February 3, 1990 and associated enclosure; and Enecotech letter to WDEQ dated February 19, 1990 and associated enclosure. Frontier shall implement these Initial Measures so as to satisfy the following additional requirements.

1. Phase I of the Initial Measures consists of recovery of fluids from five (5) existing ground-water wells, identified in the above referenced correspondence. Frontier shall complete installation of Phase I within fourteen (14) days of either: the date of Frontier's receipt of appropriate permits from WDEQ or the effective date of this Order, whichever comes later. Within seven (7) days of installation of Phase I, Frontier shall notify EPA in writing of the date that Phase I installation was completed. Within 30 days of the date of installation of Phase I, Frontier shall provide EPA with an inspection and maintenance schedule for equipment utilized in Phase I.
2. For Phase I only, Frontier may modify the operation of ground-water recovery equipment without prior EPA approval. If Frontier modifies Phase I ground-water recovery systems, Frontier, or its contractor, shall notify EPA in writing of the modifications and their justification. Frontier shall provide EPA with such notification within seven (7) days of completion of the subject modification. Any modification of Phase I groundwater recovery systems shall be intended to increase the efficiency or effectiveness of ground-water contamination recovery and/or to yield more useful information for the design of Phase II. Such modification may include the installation and operation of additional ground water recovery equipment. If EPA disputes the effectiveness of the subject modification in satisfying these purposes, EPA may initiate Dispute Resolution as described in Section XVI of the Order.
3. For all fluids recovered from the ground and treated by Frontier's waste water treatment system, Frontier shall determine the effectiveness of the waste water treatment system. Within seven (7) days of treating any fluids produced from the ground, Frontier shall submit to EPA a sampling and analysis plan for determining the effectiveness of the waste water treatment system in treating hazardous constituents in produced ground water. The sampling and analysis plan required by this paragraph shall provide a rationale and basis for determining the fate of hazardous constituents from the treated ground water. The sampling plan shall provide for appropriate quality assurance and quality control.

Within 30 calendar days after the treatment facility is treating ground water produced by the ground water interim measure, Frontier shall begin sampling and analyses as required by the sampling and analysis plan. At a minimum, samples shall be analyzed for the following hazardous constituents:

- Methyl ethyl ketone
- Benzene
- Ethyl benzene
- Toluene

m-Xylene  
o and p-Xylene  
1-Methylnaphthalene  
Naphthalene  
bis (2-Ethylhexyl) phthalate  
Benzenethiol  
o-Cresol  
p and m-Cresol  
2-4- Dimethylphenol  
Phenol  
Indene  
Phenanthrene  
Chrysene  
Lead  
Chromium

Within 120 days of treating produced fluids with the waste water treatment system, Frontier shall report to EPA on the treatment effectiveness. Demonstration that effluent quality from the waste water treatment plant for the above constituents is not statistically different between when the waste water treatment system is and is not treating ground water shall be a demonstration of adequate treatment.

Frontier shall provide this report to EPA in the appropriate Monthly Status Report. EPA will make a determination on whether adequate treatment of hazardous constituents is occurring. If inadequate treatment is demonstrated, Frontier shall implement additional treatment processes and/or technologies as needed to treat produced ground waters. Samples shall be collected and analyzed in accordance with applicable EPA guidance documents referenced in the order.

*Phase II* 4. Based on the results and experience gained in the operation of Phase I, Frontier shall design Phase II of the Initial Measures. Frontier shall provide EPA with a Design for Phase II and a Workplan for its implementation by September 15, 1990. The Workplan for Phase II of the Initial Measures shall provide for the installation of the Phase II Design by January 1, 1991. The Phase II Design shall incorporate Frontier's best efforts to prevent all existing on and off-site contamination from spreading.

### TASK III: PRE-INVESTIGATION EVALUATION OF CORRECTIVE MEASURE TECHNOLOGIES

Prior to starting the facility investigation, Frontier shall submit to the Department a report that identifies the potential corrective measure technologies that may be used on-site or off-site for the containment, treatment, remediation, and/or disposal of contamination. This report shall also identify any field 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.). At a minimum, this report shall include a preliminary evaluation of the following technologies: warm/hot water soil washing, steam soil washing, surfactant soil washing, electrocoagulation, vacuum extraction, and bioremediation. This report shall specifically include an analysis of the compatibility of the evaluated technologies with bioremediation.

## TASK IV: WORKPLAN REQUIREMENTS

The Workplan shall include the development of several plans, which shall be prepared concurrently. During implementation of the Workplan, it may be necessary to revise the Workplan to increase or decrease the detail of information collected to accommodate the facility specific situation. The Workplan includes the following:

### A. Project Management Plan

Frontier 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 work, including contractor personnel. This plan shall also document the overall management approach to investigations.

### B. Data Collection and Quality Assurance Plan

Frontier shall prepare a plan to document all monitoring procedures: sampling, field measurements and sample analysis performed during the Facility Investigation. This plan shall assure that the characterization of the environmental setting, sources, and contamination, is based on information, data and resulting decisions that 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 Frontier over some time period;
  - ii) Data generated by an outside laboratory or consultant versus data generated by Frontier;
  - 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 shall 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. General Sampling Requirements

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. Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;
- j. 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.
- k. Selecting appropriate sample containers;
  - l. Sample preservation; and
  - m. Chain-of-custody, including:
    - i) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment; and
    - ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

### 3. Site Specific Sampling Requirements

The Workplan shall specify the numbers, and analyses for all samples that will be taken during the investigation. The Workplan shall specify location and frequency of ground water, surface and soil sample collection and analyses. Sampling locations and frequencies may need to be modified during the RFI in light of the results and the experience of initial sampling efforts. If Frontier determines such adjustment of the Workplan is necessary, Frontier shall inform the Department of the reasons for modification of the plan and propose a resolution to any problem(s) as soon as practical, or in the next Progress Report required after discovery of the problem(s). Frontier shall not undertake any adjustments or modifications to the Workplan or any sampling to satisfy requirements of the Workplan without prior approval by the Department.

### 4. 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 measurements period; 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 were made; and
  - ix) Decontamination procedures.

## 5. Sample Analysis

When EPA approved methods are available, Frontier shall provide for quality control/ quality assurance and documentation of sample analyses at least as stringent and as thorough as that required in EPA's Contract Laboratory Program (CLP). When EPA approved analytical methods are not available or applicable, Frontier shall obtain Department approval prior to undertaking any analyses. 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 dispersment for analysis.
- b. Sample storage procedures and storage 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.
- h. Preventive maintenance procedures and schedules;
- i. Corrective action (for laboratory problems); and
- j. Turnaround time.

C. **Data Management Plan**

Frontier 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.

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.

D. Health and Safety Plan

The document previously submitted to EPA by Frontier "Health and Safety Plan for Remediation Activities and Closure and Closure of Hazardous Waste Management Units," dated August 1989, is sufficient for this purpose.

E. RFI Schedule

Frontier shall identify a schedule for completion of the tasks in the RFI, and shall include the schedule in the RFI Workplan. This schedule shall incorporate a phased approach to the RFI Investigation, and may allow for a revision of the schedule and the scope of the RFI Investigation upon completion of an initial investigation. The RFI Schedule and any revisions thereto are subject to Department approval.

TASK V: FACILITY INVESTIGATION

Frontier shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source(s) (Source Characterization); define the degree and extent of contamination (Contamination Characterization); and identify actual or potential receptors.

The investigations must result in data of adequate technical quality to support the development and evaluation of any corrective or remedial measures deemed necessary.

The site investigation activities shall follow the plans set forth in Task III. All sampling and analyses shall be conducted 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

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

##### 1. Hydrogeology

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

- a. 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, 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; and
  - vi) Characterize seasonal variations in the ground-water flow regime.
- b. An 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, test, 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, degree of cementation;
  - iii) An interpretation of hydraulic interconnections between saturated zones; and
  - iv) The 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 consolidated or unconsolidated deposits;
  - iii) Zones of high permeability or low permeability that might direct and 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 (including an evaluation of ground water interactions with Crow Creek); and
- iv) Any temporal changes in hydraulic gradients, for example, due to seasonal influences.
- v) Non-aqueous phase layer maps for areas where hydrocarbon is floating on groundwater, or where heavier than water hydrocarbons are located.

This program shall initially include monthly water level and non-aqueous phase thickness measurements in all wells and reporting over a period of at least two years. Water level measurement procedures shall be specified in the work plan. Any time after three (3) months of monthly level measurements, Frontier may propose to the Department in writing to limit the scope and/or frequency of level measurements. Such proposal shall justify any reductions in the frequency and scope of level measurements. Such proposal may be incorporated into a Monthly Progress Report. Frontier shall not reduce the scope or frequency of level measurements until Frontier receives written approval for such from the Department.

- f. A description of manmade 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) Manmade hydraulic structures (oil pipelines used to supply raw materials to the facility, or to transport products from the facility, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention areas, interim measure recovery systems, etc.).

## 2. Soils

Frontier shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). Soils characterization described below is not required for every soil sample collected. Rather, Frontier shall fully characterize each soil type present at the facility. Individual soil samples shall be characterized to the extent necessary to determine soil type. Full soil characterization shall include but not be limited to, the following information:

- a. SCS soil classification;
- b. Surface soil distribution;
- c. Soil profile, including 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; (TOC)
- 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

Frontier shall conduct a program to characterize Crow Creek in the vicinity of the facility. Such characterization shall include, but not be limited to, the following activities and information:

- a. Description of the location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., 100 year event);
- 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 (NH<sub>3</sub>, NO<sub>3</sub>-/NO<sub>2</sub>-, PO<sub>4</sub>-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

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

- a. 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. A description of topographic and manmade features which affect air flow and emission patterns, including:
  - i) Ridges, hills or mountain areas;
  - ii) Valleys;
  - iii) Surface water bodies (e.g. rivers, lakes, bays, etc.);
  - iv) Wind breaks and forests; and
  - v) Buildings or other refinery structures.

#### B. Source Characterization

For purposes of investigation, Frontier may, with Department approval consolidate multiple Solid Waste Management Units (SWMUs) and/or Areas Of Concern (AOCs). Frontier may investigate these consolidated areas as one SWMU. Frontier may only consolidate SWMUs or AOCs whose waste or contamination there from are indistinguishable, coexistent in space or adjacent in space. If Frontier removes wastes from SWMUs such action shall not in itself satisfy the workplan requirements for investigation of the SWMU Frontier removes the waste from.

Frontier shall collect analytic data to completely characterize the wastes and the areas where wastes have been placed, collected or removed including: type; quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security, and engineered barriers). This 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.

The Department recognizes that historical information requested on unit/disposal

area characteristics may not be available in many cases. In these situations Frontier shall provide a brief, rational conjecture as to the historical facts and the range of reasonable possibilities.

## 2. Waste Characteristics:

- a. Type of waste 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;
  - xii) Vapor pressure; and
  - xiii) Flash point.
  
- c. Migration and dispersal characteristics of the waste;
  - i) Sorption;
  - ii) Biodegradability, bioconcentration, biotransformation;
  - iii) Photodegradation rates;
  - iv) Hydrolysis rates; and
  - v) Chemical transformations.

Frontier shall document the procedures used in making the above determinations.

## C. Contamination Characterization

Frontier 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, and conditions during sampling, and the identity of the individuals performing the sampling and analysis. Frontier shall address the following types of contamination at the facility:

Frontier may, as part of the Workplan, make a demonstration that chemical analyses need not include all Appendix IX constituents. Frontier is required to analyze for all Appendix IX constituents until a reduction from this list is approved by the Department.



## 1. Ground-water Contamination

Frontier shall conduct a Ground-water Investigation to characterize any plumes of contamination at the facility. Initially, Frontier shall determine the rate and extent of contamination to the Northeast and Southwest of the facility. Frontier shall also determine the vertical extent and variation of all contamination. This effort shall involve sampling of existing wells to the extent practical. Frontier shall provide an analysis of the adequacy of existing wells for this purpose, and shall propose locations for additional wells needed to determine the rate and extent of contamination in these areas. This investigation shall at a minimum provide the following information:

- a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;
- b. The horizontal and vertical direction of contamination movement;
- c. The velocity of contaminant movement;
- d. The horizontal and vertical concentration profiles of Appendix IX constituents in the plume(s);
- e. An evaluation of factors influencing the plume movement; and
- f. An extrapolation of future contaminant movement.

Frontier shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

## 2. Soil Contamination

Frontier 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 initial phase of the soils contamination investigation shall include collection and analysis of soil samples from all abandoned SWMUs and AOCs, and verification of the integrity of all SWMUs and AOCs currently in use. For SWMUs and AOCs currently in use with apparent releases, the initial investigation shall include collection and analysis of soil samples. The investigation shall include the following information:

- a. A description of the vertical and horizontal extent of contamination.
- b. A 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.
- c. Specific contaminant concentrations.
- d. The velocity and direction of contaminant movement.
- e. An extrapolation of future contaminant movement.

Frontier shall document the procedures used in making the above determinations.

### 3. Surface-Water and Sediment Contamination

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

- a. A 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;
- b. The horizontal and vertical direction of contaminant movement;
- c. The contaminant velocity;
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;
- e. An extrapolation of future contaminant movement; and
- f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.;

Frontier shall document the procedures used in making the above determinations.

### 4. Air Contamination

Frontier shall conduct an investigation to characterize the particulate and gaseous contaminants released from solid and hazardous waste management units into the atmosphere. This investigation shall provide the following information:

- a. A description of the horizontal and vertical direction and velocity of contaminant movement;
- b. The rate and amount of the release; and
- c. The chemical and physical composition of the contaminants(s) released, including horizontal and vertical concentration profiles.

Frontier shall document the procedures used in making the above determinations.

### 5. Subsurface Gas Contamination

Frontier 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. A description of the horizontal and vertical extent of subsurface gases migration;
- b. The chemical composition of the gases being emitted;
- c. The rate, amount, and density of the gases being emitted; and
- d. Horizontal and vertical concentration profiles of the subsurface gases emitted.

Frontier shall document the procedures used in making the above determinations.

#### D. Potential Receptors

Frontier 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 groundwater users including wells and discharge areas. This information shall include a current analysis of ground water wells within one mile of the facility, and possible future uses of ground water within this area.
2. Local uses and possible future uses of surface waters draining the facility:
  - a. Domestic and municipal (e.g. potable and lawn/gardening 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 biota in surface water bodies on, adjacent to, or affected by the facility.
5. A description of the ecology overlying and adjacent to the facility.

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 any endangered or threatened species near the facility.

## TASK VI: INVESTIGATION ANALYSIS

Frontier shall prepare an analysis and summary of all facility investigations and their results. 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 and the potential threat to human health and/or the environment.

### A. Data Analysis

Frontier shall analyze all facility investigation data outlined in Task III 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 for the area.

### B. Protection-Standards

#### 1. Ground-water Protection Standards

Frontier shall provide information to support the Department's selection/development of Ground-water Protection Standards for all of the Appendix IX constituents found in the ground-water during the investigation (Task IV).

a. The Ground-water Protection Standards shall consist of:

- i) for any constituents listed in Table 1 of 40 CFR 264.94, the respective value given in that table (MCL) if the background level of the constituent is below the level given in Table 1; or
- ii) the background level of that constituent in the ground-water; or
- iii) an approved Alternate Concentration Limit (ACL); or
- iv) standards as approved by applicable, relevant EPA final rules issued subsequent to the effective date of this Order; or
- v) other applicable or appropriate standards approved by the Department.

b. Information to support the Department's subsequent selection of Alternate Concentration Limits (ACL's) shall be developed by Frontier in accordance with U.S. EPA guidance. For any proposed ACL's Frontier shall include a justification based upon the criteria set forth in 40 CFR 264.94(b).

#### 2. Other Relevant Protection Standards

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

## TASK VII: LABORATORY AND BENCH-SCALE STUDIES

Frontier may conduct laboratory and/or bench scale studies to determine the applicability of a corrective measure technology or technologies to facility conditions. Frontier shall analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements. Frontier shall provide a work plan for laboratory and bench scale studies to the Department, and obtain Department approval for such studies prior to initiating any studies.

Frontier 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, Frontier shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan. Frontier shall provide a report to the Department summarizing the testing program and its results, both positive and negative.

## TASK VIII: REPORTS

### A. / Progress Reports

Frontier shall at a minimum provide the Department with signed, monthly progress reports containing:

1. A 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.
10. A summary of the status of the Initial Measures (and Interim Measures if required by the Department).

Frontier may propose to the Department in writing to limit the scope or frequency of Progress Reports. Frontier shall not limit the scope or frequency of Progress unless the

Department grants approval to do so in writing.  
B. RCRA Facility Investigation Reports

Frontier shall prepare and submit to the Department the RFI reports listed below:

Facility Submission	Due Date
1. Pre-Investigation Evaluation Corrective Measure Technologies	Within 90 days of the effective date of this order
2. RFI Workplan	Within 90 days of the effective date of this order
3. Draft RFI Report (Tasks IV and V)	As provided for in the Department approved RFI Workplan
4. Final RFI Report (Tasks IV and V)	Within 45 days of receiving the Department comments on the Draft RFI Report
5. Progress Reports on Tasks I through VI	Monthly
6. Laboratory and Bench-Scale Studies	Concurrent with Final RFI Report

ATTACHMENT II  
SCOPE OF WORK FOR A CORRECTIVE MEASURES STUDY (CMS) AT  
FRONTIER REFINING INC.  
CHEYENNE, WYOMING





Provided below are the purpose, scope and the various task descriptions for the corrective measure study (CMS) that must be completed by Frontier.

#### PURPOSE

The purpose of this Corrective Measure 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 Frontier's facility. Frontier will furnish the personnel, materials, and services necessary to prepare the Corrective Measure Study, except as otherwise specified.

#### SCOPE

The Corrective Measure Study consists of four tasks:

Task VIII: Identification and Development of the Corrective Measure Alternative or Alternatives

- A. Description of the Current Situation
- B. Establishment of Corrective Action Objectives
- C. Screening of Corrective Measures Technologies
- D. Identification of the Corrective Measure Alternative or Alternatives

Task IX: Evaluation of the Corrective Measure Alternative or Alternatives

- A. Technical/Environmental/Human Health/Institutional
- B. Cost Estimate

Task X: Justification and Recommendation of the Corrective Measure or Measures

- A. Technical
- B. Environmental
- C. Human Health

Task XI: Reports

- A. Progress Reports
- B. Corrective Measure Study Reports

These tasks must be completed in accordance with the following:

#### TASK VIII: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

Based on the results of the RCRA Facility Investigation (RFI) and consideration of the identified Preliminary Corrective Measure Technologies (Task II), Frontier 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. The Department may require specific technologies to be reviewed as part of the CMS.

#### TASK IX: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE OR

THE UNIVERSITY OF CHICAGO

PHILOSOPHY DEPARTMENT

PHILOSOPHY 101

LECTURE NOTES

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## ALTERNATIVES

Frontier shall describe each corrective measure alternative that passes through the Initial Screening in Task VIII and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. Frontier shall also develop cost estimates of each corrective measure.

## TASK X: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

Frontier shall justify and recommend a corrective measure 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 shall be highlighted. The Department will select the corrective measure alternative or alternatives to be implemented based on the results of Tasks VII and VIII. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

### A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;
2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will 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 will 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 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 with time are 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 will be favored.

## TASK XI: REPORTS

### A. Interim CMS Report/Workplan

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The Report/Workplan shall at a minimum include:

1. A summary of the information obtained in the Final RFI Report approved by the Department, a discussion of how that information will be used in the CMS, and an identification of additional studies/ investigations required to complete the CMSI.
2. A schedule of when Frontier will complete tasks VIII through XI.
3. A cost estimate for completing the CMS.
4. Frontier shall modify the Report/Workplan in accordance with Department comments, and complete the CMS in accordance with the Report/Workplan CMS schedule as approved by the Department.

B. Draft

The draft report shall at a minimum include:

1. A description of the facility including appropriate maps to describe the corrective measures evaluated.
2. A summary of the corrective measure or measures; including: a description of the corrective measure(s), rationale for selection, performance expectations, preliminary design criteria and rationale, operation and maintenance requirements, and long term monitoring requirements.
3. A summary of the RCRA Facility Investigation and the RFI's impact on the selected corrective measure(s).
4. Design implementation precautions.
5. Cost estimates and schedules.

C. Final

Frontier shall finalize the Corrective Measure Study Report incorporating comments received from the Department on the Draft Corrective Measure Study Report.

D. Progress Reports

Frontier shall at a minimum provide the Department with signed, monthly, progress reports containing:

1. A 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 reporting period;

8. Projected work for the next reporting period; and

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

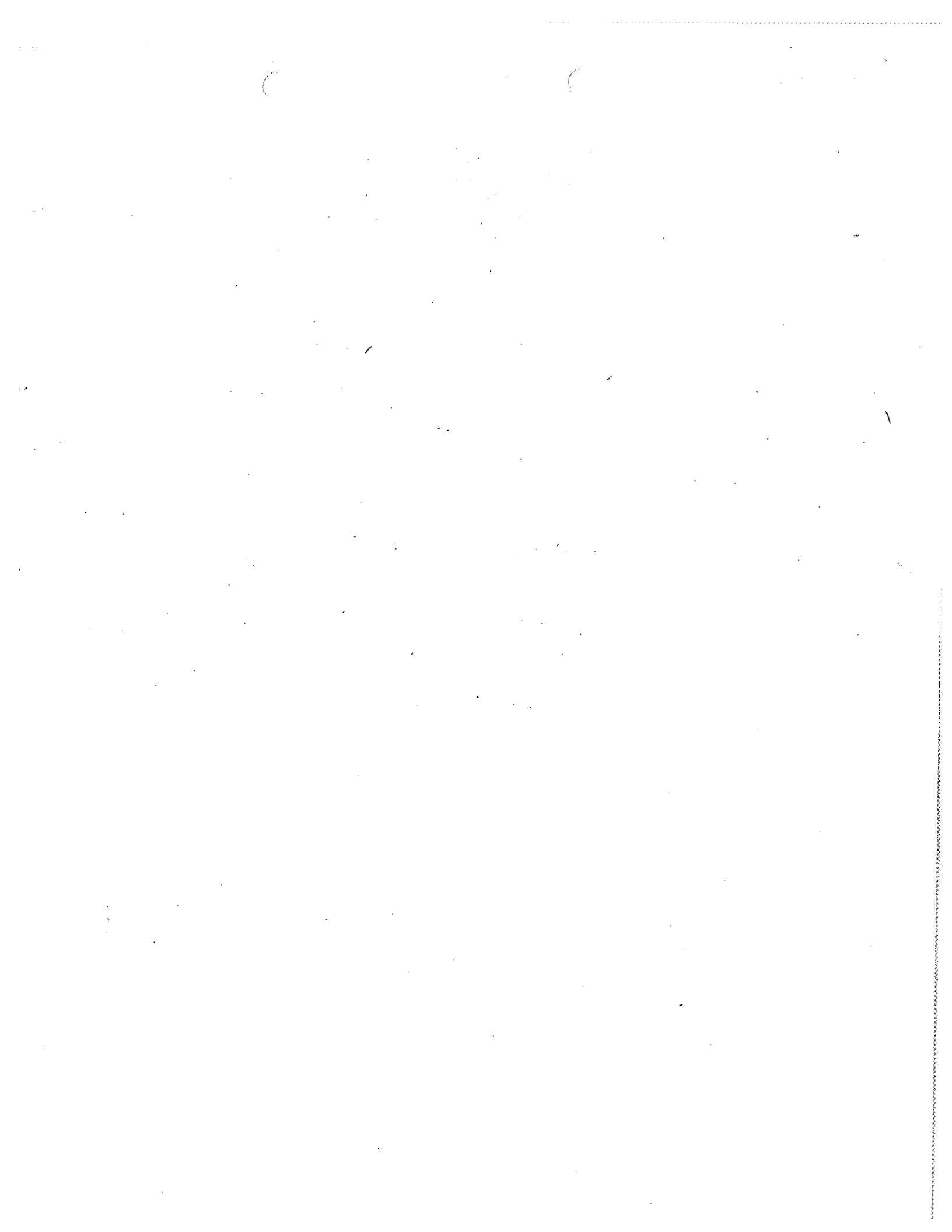
E. Facility Submission Summary

Frontier Submission	Due Date
1. Interim CMS Report/Workplan	Within 60 days of EPA and Department approval of the Final RFI Report
2. / Draft CMS Report (Tasks VI, VII, and VIII)	In accordance with the Department approved schedule in the comments on the Interim CMS Report/Workplan
3. Final CMS Report (Tasks VI, VII, and VIII)	Within 30 days of receiving EPA and Department comments on the Draft CMS Report
4. Progress Reports (Tasks VI, VII, and VIII)	Monthly

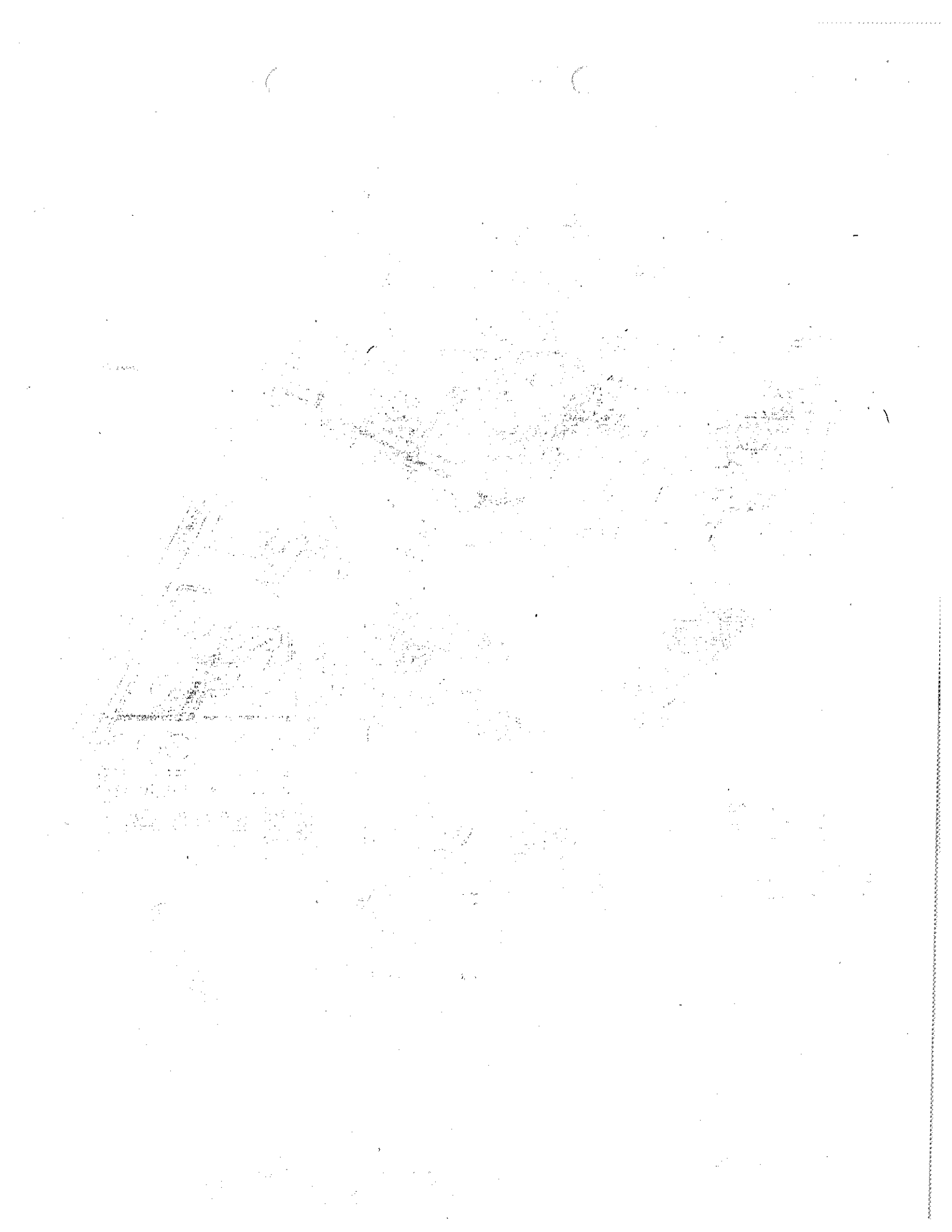


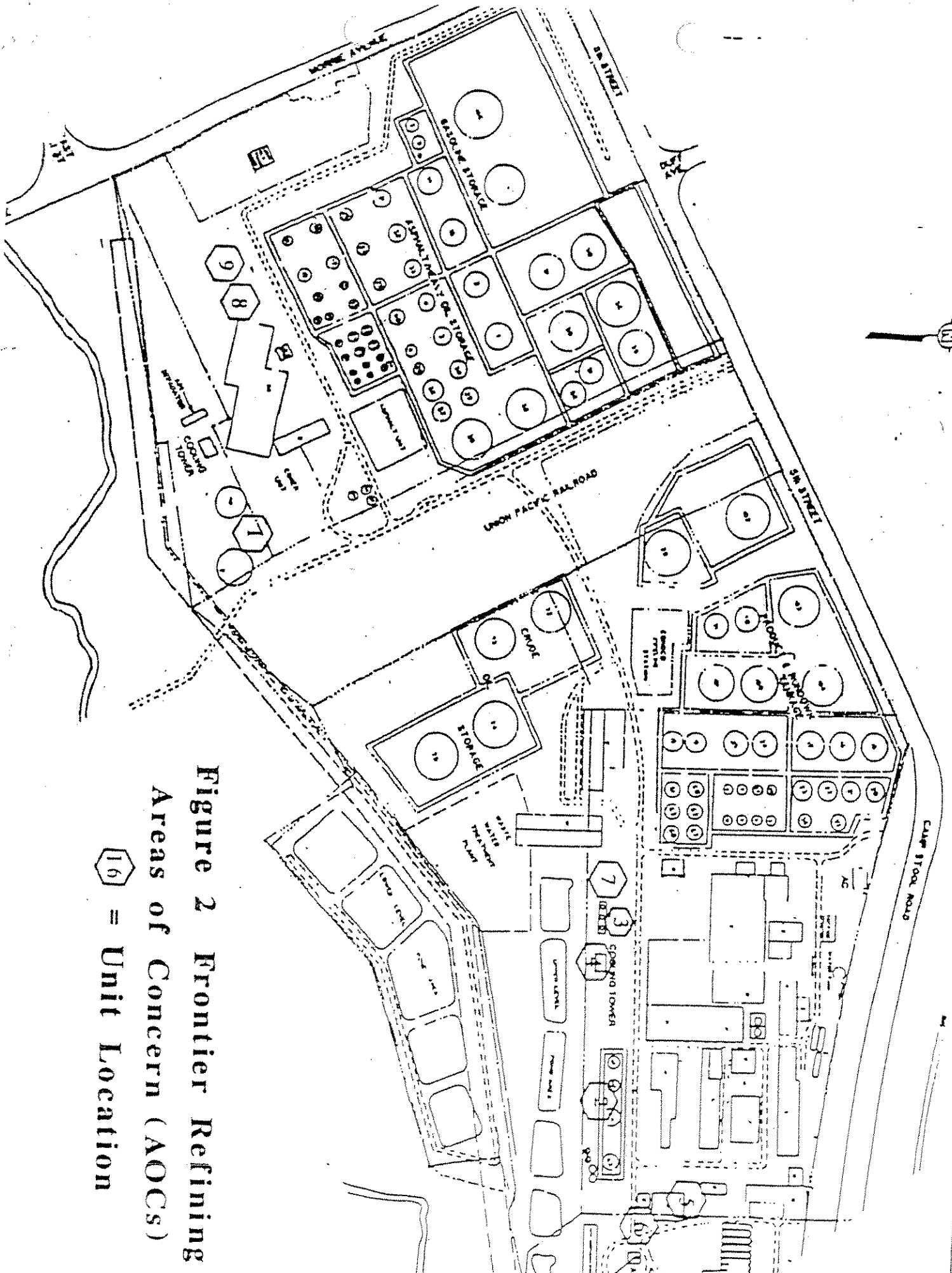


ATTACHMENT III  
SOLID WASTE MANAGEMENT UNITS (SWMUs) AND  
AREAS OF CONCERN (AOCs) AT  
FRONTIER REFINING INC.  
CHEYENNE, WYOMING









**Figure 2 Frontier Refining**  
**Areas of Concern (AOOCs)**  
 [Hexagon with 16] = Unit Location

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