GW - __001___

N & S Aeration Lagoons Closure Certification Report

CLOSURE PLANS

September 2009

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, April 26, 2011 11:31 AM
To: Kieling, John, NMENV
Cc: VonGonten, Glenn, EMNRD
Subject: March 29, 2011 Public Notice No. 11-01 for the Final Closure Plan North Aeration Lagoons (Revised January 2011)

Mr. Kieling:

Please find below the New Mexico Oil Conservation Division's (OCD) public comments based on the above subject.

1) Should this closure plan reference closure certification, a closure report, and a survey plat?

2) The OCD notices that they are sending any waste associated with and excavated from beneath the ponds to the San Juan County Regional Landfill as special waste as long as it is non-hazardous. OCD discharge requirements for approval of the special waste to the San Juan Regional Landfill as Special Wastes are as follows:

19.15.35.8 DISPOSAL OF CERTAIN NON-DOMESTIC WASTE AT SOLID WASTE FACILITIES:

C. The following provisions apply to the types of waste described below as specified.

(3) A person may dispose of the following wastes on a case-by-case basis with the division's approval:
(c) contaminated soil other than petroleum contaminated soil.

D. Testing.

(1) The person applying for division approval to dispose of waste in a solid waste facility shall conduct testing required by 19.15.35.8 NMAC according to the Test Methods for Evaluating Solid Waste, EPA No. SW-846 and shall direct questions concerning the standards or a particular testing facility to the division.

(2) The testing facility shall conduct testing according to the test method listed:
(a) TPH: EPA method 418.1 or 8015 (DRO and GRO only) or an alternative, division approved hydrocarbon analysis;
(b) TCLP: EPA Method 1311 or an alternative hazardous constituent analysis approved by the division;
(c) paint filter test: EPA Method 9095A;
(d) ignitability test: EPA Method 1030;
(e) corrosivity: EPA Method 1110;
(f) reactivity: test procedures and standards the division establishes on a case-by-case basis; and
(g) NORM. 20.3.14 NMAC.

(3) To be eligible for disposal pursuant to 19.15.35.8 NMAC, the concentration of substances the testing facility identifies during testing shall not exceed the following limits:

(a) benzene: 9.99 mg/kg;
(b) BTEX: 499.99 mg/kg (sum of all);
(c) TPH: 1000 mg/kg;
(d) hazardous air pollutants: the standards set forth in NESHAP; and
(e) TCLP:
(i) arsenic: 5 mg/l,
(ii) barium: 100 mg/l,
(iii) cadmium: 1 mg/l,
(iv) chromium: 5 mg/l,
(v) lead: 5 mg/l,
(vi) mercury: 0.2 mg/l,
(vii) selenium: 1 mg/l, and
(viii) silver: 5 mg/l.

[19.15.35.8 NMAC - Rp, 19.15.9.712 NMAC, 12/1/08]

If the OCD Discharge Permit (GW-001) waste meets the above criteria, the OCD may approve the excavated waste going to the proposed landfill under the OCD Water Quality Control Commission (WQCC) Discharge Permit.

Thank you for your consideration in this matter.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

BILL RICHARDSON
Governor

DIANE DENISH
Lieutenant Governor

NEW MEXICO ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

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RON CURRY
Secretary

SARAH COTTRELL
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

October 14, 2010

Mr. Randy Schmaltz
Environmental Manager
Western Refining, Southwest, Inc.
Bloomfield Refinery
P.O. Box 159
Bloomfield, New Mexico 87413

RE: NOTICE OF DISAPPROVAL
FINAL CLOSURE PLAN NORTH AND SOUTH AERATION LAGOONS
WESTERN REFINING SOUTHWEST, INC., BLOOMFIELD REFINERY
EPA ID # NMD089416416
HWB-WRB-10-007

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) has reviewed Western Refining Southwest, Inc., Bloomfield Refinery (Western) *Final Closure Plan North and South Aeration Lagoons* (Closure Plan) dated May 2010. NMED hereby issues this Notice of Disapproval (NOD). The Permittee must address the following comments.

Comment 1

In Section 2.2 (ABT Unit Operations), page 6, Western describes the liner system for the Aeration Lagoons (ABT Units) from top to bottom. Western states in bullet 2 that the liner includes "[a] geonet for collecting leaks that drain to a sump equipped with a 6" observation pipe." Western must revise the Closure Plan to include details for the sump, including the design, dimensions, observation pipe and location (e.g., the sump is a concrete structure x feet by x feet by x feet deep, and located x feet below ground surface adjacent to the South ABT Unit). See also Comment 4.

Comment 2
In Section 3.3 (Flushing of Leachate Collection System), page 12, Western states "[p]ursuant to the previous Closure Plan, after repairs to the upper liner of the South ABT unit were completed, the geonet between the upper 100-ml liner and the lower 60-ml liner was flushed with clean water. The flush water was sampled using a bailer in the 6" observation pipe. Analytical results indicated that the flush water did not exhibit any hazardous characteristics." Although the flush water did not exhibit hazardous characteristics, Western must indicate if the flush water was analyzed for hazardous constituents, and if so, list the detected constituents. Western must include appropriate documentation (e.g., laboratory reports). Western must revise the Closure Plan accordingly.

Comment 3
In Section 4.1.1 (Sludge/Sediment Removal), page 14, Western states "[t]he sludge /sediment that remains in the ABT units above the top liner after removal [of] the free liquids will be allowed to dry for up to four weeks...At the conclusion of these activities, the material will be sampled for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C - Characteristics of Hazardous Waste, including reactivity, corrosivity, ignitability, TCLP RCRA metals, TCLP semi-volatiles (SVOCs), and total volatiles (VOCs). If the material is non-hazardous, then it may be disposed at a landfill permitted by the NMED to accept Special Waste (e.g., the San Juan County Regional Landfill)." The disposal facility may require analyses in addition to what is discussed above (e.g., total RCRA metals, TCLP volatiles). Western must comply with all waste characterization required by the disposal facility.

The Closure Plan discusses the removal of liquids, sludges, sediments, various liner materials, and investigation derived wastes (media) that will be analyzed for hazardous characteristics in accordance with 40 CFR 261 Subpart C. Western must revise the Closure Plan to clearly indicate that all media determined to be non hazardous and to be disposed offsite will meet the waste acceptance requirements of the disposal facility. The waste disposition must also be documented in the closure report.

Comment 4
In Section 4.1.2 (RCRA Liner Removal), page 14, Western states "[t]he RCRA liners, which include an upper 100 mil HDPE liner, a geonet, and a lower 60 mil HDPE liner, will be removed and disposed at a landfill permitted by the NMED to accept Special Waste (e.g., the San Juan County Regional Landfill)," and on page 15 states "[t]he liners and geonet will be cut into manageable sized pieces and then rolled/folded to facilitate loading into trucks/roll-off boxes for transport off-site disposal." Western does not discuss the disposal of the sump or six inch pipe associated with these liners. Western must revise this section of the Closure Plan to address the removal and disposal of the sump piping and any other associated debris. See also Comment 1.

Comment 5
In Section 4.1.2 (RCRA Liner Removal), page 15, Western states "[i]f the liquid is non-hazardous, then it will be disposed through the on-site permitted discharge system." Western does not identify the on-site permitted discharge system nor address its associated components.

Western must revise the Closure Plan to discuss the on-site permitted discharge system and address its associated components (e.g., fluids will flow through the API separator to the injection well or flow through the API separator and the benzene strippers to the injection well). Western must also identify the sampling requirements associated with the "on-site permitted discharge system," if applicable. This comment applies to all sections of the Closure Plan that reference the on-site permitted discharge system.

Comment 6

In Section 4.1.3 (Non-RCRA Liner/Leachate Collection System Removal), page 15, Western discusses the removal of the "non-RCRA Liner" and states "[t]he uppermost layer beneath the RCRA lower 60 mil liner is a composite geotextile/geonet, which will be cut into manageable pieces and placed into roll-off boxes for off-site disposal. Beneath this composite geotextile/geonet layer is a 6" layer of cement amended sand. The sand layer will be excavated and stockpiled on-site pending waste characterization sampling. Beneath the sand layer is a 100 mil HDPE liner, which will be removed and handled with the previously removed composite geotextile/geonet layer. The lowermost layer consists of approximately 6 inches of bentonite amended soil with a French drain system." Western must revise the Closure Plan to address the removal of the four-inch observation pipe associated with the composite geotextile/geonet described in Section 2.2 (ABT Unit Operations).

Comment 7

In Section 4.1.3 (Non-RCRA Liner/Leachate Collection System Removal), page 15, Western states "[t]he French drain system will be checked for the presence of liquids prior to removal. Any liquids that are present will be containerized. The liquid will be sampled and analyzed for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. If the liquid exhibits hazardous characteristics, then it will be disposed offsite as hazardous waste. If the liquid is nonhazardous, then it will be disposed through the facilities on-site permitted discharge." If liquids are detected and determined to be non-hazardous, there is still a potential for the liquids to contain contaminants. If liquids are found in the French drain system and determined to be non-hazardous, Western must meet the discharge limits for the on-site permitted discharge system. Western must revise the Closure Plan to discuss disposal of liquids in the on-site discharge system and the associated discharge concentration limits. Western must also explain the additional analysis requirements if liquids are detected in the French drain system. See also Comment 5.

Comment 8

In Section 4.1.3 (Non-RCRA Liner/Leachate Collection System Removal), page 15, Western states "[i]f the liquid is nonhazardous, then it will be disposed through the facilities on-site permitted discharge. Soil will be physically removed from the drain system piping and if the liquid present in the drain system is characteristically hazardous, then the piping will be triple rinsed with potable water prior to offsite disposal." Western indicates that soil will be physically removed, but does not discuss the disposition of the soil once it has been removed. Western must revise the Closure plan to address the disposition of soils removed from the French drain system and indicate how the soil(s) will be characterized.

Comment 9
In Section 4.1.3 (Non-RCRA Liner/Leachate Collection System Removal), page 16, Western states "[i]f all concentrations of constituents are below the applicable NMED residential soil screening levels, then the soil may be reused for backfill." Meeting the NMED numerical residential soil screening levels does not necessarily allow Western to reuse the soil as backfill. The soils must also meet the cumulative target residential risk of 1E-05 for carcinogens and a hazard index of 1 for noncarcinogens. If the soil is used as backfill, Western must be able to demonstrate it meets the requirements of the NMED Technical Background for Development of Soil Screening Levels, as updated. Western must revise the Closure Plan to state excavated soils will be used as backfill only if it is demonstrated that the soils meet residential cleanup standards, the cumulative target residential risk of 1E-05 for carcinogens, and a hazard index of 1 for noncarcinogens.

Comment 10
In Section 4.2 (Soil Investigation), page 16, Western discusses the soil borings and the collection of discrete soil samples from various depths. In addition to the sampling described, Western must also collect a sample from the bottom of each boring for laboratory analyses. Western must revise the Closure Plan accordingly.

Comment 11
In Section 4.2.4 (Collection and Management of Investigation Derived Waste), page 20, Western states "[a]ll decontamination water will be characterized prior to disposal unless it is disposed in the refinery wastewater treatment system upstream of the API Separator." Western also states in Appendix A (Management of Investigation Derived Waste) "[t]he fluids will be pumped directly into suitable storage containers (e.g., labeled 55-gallon drums), which will be located at satellite accumulation areas until the fluids are disposed in the refinery wastewater treatment system upstream of the API separator." With the removal of the ABT Units, Western's wastewater treatment system will not operate as it did in the past. Western must revise all applicable sections of the Closure Plan to describe all components of the wastewater treatment system that will be in operation once the ABT Units are taken out of service. Western must also describe how it will demonstrate that the decontamination water and fluids stored in containers are acceptable for discharge to the wastewater treatment system once the ABT Units are not in operation. Prior to closure of the ABT units, Western must clean and remove all K051 sludges from the API Separator. Western must revise the Closure Plan accordingly.

Comment 12
In Section 4.2.7 (Chemical Analyses), page 21, Western states "[s]oil samples will be analyzed by the following methods..." In the revised Closure Plan, Western must clarify if the methods also apply to the sludge/sediment samples as described in Section 4.1.1 or only the soil samples that will be collected from the borings and excavation limits shown in Figure 3 (Sample Location Map).

Comment 13
In Section 4.2.8 (Data Quality Objectives), page 21, Western states "[m]ethod detection limits should be 20 % or less of the applicable background levels, cleanup standards and screening levels." If Western is unable to achieve the method detection limits, an explanation why they were not achieved must be included in the closure report. Western must revise this section indicating that an explanation will be provided if the method detection limits are not achieved.

Comment 14
In Section 4.3 (Soil Removal Action), page 22, Western states "[t]he preferred method to address any such releases from the ABT Units is to remove and dispose the impacted soils at a permitted off-site landfill so as to obtain Corrective Action Complete Without Controls [CACWC] and meet the requirements of 40 CFR§265.228 (a)(1) for clean closure. If the volume or depth of impacted soils is such that a complete removal action is financially or technically impracticable, then a revised Closure Plan will be submitted in accordance with 40 CFR §265.228 (a)(2)." Western must revise the Closure Plan to state that it will provide a demonstration of impracticability and proposed additional phases of work or post-closure care will be discussed in the Closure Report, rather than amending the Closure Plan at the time of discovery. NMED will determine the appropriate course of action after its review of the Closure Plan.

Comment 15
In Section 4.3.1 (Soil Excavation), page 23, Western states "[s]oil containing concentrations of constituents above the applicable NMED residential screening levels will be excavated for off site disposal. The soil will be excavated using back hoes, track hoes, long-reach excavators, or similar equipment. The excavated soil will either be stockpiled on poly sheeting within the footprint of the ABT Units or placed directly into roll-off boxes. The soil will be sampled and analyzed for waste characterization at a minimum of one sample per 20 cubic yards. The samples will be analyzed for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste, including reactivity, corrosivity, ignitability, TCLP RCRA metals, TCLP SVOCs, and total VOCs." Western must revise the Closure Plan to clarify that samples analyzed for VOC analyses will be collected as discrete samples and include a statement that soil characterization will meet the requirements of the disposal facility.

Comment 16
Western describes confirmation sampling in Section 4.3.2. This Section does not indicate if the samples will be collected as discrete or composite samples, nor does it propose analytical methods. Western must revise the Closure Plan to discuss the sample collection methods as well as the applicable analytical methods.

Comment 17
In Section 4.4 (Closure Certification), page 23, Western states "[u]pon completion of all activities, a Closure Certification Report will be prepared in accordance with 40 CFR §265.115 Certification of Closure. The certification will [describe] how the ABT Units were closed in accordance with the approved Closure Plan." Prior to certification of closure, Western must first submit a closure report that summarizes all work and presents all data related to closure. Once the closure report is approved by NMED, a certification of closure can then be completed in

accordance with 40 CFR 265.115. Western must revise the Closure Plan to clarify that a closure report will be submitted and upon NMED approval, certification of closure will then be completed. Appendix B (Closure Cost Estimate) may need to be revised to include the cost associated with preparation of a closure report. Western must revise the Closure Plan accordingly.

Western must address all comments contained in this NOD and submit a revised Closure Plan to NMED on or before January 14, 2011. The revised Closure Plan must be submitted with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. In addition, an electronic version of the revised work plan must be submitted that identifies where all changes have been made in redline strikeout format.
If you have any questions regarding this letter, please contact Hope Monzeglio of my staff at (505) 476-6045.

Sincerely,

James P Bearzi
Chief
Hazardous Waste Bureau

JPB:hm

cc: J. Kieling, NMED HWB
D. Cobrain, NMED HWB
C. Chavez, OCD
A. Hains, Western
File: HWB-WRB-10-007 and Reading 2010

May 19, 2010

James Bearzi, Bureau Chief
New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Re: NOTICE OF DISAPPROVAL
NORTH ANS SOUTH AERATION LAGOONS
CLOSURE CERTIFICATION REPORT
WESTERN REFINING SOUTHWEST INC., BLOOMFIELD REFINERY
EPA ID# NMD089416416
HWB-GRCB-09-007

Dear Mr. Bearzi:

Western Refining Southwest Inc. - Bloomfield Refinery submits the enclosed plan and cost estimate for final closure of the Aeration Lagoons as required by Comment 8 of the March 24, 2010 NOTICE OF DISAPPROVAL letter, and submittal extension that was granted by the Bureau on April 22, 2010.

On April 26, 2010 Western responded under a separate to comments 1-7 of the March 24, 2010 NOTICE OF DISAPPROVAL as required.

If you have any questions or would like to discuss the Aeration lagoon Closure Plan, please contact me at (505) 632-4171.

Sincerely,

James R. Schmaltz
Environmental Manager
Western Refining Southwest, Inc.
Bloomfield Refinery

cc: Hope Monzeglio – NMED HWB
Carl Chavez – NMOCD (w/attachment)
Dave Cobrain – NMED HWB
Laurie King – EPA Region 6 (w/attachment)
Todd Doyle – Bloomfield Refinery
Allen Hains – Western Refining El Paso

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Final Closure Plan
North and South Aeration Lagoons
Bloomfield Refinery

Regulated Unit EPA ID# NMD089416416
HWB-GRCB-09-007

Western Refining Southwest, Inc.
Bloomfield Refinery
Bloomfield, New Mexico

May 2010

James R. Schmaltz
Environmental Manager

Scott T. Crouch, P.G.
Senior Consultant
RPS

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Section 1
Introduction

The Bloomfield Refinery is located immediately south of Bloomfield, New Mexico in San Juan County. The physical location address is #50 Road 4990, Bloomfield, New Mexico 87413. The Bloomfield Refinery is located on approximately 263 acres. The site is located on a bluff approximately 100 feet above the south side of the San Juan River, a perennial river that flows to the west (Figure 1).

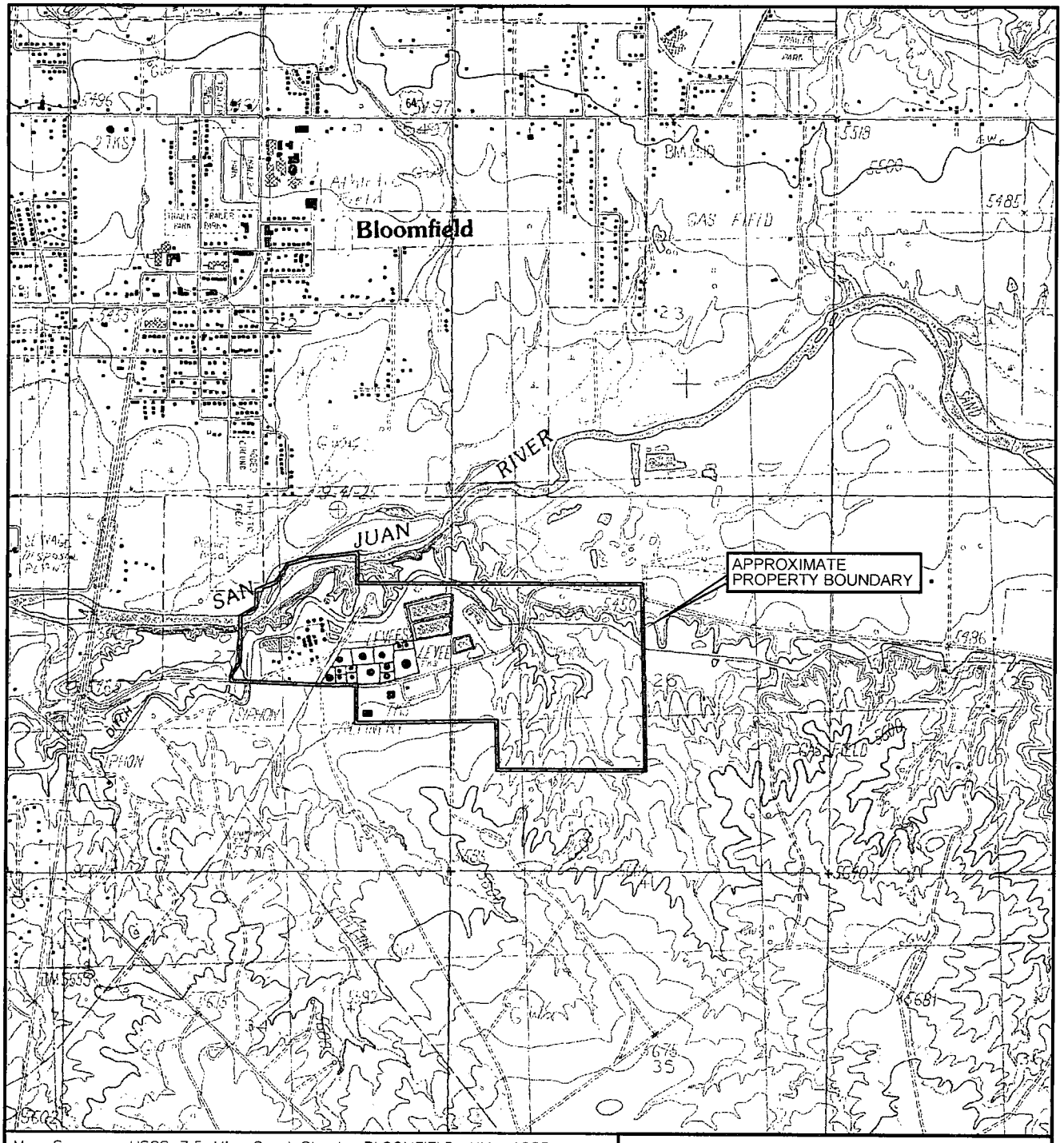
Bordering the facility is a combination of federal and private properties. Public property managed by the Bureau of Land Management lies to the south. The majority of undeveloped land in the vicinity of the facility is used extensively for oil and gas production and, in some instances, grazing. The town of Bloomfield is located to the north of the refinery, across the San Juan River. U.S. Highway 550 is located approximately one-half mile west of the facility. The topography of the site is generally flat with low-lying areas to the east of the process area.

The Bloomfield Refinery is a crude oil refinery currently owned by Western Refining Southwest, Inc., which is a wholly owned subsidiary of Western Refining Company, and it is operated by Western Refining Southwest, Inc. – Bloomfield Refinery. The Bloomfield Refinery generally processed crude oil from the Four Corners area transported to the facility by pipeline or tanker truck and crude from West Texas transported by pipeline.

The Bloomfield Refinery has an approximate refining capacity of 18,000 barrels per day; however, the refinery suspended petroleum refining operations in November 2009. Various process units operated at the facility, included crude distillation, reforming, fluidized catalytic cracking, sulfur recovery, merox treater, catalytic polymerization and diesel hydrotreating. Products produced at the refinery included gasoline, diesel fuels, jet fuels, kerosene, propane, butane, naphtha, residual fuel, fuel oils and LPG.

This Closure Plan addresses the final closure of the North and South Aeration Lagoons. Historical monitoring data of the effluent from the API Separator, which discharges into the South Aeration Lagoon, indicated that concentrations of benzene above the toxicity characteristic (TC) regulatory threshold of 0.5 milligrams per liter (mg/l) entered the aeration lagoons. Modifications to the wastewater treatment system required that the lagoons be cleaned out to remove all hazardous waste, hazardous constituents, decomposition products,

and leachate. These "partial closure" activities were completed in October 2008 through February 2009 pursuant to the North and South Aeration Lagoons Closure Plan dated May 2008 [approved by the New Mexico Environment Department (NMED) on August 7, 2008]. Final closure of the aeration lagoons will be conducted in accordance with an Enforceable Document (July 27, 2007 NMED Order) and this Final Closure Plan.



Map Source: USGS 7.5 Min. Quad Sheet BLOOMFIELD, NM., 1985.

N

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SCALE IN FEET

NEW MEXICO

QUADRANGLE LOCATION

Western Refining

WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining	DATE: 6/19/08	FILE: WestRef-A25

FIGURE 1

SITE LOCATION MAP

BLOOMFIELD REFINERY

RPS JDC

404 Camp Craft Road
Austin, Texas 78746

Section 2
Wastewater Treatment Unit Description and Operation

2.1 Environmental Regulatory Activities

All oil refineries produce process wastewater, which today must be managed in accordance with a variety of environmental requirements intended to assure adequate and appropriate protection of public health and the environment. Three federal regulatory programs [the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), and the Safe Drinking Water Act (SDWA)] have major significance for Bloomfield Refinery process wastewater. Two of these federal programs at Bloomfield are directly administered by the State of New Mexico, as it has primacy over the RCRA and SDWA Underground Injection Control (UIC) programs. In addition, there are additional State regulatory programs with varying applicability, including those administered by New Mexico Oil Conservation Division (OCD).

Initially, beginning in 1972 under the CWA regulatory program, EPA promulgated petroleum refinery wastewater management requirements pursuant to the National Pollutant Discharge Elimination System (NPDES) permit program. The principal federal regulations implementing this CWA program as it applies to petroleum refineries are found at 40 C.F.R. Parts 122 and 419. The Bloomfield Refinery, like other oil refineries impacted by 40 C.F.R. Part 419, had implemented a series of process wastewater treatment operations, including primary treatment of wastewaters with an oil/water separator followed by aggressive biological treatment in accordance with 40 CFR §261.31(b)(2). The two ponds where such biological treatment occurred were referred to at the time as the North Oily Water Pond and the South Oily Water Pond.

A second major regulatory program, the RCRA regulations, affecting hazardous waste was promulgated by EPA on November 19, 1980. Initially, these applied only to certain sludges created by petroleum refinery wastewater management, such as API oil/water separator sludge that was listed as K051 hazardous waste. In November 1980, the Bloomfield Refinery operator applied for a Part A permit as a generator and TSD facility as a protective filing for its so-called oily water ponds. It was later determined that they were not disposing of listed hazardous waste on site since D018 wastewater was not part of the 1980 EP toxicity test (it only became regulated after the 1990 TCLP toxicity test was adopted). In 1982 they petitioned for RCRA

reclassification under a generator only status.[1] In 1982/1983, the liquids and sludge were removed from the oily water ponds and disposed of offsite. Impacted soils were also excavated and the ponds were lined. This activity included the placement of a composite liner consisting of a 33% bentonite/soil bottom liner, a French drain system, and a 100 mill high density polyethylene (HDPE) upper liner.

In 1990, a significant revision to these regulations classified most petroleum refinery process wastewater as D018 benzene characteristic hazardous waste, leading the Bloomfield Refinery to submit a Part B RCRA permit application[2] in the mid-1990s and to operate its biological treatment impoundments pursuant to RCRA interim status as a regulated unit. To comply with RCRA interim status, the Bloomfield Refinery upgraded and retrofitted the impoundments with an additional set of RCRA double liners and leak detection/leachate collection system over the liner system that the Bloomfield Refinery had installed in 1982/1983.

In 1992, the listing of F037/F038 sludges by EPA as hazardous wastes effectively mandated a certain level of biological treatment and retention time in the biological treatment impoundments at the Bloomfield Refinery.[3] Thereafter, the aeration-enhanced impoundments were called the North Aeration Lagoon (NAL) or the South Aeration Lagoon (NAL) [also referred to herein as the North Aggressive Biological Treatment (ABT) Units (two impoundments known as NABT-E and NABT-W) and the South ABT Unit] (Figure 2). The compliance strategy employed aggressive biological treatment followed by disposition through evaporation ponds and a Class I underground injection well permitted consistent with the Safe Drinking Water Act UIC program requirements.[4]

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[1] *On November 26, 1985, the Bloomfield Refinery agreed to take an on-site landfill [where some of the materials from the 1982 impoundment cleanout had been placed] through RCRA closure. During 1989, these materials were removed and eventually determined by EPA delisting to be non-hazardous for offsite disposal. See, Hazardous Waste Delisting Petition, Petroleum Contaminated Soil, dated April 15, 1991 (ERM-Rocky Mountain, Inc.)*

[2] *This Part B application submitted in the mid-1990s included a RCRA closure plan for the biological treatment impoundments, as discussed later in this document.*

[3] *Integral to the operation of the Bloomfield Refinery, as with any oil refinery in the United States, is the operation of an aggressive biological treatment (ABT) unit system for wastewater management, mandated by EPA regulations regarding the listing of certain petroleum refinery wastes (F037/F038) that became effective in May, 1991. EPA regulations, as adopted by NMED, effectively require each petroleum refinery to implement an ABT system to biological treat organics with regulatorily-specified ABT technology to remove organics and eliminate F037/F038 formation. The Bloomfield Refinery has had such advanced organic aeration in place as required since that time, and these EPA-required treatment systems operate as multi-lined ABT wastewater treatment units at Bloomfield, backed up with a double set of leak detection/leachate collection systems, over and above what has been technologically required under EPA regulations.*

[4] *EPA promulgated regulatory requirements to assure that wastewater managed by UIC disposition not pose a risk to public health and the environment (40 C.F.R. Parts 144-146), but those did not apply at the Bloomfield Refinery until 1994 when Bloomfield installed a Class I UIC well for wastewater management.*

As a result of an EPA Consent Agreement and Final Order (CAFO) dated May 18, 2006, additional upgrades were made to wastewater treatment operations at the Bloomfield Refinery in the fall of 2007. The upgrades included construction and operation of a benzene stripper/surge tank system that decharacterizes all potentially D018 characteristically hazardous process wastewater prior to further biological treatment in the ABT impoundments. The tank system includes a 10,000 barrel tank to provide surge capacity. As a result, all process wastewater streams, including any contaminated runoff, is decharacterized prior to discharge into the ABT units for aggressive biological treatment.

2.2 ABT Unit Operations

The refinery process wastewater that was generated [approx. 80 gallons per minute (gpm)] at the Bloomfield Refinery prior to suspension of the petroleum refining operations was managed first by treatment in an API oil/water separator, then benzene air strippers to remove the volatile components and the final treatment (biological) in the three ABT impoundments. The impoundments were designed and equipped with aerators sized to prevent F037/F038 waste generation through high rate aeration (i.e., aggressive biological treatment) in accordance with 40 CFR §261.31(b)(2). With the installation of the benzene stripper equipment in October 2007, the wastewater is "decharacterized" below the benzene TC levels prior to discharge into the first (South) ABT unit. The liner system for the ABT units, from top to bottom, includes:

- A 100-mil HDPE top liner;
- A geonet for collecting leaks that drain to a sump equipped with a 6" observation pipe;
- A 60-mil HDPE secondary liner;
- A composite geotextile/geonet with a 4" observation pipe;
- A cement amended sand that was compacted into a 1.5% slope;
- A 100-mil HDPE liner;
- A French drain system, which directs any collected fluids to a central sump; and
- A 6" layer of soil with 33% bentonite mixed into it.

The wastewater discharges from the API separator, passes through the benzene air stripper and into the first (South) ABT unit, which averages 4.4 feet in depth and has a surface area of about 6,652 square feet. The total volume is approximately 216,000 gallons. At 80 gpm, the holding time in the pond was 1.9 days. The South ABT unit is equipped with two, 5-horsepower aerators sized to prevent F037/F038 waste generation through high rate aeration.

Wastewater from the first (South) ABT unit is routed to the second (North) ABT unit through an overflow pipe. The second ABT unit is comprised of two impoundments that are operated together, and are generally referred to together as the North ABT unit. The first of the two

impoundments (which can be referred to as North ABT-W as it is the westernmost of the two portions of the North ABT unit) is separated from the second (the second can be referred to as North ABT-E) by a concrete divider. An overflow pipe from the North ABT-W connects to the North ABT-E. The outflow from North ABT-E goes to a sump, where the non-hazardous wastewater can be pumped for final disposition, either in evaporation ponds or into an SDWA Class I permitted non-hazardous UIC well.

The North ABT-W averages 5.5 feet in depth with a surface area of 10,000 square feet. The total volume is approximately 411,500 gallons. The North ABT-W unit is equipped with two (each) 2-horsepower aerators and wastewater retention time (at 80 gpm) was 3.6 days at 80 gpm.

The North ABT-E (the second of the two in the North area) averages 5.7 feet in depth, with a surface area of 8,440 square feet and a volume of approximately 360,000 gallons. The North ABT-E is equipped with two 2-horsepower aerators and wastewater retention time (at 80 gpm) was 3.1 days

The North and South ABT units have been operated with a minimum freeboard of two feet under normal operating conditions. At the lowest points during operation, the South ABT, North ABT-W and North ABT-E have freeboards of 2.97, 2.54 and 3.08 feet respectively. Influent flow into the South ABT unit is limited by the size of the overflow pipe coming from the API separator/wastewater treatment unit system. Operating personnel monitor pond water levels on a daily basis. The only non-controlled inflow is direct rainfall onto the North and South unit areas.

To manage precipitation, outflow from the ABT unit system is routed to a sump, which has an automatic level control pump. Excess water from process areas generated during a 100-year storm (2.6") is easily handled by this system. The impoundments have 698,000 gallons of additional capacity to the top of the freeboard and the pump can remove 720,000 gallons of water daily. This capacity management total greatly exceeds the 406,000 gallons of water that would be drained from 250,000 square feet of process area. The pump is backed up by two portable diesel backup pumps, which can function in the event of a power outage.

Since termination of the active refining operations, the flow to the ABT units has been reduced to approximately 40 to 60 gpm but this is the only change in operations at the units. The flows

now include primarily ground water recovered from the remediation systems, stormwater and wastewater incidental to the continued terminal operations.

2.3 Contingency Plan

In the event of a major failure, the first contingency response is to direct the wastewaters that have not been through the benzene stripping treatment process into the 10,000 barrel surge tank. At a rate of wastewater flow of 60 gpm, that would permit 116 hours of flow to be managed without discharge to the ABT units in the event of a benzene stripper failure. During those 116 hours for repair work, the benzene strippers in most cases could be fixed and returned to operation. In the event the surge tank capacity may be exceeded, it may be possible to make additional surge tank capacity available, depending on other tank usage at the Bloomfield Refinery. Such evaluation would occur if there was a significant likelihood the strippers could not be restored to working order within the 116 hour time frame available for repairs.

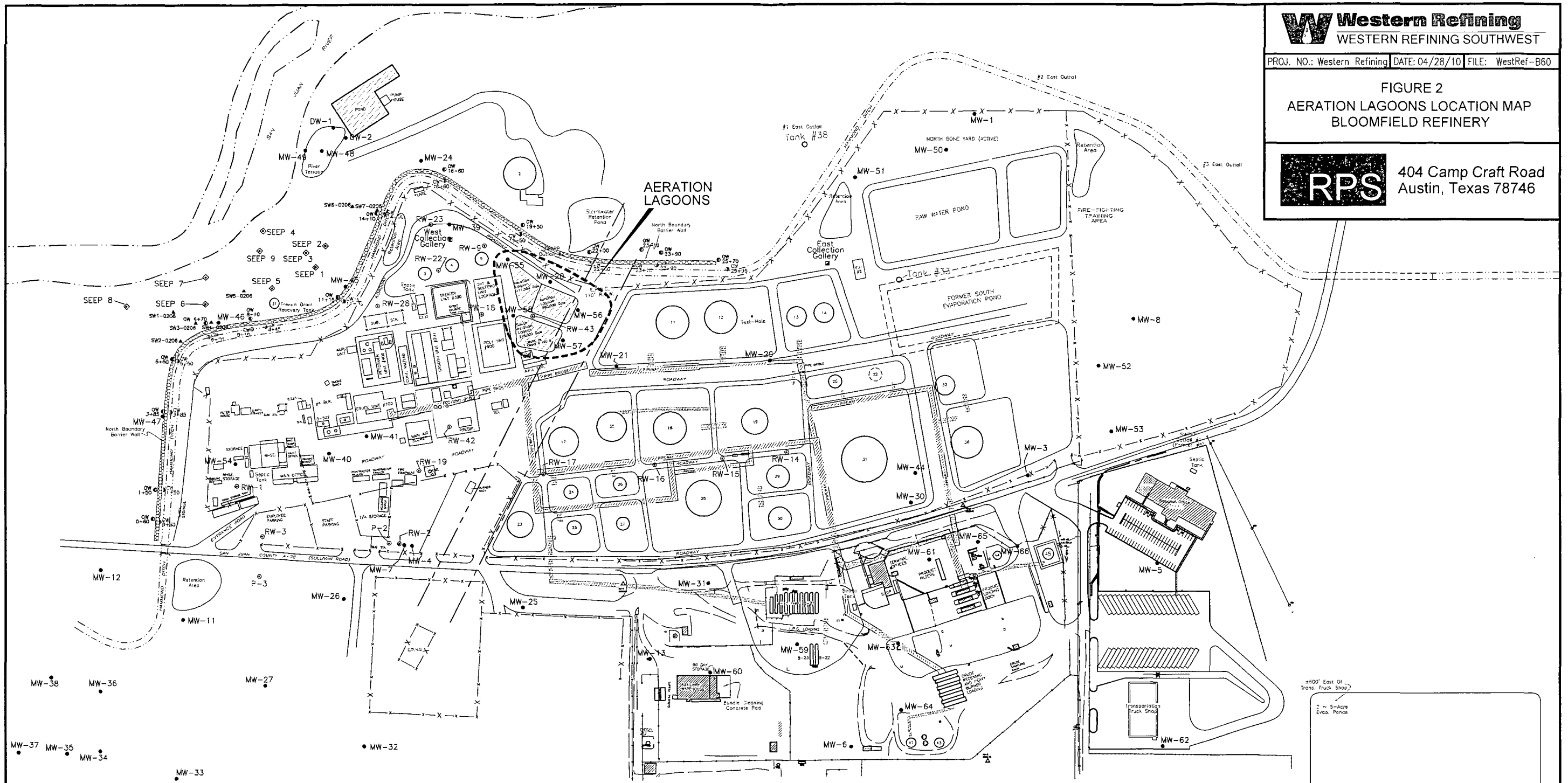
Once the benzene strippers are made operational again, wastewaters collected in the surge tank will be appropriately metered back through the wastewater treatment system by being introduced upstream of the API separator consistent with capacity available (in excess of the 40 gpm flow being handled). After the wastewater in the surge tank has been removed, the tank will be inspected to determine if any potentially F037 or F038 listed waste has accumulated. However, it should be noted that since suspension of refining operations, F037 or F038 listed waste should not be present. If residual sludge is present, it will be physically removed from the tank via the manway, and characterized and sent off-site for disposal in accordance with all applicable Hazardous Waste regulations.

Western Refining
WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining | DATE: 04/28/10 | FILE: WestRef-B60

FIGURE 2
AERATION LAGOONS LOCATION MAP
BLOOMFIELD REFINERY

RPS
404 Camp Craft Road
Austin, Texas 78746



Section 3
Completed Partial Closure Activities

NMED approved the previous Closure Plan for the North and South Aeration Lagoons (dated May 2008) on August 7, 2008. The previous Closure Plan required the removal of all materials (water and sludge) from within the North and South Aeration Lagoons and decontamination and repairs, as necessary, of the RCRA liner/leachate collection system. The May 2008 Closure Plan was implemented between October 2008 and May 2009. The previously completed closure activities are discussed in detail in the North and South Aeration Lagoons Closure Certification Report dated September 2009 (supplemented via correspondence dated April 20, 2010) and are summarized below.

3.1 Sludge Characterization, Removal, and Disposal

In accordance with the Closure Plan, sixteen sludge samples were collected in a grid pattern from the South ABT unit on October 7, 2008. Five of the first seven sludge samples analyzed exhibited hazardous waste characteristics for benzene, therefore no further testing was conducted and the entire sludge volume (851,930 pounds) in the South ABT unit was removed from the unit via vacuum transport truck and directly shipped offsite as oil-bearing hazardous secondary materials to be recycled (fuels blending).

On October 9, 2008, twenty sludge samples were collected in a grid pattern from the Northwest ABT unit. Analytical results indicated that the sludge did not exhibit any hazardous characteristics. The sludge in the Northwest ABT unit was removed via vacuum truck, mixed with fly ash, transported, and disposed of at the San Juan County Landfill in Aztec, New Mexico. Approximately 2,476,880 pounds of material, including sludge and fly ash, was transported to the landfill.

On October 21, 2008, seven sludge samples were collected in a grid pattern from the Northeast ABT unit. Analytical results indicated that the sludge did not exhibit any hazardous characteristics. The sludge in the Northeast ABT unit was removed via vacuum truck, mixed with fly ash, transported and disposed of at the San Juan County Landfill in Aztec, New Mexico. Approximately 1,998,780 pounds of sludge and fly ash were transported to the landfill.

3.2 Liner Inspection and Repair

After removal of the sludge, the entire top RCRA liner of each lagoon was power washed with water. The wash water was collected via vacuum truck and off-loaded into the API Separator. The South ABT unit was physically inspected in November 2008 by an independent engineer licensed in the State of New Mexico during closure activities. A crack in the plastic weld was discovered at the crossover piping between South ABT unit and the Northwest ABT unit. During the inspection process, personnel also discovered damage to the boot on the lower RCRA liner and pitting and corrosion on the piping that discharges from the South ABT unit into the Northwest ABT unit. Both sections of discharge piping from the South ABT unit into the Northwest and Northeast ABT units were replaced. After the piping was replaced, the liner was repaired inside the South ABT unit and inspected again. There was no accumulation of fluids in the underlying collection system beneath the lower 60-ml RCRA liner to indicate damage to the secondary liner. The South ABT unit was put back in service by November 18, 2008.

The Northwest ABT unit's top RCRA liner was power washed with water after sludge removal. The wash water was collected via vacuum truck and off-loaded into the API Separator. The liner surrounding the new inlet pipe from the South ABT Unit was repaired. Inspection of the upper liner identified small scrapes and gouges that did not penetrate the liner. A reinforcing plastic weld bead was applied to those areas before water was put back in the Northwest ABT unit on December 29, 2009.

After sludge removal, the top RCRA liner of the Northeast ABT unit was power washed with water. The wash water was collected via vacuum truck and off-loaded into the API Separator. Clean out activities were completed January 20, 2009. Inspection of the upper RCRA line revealed a puncture on the north wall of the liner and a cut on the top east side of the upper liner; neither of these penetrations went through the lower liner. The discharge pipe from the Northeast ABT unit to the suction of P-616 (Transfer Pump from the Aeration Lagoon to the Evaporation Ponds) was found to be pitted and corroded and was replaced. The liner was repaired around the new discharge piping as well as around the new transfer piping from the South ABT unit. The repair of the aforementioned puncture and cut in the upper liner was completed February 4, 2009 and the unit was put back into service.

Liner repairs surrounding the piping replacement consisted of cutting out and removing all three liners and the geonet. The liners and geonet were replaced with new material and new boots were created to tie into the piping.

3.3 Flushing of Leachate Collection System

Pursuant to the previous Closure Plan, after repairs to the upper liner of the South ABT unit were completed, the geonet between the upper 100-ml liner and the lower 60-ml liner was flushed with clean water. The flush water was sampled using a bailer in the 6" observation pipe. Analytical results indicated that the flush water did not exhibit any hazardous characteristics. The flush water was removed from underneath the upper liner via vacuum truck through the 6" observation pipe and off-loaded at the API Separator.

An inspection of the upper liner in the Northwest ABT unit did not reveal any penetrations of the liner. As there were no indications of impacts to the upper liner, the leachate collection system was not flushed with water.

As discussed above, inspection of the Northeast ABT unit revealed a puncture on the north wall of the upper liner and a cut on the top east side of the upper liner. In addition, spongy conditions were observed under the upper liner in the northeast section. This observation prompted sampling and analysis of the water between the upper 100-ml liner and the lower 60-ml liner. The water was sampled through a new incision placed in the liner. Analytical results indicate that the water did not exhibit any hazardous characteristics, thus the leachate collection system was not flushed. The water was removed from underneath the upper liner via vacuum truck through two new incisions placed in the liner and off-loaded at the API Separator. There was no accumulation of fluids in the underlying collection system beneath the 60-ml liner to indicate damage to the RCRA liner. The incisions were repaired along with the other repairs of the liner.

Section 4
ABT Unit Final Closure

This Final Closure Plan sets forth the activities that will be conducted to achieve final closure of the ABT units at the Bloomfield Refinery. These activities will be conducted in compliance with the requirements of the NMED Order dated July 27, 2007 (also referred to as the Enforceable Document) in addition to the applicable closure standards in 40 CFR Part 265.

The applicable closure standard for the North and South ABT Units is provided in 40 CFR §265.111 (Closure Performance Standard), which requires that the owner or operator must close the facility in a manner that:

> (a) Minimizes the need for further maintenance, and
>
> (b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.

The objective of this scope of services is to close the units as Corrective Action Complete Without Controls (CACWOC). The final closure activities are designed to meet the surface impoundment closure requirements of 40 CFR §265.228 (a)(1) – Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless §261.3(d) of the chapter applies.

It is unlikely that the units will contain hazardous waste because of recent upgrades to the wastewater treatment operations discussed above in Section 2.1 and the partial closure activities that removed all hazardous waste from the ABT units as described above in Section 3. Regardless, all waste materials managed during closure will be tested to determine if they are characteristically hazardous in accordance with 40 CFR 261, Subpart C – Characteristics of Hazardous Waste.

4.1 ABT Units Closure Procedures

The steps described below will be implemented to achieve "clean closure" pursuant to 40 CFR §265.228(a)(1). The closure will begin by removing all liquids from the units using the current authorized wastewater treatment and discharge system. It is likely that only a small volume of

sludge/sediment will be present in the units at final closure, based on the fact that the units were completely cleaned out in late 2008 through early 2009 in order to remove all hazardous wastes, hazardous constituents, decomposition products, and leachate. Final closure for the three impoundments will be completed by implementing the steps discussed below.

4.1.1 Sludge/Sediment Removal

The sludge/sediment that remains in the ABT units above the top liner after removal of the free liquids will be allowed to dry for up to four weeks. If necessary, mechanical equipment such as a back hoe, track hoe, long-reach excavators, or similar may be used to facilitate physical drying of the sludge/sediment, moving the sludge/sediment to expose saturated portions to ambient air. At the conclusion of these activities, the material will be sampled for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste, including reactivity, corrosivity, ignitability, TCLP RCRA metals, TCLP semi-volatiles (SVOCs), and total volatiles (VOCs). If the material is non-hazardous, then it may be disposed at a landfill permitted by the NMED to accept Special Waste (e.g., the San Juan County Regional Landfill).

Samples of the sludge/sediment will be collected for waste characterization at a minimum of one sample per each 20 cubic yards. If the sludge/sediment does not exhibit any hazardous characteristics, it will be removed from the ABT units by a vacuum truck or other mechanical means (e.g., long-reach track hoe) depending upon the consistency of the material for appropriate disposal. Portland cement or fly ash may be added to improve physical strength and reduce moisture content prior to excavation out of the units. If sludge/sediment exhibits hazardous characteristics, then it will be placed into appropriate RCRA containers for disposal offsite as hazardous waste.

4.1.2 RCRA Liner Removal

The RCRA liners, which include an upper 100 mil HDPE liner, a geonet, and a lower 60 mil HDPE liner, will be removed and disposed at a landfill permitted by the NMED to accept Special Waste (e.g., the San Juan County Regional Landfill). Any liquids that are present in the leachate collection system will be containerized. The liquid will be sampled and analyzed for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste, including reactivity, corrosivity, ignitability, total RCRA metals, SVOCs, and VOCs. If the liquid exhibits hazardous characteristics, then it will be disposed offsite as

hazardous waste. If the liquid is non-hazardous, then it will be disposed through the on-site permitted discharge system. The liners and geonet will be cut into manageable sized pieces and then rolled/folded to facilitate loading into trucks/roll-off boxes for transport for off-site disposal.

4.1.3 Non-RCRA Liner/Leachate Collection System Removal

There are a series of liners/leachate collection systems below the RCRA liner system that will be removed for off-site disposal. The uppermost layer beneath the RCRA lower 60 mil liner is a composite geotextile/geonet, which will be cut into manageable pieces and placed into roll-off boxes for off-site disposal. Beneath this composite geotextile/geonet layer is a 6" layer of cement amended sand. The sand layer will be excavated and stockpiled on-site pending waste characterization sampling. Beneath the sand layer is a 100 mil HDPE liner, which will be removed and handled with the previously removed composite geotextile/geonet layer. The lowermost layer consists of approximately 6 inches of bentonite amended soil with a French drain system.

Prior to removal of the French drain system, the soil dike separating the North and South ABT Units will be removed and stockpiled on-site. The French drain system will be checked for the presence of liquids prior to removal. Any liquids that are present will be containerized. The liquid will be sampled and analyzed for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. If the liquid exhibits hazardous characteristics, then it will be disposed offsite as hazardous waste. If the liquid is non-hazardous, then it will be disposed through the facilities on-site permitted discharge. Soil will be physically removed from the drain system piping and if the liquid present in the drain system is characteristically hazardous, then the piping will be triple rinsed with potable water prior to off-site disposal. The wash water will be containerized and analyzed for classification prior to disposal.

The cemented amended sand will be sampled for waste characterization at a minimum of one sample per 20 cubic yards. The samples will be analyzed for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste, including reactivity, corrosivity, ignitability, TCLP RCRA metals, TCLP SVOCs, and total VOCs. If the material does not exhibit any hazardous characteristics, then it will be transported for off-site disposal to a NMED permitted non-hazardous landfill. If the material exhibits hazardous

characteristics, then it will be placed into appropriate RCRA containers for disposal offsite as hazardous waste.

The soil from the dike that separates the North and South ABT Units will be sampled for waste characterization at a minimum of one sample per 20 cubic yards. The samples will be analyzed for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste, including reactivity, corrosivity, ignitability, TCLP RCRA metals, and TCLP SVOCs and will also be analyzed for totals concentrations of the constituents set forth below in Section 4.2.7 to evaluate potential reuse. If all concentrations of constituents are below the applicable NMED residential soil screening levels, then the soil may be reused for backfill. If the soil is not suitable to use on-site as backfill and does not exhibit any hazardous characteristics, then it will be transported for off-site disposal to a NMED permitted non-hazardous landfill. If the soil exhibits hazardous characteristics, then it will be placed into appropriate RCRA containers for disposal off-site as hazardous waste.

4.2 Soil Investigation

The purpose of the soil investigation is to determine if a release of contaminants from the ABT units has occurred and if so, to evaluate the nature and extent of the release. Guidance for Choosing a Sampling Design for Environmental Data Collection (EPA, 2000) was utilized to select the appropriate sampling strategy.

Investigation sample locations will be identified by gridding the bottom of the entire area (i.e., footprint of all three ABT Units) into 50 feet by 50 feet grids (Figure 3). Soil borings will be completed at the approximate center of each grid to a minimum depth of ten feet. If soils appear impacted (e.g., petroleum odor, staining, or elevated organic vapor readings) at ten feet, then the soil boring(s) will be drilled deeper until the vertical extent of the impact is reached or ground water is encountered, whichever occurs first.

Discrete soil samples will be collected for laboratory analyses from the soil borings at the following intervals:

- 0-6";
- 18-24";
- The sample from each soil boring with the greatest apparent degree of contamination, based on field observations and field screening; and
- Any additional intervals as determined based on field screening results.

Shallow (0-6" and 18-24") samples will be collected from around the perimeter of the ABT Units using hand augers or similar manual tools on a 50-foot spacing. The samples will be collected from approximately half way up the sidewall of the ABT Units (Figure 3).

4.2.1 Soil Sample Field Screening and Logging

Samples obtained from the borings will be screened in the field on two foot intervals for evidence of contaminants. Field screening results will be recorded on the exploratory boring logs. Field screening results will be used to aid in the selection of soil samples for laboratory analysis. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds.

Visual screening includes examination of soil samples for evidence of staining caused by petroleum-related compounds. Headspace vapor screening targets volatile organic compounds and involves placing a soil sample in a plastic sample bag or a foil sealed container allowing space for ambient air. The container will be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container will be allowed to stand for a minimum of 5 minutes while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the VOC screening instrument in a small opening in the bag or through the foil. The maximum value and the ambient air temperature will be recorded on the field boring or test pit log for each sample.

The monitoring instruments will be calibrated each day to the manufacturer's standard for instrument operation. A photo-ionization detector (PID) equipped with a 10.6 or higher electron volt (eV) lamp or a combustible gas indicator will be used for VOC field screening. All conditions capable of influencing the results of field screening will be recorded on the field logs since field screening results may vary with instrument type, the media screened, weather conditions, moisture content, soil type, and type of contaminant,

The physical characteristics of the samples (such as mineralogy, ASTM soil classification, moisture content, texture, color, presence of stains or odors, and/or field screening results), depth where each sample was obtained, method of sample collection, and other observations will be recorded in the field log by a qualified geologist or engineer. Detailed logs of each boring will be completed in the field by a qualified engineer or geologist. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will be recorded on the logs.

Quality Assurance/Quality Control (QA/QC) samples will be collected to monitor the validity of the soil sample collection procedures as follows:

- Field duplicates will be collected at a rate of 10 percent; and
- Equipment blanks will be collected at a frequency of one per day.

4.2.2 Drilling Activities

Soil borings will be drilled using either a hand auger, cone penetrometer (CPT), hollow-stem auger or if necessary, air rotary methods including ODEX. The drilling equipment will be properly decontaminated before drilling each boring.

The NMED will be notified as early as practicable if conditions arise or are encountered that do not allow the advancement of borings to the specified depths or at planned sampling locations. Appropriate actions (e.g., installation of protective surface casing or relocation of borings to a less threatening location) will be taken to minimize any negative impacts from investigative borings. Soil samples will be collected continuously and logged by a qualified geologist or engineer.

Both sample information and visual observations of the cuttings and core samples will be recorded on the boring log. Known site features and/or site survey grid markers will be used as references to locate each boring. The boring locations will be measured to the nearest foot, and locations will be recorded on a scaled site map upon completion of each boring.

4.2.3 Sample Handling

At a minimum, the following procedures will be used at all times when collecting samples during investigation, corrective action, and monitoring activities:

1. Neoprene, nitrile, or other protective gloves will be worn when collecting samples. New disposable gloves will be used to collect each sample;

2. All samples collected of each medium for chemical analysis will be transferred into clean sample containers supplied by the project analytical laboratory with the exception of soil, rock, and sediment samples obtained in Encore® samplers. Sample container volumes and preservation methods will be in accordance with the most recent standard EPA and industry accepted practices for use by accredited analytical laboratories. Sufficient sample volume will be obtained for the laboratory to complete the method-specific QC analyses on a laboratory-batch basis; and

3. Sample labels and documentation will be completed for each sample following procedures discussed below. Immediately after the samples are collected,

they will be stored in a cooler with ice or other appropriate storage method until they are delivered to the analytical laboratory. Standard chain-of-custody procedures, as described below, will be followed for all samples collected. All samples will be submitted to the laboratory soon enough to allow the laboratory to conduct the analyses within the method holding times. At a minimum, all samples will be submitted to the laboratory within 48 hours after their collection.

Chain-of-custody and shipment procedures will include the following:

1. Chain-of-custody forms will be completed at the end of each sampling day, prior to the transfer of samples off site.

2. Individual sample containers will be packed to prevent breakage and transported in a sealed cooler with ice or other suitable coolant or other EPA or industry-wide accepted method. The drainage hole at the bottom of the cooler will be sealed and secured in case of sample container leakage. Temperature blanks will be included with each shipping container.

3. Each cooler or other container will be delivered directly to the analytical laboratory.

4. Glass bottles will be separated in the shipping container by cushioning material to prevent breakage.

5. Plastic containers will be protected from possible puncture during shipping using cushioning material.

6. The chain-of-custody form and sample request form will be shipped inside the sealed storage container to be delivered to the laboratory.

7. Chain-of-custody seals will be used to seal the sample-shipping container in conformance with EPA protocol.

8. Signed and dated chain-of-custody seals will be applied to each cooler prior to transport of samples from the site.

9. Upon receipt of the samples at the laboratory, the custody seals will be broken, the chain-of-custody form will be signed as received by the laboratory, and the conditions of the samples will be recorded on the form. The original chain-of-custody form will remain with the laboratory and copies will be returned to the relinquishing party.

10. Copies of all chain-of-custody forms generated as part of sampling activities will be maintained on-site.

4.2.4 Collection and Management of Investigation Derived Waste

Drill cuttings, excess sample material and decontamination fluids, and all other investigation derived waste (IDW) associated with soil borings will be contained and characterized using methods based on the boring location, boring depth, drilling method, and type of contaminants

suspected or encountered. All decontamination water will be characterized prior to disposal unless it is disposed in the refinery wastewater treatment system upstream of the API Separator. An IDW management plan is included as Appendix A.

4.2.5 Field Equipment Calibration

Field equipment requiring calibration will be calibrated to known standards, in accordance with the manufacturers' recommended schedules and procedures. At a minimum, calibration checks will be conducted daily, or at other intervals approved by the Department, and the instruments will be recalibrated, if necessary. Calibration measurements will be recorded in the daily field logs. If field equipment becomes inoperable, its use will be discontinued until the necessary repairs are made. In the interim, a properly calibrated replacement instrument will be used.

4.2.6 Documentation of Field Activities

Daily field activities, including observations and field procedures, will be recorded in a field log book. Copies of the completed forms will be maintained in a bound and sequentially numbered field file for reference during field activities. Indelible ink will be used to record all field activities. Photographic documentation of field activities will be performed, as appropriate. The daily record of field activities will include the following:

Site or unit designation;

1. Date;
2. Time of arrival and departure;
3. Field investigation team members including subcontractors and visitors;
4. Weather conditions;
5. Daily activities and times conducted;
6. Observations;
7. Record of samples collected with sample designations and locations specified;
8. Photographic log, as appropriate;
9. Field monitoring data, including health and safety monitoring;
10. Equipment used and calibration records, if appropriate;
11. List of additional data sheets and maps completed;
12. An inventory of the waste generated and the method of storage or disposal; and
13. Signature of personnel completing the field record.

4.2.7 Chemical Analyses

All samples collected for laboratory analysis will be submitted to an accredited laboratory. The laboratory will use the most recent standard EPA and industry-accepted analytical methods for target analytes as the testing methods for each medium sampled. Chemical analyses will be

performed in accordance with the most recent EPA standard analytical methodologies and extraction methods.

Soil samples will be analyzed by the following methods:

- SW-846 Method 8260 volatile organic compounds;
- SW-846 Method 8270 semi-volatile organic compounds; and
- SW-846 Method 8015B gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics.
- Soil samples will also be analyzed for the following Skinner List metals using the indicated analytical methods.

Inorganic Analytical Methods

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020

4.2.8 Data Quality Objectives

The Data Quality Objectives (DQOs) were developed to ensure that newly collected data are of sufficient quality and quantity to address the projects goals, including Quality Assurance/Quality Control (QA/QC) issues (EPA, 2006). The project goals are established to determine and evaluate the presence, nature, and extent of releases of contaminants from the ABT Units. The type of data required to meet the project goals includes chemical analyses of soil to determine if there has been a release of contaminants. Method detection limits should be 20% or less of the applicable background levels, cleanup standards and screening levels.

Additional DQOs include precision, accuracy, representativeness, completeness, and comparability. Precision is a measurement of the reproducibility of measurements under a given set of circumstances and is commonly stated in terms of standard deviation or coefficient of variation (EPA, 1987). Precision is also specific to sampling activities and analytical performance. Sampling precision will be evaluated through the analyses of duplicate field samples and laboratory replicates will be utilized to assess laboratory precision.

Accuracy is a measurement in the bias of a measurement system and may include many sources of potential error, including the sampling process, field contamination, preservation, handling, sample matrix, sample preparation, and analysis techniques (EPA, 1987). An evaluation of the accuracy will be performed by reviewing the results of matrix spikes and laboratory QC samples.

Representativeness is an expression of the degree to which the data accurately and precisely represent the true environmental conditions. Sample locations and the number of samples have been selected to ensure the data is representative of actual environmental conditions.

Completeness is defined as the percentage of measurements taken that are actually valid measurements, considering field QA and laboratory QC problems. EPA Contract Laboratory Program (CLP) data has been found to be 80-85% complete on a nationwide basis and this has been extrapolated to indicate that Level III, IV, and V analytical techniques will generate data that are approximately 80% complete (EPA, 1987). As an overall project goal, the completeness goal is 85%; however, some samples may be critical based on location or field screening results and thus a sample –by-sample evaluation will be performed to determine if the completeness goals have been obtained.

Comparability is a qualitative parameter, which expresses the confidence with which one data set can be compared to another. Industry standard sample collection techniques and routine EPA analytical methods will be utilized to help ensure data are comparable to historical and future data. Analytical results will be reported in appropriate units for comparison to historical data and cleanup levels.

4.3 Soil Removal Action

Removal actions will be conducted in the event that there are concentrations of constituents present in soils beneath the ABT Units that exceed the NMED residential soil screening levels.

The preferred method to address any such releases from the ABT Units is to remove and dispose the impacted soils at a permitted off-site landfill so as to obtain Corrective Action Complete Without Controls and meet the requirements of 40 CFR§265.228 (a)(1) for clean closure. If the volume or depth of impacted soils is such that a complete removal action is financially or technically impracticable, then a revised Closure Plan will be submitted in accordance with 40 CFR §265.228 (a)(2).

4.3.1 Soil Excavation

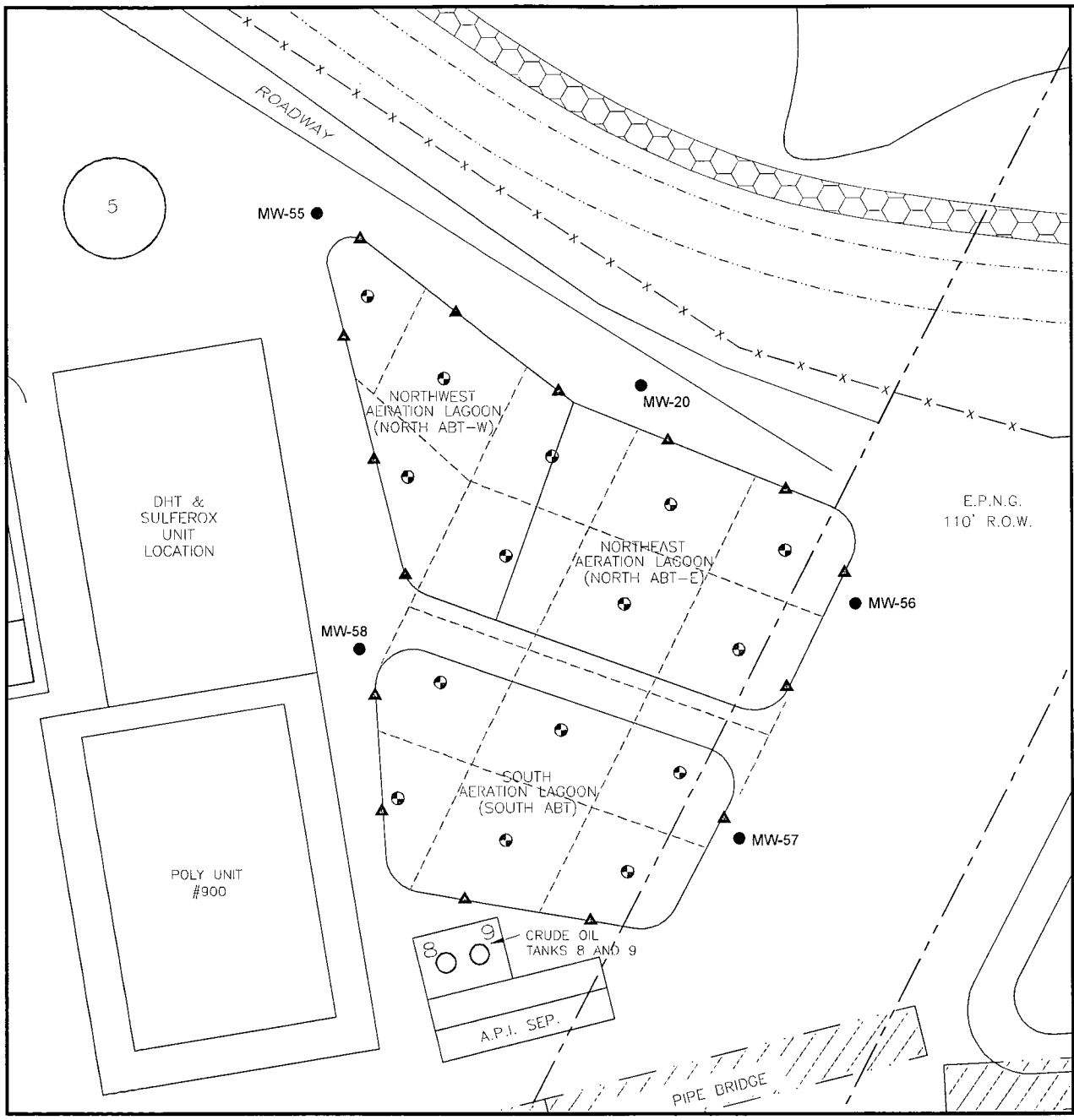
Soil containing concentrations of constituents above the applicable NMED residential screening levels will be excavated for off-site disposal. The soil will be excavated using back hoes, track hoes, long-reach excavators, or similar equipment. The excavated soil will either be stocked piled on poly sheeting within the footprint of the ABT Units or placed directly into roll-off boxes. The soil will be sampled and analyzed for waste characterization at a minimum of one sample per 20 cubic yards. The samples will be analyzed for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste, including reactivity, corrosivity, ignitability, TCLP RCRA metals, TCLP SVOCs, and total VOCs. If the material does not exhibit any hazardous characteristics, then it will be transported for off-site disposal to a NMED permitted non-hazardous landfill. If the material exhibits hazardous characteristics, then it will be placed into appropriate RCRA containers for disposal offsite as hazardous waste.

4.3.2 Confirmation Sampling

After removal of impacted soils, the underlying soils will be sampled along all faces of the excavations with an approximate spacing of 20 feet between sample grid locations. Sample results will be compared to NMED residential soil screening levels. Locations exhibiting constituent concentrations in excess of NMED residential soil screening levels will be further excavated and the excavated soils will be stockpiled within the footprint of the ABT Units or placed directly into roll-off boxes in anticipation of characterization, transport and off-site disposal. This process will be repeated until impacted soils with concentrations exceeding the NMED residential Soil Screening Levels have been removed from beneath the ABT Units.

4.4 Closure Certification

Upon completion of all activities, a Closure Certification Report will be prepared in accordance with 40 CFR §265.115 Certification of Closure. The certification will described how the ABT Units were closed in accordance with the approved Closure Plan.



N

0 60

SCALE IN FEET

LEGEND

- SOIL BORING LOCATION
- SIDEWALL SAMPLE LOCATION
- MW-55 ● MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- —x—x— FENCE
- SLURRY BARRIER WALL
- APPROXIMATE 50' GRID LINES

Western Refining

WESTERN REFINING SOUTHWEST

PROJ. NO.:Western Refining	DATE:04/28/10	FILE: WestRef-A43

FIGURE 3
SAMPLE LOCATION MAP
BLOOMFIELD REFINERY

RPS
404 Camp Craft Road
Austin, Texas 78746

Section 5
Construction Schedule

The schedule for closure of three ABT Units is as follows:

Description	Duration
Removal of liquids in ABT Units	1 week
Drying of residual solids	4 weeks
Testing of residual solids	1 week
Removal of RCRA liners	2 weeks
Removal of Non-RCRA lines/leachate collection	3 weeks
Soil Investigation (including analyses)	6 weeks
Soil excavation	8 weeks
Final confirmation sampling and Analyses	4 weeks
Total time required	29 weeks

The current cost of closure for the aeration ABT Units is estimated at $302,800, based on the estimated volumes and other assumptions as detailed in the cost estimate tables presented in Appendix B.

Section 6
References

EPA, 1987, Data Quality Objectives for Remedial Response Activities; United States Environmental Protection Agency, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, OSWER Directive 9355.0-7B, 85p

EPA, 2000, Guidance on Choosing a Sampling Design for Environmental Data Collection, EPA/240/R-02/005, EPA QA/G-5S, 168 p.

EPA, 2006, Guidance on Systematic Planning Using the Data Quality Objectives Process, United States Environmental Protection Agency, Office of Environmental Information; EPA/240/B-06/001, p. 111.

Appendix A

Management of Investigation Derived Waste

Investigation-Derived Waste Management Plan

All investigation-derived waste (IDW) will be properly characterized and disposed of in accordance with all federal, State, and local rules and regulations for storage, labeling, handling, transport, and disposal of waste. The IDW may be characterized for disposal based on the known or suspected contaminants potentially present in the waste. It is assumed that there are no listed wastes present in environmental media at any of the planned investigation areas.

A dedicated decontamination area will be setup prior to any sample collection activities. The decontamination pad will be constructed so as to capture and contain all decontamination fluids (e.g., wash water and rinse water) and foreign materials washed off the sampling equipment. The fluids will be pumped directly into suitable storage containers (e.g., labeled 55-gallon drums), which will be located at satellite accumulation areas until the fluids are disposed in the refinery wastewater treatment system upstream of the API separator. The solids captured in the decontamination pad will be shoveled into 55-gallon drums and stored at the designated satellite accumulation area pending proper waste characterization for off-site disposal.

Drill cuttings generated during installation of soil borings and monitoring wells will be placed directly into 55-gallon drums and staged in the satellite accumulation area pending results of the waste characterization sampling. The portion of soil cores, which are not retained for analytical testing, will be placed into the same 55-gallon drums used to store the associated drill cuttings.

The solids (e.g., drill cuttings and used soil cores) will be characterized by testing to determine if there are any hazardous characteristics in accordance with 40 Code of Federal Regulations (CFR) Part 261. This includes tests for ignitability, corrosivity, reactivity, and toxicity. If the materials are not characteristically hazardous, then further testing will be performed pursuant to the requirements of the facility to which the materials will be transported. Depending upon the results of analyses for individual investigation soil samples, additional analyses may include TPH and polynuclear aromatic hydrocarbons (PAHs).

Purge water generated during groundwater sampling activities will be containerized in 55-gallons drums and then disposed in the refinery wastewater treatment system upstream of the API separator. All miscellaneous waste materials (e.g., discarded gloves, packing materials, etc.) will be placed into the refinery's solid waste storage containers for off-site disposal.

Appendix B

Closure Cost Estimate

TABLE 1
Final Closure Cost Estimate
Western Refining - Bloomfied Refinery
North and South Aeration Lagoons
May 4, 2010

Item	Description	Quantity	Units	Unit Cost	Cost
	Professional Services				
1	Analyses for waste characterization & investigation/soil confirmation sampling (Table 2)	1	LS	$118,000	$118,000
2	Final closure report	1	LS	$20,000	$20,000
3	Project administration (engineering, bidding, construction administration, etc.)	1	LS	$18,700	$18,700
	Construction				
5	Mobilization	1	LS	$6,200	$6,200
6	Administrative costs (office facilities & staff, H&S plan, SWPPP, insurance, eqpmt decon, QA/QC, etc.)	1	LS	$12,500	$12,500
7	Dewater lagoons (1 ft water over 25,092 sq. ft.) Dispose water at authorized on-site discharge	188,000	Gal	$0.011	$2,100
8	Excavate and load sludge from aeration lagoons for disposal at local NMED permitted landfill. (1)	310	CY	$4	$1,200
9	Transfer sludge from aeration lagoons to local NMED permitted landfill. (2)	403	CY	$12.5	$5,000
10	Dispose of sludge at local landfill as Special Waste	403	CY	$16.5	$6,600
11	Remove and dispose of RCRA liners at local landfill (3)	1	LS	$5,340	$5,300
12	Remove and dispose of non-RCRA composite geotextile/geonet layer and 100 mil liner at local landfill; stockpile cemented amended sand (4) (5)	1	LS	$7,780	$7,800
13	Transport and dispose of cemented amended sand at local NMED permitted landfill as special waste (5)	605	CY	$29	$17,500
14	Excavate upper two feet of soils across all lagoons (6)	1,859	CY	$5	$9,300
15	Transport and dispose of excavated soils at local landfill as Special Waste	2,416	CY	$29	$70,100
16	Demobilization	1	LS	$2,500	$2,500
	TOTAL				**$302,800**

Notes

1 Assumed dried sludge in-place volume = 25,092 sq. ft. x 0.333ft = 310 cy (special waste). Estimated truck yards = 310 cy x 1.3 (fluff) = 403 cy. Estimated excavation cost = $4/cy

2 Estimated transportation cost to NMED permitted landfill in Aztec, NM = $12.50/cy ($125/hr @ 2hrs per trip & 20 yd. truck)

3 Assume three 20-yd trucks @ $16.50/cy; $750 transporation & 72 hours labor @ $50/hr = $5,340

4 Assume four 20-yd trucks @ $16.50/cy, $1,000 transporation, 72 hours labor @ $50/hr, & stockpile cemented amended sand ($4/cy x 465 cy) = $7,780

5 Estimated in-place volume of cemented amended sand = 25,092 sq. ft. x .5 ft. x 1.3 = 465 cy. Estimated truck yards = 465 cy x 1.3 (fluff) = 605 cy

6 Estimated in-place volume of excavated soils beneath lagoons = 25,092 sq.ft. x 2 ft. = 1,859 cy. Estimated truck yards = 2,203 cy x 1.3 (fluff) = 2,416 cy

LS - Lump Sum
CY - cubic yard
Gal - gallon

TABLE 2
Investigation & Confirmation Sampling Cost Estimate
Western Refining - Bloomfied Refinery
North and South Aeration Lagoons

Analysis	# of Samples	Cost/Sample	Costs
Waste Characterization Samples [1]			
VOCs 8260B	155	$90	$13,950
TCLP SVOCs 8270C	155	$220	$34,100
Haz. Characteristics	155	$140	$21,700
TCLP Skinner List Metals	155	$185	$525
Sampling Labor	40 hours	$75/hour	$3,000
		Subtotal	**$73,275**
Investigation/Confirmation Samples [2]			
VOCs 8260B	71	$90	$6,390
SVOCs 8270C	71	$220	$15,620
TPH 8015B (GRO, DRO, MRO)	71	$90	$6,390
Skinner List Metals	71	$185	$13,135
Sampling Labor	40 hours	$75/hour	$3,000
Subcontract drilling			$12,000
		Subtotal	**$44,535**
		Total	**$117,810**

1 - sludge samples (25,092 sq. ft. x .33 ft. = 310 yds / 20 yds/sample) = 16 samples; cement amended sand samples (25, 092 sq. ft. x .5 ft = 465 yds / 20 yds/sample) = 24 samples; excavated soil samples (25,092 sq. ft. x 2 ft. x 1.2 (fluff factor) / 27 (cu. ft/yd.) = 2,230 yds / 20 yds/sample) = 112 samples; potential leachate samples (RCRA liner, non-RCRA liner & French drain) = 3 samples; estimated total of 155 characterization samples

2 - assumes two samples (0-6" & 18-24") at each of 15 soil borings & 15 sidewall samples, six duplicate samples, and five equipment blanks

TPH - total petroleum hydrocarbons

GRO - Gasoline Range Organics

DRO - Diesel Range Organics

MRO - Motor Oil Range Organics

VOCs - volatile organic compounds

SVOCs - semi-volatile organic compounds

BILL RICHARDSON
Governor

DIANE DENISH
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us

RON CURRY
Secretary

SARAH COTTRELL
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 20, 2010

James R. Schmaltz
Environmental Manager
Western Refining Southwest, Inc
Bloomfield Refinery.
P.O. Box 159
Bloomfield, NM 87413

RE: APPROVAL
PARTIAL CLOSURE OF THE NORTH AND SOUTH
AERATION LAGOONS CLOSURE CERTIFICATION REPORT
WESTERN REFINING SOUTHWEST INC., BLOOMFIELD REFINERY
EPA ID # NMD089416416
HWB-GRCB-09-007

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) has received Western Refining Southwest Inc., Bloomfield Refinery's (Western) *Response to March 24, 2010 Notice of Disapproval North and South Aeration Lagoons Closure Certification Report* (NOD Response), dated April 19, 2010. NMED hereby approves partial closure of the Aeration Lagoons.

Western has completed partial closure of the North and South Aeration Lagoons (N & S ALs). The Aeration Lagoons are no longer treating hazardous waste, all sludges and liquids were removed, and the liners were cleaned and repaired as necessary. The Aeration Lagoons are currently operating, but are only used to treat non-hazardous waste water.

Although NMED has approved partial closure, Western is still required to complete final closure of the N & S ALs when they cease operation. The final closure process must include complete removal of the lagoons and all underlying contaminated soils. Final closure may be completed as part of corrective action under the July 27, 2007 Order (Order) with Group 9, SWMU 13 and in

accordance with 40 CFR 265 Subpart G. The cost estimate associated with the closure process has been addressed by NMED in a separate letter dated April 5, 2010 (*Response to Western Refining March 15, 2010 Financial Assurance for the Gallup Refinery EPA ID #NMD000333211 and the Bloomfield Refinery EPA ID #NMD089416416 Western Refining Southwest, Inc.*).

In addition, Western's response to Comment 7 in the NOD Response states "[t]he approved IDW Management Plan mentioned in the North and South Aeration Lagoon Closure Certification Report was intended to reference the same IDW Management Plan that was included in the earlier approved Group 2 Investigation Work Plan, and has since been included in the earlier approved Group 2 Investigation Work Plans. A copy of the IDW management Plan was followed during the aeration lagoon monitoring well installation activities [and] is provided in (**Attachment D**)." Attachment D is written in the future tense indicating what will be conducted instead of stating what was conducted. In the future, any IDW management reporting must address what was actually completed during the associated field activities, regardless of whether it was cited in an earlier plan. No revision is necessary because the IDW activities are complete and chemical analyses was conducted on the soils, which were accepted by the disposal facility.

Please contact Hope Monzeglio of my staff at (505) 476-6045, should you have any questions.

Sincerely,

John E. Kieling
Program Manager
Permits Management Program
Hazardous Waste Bureau

cc: J. Bearzi, NMED HWB
D. Cobrain, NMED HWB
H. Monzeglio, NMED HWB
C. Chavez, OCD
L. King, EPA Region 6
N. Stone, EPA Region 6
A. Hains, Western Refining El Paso
File: Reading File and GRCB 2010

RECEIVED OCD

2010 APR 21 P 1:15

James Bearzi, Bureau Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg 1
Santa Fe, NM 87505

Certified Mail #: 7007 2560 0002 5890 7277

April 19, 2010

Re: Response to March 24, 2010 NOTICE OF DISAPPROVAL
North and South Aeration Lagoons
Closure Certification Report
Western Refining Southwest, Inc., Bloomfield Refinery
EPA ID# NMD089416416
HWB-GRCB-09-007

Dear Mr. Bearzi:

Western Refining Southwest, Inc., Bloomfield Refinery has prepared the following responses to comments 1-7 on the referenced Closure Certification Report. A response to comment 8 will be submitted separately.

Comment 1

In Section 4.1 (Sludge Characterization, Removal, and Disposal) on pages 5 and 6, Western references the aeration lagoons as follows: South Aeration Lagoon (#1 Aeration Lagoon), the Northwest Aeration Lagoon (#2 Aeration Lagoon), and the Northeast Aeration Lagoon (#3 Aeration Lagoon). The Report does not include a figure that identifies each aeration lagoon by name. Western must submit a figure that labels the aeration lagoons as described above.

Response 1

A figure labeling the aeration lagoons as described above is provided (**Attachment A**).

Comment 2

In Section 4.1 (Sludge Characterization, Removal, and Disposal), pages 5 and 6, Western describes the sludge removal and disposal process for each Aeration Lagoon (AL). In the response letter, Western must describe how the sludge samples were collected (e.g., shovel, Encore® sampler) and indicate for each AL the volume of sludge removed and transported off-site for recycling or disposal.

Response 2

Samples were collected from the #1 Aeration Lagoon (AL) after water was removed from the lagoon and the sludge was allowed to partially dry. Sludge samples were collected via a shovel by a Western employee who was suspended over the grid sections

of the #1 AL in a JLG Lift (a man-basket). Samples were placed in eight ounce sample jars that were supplied by the analytical laboratory. The samples were sent to Hall Environmental Analytical Laboratory for analysis. Approximately 851,930 pounds of sludge was removed for disposal from the #1 AL during the clean out.

Sludge samples from #2 AL and #3 AL were collected while both lagoons were in service. Western employees used a rowboat to traverse the lagoons and position over each respective sample location. A sludge judge was used to collect each sludge sample from #2 AL and #3 AL. The sludge judge is used similar to that of a well bailer. It is constructed of 3-inch piping approximately 10 feet in length, and equipped with a ball-check valve on one end. At each sample location, the sludge judge (ball check valve end first) was extended down into the sludge to the bottom of the lagoon. As the sludge judge is pulled up, the check ball closes the bottom of the tube. Excess liquid was decanted from the 3-inch sludge tube, and sludge was then placed in a stainless steel bucket. Samples were collected from the bucket and placed in eight ounce sample jars that were supplied by the analytical laboratory. The samples were then properly packaged and sent to Hall Environmental Analytical Laboratory for analysis. The bucket was rinses of sludge using pond water after each sample was collected.

Approximately 2,476,880 pounds of material (including flyash) were removed from the #2 AL during the clean out. Approximately 1,998,780 pounds of material (including flyash) were removed from #3 AL.

Comment 3

In Section 4.1 (Sludge Characterization, Removal, and Disposal), pages 5 and 6, Western states the sludges from the Northwest Aeration Lagoon and the Northeast Aeration Lagoon were "removed via vacuum truck, mixed with fly ash, and transported and disposed of at the San Juan County Landfill in Aztec, New Mexico." In the response letter, Western must discuss if the San Juan County Landfill required chemical analyses for the sludge and any analyses related to the fly ash before acceptance for disposal. Western must provide documentation that demonstrates the landfill accepted the waste and verify that all waste manifests are available for review at the refinery.

Response 3

San Juan County Landfill required chemical analysis for the sludge which was also provided to NMED in the *North and South Aeration Lagoons Closure Certification Report* in Attachment 6.0. Chemical analysis of the flyash was provided to Waste Management (WM) by Clean Harbors. The approved WM profile for the non-hazardous sludge is provided in **Attachment B**. Also provided in **Attachment B**) are copies of e-mail correspondance from Clean Harbors to WM providing the MSDS and analysis of the flyash, and a letter from WM to Clean Harbors confirming that San Juan County Landfill can accept the non-hazardous waste.

All waste manifests from the project are kept on-site and available for review at the refinery.

Comment 4

In Section 4.1 (Sludge Characterization, Removal, and Disposal), page 6, Western states "[o]n October 21, 2008, eight sludge samples were collected in a grid pattern from the Northeast ABT unit (#3 Aeration Lagoon)" and in the following paragraph states "[t]the sludge sample location map is presented in Attachment 5." The sludge location map show and the laboratory results report seven sample locations, not eight as indicated in the text. In the response letter, Western must clarify this discrepancy and submit replacement pages with modified text and revise the sludge location map accordingly.

Response 4

The discrepancy in the text was a typographical error. There were seven samples collected from the #3 Aeration Lagoon. A replacement page for page 6, Section 4.1 is provided (**Attachment C**).

Comment 5

In Section 4.3 (Collection of Soil and Flush Water Samples), page 8, Westerns states "[s]tained soil was discovered underneath the discharge piping from the South ABT unit to the Northwest ABT unit when the piping was replaced. The soil was removed, placed on containment, and sampled. The characterization samples were placed on ice for preservation, and shipped to HEAL for analysis of TCLP Metals (EPA Method 6010B) and Benzene (EPA Method 8260B). Analytical results indicate non-detect on all analyses. The soil was used as backfill. Stained soil was found under the discharge piping from the Northeast ABT unit to the suction of P-606. The soil was removed, placed on containment, and sampled. The characterization samples were placed on ice for preservation, and shipped to HEAL for analysis of TCLP Metals (EPA Method 6010B) and Benzene (EPA Method 8260B). Analytical results indicate non-detect on all analyses. The soil was used as backfill. Laboratory reports are provided in Attachment 6."

Because the stained soil was used as backfill and not disposed of off-site, additional chemical analysis should have been conducted in addition to the toxicity characteristic leaching procedure (TCLP) analytical method for metals and benzene. Even though a sample is not hazardous, it does not mean the sample is not contaminated; before the soil was used as backfill, the soil samples should have been analyzed for diesel range organics (DRO), gasoline range organics (GRO), and volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and total metals. In the future, if soils are considered for reuse on-site, these additional chemical analyses must be conducted and reported to NMED prior to use as backfill. The analytical results must be compared to NMED's Soil Screening Levels in order to determine if the soil can be reused on-site and the location of the soil reuse must be approved by NMED. In the response letter, Western must indicate how much soil was removed and used as backfill and identify where the soil was placed.

Response 5

Approximately one yard of material was removed from each site. In order to replace the discharge piping that extends from the South ABTUT to the Northwest ABTU, the surrounding soil was excavated and placed in a stockpile adjacent. Once the piping was

replaced, the same soil was put back in-place. Similarly, the soil removed from under the discharge piping from the Northeast ABTU to the suction of P-616 was used to backfill the excavation created by replacing the discharge piping from the Northeast ABTU to the suction of P-616.

Comment 6

The Closure Report did not address well development or describe the collection of soil samples during the installation of the monitoring wells. In the response letter, Western must provide a description of the well development process and explain how the soil samples were collected during the installation of the monitoring wells (e.g., new monitoring wells were developed within 10 days of installation and developed by pumping/surging; soil samples placed in four ounce jars provided by the laboratory, no headspace was left in the jar to avoid volatilization of VOCs).

Response 6

Soil samples were collected using a split-spoon sampler. At each selected sample interval, two soil samples were collected for VOC analysis. An Encore® Sampler was used for collection of soil samples for low-level VOC analysis, and the second sample was placed in a laboratory-prepared VOA container with a methanol preservative. The remaining soil sample material was placed in pre-cleaned four ounce glass jars provided by the laboratory for SVOC and metals analysis. The glass jars were filled completely to avoid headspace for potential volatilization.

Field activities associated with the installation of the Group 1 North and South Aeration Lagoon monitoring wells were coordinated with the commencement of the activities associated with Group 3. Therefore, well development of the new monitoring wells near the aeration lagoons commenced during the last week of April 2009, which immediately followed well completion activities associated with the Group 3 monitoring wells. This consolidated schedule was necessary in order to ensure that groundwater samples from all newly constructed wells could be collected no later than five days after completion of well development, as stated in Section VIII.B.2 of the Order.

Each monitoring wells was developed using a combination of mechanical surging and air-lift techniques. The following well development activities were conducted at each new monitoring well prior to groundwater sampling activities.

Using a surge block attached to the end of the drill rod, groundwater was forced to flow in and out of the well screen by the repeated upward and downward motion of the surge block along the entire length of the well screen. The repeated plunging motion drew filter pack fines and loosened sediment into the well casing, improving the water quality within the surrounding formation and filter pack.

Once the well was surged for a minimum of 20-minutes, the surge block was removed and the air-lift apparatus was used to remove the loosened sediment and fines from inside the well casing. Using an air compressor and dedicated 1-inch PVC eductor piping, compressed air was injected into the well. The air flow rate was manually adjusted to produce a continuous flow of water/sediment mixture out of the top of the

well casing via the 1-inch eductor piping. The groundwater/sediment mixture discharged directly into a 55-gallon drum. A glass jar was used to capture a sample of the purge water every 15 minutes to monitor the improving clarity of the purge water. Air lifting ceased once the purge water was relatively clear.

Comment 7

In Section 5.7 (Investigation Derived Waste management), page 18, Western states "[f]ollowing completion of all drilling activities, all soil and sampling fluids were disposed of in compliance with the approved IDW Management Plan. A composite sample of the soil cuttings was collected and sent to Hall Environmental Analytical Laboratories for analysis. The soil cuttings were characterized as non-hazardous and disposed of off-site in accordance with the approved IDW management plan."

a. *It is not clear what "approved IDW Management Plan" Western is referring to. The Closure Plan North and Sough Aeration Lagoons (Closure Plan), dated May 2008, does not have an IDW Management Plan. In the response letter, Western must discuss the IDW Management Plan and what protocols were followed.*

b. *In reference to the composite sample, Western must provide a list of laboratory analyses conducted and include the laboratory results. Western must also describe how the composite sample was collected (e.g., a small amount of soil was collected from five drums and placed in a four ounce jar provided by the laboratory or soil was collected from five drums and homogenized before placement in a sample container). This information must be included in the response letter.*

Response 7

The approved IDW Management Plan mentioned in the North and South Aeration Lagoon Closure Certification Report was intended to reference the same IDW Management Plan that was included in the earlier approved Group 2 Investigation Work Plan, and has since been included in subsequent RCRA Investigation Work Plans. A copy of the IDW Management Plan that was followed during aeration lagoon monitoring well installation activities is provided (**Attachment D**).

Drill cuttings and excess sample material associated with the soil borings were containerized in DOT certified 55-gallon drums, which amounted to a total of approximately five drums of material. A small amount of soil was collected from each of the drums and placed in a Ziplock bag. One composite sample was collected from the Ziplock bag. The soil sample was placed in four ounce jars and sent to the laboratory for waste characterization analysis. The composite sample was analyzed for the following:

- BTEX and MTBE by EPA Method 8021B;
- Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8310;
- TCLP RCRA 8 Metals by EPA Method 6010B; and
- Ignitability, Corrosivity, and Reactivity.

The associated analytical is provided in **Attachment E.** All analytical results for waste characterization purposes were submitted to Waste Management, Inc. for review and approval of acceptance. Soils were disposed of at the Painted Desert Landfill in Joseph City, Arizona. IDW fluid, which includes groundwater purge water, was disposed of through the refinery on-site wastewater treatment system.

If you have questions regarding the above response or would like to discuss the revised Investigation Report, please contact me at (505) 632-4171.

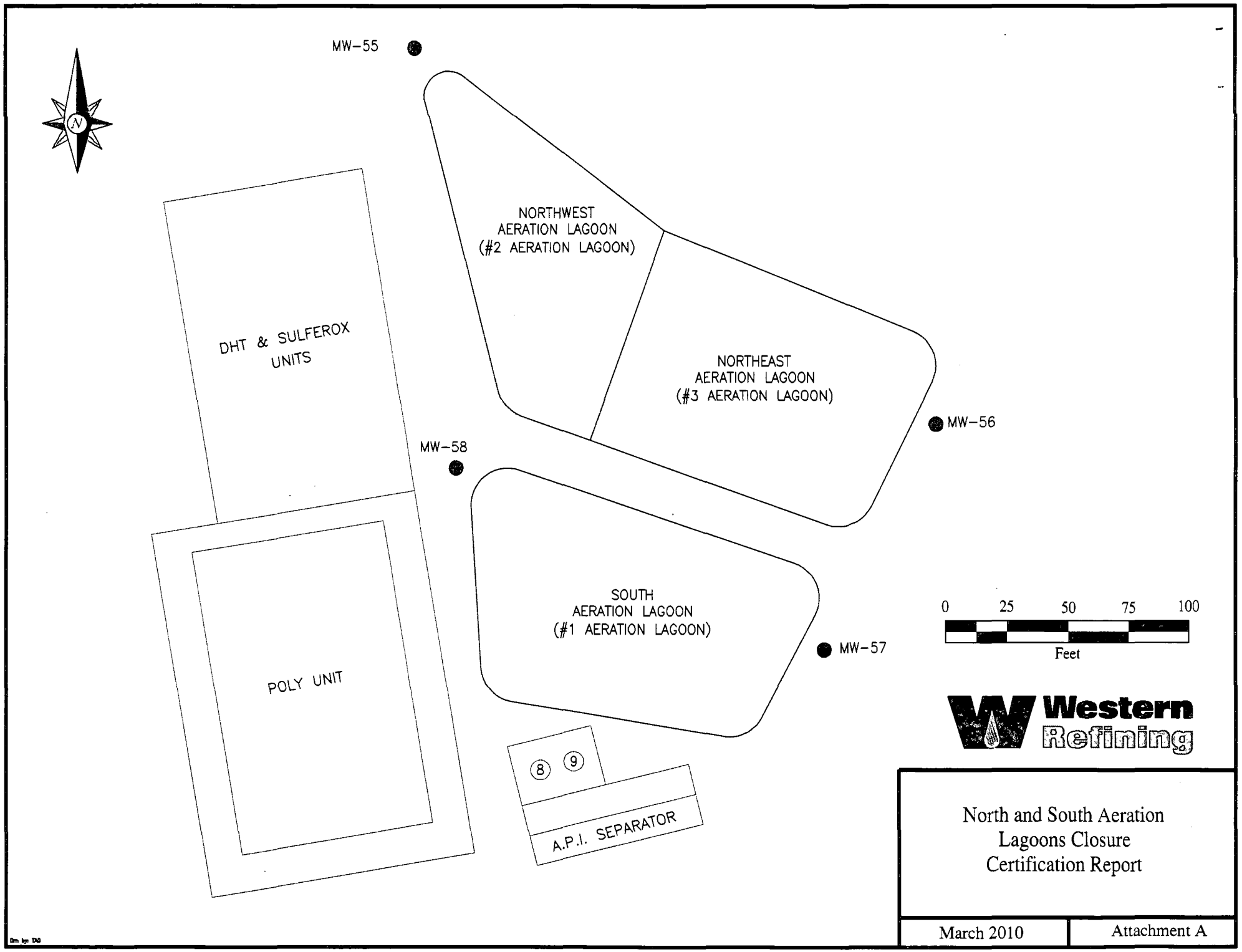
Sincerely,

James R. Schmaltz
Environmental Manager
Western Refining Southwest, Inc., Bloomfield Refinery

cc: Hope Monzeglio – NMED HWB
Dave Cobrain – NMED HWB
John Kieling – NMED HWB
Laurie King – EPA Region 6
Nick Stone – EPA Region 6
Carl Chavez - NMOCD
Allen Hains – Western Refining El Paso

ATTACHMENT A

North and South Aeration Lagoon Map


MW-55
NORTHWEST
AERATION LAGOON
(#2 AERATION LAGOON)
NORTHEAST
AERATION LAGOON
(#3 AERATION LAGOON)
MW-56
DHT & SULFEROX
UNITS
MW-58
POLY UNIT
SOUTH
AERATION LAGOON
(#1 AERATION LAGOON)
MW-57
8
9
A.P.I. SEPARATOR
0
25
50
75
100
Feet
Western
Refining
North and South Aeration
Lagoons Closure
Certification Report
March 2010
Attachment A

ATTACHMENT B

Sludge Characterization and Disposal Documents

WASTE MANAGEMENT
Western Group Industrial Sales Office
7780 East 96th Avenue
Henderson, CO 80640
(800) 963-4776
(866) 365-0175 Fax

November 5, 2008

National Logistics
Clean Harbors Environmental Services
42 Longwater Drive
Norwell, MA 02061
FAX #: 781-792-5930
RE: Waste Approval for Settling pond sludge
Generator: Western Refining Southwest Inc.
WM Profile Number: 100951NM Expiration Date: 02/05/2009

Dear National Logistics:

This letter shall serve as written confirmation that San Juan County has all necessary permits and licenses to accept the waste materials described on the above referenced profile. Limitations on acceptance if any are noted at the base of this letter.

The profile processing approval fees for the above waste stream is [redacted]. The disposal rate is currently [redacted] with a [redacted] minimum. (This pricing does not include any applicable fuel surcharges, environmental fees, state or local fees.)

A Non-Hazardous Waste Manifest must accompany each load. Please be sure to enter your profile number on the Non-Hazardous Waste Manifest. Your account representative is Dan Callaghan. He can be reached at 303-886-9694.

Visit Waste Management's updated web page at WMDisposal.com. We've made profiling your waste easier and more efficient!

Thank you for allowing Waste Management to assist you with your waste disposal needs.

Sincerely,

Michelle Matzke
Waste Management
Technical Service Center

If not otherwise specified herein, no special conditions exist:
✓ PO NUMBER REQUIRED BEFORE WASTE CAN BE ACCEPTED AT LANDFILL.
✓ Please see attached waste acceptance conditions.

INDUSTRIAL WASTE & DISPOSAL SERVICES AGREEMENT

Exhibit A

WM Profile #	100951NM
WM Facility ID	San Juan County

CUSTOMER BILLING ADDRESS	CUSTOMER CONTRACTING ADDRESS (If different from Billing Address)	CUSTOMER SERVICE LOCATION (If different from Billing Address)
Clean Harbors Environmental Services		Western Refining Southwest Inc.
42 Longwater Drive		#50 Road 4990
Norwell, MA		Bloomfield, NM
Contact Phone: (781) 792-5000	Contact Phone:	Contact Phone:

WM Customer Service Phone:	800-963-4776	WM Contact:	Dan Callaghan	WM Contact Phone:	303-886-9694

Service Information				
Generator:	Western Refining Southwest Inc.			
Ground Transporter:				
PO#, SO#, Job #:	REQUIRED PRIOR TO SHIPMENT TO LANDFILL			
Waste Description:	Setting pond sludge			
Disposal Cost:	[redacted]			
Profile Fee:	[redacted]			
Additional Cost: (describe)	Applicable fuel surcharges, environmental fees, state and local taxes.			
Additional Cost: (describe)				
Transportation Fee:	N/A			
Containers provided by WM:	Quantity:	Size:	Quantity:	Size:
	Quantity:	Size:	Quantity:	Size:
	Quantity:	Size:	Quantity:	Size:
Pick-up Frequency:				
Contract Expiration Date:	As per agreement			
Additional Information:	An Industrial Waste Disposal Manifest is Required for all loads.			
Billing Location Code: 351	State Of Origin Code: NM	Waste CAT: ☐DA ☐EW	Waste Type: ☐MD ☐SP ☐ID ☐HZ	

THE WORK CONTEMPLATED BY THIS EXHIBIT A IS TO BE DONE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE INDUSTRIAL SERVICES AGREEMENT OR OTHER CONTRACTUAL AGREEMENT BETWEEN THE PARTIES DATED: _____

COMPANY			CUSTOMER		
By:			By:		
Name: Dan Callaghan		Date	Name:		Date
Title: Industrial Account Manager			Title:		

Generator's Nonhazardous Waste Profile Sheet

National Account Customer

Requested Disposal Facility: San Juan County Landfill Profile Number: 100951NM

☐ Renewal for Profile Number _____ Waste Approval Expiration Date: 02/05/09 Sent 4/05/08

A. Waste Generator Facility Information (must reflect location of waste generation/origin)

1. Generator Name: Western Refining Southwest, Inc. - Bloomfield Refinery
2. Site Address: #50 Road 4990
3. City/ZIP: Bloomfield 87413
4. State: New Mexico
5. County: San Juan
6. Contact Name/Title: Cindy Hurtado Environmental Coordinator
7. Email Address: _____
8. Phone: 505-632-4161 9. FAX: 505-632-3911
10. NAICS Code: _____
11. Generator USEPA ID #: NMD089416416
12. State ID# (if applicable): _____

B. Customer Information ☐ same as above

P.O. Number: _____

1. Customer Name: Clean Harbors Environmental Services
2. Billing Address: 42 Longwater Drive/ P.O. Box 9149
3. City, State and ZIP: Norwell, MA, 02061
4. Contact Name: National Logistics
5. Contact Email: Directships@cleanharbors.com
6. Phone: 781-792-5000 FAX: 781-792-5930
7. Transporter Name: _____
8. Transporter ID # (if appl.): _____
9. Transporter Address: _____
10. City, State and ZIP: _____

C. Waste Stream Information

1. DESCRIPTION
   a. Common Waste Name: Settling Pond Sludge
   State Waste Code(s): NA
   b. Describe Process Generating Waste or Source of Contamination:
   Non-Hazardous Settling Pond Sludge Tested prior to stabilization - Non-hazardous before blending with fly ash per e-mail dated 11/04/08 for additional background
   c. Typical Color(s): Black Sent 4/05/08
   d. Strong Odor? ☐ Yes ☒ No Describe: Mild Odor
   e. Physical State at 70°F: ☐ Solid ☐ Liquid ☐ Powder ☒ Semi-Solid or Sludge ☐ Other: _____
   f. Layers? ☒ Single Layer ☐ Multi-layer ☐ NA
   g. Water Reactive? ☐ Yes ☒ No If Yes, Describe: _____
   h. Free Liquid Range (%): _____ to _____ ☒ NA(solid)
   i. pH Range: ☐ ≤2 ☐ 2.1-12.4 ☐ ≥12.5 ☒ NA(solid) ☐ Actual: _____
   j. Liquid Flash Point: ☐ < 140°F ☐ ≥ 140°F ☒ NA(solid) ☐ Actual: _____
   k. Flammable Solid: ☐ Yes ☒ No
   l. Physical Constituents: List all constituents of waste stream - (e.g. Soil 0-80%, Wood 0-20%): ☐ (See Attached)

Constituents (Total Composition Must be = 100%)	Lower Range	Unit of Measure	Upper Range	Unit of Measure
1. Settling Pond Sludge	40%		50%	
2. Fly Ash	50%		60%	
3.				
4.				
5.				
6.				

2. ESTIMATED QUANTITY OF WASTE AND SHIPPING INFORMATION
   a. ☒ One Time Event ☐ Base ☐ Repeat Event
   b. Estimated Annual Quantity: 1400 ☐ Tons ☒ Cubic Yards ☐ Drums ☐ Gallons ☐ Other (specify): _____
   c. Shipping Frequency: _____ units per ☐ Month ☐ Quarter ☐ Year ☒ One Time ☐ Other
   d. Is this a U.S. Department of Transportation (USDOT) Hazardous Material? (If yes, answer e.) ☐ Yes ☒ No
   e. USDOT Shipping Description (if applicable): _____
3. SAFETY REQUIREMENTS (Handling, PPE, etc.): N/A

WM

Generator's Nonhazardous Waste Profile Sheet

100951NM

D. Regulatory Status (Please check appropriate responses)

1. Is this a USEPA (40 CFR Part 261)/State hazardous waste? If yes, contact your sales representative. ☐ Yes ☒ No
2. Is this waste included in one or more of categories below (Check all that apply)? If yes, attach supporting documentation. ☐ Yes ☒ No
   - ☐ Delisted Hazardous Waste
   - ☒ Excluded Wastes Under 40 CFR 261.4 Flyash is exempt per attachment dated 11/04/08
   - ☐ Treated Hazardous Waste Debris
   - ☐ Treated Characteristic Hazardous Waste
3. Is the waste from a Federal (40 CFR 300, Appendix B) or state mandated clean-up? If yes, see instructions. ☐ Yes ☐ No
4. Does the waste represented by this waste profile sheet contain radioactive material? ☐ Yes ☒ No
   - a. If yes, is disposal regulated by the Nuclear Regulatory Commission? ☐ Yes ☐ No
   - b. If yes, is disposal regulated by a State Agency for radioactive waste/NORM? ☐ Yes ☐ No
5. Does the waste represented by this waste profile sheet contain concentrations of regulated Polychlorinated Biphenyls (PCBs)? ☐ Yes ☒ No
   - a. If yes, is disposal regulated under TSCA? ☐ Yes ☐ No
6. Does the waste contain untreated, regulated, medical or infectious waste? ☐ Yes ☒ No
7. Does the waste contain asbestos? ☐ Yes ☒ No If Yes, ☐ Friable ☐ Non-Friable
8. Is this profile for remediation waste from a facility that is a major source of Hazardous Air Pollutants (Site Remediation NESHAP, 40 CFR 63 subpart GGGGG)? ☐ Yes ☒ No
   If yes, does the waste contain <500 ppmw VOHAPs at the point of determination? ☐ Yes ☐ No

(margin: [initials] 11/05/08)

E. Generator Certification (Please read and certify by signature below)

By signing this Generator's Waste Profile Sheet, I hereby certify that all:

1. Information submitted in this profile and all attached documents contain true and accurate descriptions of the waste material;
2. Relevant information within the possession of the Generator regarding known or suspected hazards pertaining to this waste has been disclosed to WM/the Contractor;
3. Analytical data attached pertaining to the profiled waste was derived from testing a representative sample in accordance with 40 CFR 261.20(c) or equivalent rules; and
4. Changes that occur in the character of the waste (i.e. changes in the process or new analytical) will be identified by the Generator and disclosed to WM (and the Contractor if applicable) prior to providing the waste to WM (and the Contractor if applicable).
5. Check all that apply:
   - ☒ Attached analytical pertains to the waste. Identify laboratory & sample ID #'s and parameters tested: Hall Environmental Analysis Laboratory, ID# 2AL-1 through #2AL-20; RCI, TCLP-8270, TCLP-8260, TCLP-RCRA 8 metals (④ Schedule [initials] 11/05/08) # Pages: 61
   - ☐ Only the analyses identified on the attachment pertain to the waste (identify by laboratory & sample ID #'s and parameters tested). Attachment #: ______
   - ☒ Additional information necessary to characterize the profiled waste has been attached (other than analytical). Indicate the number of attached pages: MSDS - Class F Flyash, Salt River Materials Group 4 pgs [initials] 11/05/08
   - ☐ I am an agent signing on behalf of the Generator, and the delegation of authority to me from the Generator for this signature is available upon request.
   - ☐ By Generator process knowledge, the following waste is not a listed waste and is below all TCLP regulatory limits.

Certification Signature: Cindy Hurtado Title: Environmental Coordinator

Company Name: Western Refining - Bloomfield Refinery Name (Print): Cindy Hurtado

Date: ______

FOR WM USE ONLY

Management Method: ☒ Landfill ☐ Bioremediation ☐ Non hazardous solidification ☐ Other: ______

Approval Decision: ☒ Approved ☐ Not Approved

Waste Approval Expiration Date: 02/05/09

Management Facility Precautions, Special Handling Procedures or Limitation on approval: please see attached

- ☐ Shall not contain free liquid
- ☐ Shipment must be scheduled into disposal facility
- ☐ Approval Number must accompany each shipment
- ☐ Waste Manifest must accompany load

WM Authorization Name / Title: [signature] Date: 11/05/08

State Authorization (If Required): ______ Date: ______

④ also provided: TCLP metals for Flyash (Resource Materials Testing, Inc., Rpt 3164, 03/31/05)
also provided: work hygiene practices for flyash. [initials] 11/05/08

WASTE MANAGEMENT

INDUSTRIAL WASTE
Waste Acceptance Conditions

DATE: 11/05/08

GENERATOR: Western Refining Southwest, Inc. - Bloomfield Refinery

WM WASTE CODE/PROFILE# 100951NM EXPIRATION DATE: 02/05/09

Precautions, Conditions, and Limitations on Approval

Generator Requirements

- ✓ Waste Management must be informed if the waste characteristics or process change. Changes to be approved on a case-by-case basis.
- ✓ Generator or its authorized agent has certified that no hazardous waste codes, PCBs, asbestos containing materials, or other prohibited wastes are associated with this waste stream.
- ✓ Waste must be absent free liquids.
- ✓ This waste is a New Mexico Special Waste (industrial solid waste). The following additional requirements apply:
  - A manifest must accompany all loads of special waste in accordance with NMAC 20.9.8.19
  - All drums or containers must be clearly labeled or marked indicating the name and address of the Generator contents, potential health, safety, and environmental hazards associated with the waste (NMAC 20.9.8.10(d)).
- ✓ Contact Waste Management to schedule waste for disposal at least 24 hours prior to shipping.
  - San Juan Landfill: 505.334.1121

Waste Management Handling Conditions

- ✓ Direct bury. Material must be covered immediately. Cover with refuse or soil prior to compaction. Do not generate dust.
- ✓ **Specific health and safety concerns associated with this material:** Avoid all contact. Follow general H&S procedures including good hygiene if come in contact with waste material.
- ✓ Required PPE is indicated below:
  - ☐ Respirator and filters/cartridges:
  - ☒ Chemical resistant gloves:
  - ☐ Standard Work Uniform
  - ☐ Tyvek Suit
  - ☒ Full sideshield safety glasses, or
  - ☒ Chemical goggles:
  - ☐ Other PPE depending on conditions of management and disposal
- ✓ Ensure eyewash station is functional.

C:\Special Waste\bulk solid-MSW landfills-NM SW.doc

Generator's Nonhazardous Waste Profile Sheet

National Account Customer

Requested Disposal Facility: San Juan County Landfill Profile Number: 100951NM

☐ Renewal for Profile Number: _____ Waste Approval Expiration Date: 02/05/09 SEA 11/05/08

A. Waste Generator Facility Information (must reflect location of waste generation/origin)

1. Generator Name: Western Refining Southwest, Inc. - Bloom field Refinery
2. Site Address: #50 Road 4990
3. City/ZIP: Bloomfield 87413
4. State: New Mexico
5. County: San Juan
6. Contact Name/Title: Cindy Hurtado Environmental Coordinator
7. Email Address: _____
8. Phone: 505-632-4161 9. FAX: 505-632-3911
10. NAICS Code: _____
11. Generator USEPA ID #: NMD089416416
12. State ID# (if applicable): _____

NOV 0 6 2008 Rv

B. Customer Information ☐ same as above

P. O. Number: _____

1. Customer Name: Clean Harbors Environmental Services,
2. Billing Address: 42 Longwater Drive/ P.O. Box 9149
3. City, State and ZIP: Norwell, MA, 02061
4. Contact Name: National Logistics
5. Contact Email: Directships@cleanharbors.com
6. Phone: 781-792-5000 FAX: 781-792-5930
7. Transporter Name: _____
8. Transporter ID # (if appl.): _____
9. Transporter Address: _____
10. City, State and ZIP: _____

C. Waste Stream Information

1. DESCRIPTION
   a. Common Waste Name: Settling Pond Sludge
   State Waste Code(s): NA
   b. Describe Process Generating Waste or Source of Contamination:
   Non-Hazardous Settling Pond Sludge Tested prior to stabilization - Non-Hazardous before blending with Fly Ash
   please see attached email dated 11/04/08 for additional background
   c. Typical Color(s): Black
   d. Strong Odor? ☐ Yes ☒ No Describe: Mild Odor SEA 11/05/08
   e. Physical State at 70°F: ☐ Solid ☐ Liquid ☐ Powder ☑ Semi-Solid or Sludge ☐ Other: _____
   f. Layers? ☑ Single layer ☐ Multi- layer ☐ NA
   g. Water Reactive? ☐ Yes ☑ No If Yes, Describe: _____
   h. Free Liquid Range (%): _____ to _____ ☑ NA(solid)
   i. pH Range: ☐ ≤2 ☐ 2.1-12.4 ☐ ≥12.5 ☑ NA(solid) ☐ Actual: _____
   j. Liquid Flash Point: ☐ < 140°F ☐ ≥ 140°F ☑ NA(solid) ☐ Actual: _____
   k. Flammable Solid: ☐ Yes ☑ No
   l. Physical Constituents: List all constituents of waste stream - (e.g. Soil 0-80%, Wood 0-20%): ☐ (See Attached)

Constituents (Total Composition Must be = 100%)	Lower Range	Unit of Measure	Upper Range	Unit of Measure
1. Settling Pond Sludge	40%		50%	
2. Fly Ash	40%		60%	
3.				
4.				
5.				
6.				

2. ESTIMATED QUANTITY OF WASTE AND SHIPPING INFORMATION
   a. ☒ One Time Event ☐ Base ☐ Repeat Event
   b. Estimated Annual Quantity: 600 ☐ Tons ☒ Cubic Yards ☐ Drums ☐ Gallons ☐ Other (specify): _____
   c. Shipping Frequency: _____ Units per ☐ Month ☐ Quarter ☐ Year ☒ One Time ☐ Other
   d. Is this a U.S. Department of Transportation (USDOT) Hazardous Material? (If yes, answer e.) ☐ Yes ☒ No
   e. USDOT Shipping Description (if applicable): _____
3. SAFETY REQUIREMENTS (Handling, PPE, etc.): N/A

Generator's Nonhazardous Waste Profile Sheet

NOV 05 2008
100951NM

D. Regulatory Status (Please check appropriate responses)

1. Is this a USEPA (40 CFR Part 261)/State hazardous waste? If yes, contact your sales representative. ☐ Yes ☒ No
2. Is this waste included in one or more of categories below (Check all that apply)? If yes, attach supporting documentation. ☐ Yes ☒ No
   - ☐ Delisted Hazardous Waste
   - ☒ Excluded Wastes Under 40 CFR 261.4 Flyash is exempt per attached email dated 11/04/08
   - ☐ Treated Hazardous Waste Debris
   - ☐ Treated Characteristic Hazardous Waste
3. Is the waste from a Federal (40 CFR 300, Appendix B) or state mandated clean-up? If yes, see instructions. ☐ Yes ☐ No
4. Does the waste represented by this waste profile sheet contain radioactive material? ☐ Yes ☒ No
   a. If yes, is disposal regulated by the Nuclear Regulatory Commission? ☐ Yes ☐ No
   b. If yes, is disposal regulated by a State Agency for radioactive waste/NORM? ☐ Yes ☐ No
5. Does the waste represented by this waste profile sheet contain concentrations of regulated Polychlorinated Biphenyls (PCBs)? ☐ Yes ☒ No
   a. If yes, is disposal regulated under TSCA? ☐ Yes ☐ No
6. Does the waste contain untreated, regulated, medical or infectious waste? ☐ Yes ☒ No
7. Does the waste contain asbestos? ☐ Yes ☒ No If Yes, ☐ Friable ☐ Non Friable
8. Is this profile for remediation waste from a facility that is a major source of Hazardous Air Pollutants (Site Remediation NESHAP, 40 CFR 63 subpart GGGGG)? ☐ Yes ☒ No
   If yes, does the waste contain <500 ppmw VOHAPs at the point of determination? ☐ Yes ☐ No

Sent 11/05/08

E. Generator Certification (Please read and certify by signature below)

By signing this Generator's Waste Profile Sheet, I hereby certify that all:

1. Information submitted in this profile and all attached documents contain true and accurate descriptions of the waste material;
2. Relevant information within the possession of the Generator regarding known or suspected hazards pertaining to this waste has been disclosed to WM/the Contractor;
3. Analytical data attached pertaining to the profiled waste was derived from testing a representative sample in accordance with 40 CFR 261.20(c) or equivalent rules; and
4. Changes that occur in the character of the waste (i.e. changes in the process or new analytical) will be identified by the Generator and disclosed to WM (and the Contractor if applicable) prior to providing the waste to WM (and the Contractor if applicable).
5. Check all that apply:
   - ☒ Attached analytical pertains to the waste. Identify laboratory & sample ID #'s and parameters tested: RCI Hall Environmental Analysis Laboratory; ID #2AL-1 through #2AL-20; TCLP-8270, TCLP-8260, ~~TCLP-RCRA 8 metals~~ # Pages: 61 (*) See below SBA 11/05/08
   - ☐ Only the analyses identified on the attachment pertain to the waste (identify by laboratory & sample ID #'s and parameters tested). Attachment #: _____
   - ☒ Additional information necessary to characterize the profiled waste has been attached (other than analytical). Indicate the number of attached pages: MSDS - Class F Flyash, Salt River Materials Group 4 pgs Sent 11/05/08
   - ☐ I am an agent signing on behalf of the Generator, and the delegation of authority to me from the Generator for this signature is available upon request.
   - ☐ By Generator process knowledge, the following waste is not a listed waste and is below all TCLP regulatory limits.

Certification Signature: Cindy Hurtado **Title:** Environmental Coordinator

Company Name: Western Refining - Bloomfield Refinery **Name (Print):** Cindy Hurtado

Date: _____

FOR WM USE ONLY

Management Method: ☒ Landfill ☐ Bioremediation ☐ Non-hazardous solidification ☐ Other: _____

Approval Decision: ☒ Approved ☐ Not Approved

Waste Approval Expiration Date: 02/05/09

Management Facility Precautions, Special Handling Procedures or Limitation on approval: please see attached

- ☐ Shall not contain free liquid
- ☐ Shipment must be scheduled into disposal facility
- ☐ Approval Number must accompany each shipment
- ☐ Waste Manifest must accompany load

WM Authorization Name / Title: Stacy E Anderson **Date:** 11/05/08

State Authorization (if Required): _____ **Date:** _____

(*) also provided: TCLP metals for flyash (Resource Materials Testing Inc, RMT-364, 03/30/07 also provided: work hygiene practices for flyash. SBA 11/05/08

WASTE MANAGEMENT

INDUSTRIAL WASTE
Waste Acceptance Conditions

NOV 05 2008
by

DATE: 11/05/08

GENERATOR: Western Refining Southwest, Inc. - Bloomfield Refinery

WM WASTE CODE/PROFILE# 100951NM 11/05/08 **EXPIRATION DATE:** 02/05/09

Precautions, Conditions, and Limitations on Approval

Generator Requirements

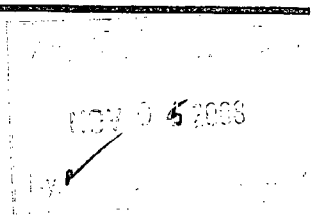
- ✓ Waste Management must be informed if the waste characteristics or process change. Changes to be approved on a case-by-case basis.
- ✓ Generator or its authorized agent has certified that no hazardous waste codes, PCBs, asbestos containing materials, or other prohibited wastes are associated with this waste stream.
- ✓ Waste must be absent free liquids.
- ✓ This waste is a New Mexico Special Waste (industrial solid waste). The following additional requirements apply:
  - A manifest must accompany all loads of special waste in accordance with NMAC 20.9.8.19.
  - All drums or containers must be clearly labeled or marked indicating the name and address of the Generator, contents, potential health, safety, and environmental hazards associated with the waste (NMAC 20.9.8.10(d)).
- ✓ Contact Waste Management to schedule waste for disposal at least 24 hours prior to shipping.
  - **San Juan Landfill: 505.334.1121**

Waste Management Handling Conditions

- ✓ Direct bury. Material must be covered immediately. Cover with refuse or soil prior to compaction. Do not generate dust.
- ✓ **Specific health and safety concerns associated with this material:** Avoid all contact. Follow general H&S procedures including good hygiene if come in contact with waste material.
- ✓ Required PPE is indicated below:
  - ☐ Respirator and filters/cartridges:
  - ☒ Chemical resistant gloves:
  - ☐ Standard Work Uniform
  - ☐ Tyvek Suit
  - ☒ Full sideshield safety glasses, or
  - ☒ Chemical goggles;
  - ☐ Other PPE depending on conditions of management and disposal:
- ✓ Ensure eyewash station is functional.

Anderson, Stacy-E

From: Matzke, Michelle
Sent: Tuesday, November 04, 2008 7:58 AM
To: Anderson, Stacy-E
Subject: 100951NM - Western Refining



Fly-Ash Analytical.pdf SRMG - Fly Ash.pdf SRMG - Fly Ash - p5.pdf

-----Original Message-----
From: Tessier, Kevin M [mailto:tessier.kevin@cleanharbors.com]
Sent: Tuesday, November 04, 2008 6:04 AM
To: Callaghan, Dan
Cc: Matzke, Michelle
Subject: RE: Western Refinery Sludge

Attached is the MSDS and Analytical for the bottom ash solidification material.

- A sample of the fly-ash and pond 2 liquid (representative of the impending materials) was hand-delivered this morning by our onsite crew.

1. See attached MSDS. Yes it is exempt. Yes, make change.
2. Settling pond from refinery process
3. Required cleaning due to build-up of solids and mud

Let me know if we've got enough here for approval. If so, any way you could get this approved as quickly as possible would be great. Customer is very anxious for approval.

Thanks!
Kevin

-----Original Message-----
From: Callaghan, Dan [mailto:DCallagh@wm.com]
Sent: Monday, November 03, 2008 5:22 PM
To: Tessier, Kevin M
Cc: Matzke, Michelle
Subject: Western Refinery Sludge

Kevin,

My approvals manager has sent back a few questions regarding Western Refinery's settling pond sludge. Could you please respond at your earliest convenience?

1) Can you tell me where the flyash came from? Is the flyash exempt under RCRA (see 40 CFR 261.4(b)(4))? The exemption reads as follows:
"The following solid wastes are not hazardous wastes..... Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste, generated primarily from the combustion of coal or other fossil fuels, except as provided by 266.112 of this chapter for facilities that burn or process hazardous waste."
If exempt, please email authorization to make this change on the profile (Section D.2)
If not exempt, do they have metals analytical for the ash itself?

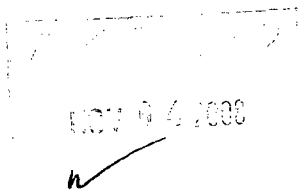
2. Where did the material in the settling pond come from?

3. Why cleaning out the settling pond?

Thank you Kevin, please let me know if you have any questions.

Sincerely,

Dan Callaghan
Industrial Account Manager
Waste Management
7780 E 96th Avenue
Henderson, CO 80640
303-886-9694



ATTACHMENT C

North and South Aeration Lagoon Closure Certification Report

(Replacement Page)

shipped to HEAL for analysis of hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. Analytical results indicate that the sludge did not exhibit any hazardous characteristics. The sludge load from the Northwest ABT unit was removed via vacuum truck, mixed with fly ash, transported and disposed of at the San Juan County Landfill in Aztec, New Mexico.

On October 21, 2008, seven sludge samples were collected in a grid pattern from the Northeast ABT unit (#3 Aeration Lagoon). The sludge samples were placed on ice for preservation and shipped to HEAL for analysis of hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. Analytical results indicate that the sludge did not exhibit any hazardous characteristics. The sludge load from the Northeast ABT unit was removed via vacuum truck, mixed with fly ash, transported and disposed of at the San Juan County Landfill in Aztec, New Mexico.

The sludge sample location map is presented in Attachment 5. Laboratory reports are provided in Attachment 6.

4.2 Site Inspection and Repair

After sludge removal, the entire top liner was power washed with water. The liner/residue wash water was collected via vacuum truck and off-loaded into the API Separator. The South ABT unit was physically inspected in November 2008 by an independent engineer licensed in the State of New Mexico during closure activities. A crack in the plastic weld was discovered at the crossover piping between #1 and #2 Aeration Lagoon. During the investigation process, personnel discovered damage to the boot on the second liner and serious pitting and corrosion on the piping that discharges from the South ABT unit into the Northwest ABT unit. Both sections of discharge piping from the South ABT unit into the Northwest and Northeast ABT units were replaced. After the piping was replaced, the liner was repaired inside the South ABT unit and inspected again. There was no accumulation of fluids in the underlying collection system beneath the 60-ml liner to indicate damage to the secondary liner. The South ABT unit was put back in service by November 18, 2008.

The Northwest ABT unit's top liner was wash power washed with water after sludge removal. The liner/residue wash water was collected via vacuum truck and off-loaded into the API Separator. The liner surrounding the new inlet pipe from the South ABT Unit was repaired. Inspection of the liner showed small scrapes and gouges that did not penetrate the liner. A

ATTACHMENT D

IDW Management Plan

IDW Management Plan

All IDW will be properly characterized and disposed of in accordance with all federal, State, and local rules and regulations for storage, labeling, handling, transport, and disposal of waste. The IDW may be characterized for disposal based on the known or suspected contaminants potentially present in the waste. It is assumed that there are no listed wastes present in environmental media at any of the planned investigation areas.

A dedicated decontamination area will be setup prior to any sample collection activities. The decontamination pad will be constructed so as to capture and contain all decontamination fluids (e.g., wash water and rinse water) and foreign materials washed off the sampling equipment. The fluids will be pumped directly into suitable storage containers (e.g., labeled 55-gallon drums), which will be located at satellite accumulation areas until the fluids are disposed in the refinery wastewater treatment system upstream of the API separator. The solids captured in the decontamination pad will be shoveled into 55-gallon drums and stored at the designated satellite accumulation area pending proper waste characterization for off-site disposal.

Drill cuttings generated during installation of soil borings and monitoring wells will be placed directly into 55-gallon drums and staged in the satellite accumulation area pending results of the waste characterization sampling. The portion of soil cores, which are not retained for analytical testing, will be placed into the same 55-gallon drums used to store the associated drill cuttings.

The solids (e.g., drill cuttings and used soil cores) will be characterized by testing to determine if there are any hazardous characteristics in accordance with 40 Code of Federal Regulations (CFR) Part 261. This includes tests for ignitability, corrosivity, reactivity, and toxicity. If the materials are not characteristically hazardous, then further testing will be performed pursuant to the requirements of the facility to which the materials will be transported. Depending upon the results of analyses for individual investigation soil samples, additional analyses may TPH and polynuclear aromatic hydrocarbons.

Purge water generated during groundwater sampling activities will be containerized in 55-gallons drums and then disposed in the refinery wastewater treatment system upstream of the API separator. All miscellaneous waste materials (e.g., discarded gloves, packing materials, etc.) will be placed into the refinery's solid waste storage containers for off-site disposal.

ATTACHMENT E

IDW Soil Cuttings Analytical

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, July 28, 2009

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413

TEL: (602) 908-6617
FAX (505) 632-3911

RE: RCRA Investigation-Group 1

Order No.: 0907367

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 7/21/2009 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Jul-09*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	IM No. 1- IDW
Lab Order:	0907367	**Collection Date:**	7/20/2009 11:10:00 AM
Project:	RCRA Investigation-Group 1	**Date Received:**	7/21/2009
Lab ID:	0907367-01	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	7/22/2009 5:19:58 PM
Benzene	ND	0.050		mg/Kg	1	7/22/2009 5:19:58 PM
Toluene	ND	0.050		mg/Kg	1	7/22/2009 5:19:58 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/22/2009 5:19:58 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/22/2009 5:19:58 PM
Surr: 4-Bromofluorobenzene	89.0	66.8-139		%REC	1	7/22/2009 5:19:58 PM
EPA METHOD 8310: PAHS						Analyst: **JMP**
Naphthalene	ND	0.25		mg/Kg	1	7/27/2009 8:44:14 PM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	7/27/2009 8:44:14 PM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	7/27/2009 8:44:14 PM
Acenaphthylene	ND	0.25		mg/Kg	1	7/27/2009 8:44:14 PM
Acenaphthene	ND	0.25		mg/Kg	1	7/27/2009 8:44:14 PM
Fluorene	ND	0.030		mg/Kg	1	7/27/2009 8:44:14 PM
Phenanthrene	ND	0.015		mg/Kg	1	7/27/2009 8:44:14 PM
Anthracene	ND	0.015		mg/Kg	1	7/27/2009 8:44:14 PM
Fluoranthene	ND	0.020		mg/Kg	1	7/27/2009 8:44:14 PM
Pyrene	ND	0.025		mg/Kg	1	7/27/2009 8:44:14 PM
Benz(a)anthracene	ND	0.010		mg/Kg	1	7/27/2009 8:44:14 PM
Chrysene	ND	0.011		mg/Kg	1	7/27/2009 8:44:14 PM
Benzo(b)fluoranthene	ND	0.010		mg/Kg	1	7/27/2009 8:44:14 PM
Benzo(k)fluoranthene	ND	0.010		mg/Kg	1	7/27/2009 8:44:14 PM
Benzo(a)pyrene	ND	0.010		mg/Kg	1	7/27/2009 8:44:14 PM
Dibenz(a,h)anthracene	ND	0.010		mg/Kg	1	7/27/2009 8:44:14 PM
Benzo(g,h,i)perylene	ND	0.010		mg/Kg	1	7/27/2009 8:44:14 PM
Indeno(1,2,3-cd)pyrene	ND	0.10		mg/Kg	1	7/27/2009 8:44:14 PM
Surr: Benzo(e)pyrene	106	31.5-75.9	S	%REC	1	7/27/2009 8:44:14 PM
MERCURY, TCLP						Analyst: **SNV**
Mercury	ND	0.020		mg/L	1	7/24/2009 2:11:47 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **TES**
Arsenic	ND	5.0		mg/L	1	7/24/2009 11:25:52 AM
Barium	ND	100		mg/L	1	7/24/2009 11:25:52 AM
Cadmium	ND	1.0		mg/L	1	7/24/2009 11:25:52 AM
Chromium	ND	5.0		mg/L	1	7/24/2009 11:25:52 AM
Lead	ND	5.0		mg/L	1	7/24/2009 11:25:52 AM
Selenium	ND	1.0		mg/L	1	7/24/2009 11:25:52 AM
Silver	ND	5.0		mg/L	1	7/24/2009 11:25:52 AM

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Estimated value	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * ell@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: 0907367
Lab ID: B09071973-001
Client Sample ID: 0907367-01C, IM No. 1-IDW

Report Date: 07/24/09
Collection Date: 07/20/09 11:10
DateReceived: 07/22/09
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
IGNITABILITY							
Flash Point (Ignitability)	>200	°F		30.0		SW1010M	07/23/09 15:00 / clr
CORROSIVITY							
pH of Soil and Waste	7.97	s.u.		0.10		SW9045D	07/23/09 00:00 / clr
REACTIVITY							
Cyanide, Reactive	ND	mg/kg		0.05	250	SW846 Ch 7	07/23/09 10:31 / kjp
Sulfide, Reactive	ND	mg/kg		20	500	SW846 Ch 7	07/22/09 13:00 / pwc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. • P.O. Box 30916 • 1120 South 27th Street • Billings, MT 59107-0916
Toll Free 800.735.4489 • 406.252.6325 • Fax 406.252.6069 • eli@energylab.com • www.energylab.com

QA/QC Summary Report

Client: Hall Environmental
Project: 0907367

Report Date: 07/24/09
Work Order: B09071973

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW846 Ch 7									**Batch: 40262**
Sample ID: MB-40262	Method Blank				Run: AUTOAN201-B_090723A				07/23/09 10:32
Cyanide, Reactive	ND	mg/kg	0.05						
Method: SW846 Ch 7									**Batch: R133143**
Sample ID: MB-R133143	Method Blank				Run: MISC-HZW_090722A				07/22/09 13:00
Sulfide, Reactive	ND	mg/kg	10						
Sample ID: LCS-R133143	Laboratory Control Sample				Run: MISC-HZW_090722A				07/22/09 13:00
Sulfide, Reactive	22	mg/kg	20	76	50	150			
Sample ID: B09071471-003CDUP	Sample Duplicate				Run: MISC-HZW_090722A				07/22/09 13:00
Sulfide, Reactive	40	mg/kg	20				40	20	R
Method: SW9045D									**Batch: R133202**
Sample ID: B09071972-001ADUP	Sample Duplicate				Run: PH METER_090723A				07/23/09 00:00
pH of Soil and Waste	8.28	s.u.	0.10				0.4	10	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: RCRA Investigation-Group 1 **Work Order:** 0907367

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 0907367-01A MSD		*MSD*			Batch ID:	**19668**	Analysis Date:		7/22/2009 7:21:35 PM
Methyl tert-butyl ether (MTBE)	0.9971	mg/Kg	0.10	99.7	67.9	135	2.78	28	
Benzene	0.9790	mg/Kg	0.050	97.2	78.8	132	0.338	27	
Toluene	0.9994	mg/Kg	0.050	96.4	78.9	112	2.50	19	
Ethylbenzene	1.039	mg/Kg	0.050	104	69.3	125	3.77	10	
Xylenes, Total	3.065	mg/Kg	0.10	102	73	128	5.66	13	
Sample ID: MB-19668		*MBLK*			Batch ID:	**19668**	Analysis Date:		7/22/2009 8:22:31 PM
Methyl tert-butyl ether (MTBE)	ND	mg/Kg	0.10						
Benzene	ND	mg/Kg	0.050						
Toluene	ND	mg/Kg	0.050						
Ethylbenzene	ND	mg/Kg	0.050						
Xylenes, Total	ND	mg/Kg	0.10						
Sample ID: LCS-19668		*LCS*			Batch ID:	**19668**	Analysis Date:		7/22/2009 7:51:58 PM
Methyl tert-butyl ether (MTBE)	1.009	mg/Kg	0.10	100	67.9	135			
Benzene	0.9934	mg/Kg	0.050	97.4	78.8	132			
Toluene	1.025	mg/Kg	0.050	101	78.9	112			
Ethylbenzene	1.070	mg/Kg	0.050	107	69.3	125			
Xylenes, Total	3.165	mg/Kg	0.10	106	73	128			
Sample ID: 0907367-01A MS		*MS*			Batch ID:	**19668**	Analysis Date:		7/22/2009 6:51:20 PM
Methyl tert-butyl ether (MTBE)	0.9698	mg/Kg	0.10	97.0	67.9	135			
Benzene	0.9757	mg/Kg	0.050	96.9	78.8	132			
Toluene	1.025	mg/Kg	0.050	98.9	78.9	112			
Ethylbenzene	1.079	mg/Kg	0.050	108	69.3	125			
Xylenes, Total	3.243	mg/Kg	0.10	108	73	128			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: RCRA Investigation-Group 1 **Work Order:** 0907367

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8310: PAHs									
Sample ID: MB-19682		*MBLK*			Batch ID: **19682**		Analysis Date:	7/27/2009 6:22:57 PM	
Naphthalene	ND	mg/Kg	0.25						
1-Methylnaphthalene	ND	mg/Kg	0.25						
2-Methylnaphthalene	ND	mg/Kg	0.25						
Acenaphthylene	ND	mg/Kg	0.25						
Acenaphthene	ND	mg/Kg	0.25						
Fluorene	ND	mg/Kg	0.030						
Phenanthrene	ND	mg/Kg	0.015						
Anthracene	ND	mg/Kg	0.015						
Fluoranthene	ND	mg/Kg	0.020						
Pyrene	ND	mg/Kg	0.025						
Benz(a)anthracene	ND	mg/Kg	0.010						
Chrysene	ND	mg/Kg	0.011						
Benzo(b)fluoranthene	ND	mg/Kg	0.010						
Benzo(k)fluoranthene	ND	mg/Kg	0.010						
Benzo(a)pyrene	ND	mg/Kg	0.010						
Dibenz(a,h)anthracene	ND	mg/Kg	0.010						
Benzo(g,h,i)perylene	ND	mg/Kg	0.010						
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	0.10						
Sample ID: LCS-19682		*LCS*			Batch ID: **19682**		Analysis Date:	7/27/2009 6:43:09 PM	
Naphthalene	1.328	mg/Kg	0.25	66.4	35.4	86.1			
1-Methylnaphthalene	1.401	mg/Kg	0.25	70.0	38.4	90.1			
2-Methylnaphthalene	1.336	mg/Kg	0.25	66.8	36.2	91.9			
Acenaphthylene	1.505	mg/Kg	0.25	75.3	39.6	88.1			
Acenaphthene	1.419	mg/Kg	0.25	70.9	38.8	91.6			
Fluorene	0.1160	mg/Kg	0.030	58.0	19.9	102			
Phenanthrene	0.06675	mg/Kg	0.015	66.4	26.2	103			
Anthracene	0.07200	mg/Kg	0.015	71.6	31	95.3			
Fluoranthene	0.1535	mg/Kg	0.020	76.5	37.2	90.5			
Pyrene	0.1243	mg/Kg	0.025	62.1	29.2	92.4			
Benz(a)anthracene	0.01425	mg/Kg	0.010	71.3	34.6	97.5			
Chrysene	0.07125	mg/Kg	0.011	70.8	35.6	94.3			
Benzo(b)fluoranthene	0.02075	mg/Kg	0.010	83.0	29.9	97.4			
Benzo(k)fluoranthene	ND	mg/Kg	0.010	78.0	36.9	95.7			
Benzo(a)pyrene	ND	mg/Kg	0.010	70.0	35.3	97			
Dibenz(a,h)anthracene	0.01875	mg/Kg	0.010	72.0	37.7	90.7			
Benzo(g,h,i)perylene	0.01775	mg/Kg	0.010	61.0	35.1	94.1			
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	0.10	80.5	34.6	89.2			
Sample ID: LCSD-19682		*LCSD*			Batch ID: **19682**		Analysis Date:	7/27/2009 7:03:21 PM	
Naphthalene	1.239	mg/Kg	0.25	62.0	35.4	86.1	6.90	26.2	
1-Methylnaphthalene	1.310	mg/Kg	0.25	65.5	38.4	90.1	6.70	23.5	
2-Methylnaphthalene	1.300	mg/Kg	0.25	65.0	36.2	91.9	2.71	22.7	
Acenaphthylene	1.453	mg/Kg	0.25	72.6	39.6	88.1	3.55	18.8	
Acenaphthene	1.380	mg/Kg	0.25	69.0	38.8	91.6	2.77	19	
Fluorene	0.1120	mg/Kg	0.030	56.0	19.9	102	3.51	21.4	

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: RCRA Investigation-Group 1 **Work Order:** 0907367

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8310: PAHs									
Sample ID: LCSD-19682		*LCSD*			Batch ID:	**19682**	Analysis Date:	7/27/2009 7:03:21 PM	
Phenanthrene	0.06700	mg/Kg	0.015	66.6	26.2	103	0.374	31.7	
Anthracene	0.07225	mg/Kg	0.015	71.8	31	95.3	0.347	18.3	
Fluoranthene	0.1585	mg/Kg	0.020	79.0	37.2	90.5	3.21	23.8	
Pyrene	0.1260	mg/Kg	0.025	63.0	29.2	92.4	1.40	18.9	
Benz(a)anthracene	0.01400	mg/Kg	0.010	70.0	34.6	97.5	1.77	40	
Chrysene	0.06950	mg/Kg	0.011	69.1	35.6	94.3	2.49	33	
Benzo(b)fluoranthene	0.02025	mg/Kg	0.010	81.0	29.9	97.4	2.44	38.2	
Benzo(k)fluoranthene	ND	mg/Kg	0.010	76.0	36.9	95.7	0	26.2	
Benzo(a)pyrene	ND	mg/Kg	0.010	68.0	35.3	97	0	35.5	
Dibenz(a,h)anthracene	0.01825	mg/Kg	0.010	70.0	37.7	90.7	2.70	25.1	
Benzo(g,h,i)perylene	0.01725	mg/Kg	0.010	59.0	35.1	94.1	2.86	20.5	
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	0.10	78.5	34.6	89.2	0	23.1	
Method: MERCURY, TCLP									
Sample ID: MB-19696		*MBLK*			Batch ID:	**19696**	Analysis Date:	7/24/2009 2:04:46 PM	
Mercury	ND	mg/L	0.020						
Sample ID: LCS-19696		*LCS*			Batch ID:	**19696**	Analysis Date:	7/24/2009 2:06:31 PM	
Mercury	ND	mg/L	0.020	102	80	120			
Method: EPA Method 6010B: TCLP Metals									
Sample ID: MB-19690		*MBLK*			Batch ID:	**19690**	Analysis Date:	7/24/2009 11:11:59 AM	
Arsenic	ND	mg/L	5.0						
Barium	ND	mg/L	100						
Cadmium	ND	mg/L	1.0						
Chromium	ND	mg/L	5.0						
Lead	ND	mg/L	5.0						
Selenium	ND	mg/L	1.0						
Silver	ND	mg/L	5.0						
Sample ID: LCS-19690		*LCS*			Batch ID:	**19690**	Analysis Date:	7/24/2009 11:14:35 AM	
Arsenic	ND	mg/L	5.0	114	80	120			
Barium	ND	mg/L	100	98.9	80	120			
Cadmium	ND	mg/L	1.0	107	80	120			
Chromium	ND	mg/L	5.0	100	80	120			
Lead	ND	mg/L	5.0	99.1	80	120			
Selenium	ND	mg/L	1.0	112	80	120			
Silver	ND	mg/L	5.0	103	80	120			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **7/21/2009**

Work Order Number **0907367** Received by: ARS

Sample ID labels checked by: TS (Initials)

Checklist completed by: _____ 7/21/09 (Signature / Date)

Matrix: Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	**4.0°**	*<6° C Acceptable* If given sufficient time to cool.		

Number of preserved bottles checked for pH: _____

<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

COC 1 of 1

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Western Refining Southwest Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM 87413
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)
☐ Other
☑ EDD (Type) Excel

Turn-Around Time:
☐ Standard ☑ Rush 5 day
Project Name: RCRA Investigation - Grap 1
Project #: —
Project Manager: Kelly Robinson
Sampler: Kelly Robinson
On Ice: ☑ Yes ☐ No
Sample Temperature: 4.0

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 090784-1
7/20/9	1110	Soil	IM No. 1 - IDW	(3) Jars	None	1

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals - TCLP	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Reactivity, Corrosivity, Ignit	BTEX - TCLP 8021	PAH - TCLP 8310		Air Bubbles (Y or N)
						X					X	X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/20/9	1500	Kelly Robinson	TO FED EX		
Date:	Time:	Relinquished by:	Received by:	Date	Time
				7/21/09	9:30

Remarks: Report on/as a separate Analytical Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Western Refining

BLOOMFIELD REFINERY

WNR LISTED NYSE

September 1, 2009

James Bearzi, Bureau Chief
New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

RECEIVED OCD
2009 SEP 3 A 9:17

Re: Giant Refining Company, Bloomfield Refinery (currently know as Western Refinery Southwest, Inc.. – Bloomfield Refinery) Order No. HWB 07-34 (CO) Solid Waste Management Unit (SWMU) Group No. 1 North and South Aeration Lagoons Closure Report.

Dear Mr. Bearzi:

Western Refining Southwest Inc. - Bloomfield Refinery submits the referenced Closure Report pursuant to Section IV.B.7 of the July 2007 HWB Order. The Closure Report summarizes the closure activities of SWMU Group No. 1, North and South Aeration Lagoons. The Closure Report was developed and formatted to meet the requirements of Section X.C of the July 2007 HWB Order.

If you have any questions or would like to discuss the Investigation Work Plan, please contact me at (505) 632-4171.

Sincerely,

James R. Schmaltz
Environmental Manager
Western Refining Southwest, Inc.
Bloomfield Refinery

cc: Hope Monzeglio – NMED HWB
Carl Chavez – NMOCD (w/attachment)
Dave Cobrain – NMED HWB
Laurie King – EPA Region 6 (w/attachment)
Todd Doyle – Bloomfield Refinery
Allen Hains – Western Refining El Paso

RPS JDC

404 Camp Craft Rd., Austin, Texas 78746
Tel: (512) 347 7588 Fax: (512) 347 8243
Internet: www.rpsgroup.com/energy

North and South Aeration Lagoons Closure Certification Report

Western Refining Southwest, Inc.
Bloomfield Refinery
Bloomfield, New Mexico

September 2009

Prepared by:

Western Refining Southwest, Inc.
Bloomfield Refinery
50 Road 4990
Bloomfield, NM 87413

RPS
404 Camp Craft Road
Austin, Texas 78746

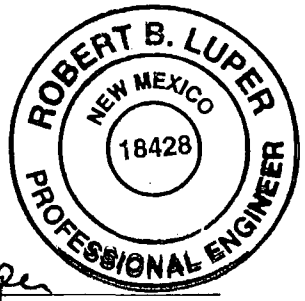
Table of Contents

List of Sections

List of Attachments

This is to certify that closure of regulated unit EPA ID #NMD089416416 has been completed and that closure has been completed in accordance with and in compliance with good engineering practices and the provisions of the NMED Enforceable Document dated July 27, 2007.

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



R. Bryan Luper P.E. — Date: 8-27-09

Todd Doyle, Plant Manager — Date: 8/26/09

Section 1
Introduction

The Bloomfield Refinery is located in northwestern New Mexico, approximately 1 mile south of the City of Bloomfield in San Juan County. It is further located approximately 1/2 mile east of State Route 44 on County Road 4990 (a.k.a. Sullivan Road).

The refinery is a crude oil refinery that incorporates various processing units that convert crude into finished products. The facility can receive and process up to 18,000 barrels per day of crude oil and produce propane, butane, gasoline, naphtha, kerosene, diesel fuel, fuel oil, and residual fuel.

The essential function of the North and South Aeration Lagoons is aggressive biological treatment (ABT) of process wastewater. Monitoring data of the effluent from the API Separator, which discharges into the South Aeration Lagoon, has indicated that concentrations of benzene above the toxicity characteristic regulatory threshold of 0.5 milligrams per liter (mg/L) have entered the aeration lagoons. Bloomfield Refinery does not want to operate these lagoons as hazardous waste treatment units. In that regard, pretreatment in the form of benzene strippers and a 10,000 barrel surge tank has been installed to ensure that wastewater with hazardous levels of benzene does not enter the aeration lagoons in the future. After the installation of the pretreatment equipment, the lagoons were cleaned out to remove all hazardous waste, hazardous constituents, decomposition products, and leachate.

This report addresses all activities related to the modified closure of the aeration lagoons. Modified closure is defined as the process where each lagoon is removed from service, the existing water and sludge is removed and the liner is cleaned, inspected, and, if necessary, repaired before being returned for service.

This report provides the results of the closure activities conducted for the aeration lagoons, which will bring Bloomfield Refinery into compliance with both the requirements of the EPA CAFO from May 18, 2006 and the requirements of the NMED Order dated July 27, 2007.

Section 2
Background

Process wastewater is generated at various refinery processing units, storage tanks, utility systems, and maintenance activities. This water is collected in a segregated sewer system located throughout the refinery processing and tankage areas. Process wastewater flows to the API Separator where solids, sludge, and floating scum are removed. API Separator effluent is then pumped through the Benzene Strippers and then flows onward through a series of three lined aeration lagoons. Wastewater is then either evaporated at the evaporation ponds or injected underground at the Class I injection well.

Three federal regulatory programs [the Clean Water Act, the Resource Conservation and Recovery Act (RCRA), and the Safe Drinking Water Act (SWDA)] have affected the evolution of the North and South Aeration Lagoons to their current operation and status.

In 1974, the impoundments were constructed with bentonite-treated bottoms for fresh water holding. After the initiation of the Clean Water Act (40CFR Part 419), the ponds were converted to manage API Separator water as a secondary biological treatment of the wastewater. In 1982, RCRA regulations triggered the first clean out of these biological treatment oily water ponds. In 1982/83 a liner and leachate system was installed that consisted of a 33% bentonite composite liner equipped with a French drain system, with a 100-ml high density polyethylene (HDPE) liner on top. Around 1990, two key RCRA regulatory changes (the listing of F037/F038 and the adoption of the D018 benzene TCLP standards) lead Bloomfield Refinery to submit a Part B RCRA permit application. To comply with RCRA interim status, the lagoons were upgraded and retrofitted with an additional set of double liners and leak detection/leachate collection system over and above the cleaned 1982/83 system. In 2007, a benzene stripper/tank system was constructed and put into service to decharacterize all wastewater prior to entering the first aeration lagoon.

The Aeration Lagoons from top to bottom, include a 100-mil HDPE top liner, a geonet for collecting leaks to a sump equipped with a 6" observation pipe, a 60-ml HDPE secondary liner, a composite geotextile/geonet with a 4" observation pipe, a cement amended sand layer that was compacted into a 1.5% slope, a 100-ml HDPE liner, a French drain system which directs any collected fluids to a central sump, and a 6" layer of soil with 33% bentonite mixed into it.

The South Lagoon averages 4.4 feet in depth and has a surface area of about 6,652 square feet. The total volume is approximately 216,000 gallons. At a wastewater flow rate of 80 gpm, the holding time in the pond is 1.9 days. This lagoon is equipped with two, 5 horsepower aspirating aerators sized to prevent F037/F038 waste generation.

The Northwest Lagoon averages 5.5 feet in depth with a surface area of 10,000 square feet. This lagoon is equipped with two 2-horsepower aerators and wastewater retention time (at 80 gpm) is 3.6 days. The Northeast Lagoon averages 5.7 feet in depth, with a surface area of 8,440 square feet and a volume of approximately 360,000 gallons. This lagoon is equipped with two 2-horsepower aerators and wastewater retention time (at 80 gpm) of 3.1 days.

Section 3
Closure Objectives

The objective is to bring the Bloomfield Refinery into compliance with both the requirements of the EPA CAFO from May 18, 2006 and the requirements of the NMED Order dated July 27, 2007. The applicable closure standard for the North and South Aeration Lagoons is 40 CFR 264.111. This regulation states:

> *The owner or operator must close the facility in a manner that:*
>
> *(a) Minimizes the need for further maintenance; and*
>
> *(b) Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.*

The closure procedures that are specified for meeting these objectives are outlined in the NMED-approved Closure Plan for the North and South Aeration Lagoons, and included installation of four additional monitoring wells as requested by NMED in the Approved with Modification letter dated August 7, 2008. The Closure Plan and NMED correspondence letter are included as Attachment 1 to this report.

Section 4
Closure Procedures

The modified closure procedures for the North and South Aeration Lagoons are described in the NMED-approved Closure Plan dated May 2008. Generally, the modified closure plan is defined as the process by which each aeration lagoon is removed from service, the existing water and sludge is removed and appropriately disposed of, the liner is cleaned, inspected, and if necessary, repaired before being returned to service. In accordance with guidance from NMED, the South ABT unit was taken out of service in October 2008, to perform the modified closure process, and the unit became operational again on November 18, 2008. At that time, the Northwest ABT unit was bypassed and modified closure procedures were initiated. This unit was restored to service on December 29, 2008 after completion of modified closure at which time the Northeast ABT unit was taken out of service. Clean out activities of the Northeast ABT unit were completed January 20, 2009. Piping replacement and liner repair was completed by February 4, 2009 at which time the unit was put back into service.

Photographs documenting the closure procedures are provided in Attachments 2 and 3 with those in Attachment 2 reflecting the unit before closure and those in Attachment 3 reflecting the unit after closure.

4.1 Sludge Characterization, Removal, and Disposal

In accordance with the modified Closure Plan, sixteen sludge samples were collected in a grid pattern from the South ABT unit (#1 Aeration Lagoon) on October 7, 2008. The sludge samples were placed on ice for preservation and shipped to Hall Environmental Analysis Laboratory (HEAL) for analysis of hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. Five of the first seven sludge samples analyzed exhibited hazardous waste characteristics for benzene, therefore no further testing was conducted and the entire sludge load in the South ABT unit was removed from the unit via vacuum transport truck, then directly shipped offsite as oil-bearing hazardous secondary materials to be recycled (fuels blending). There was no speculative accumulation of this material. The receiving facility was Motiva Enterprises LLC - Norco Refinery, Norco, LA. EPA ID #LAD008186579.

On October 9, 2008, twenty sludge samples were collected in a grid pattern from the Northwest ABT unit (#2 Aeration Lagoon). The sludge samples were placed on ice for preservation and

shipped to HEAL for analysis of hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. Analytical results indicate that the sludge did not exhibit any hazardous characteristics. The sludge load from the Northwest ABT unit was removed via vacuum truck, mixed with fly ash, transported and disposed of at the San Juan County Landfill in Aztec, New Mexico.

On October 21, 2008, eight sludge samples were collected in a grid pattern from the Northeast ABT unit (#3 Aeration Lagoon). The sludge samples were placed on ice for preservation and shipped to HEAL for analysis of hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. Analytical results indicate that the sludge did not exhibit any hazardous characteristics. The sludge load from the Northeast ABT unit was removed via vacuum truck, mixed with fly ash, transported and disposed of at the San Juan County Landfill in Aztec, New Mexico.

The sludge sample location map is presented in Attachment 5. Laboratory reports are provided in Attachment 6.

4.2 Site Inspection and Repair

After sludge removal, the entire top liner was power washed with water. The liner/residue wash water was collected via vacuum truck and off-loaded into the API Separator. The South ABT unit was physically inspected in November 2008 by an independent engineer licensed in the State of New Mexico during closure activities. A crack in the plastic weld was discovered at the crossover piping between #1 and #2 Aeration Lagoon. During the investigation process, personnel discovered damage to the boot on the second liner and serious pitting and corrosion on the piping that discharges from the South ABT unit into the Northwest ABT unit. Both sections of discharge piping from the South ABT unit into the Northwest and Northeast ABT units were replaced. After the piping was replaced, the liner was repaired inside the South ABT unit and inspected again. There was no accumulation of fluids in the underlying collection system beneath the 60-ml liner to indicate damage to the secondary liner. The South ABT unit was put back in service by November 18, 2008.

The Northwest ABT unit's top liner was wash power washed with water after sludge removal. The liner/residue wash water was collected via vacuum truck and off-loaded into the API Separator. The liner surrounding the new inlet pipe from the South ABT Unit was repaired. Inspection of the liner showed small scrapes and gouges that did not penetrate the liner. A

reinforcing plastic weld bead was applied to those areas before water was put back in the Northwest ABT unit on December 29, 2009.

After sludge removal, the entire top liner of the Northeast ABT unit was power washed with water. The liner/residue wash water was collected via vacuum truck and off-loaded into the API Separator. Clean out activities were completed January 20, 2009. Inspection revealed a puncture on the north wall of the liner and a slice on the top east side of the liner. The discharge pipe from the Northeast ABT unit to the suction of P-616 (Transfer Pump from the Aeration Lagoon to the Evaporation Ponds) was found to be pitted and corroded and was replaced. Liner repair around that new discharge piping as well as around the new piping from the South ABT unit, and the two tears was completed February 4, 2009 and the unit was put back into service.

Liner repair surrounding the piping replacement consisted of cutting out and removing all three liners and the geonet. The liners and geonet were replaced with new material and new boots were created to tie into the piping.

Photographs documenting piping replacement and liner repair can be found in Attachment 4.

4.3 Collection of Soil and Flush Water Samples

In keeping with the modified Closure Plan, after repairs to the liner of the South ABT unit were completed, the geonet between the top 100-ml liner and the second 60-ml liner was flushed with clean water. The flush water was sampled using a bailer in the 6" observation pipe, placed on ice for preservation, and shipped to HEAL for analysis of hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. Analytical results indicate that the flush water did not exhibit any hazardous characteristics. The flush water was removed from underneath the liner via vacuum truck through the 6" observation pipe and off-loaded at the API Separator.

Inspection after cleaning the Northeast ABT unit revealed a puncture on the north wall of the liner and a slice on the top east side of the liner and squishiness under the liner in the northeast section. This discovery prompted sampling and analysis of the water between the top 100-ml liner and the second 60-ml liner. The liner water was sampled through a new incision in the liner, placed on ice for preservation, and shipped to HEAL for analysis of hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. Analytical results indicate that the liner water did not exhibit any hazardous

characteristics. The liner water was removed from underneath the liner via vacuum truck through two new incisions in the liner, and off-loaded at the API Separator. There was no accumulation of fluids in the underlying collection system beneath the 60-ml liner to indicate damage to the secondary liner. The incisions were repaired during the other repair of the liner.

Stained soil was discovered underneath the discharge piping from the South ABT unit to the Northwest ABT unit when the piping was replaced. The soil was removed, placed on containment, and sampled. The characterization samples were placed on ice for preservation, and shipped to HEAL for analysis of TCLP Metals (EPA Method 6010B) and Benzene (EPA Method 8260B). Analytical results indicate non-detect on all analyses. The soil was used as backfill.

Stained soil was found under the discharge piping from the Northeast ABT unit to the suction of P-616. The soil was removed, placed on containment, and sampled. The characterization samples were placed on ice for preservation, and shipped to HEAL for analysis of TCLP Metals (EPA Method 6010B) and Benzene (EPA Method 8260B). Analytical results indicate non-detect on all analyses. The soil was used as backfill.

Laboratory reports are provided in Attachment 6.

Section 5
Ground Water Monitoring System

As requested by NMED in a comment letter dated August 7, 2008, four soil borings (IM-1-1, IM-1-2, IM-1-3, and IM-1-4) were drilled around the outer perimeter of the North and South Aeration Lagoons. Soil cuttings from the soil borings were field screened using a PID, and soil samples were collected for analytical analysis. Each boring was completed as a permanent monitoring well (MW-55, MW-56, MW-57, and MW-58, respectively). A figure showing the location of the wells with respect to nearby site features is included in Attachment 7.

5.1 Soil Boring Drilling and Soil Sampling Activities

Drilling activities were conducted between March 31st and April 3th, 2009. The soil boring locations were initially hydro-excavated to approximately 7 ft below ground surface (bgs) to identify potential utility lines near the proposed drilling locations. The soil borings were drilled using hollow-stem auguring (HSA) method or air rotary-ODEX method.

Soil samples were collected using split-spoon samplers. Soil samples were collected continuously and logged by a qualified geologist. The soil sample descriptions were made in accordance with USGS nomenclature and recorded on the individual field boring logs. As seen on the boring logs (Attachment 8), the data recorded included the lithologic interval, symbol, percent recovery, and a sample description of the cuttings and core samples.

Samples obtained from the borings were screened in the field on 2 foot intervals for evidence of contaminants. Field screening results were recorded on the soil boring logs. Field screening results were used to aid in the selection of soil samples for laboratory analysis. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds.

Visual screening included examining the soil samples for evidence of staining caused by petroleum-related compounds or other substances that may have caused staining of natural soils such as elemental sulfur or cyanide compounds. Headspace vapor screening was conducted and involved placing a soil sample in a plastic sealable bag allowing space for ambient air. The bag was sealed, labeled and then shaken gently to expose the soil to the air trapped in the container. The sealed bag was allowed to rest for a minimum of 5 minutes while the vapors equilibrated. Vapors present within the sample bag's headspace were then measured by inserting the probe of

a MiniRae 2000 in a small opening in the bag. The maximum value and the ambient air temperature were recorded on the field boring log for each sample. The screening results are presented in Attachment 9. The MiniRae 2000 was calibrated to 100 ppm isobutylene each day to the manufacturer's standard for instrument operation. Field screening results and any conditions that were considered to be capable of influencing the results of the field screening were recorded on the field logs.

Soil Boring: IM-1-3

On March 31, 2009, drilling commenced at soil boring location IM-1-3, which was located near the northeast corner of South Aeration Lagoon. Soil samples were collected using HSA drilling method and split-spoon samplers until soil appeared saturated. The drill rig was then modified to drill using the ODEX drilling method to extend the soil boring down to the Nacimiento Formation surface.

Soils encountered between 0 to 6 ft bgs appeared to be fill material and exhibited an odor. Elevated PID readings were observed in the soils with readings of 237 ppm (2 -4 ft bgs) and 567 ppm (4 – 6 ft bgs). A soil sample from the 4 -6 ft interval was collected for laboratory analysis. The soils exhibited an odor from 7 to 15 feet bgs. Elevated PID readings were observed in the soils from 7 to 13 feet bgs with the highest reading occurring at the 7 to 9 foot interval (415 ppm). The soils (gravelly sand) at 17 feet bgs appeared to be saturated. A soil sample was collected for laboratory analysis from the interval 15 to 17 bgs.

The rig was modified to use the ODEX drilling method and resumed drilling and sampling activities. Gravelly sand was encountered from 17 to 23 ft bgs. The sand was dark gray, saturated and exhibited a strong hydrocarbon odor. The Nacimiento was encountered at 23 ft bgs and consisted of high plastic, very stiff, damp, light yellowish orange clay. The borehole was sampled to a depth of 24 ft bgs. An elevated PID reading of 856 ppm was collected from the 17 to 19 foot interval. A soil sample was not collected since the sample was saturated. The borehole was deepened to a final depth of 24.25 feet bgs to accommodate the well setting.

Soil Boring: IM-1-2

On April 1, 2009, drilling commenced at soil boring IM-1-2, which was located near the northeast corner of the North Aeration Lagoon. Soil samples were collected using HSA drilling method and split-spoon samplers until soil appeared saturated. The drill rig was then modified

to drill using the ODEX drilling method to extend the soil boring down to the Nacimiento Formation surface.

The soils encountered from 0 to 6 feet bgs consisted of fill material. Elevated PID readings were observed in the soils with readings of 116 ppm (4 - 6 ft) and 40 ppm (6 – 8 ft). A soil sample from the 4 -6 foot interval was collected for laboratory analysis. The soils from 8 to 16 ft bgs did not exhibit an odor nor were there any elevated PID readings from 8 to 16 feet bgs. The PID reading from 16 to 18 ft bgs was recorded as 50 ppm and a hydrocarbon odor was noted. The soils (gravelly sand) at 18 feet bgs appeared to be saturated. A soil sample for laboratory analysis was collected from the interval 16 to 18 bgs.

The rig was modified to use the ODEX drilling method and resumed drilling and sampling. Gravelly sand was encountered from 18 to 20 feet bgs. The sand was black, saturated and exhibited a hydrocarbon odor. The Nacimiento was encountered at 20 feet bgs and consisted of a weathered sandstone/sand that was damp to moist, gray to brown with a faint odor. The borehole was sampled to a depth of 22 ft bgs and was deepened to 23.25 ft bgs to accommodate the well setting.

Soil Boring: IM-1-1

On April 2, 2009 drilling commenced at soil boring IM-1-1, which was located near the northwest corner of the North Aeration Lagoon. Soil samples were collected using HSA drilling method and split-spoon samplers until soil appeared saturated. The drill rig was then modified to drill using the ODEX drilling method to extend the soil boring down to the Nacimiento Formation surface.

Fill material was encountered from 0 to 12 ft bgs. Gravelly sand was encountered from 12 to 22 ft bgs. The fill material and gravelly sand from 4 to 22 ft bgs did exhibit a hydrocarbon odor and elevated PID readings. Soil samples for laboratory analysis were collected from the following intervals:

- 8 - 10 ft bgs – Fill material (sand), dark brown, hydrocarbon odor, 891 ppm
- 18 – 20 ft bgs – Gravelly sand, black, hydrocarbon odor, 1085 ppm
- 20 – 22 ft bgs – Gravelly sand, black, hydrocarbon odor, 1047 ppm.

The augers were removed from the borehole and the rig was modified to use the ODEX drilling method. Drilling and sampling resumed with gravelly sand encountered from 22 to 25.75 ft bgs. The sand was black, saturated/oily and exhibited a hydrocarbon odor. The Nacimiento was

encountered at 25.75 ft bgs and consisted of a weathered sandstone/sand that was damp, greenish gray and exhibited a faint odor. The borehole was sampled to a depth of 26 ft bgs and then deepened to 27.25 ft bgs to accommodate the well setting.

Soil Boring: IM-1-4

On April 3, 2009, drilling commenced at soil boring location IM-1-4, located near the northwest corner of the South Aeration Lagoon. Soil samples were collected using HSA drilling method and split-spoon samplers until soil appeared saturated. The drill rig was then modified to drill using the ODEX drilling method to extend the soil boring down to the Nacimiento Formation surface.

Fill material (clay) was encountered from 0 to 10 ft bgs and from 2 to 10 ft bgs did exhibit a hydrocarbon odor and elevated PID readings. A soil sample for laboratory analysis was collected from the 2 – 4 foot interval (395 ppm).

The augers were removed from the borehole and the rig was modified to use the ODEX drilling method. Drilling and sampling resumed with gravelly sand encountered from 10 to 19.5 ft bgs. The gravelly sand exhibited a hydrocarbon odor; however, the PID readings were decreasing in intensity with depth from 43 ppm (10-12 ft bgs) to 17 ppm (14 -16 ft bgs). At the interval 18 to 19.5 ft bgs, the PID reading increased to 312 ppm in a damp to moist, gravelly sand. A soil sample from this interval was collected for laboratory analysis.

The lithology of the soil changed at 19.5 ft bgs and became a medium grained, moist to very moist sand that was black and exhibited a strong hydrocarbon odor. The sand was considered to be weathered Nacimiento and extended to a depth of at 22.5 ft bgs. There was no recovery of the core sample from 22.5 to 25 ft bgs. The core sample collected from the interval 25 to 27 feet bgs was clay with high plasticity, damp to moist in sand seams and was olive brown. The drilling and sampling terminated in this clay at 27 ft bgs.

5.2 Monitoring Well Installation

The four soil borings were completed as permanent monitoring wells, extending down to the top of bedrock (Nacimiento Formation). Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 10 to 15 feet to ensure that the entire saturated zone is open to the well. Rigid PVC with threads was utilized for the well casing and no glues/solvents

were utilized. A 10/20 sand filter pack was installed to a minimum of two feet over the top of the well screen. A six-inch sand bed was also installed at the base of the monitor well.

Since the top of the well screens in this area were near the surface, a minimum of three feet of bentonite seal was placed over the filter pack and hydrated. The remaining annular space in the wells ranged from 2 to 6 feet bgl and was filled with concrete during the installation of the pad. Well construction diagrams are located in Attachment 8 of this report.

MW-57 (IM-1-3)

Following completion of the soil boring drilling at IM-1-3 on April 1, 2009, the soil boring was converted to a permanent monitoring well. Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (8 to 23 ft bgs) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A six-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed approximately two feet over the top of the well screen. As the sand was installed in the well bore the outer casing of the ODEX drilling system was removed. Three feet of bentonite was placed over the filter pack and hydrated. After allowing the bentonite to hydrate the surface pad and protective casing were installed.

MW-56 (IM-1-2)

Following completion of the soil boring drilling at IM-1-2 on April 1, 2009, slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 ft bgs (7 to 22 ft bgs) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A six-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed approximately two feet over the top of the well screen. As the sand was installed in the well bore, the outer casing of the ODEX drilling system was removed. Three feet of bentonite was placed over the filter pack and hydrated. After allowing the bentonite to hydrate the surface pad and protective casing were installed.

MW-55 (IM-1-1)

Following completion of the soil boring drilling at IM-1-1 on April 2, 2009, slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 ft (11 to 26 ft bgs) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with

threads was utilized for the well casing. A six-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed approximately two feet over the top of the well screen. As the sand was installed in the well bore the outer casing of the ODEX drilling system was removed. Three feet of bentonite was placed over the filter pack and hydrated. After allowing the bentonite to hydrate a flush mount surface completion was installed.

MW-58 (IM-1-4)

Following the completion of soil boring drilling at IM-1-4 on April 3, 2009, slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 ft bgs (10.75 to 25.75 ft bgs) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A six-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed approximately 2.75 ft over the top of the well screen. As the sand was installed in the well bore the outer casing of the ODEX drilling system was removed. Three feet of bentonite was placed over the filter pack and hydrated. After allowing the bentonite to hydrate a flush mount surface completion was installed.

5.3 Monitoring Well Completions

The surface completions used consisted of either flush mount completions or stickup completions. The flush mount completions consisted of an 8-inch well vault centered within a concrete pad measuring 4 ft by 4 ft wide by 6-inches thick. The concrete pad was wire reinforced.

The stickup completions consisted of a protective aluminum enclosure with cap that was secured in a concrete pad measuring 4 ft by 4 ft wide by 6-inches thick. The concrete pad was wire reinforced. The aluminum protective casing extends approximately 4 ft above the top surface of the concrete pad.

Four-inch diameter steel bollards were installed approximately six-inches from each corner of the concrete pad to protect the stickup wells. The bollards were installed two feet below grade and extend approximately three feet above grade. The holes for the bollards were dug by hand with the diameter of the borehole measured a minimum of 6-inches. Each bollard was cemented into the ground with the cement extending from the bottom of the hole to the surface. The bollard was filled with cement. Each bollard was pretreated to remove rust and painted with two coats of safety-yellow paint.

5.4 Survey

Upon completion of the monitoring well installation activities, each monitoring well was surveyed by a registered New Mexico professional land surveyor in accordance with the State Plane Coordinate System (NMSA 1978 47-1-49-56). Horizontal position of each monitoring well was measured to the nearest 0.1-ft, and vertical elevations were measured to the nearest 0.01-ft. In addition, a hand held GPS receiver was used to record the coordinates of each soil boring. These coordinates were recorded on the boring logs. A copy of the well survey information is included in Attachment 10.

5.5 Soil Sampling Analytical Results

Soil samples were analyzed by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico using the following methods for organic constituents.

- SW-846 Method 8260 volatile organic compounds; and
- SW-846 Method 8015B gasoline, diesel, and motor oil range petroleum hydrocarbons.

For each sample that reported a diesel concentration greater than 2,000 mg/kg, the sample was analyzed for the following:

- SW-846 Method 8270 semi-volatile organic compounds.

In addition, soil samples were analyzed for the following metals using the indicated analytical methods.

Analyte	Analytical Method
Arsenic	SW-846 Method 6010/6020
Barium	SW-846 Method 6010/6020
Cadmium	SW-846 Method 6010/6020
Chromium	SW-846 Method 6010/6020
Lead	SW-846 Method 6010/6020
Mercury	SW-846 Method 7470/7471
Selenium	SW-846 Method 6010/6020
Silver	SW-846 Method 6010/6020

A summary of the soil analytical results is included in Attachment 11. Chain-of-custody copies and pdf copies of the analytical data reports are included in Attachment 6. There were no conditions observed during the sample collection efforts that are thought to have had any impact

on the analytical results. The respective regulatory cleanup levels as outlined in the Order are included in the table to facilitate a comparison between the reported concentrations and the applicable cleanup levels. Concentrations that exceed the applicable cleanup levels are bolded.

5.6 Ground Water Sampling

During the week of May 4th, 2009, ground water samples were collected from the four permanent monitoring wells around the Aeration Lagoons. The ground water samples were analyzed for organic constituents by the following methods:

- SW-846 Method 8260 volatile organic compounds;
- SW-846 Method 8270 semi-volatile organic compounds; and
- SW-846 Method 8015B gasoline, diesel, and motor oil range petroleum hydrocarbons.

Ground water samples were also analyzed for the following metals and general chemistry analytes using the indicated analytical methods:

Analyte	Analytical Method
Arsenic	SW-846 Method 6010/6020
Barium	SW-846 Method 6010/6020
Cadmium	SW-846 Method 6010/6020
Chromium	SW-846 Method 6010/6020
Iron	SW-846 Method 7470/7471
Lead	SW-846 Method 6010/6020
Magnesium	SW-846 Method 7470/7471
Manganese	SW-846 Method 7470/7471
Mercury	SW-846 Method 7470/7471
Potassium	SW-846 Method 7470/7471
Selenium	SW-846 Method 6010/6020
Silver	SW-846 Method 6010/6020
Sodium	SW-846 Method 7470/7471
Total Dissolved Solids (TDS)	SM 2540C
Chloride	EPA Method 300.0
Fluoride	EPA Method 300.0
Nitrogen, Nitrate (as N)	EPA Method 300.0
Nitrogen, Nitrite (as N)	EPA Method 300.0
Phosphorus, Orthophosphate (as P)	EPA Method 300.0
Sulfate	EPA Method 300.0
Alkalinity, total (as CaCO3)	SM Method 2320B
Bicarbonate	SM Method 2320B
Carbonate	SM Method 2320B
Specific Conductance	EPA Method 120.1

A summary table and a CD with lab reports of the ground water analytical results is provided in Attachment 11. Chain-of-custody copies are provided in Attachment 6. Soil and ground water sample results that pertain to the installation of the four permanent monitoring wells were subject to a Level II data review. A summary report of the Level II data review is included in Attachment 12 of this report.

Each well was purged a minimum of three well volumes prior to sample collection. Field measurements of ground water stabilization parameters included pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature were monitored during purging of each well. The calibration solutions used at the beginning of each day are as follows:

- 4.0 pH solution
- 7.0 pH solution
- 10.0 pH solution
- 1.413 mS/cm conductivity solution
- 220 for ORP

Following parameter stabilization and 3-volume well purging, ground water samples were immediately poured directly into clean laboratory supplied containers. A summary of the ground water field parameters is included in Attachment 9 of this report.

Prior to well purging, depth to product, depth to ground water, and soil gas samples were collected. The soil gas samples were field monitored for VOCs, O_2, and CO_2 using a MiniRae 2000 PID and multi-gas meter. Dedicated Teflon tubing was used that extended down into the well, approximately 1 ft above the detected fluid level. The top of the well was sealed off to prevent ambient air from entering the well casing during soil-gas monitoring. A portable vacuum pump was used to purge a minimum of three well volumes before the vapor sample was collected. A summary of the vapor sampling results are included in Attachment 9.

5.7 Investigation Derived Waste Management

Drill cuttings, excess sample material decontamination fluids, and all other investigation derived waste (IDW) associated with drilling and sampling activities were contained and placed in 55-gallon drums.

Drilling equipment was decontaminated between each borehole using a high pressure potable water wash. The decon water collected in a mobile decon trailer and was subsequently placed in open top 55-gallon drums. Split-spoon samplers used to collect soil samples were

decontaminated between each use using a potable water rinse, an Alconox was and then a distilled water rinse. The decon water from the sampling equipment was collected in 5-gallon buckets and placed in open top 55-gallon drums. All IDW drums were sealed and labeled at the end of each work day.

Following completion of all drilling activities, all soil and sampling fluids were disposed of in compliance with the approved IDW Management Plan. A composite sample of the soil cuttings was collected and sent to Hall Environmental Analytical Laboratories for analysis. The soil cuttings were characterized as non-hazardous and disposed of off-site in compliance with the approved IDW management plan. All decontamination and purged ground water fluid was disposed of at the Refinery through the wastewater treatment system, upstream of the API Separator.

Section 6
Conclusions

The North and South Aeration Lagoons, which are the subject of this closure certification report, were evaluated to determine compliance with applicable state and federal regulatory criteria that prescribe standards for the closure of hazardous waste management units and the approved Closure Plan. The results of this evaluation indicate that the closure of the unit conforms to these regulations and the approved Closure Plan and no additional reporting activities related to the service of this unit will be required.

Attachment 1

Closure Plan and NMED Approval with Modifications Letter

Title	Tab Number
Approved Closure Plan	1
NMED Approval with Modifications	2

Approved Closure Plan

RPS JDC

404 Camp Craft Rd., Austin, TX 78746
Tel: (512) 347 7588 Fax: (512) 347 8243
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Closure Plan
North and South Aeration Lagoons
Bloomfield Refinery

Regulated Unit EPA ID# NMD089416416
HWB-GRCB-07-002

Giant Refining Company
Bloomfield, New Mexico

May 2008

James R. Schmaltz
Environmental Manager

Scott T. Crouch, P.G.
Senior Consultant
RPS JDC, Inc.

Table of Contents

List of Sections

1 Introduction

The Bloomfield Refinery is located immediately south of Bloomfield, New Mexico in San Juan County. The physical location address is #50 Road 4990, Bloomfield, New Mexico 87413. The Bloomfield Refinery is located on 285 acres (0.45 square miles). The site is located on a bluff approximately 100 feet above the south side of the San Juan River, a perennial river that flows to the west.

Bordering the facility is a combination of federal and private properties. Public property managed by the Bureau of Land Management lies to the south. The majority of undeveloped land in the vicinity of the facility is used extensively for oil and gas production and, in some instances, grazing. The town of Bloomfield is located to the north of the refinery, across the San Juan River. U.S. Highway 44 is located approximately one-half mile west of the facility. The topography of the site is generally flat with low-lying areas to the east of the process area.

The Bloomfield Refinery is a crude oil refinery currently owned by the San Juan Refining Company and operated by Giant Industries Arizona, Inc., which is a wholly owned subsidiary of Western Refining Company. The Bloomfield Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck and crude from West Texas transported by pipeline.

The Bloomfield Refinery has an approximate refining capacity of 18,000 barrels per day. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, sulfur recovery, merox treater, catalytic polymerization and diesel hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, naphtha, residual fuel, fuel oils and LPG.

This Closure Plan addresses the "closure" of the North and South Aeration Lagoons. Monitoring data of the effluent from the API Separator, which discharges into the South Aeration Lagoon, has indicated that concentrations of benzene above the toxicity characteristic (TC) regulatory threshold of 0.5 milligrams per liter (mg/l) have entered the aeration lagoons. Western Refining does not desire to operate these lagoons as hazardous waste treatment units and thus the ponds will be cleaned out to remove all hazardous waste, hazardous constituents, decomposition products, and leachate. Closure of the aeration lagoons will be conducted in accordance with an Enforceable Document (July 27,

2007 NMED Order). Additional pretreatment in the form of benzene strippers and a 10,000 barrel surge tank has been installed to ensure that wastewater with hazardous levels of benzene does not enter the aeration lagoons in the future.

2 Wastewater Treatment Unit Description and Operation

2.1 Environmental Regulatory Activities

All oil refineries produce process wastewater, which today must be managed in accordance with a variety of environmental requirements intended to assure adequate and appropriate protection of public health and the environment. Three federal regulatory programs [the Clean Water Act, the Resource Conservation and Recovery Act (RCRA), and the Safe Drinking Water Act (SWDA)] have major significance for Bloomfield Refinery process wastewater. Two of these federal programs at Bloomfield are directly administered by the State of New Mexico, as it has primacy over the RCRA and SDWA UIC programs. In addition, there are additional state regulatory programs with varying applicability, including those administered by New Mexico Oil Conservation Division (OCD).

Initially, beginning in 1972 under the Clean Water Act regulatory program, EPA promulgated petroleum refinery wastewater management requirements pursuant to the Clean Water Act NPDES permit program. The principal federal regulations implementing this CWA program as it applies to petroleum refineries are found at 40 C.F.R. Parts 122 and 419. The Bloomfield Refinery, like other oil refineries impacted by 40 C.F.R. Part 419, had implemented a series of process wastewater treatment operations, including primary treatment of wastewaters with an oil/water separator and secondary biological treatment in wastewater ponds to further reduce organics in the petroleum refinery wastewater. These two ponds where such biological degradation of organics occurred were referred to at the time as the North Oily Water Pond and the South Oily Water Pond.

A second major regulatory program, the RCRA regulations, affecting hazardous wastewaters was promulgated by EPA on November 19, 1980. Initially, these applied only to certain sludges created by petroleum refinery wastewater management, such as API oil/water separator sludge which was listed as K051 hazardous waste. In November, 1980, the Bloomfield Refinery operator applied for a Part A permit as a generator, and TSD as a protective filing for its so-called oily water ponds. It was later determined they were not disposing of listed hazardous waste on site and since D018 wastewater was not part of the 1980 EP toxicity test (it only became regulated after the 1990 TCLP toxicity test was adopted), in 1982 they petitioned for reclassification under a generator only status.[1] In

[1] On November 26, 1985, the Bloomfield Refinery agreed to take an on-site landfill [where some of the materials from the 1982 impoundment cleanout had been placed] through RCRA closure. During 1989, these materials were removed and eventually determined by EPA delisting to be non-hazardous for offsite disposal. *See*, Hazardous Waste Delisting Petition, Petroleum Contaminated Soil, dated April 15, 1991 (*ERM-Rocky Mountain, Inc.*)

1982/1983, the liquids and sludge were removed from the oily water ponds and disposed of offsite. Impacted soils were also excavated and the ponds were lined. This activity included the placement of a 33% bentonite composite liner equipped with a French drain system, with a 100 mill high density polyethylene (HDPE) liner on top.

In 1990, a significant revision to these regulations made most petroleum refinery process wastewater into D018 benzene characteristic hazardous waste, leading the Bloomfield Refinery to submit a Part B RCRA permit application[2] in the mid-1990s and to operate its biological treatment impoundments pursuant to RCRA interim status as a regulated unit. To comply with RCRA interim status, the Bloomfield Refinery upgraded and retrofitted the regulated unit with an additional set of RCRA double liners and leak detection/leachate collection system over and above what the Bloomfield Refinery had initially installed in 1982/1983.

The listing of F037/F038 sludges by EPA as hazardous (effective in 1991) effectively mandated a certain level of biological treatment and retention time in the biological treatment impoundments at the Bloomfield Refinery.[3] Thereafter, the aeration-enhanced impoundments were called the North Aeration Lagoon (NAL) or the South Aeration Lagoon (NAL) [also referred to herein as the North Aggressive Biological Treatment (ABT) Units (two impoundments known as NABT-E and NABT-W) and the South ABT Unit]. The compliance strategy employed aggressive biological treatment of wastewaters to make them safe for the environment, followed by disposition through evaporation ponds and a Class I underground injection well permitted consistent with the Safe Drinking Water Act UIC program requirements.[4] As discussed in Section 3.0, additional upgrades to the wastewater treatment system were recently completed in the fall of 2007.

[2]This Part B application submitted in the mid-1990s included a RCRA closure plan for the biological treatment impoundments, as discussed later in this document.

[3]Integral to the operation of the Bloomfield Refinery, as with any oil refinery in the United States, is the operation of an aggressive biological treatment (ABT) unit system for wastewater management, mandated by EPA regulations regarding the listing of certain petroleum refinery wastes (F037/F038) that became effective in May, 1991. EPA regulations, as adopted by NMED, effectively require each petroleum refinery to implement an ABT system to biological treat organics with regulatorily-specified ABT technology to remove organics and eliminate F037/F038 formation. The Bloomfield Refinery has had such advanced organic aeration in place as required since that time, and these EPA-required treatment systems operate as multi-lined ABT wastewater treatment units at Bloomfield, backed up with a double set of leak detection/leachate collection systems, over and above what has been technologically required under EPA regulations.

[4]EPA promulgated regulatory requirements to assure that wastewater managed by UIC disposition not pose a risk to public health and the environment (40 C.F.R. Parts 144-146), but those did not apply at the Bloomfield Refinery until 1994 when Bloomfield installed a Class I UIC well for wastewater management.

2.2 ABT Unit Operations

The refinery process wastewater currently generated (approx. 80 gallons per minute (gpm)) at the Bloomfield Refinery is managed first by treatment in an API oil/water separator, then the volatile components are removed via benzene air strippers and the final treatment (biological) occurs in three ABT impoundments. The ABT units, from top to bottom, include:

- a 100-mil HDPE top liner;
- a geonet for collecting leaks that drain to a sump equipped with a 6" observation pipe;
- a 60-mil HDPE secondary liner;
- a composite geotextile/geonet with a 4" observation pipe;
- a cement amended sand that was compacted into a 1.5% slope;
- a 100-mil HDPE liner;
- a French drain system, which directs any collected fluids to a central sump; and
- a 6" layer of soil with 33% bentonite mixed into it.

The wastewater is currently discharged from the API separator, passes through the benzene air stripper and into the South ABT unit, which averages 4.4 feet in depth and has a surface area of about 6,652 square feet. The total volume is approximately 216,000 gallons. At 80 gpm, the holding time in the pond is 1.9 days. The impoundment is equipped with two, 5-horsepower aerators sized to prevent F037/F038 waste generation through high rate aeration. The system was designed to reduce benzene concentrations from approximately 10 ppm to less than 0.5 ppm. With the installation of the benzene stripper equipment in October 2007, the wastewater is now "decharacterized" below the benzene TC levels prior to discharge into this first (South) ABT unit. As a result, this unit has received its final volume of hazardous wastewater and no longer will be required to treat hazardous wastewater.

Wastewater from the first (South) ABT unit, which has already been reduced below TC levels by design, is routed to the North ABT unit through an overflow pipe from the South ABT unit. The second ABT unit is comprised of two impoundments that are operated together, and these are generally referred to as the North ABT unit. The first of the two impoundments in the North area (which can be referred to as North ABT-W as it is the westernmost of the two portions of the North ABT unit) is separated from the second of the two in the North area (the second can be referred to as North ABT-E) by a concrete divider. An overflow pipe from the North ABT-W connects to the North ABT-E. The outflow from North ABT-E goes to a sump, where the non-hazardous wastewater can be pumped for final disposition, either in evaporation ponds or into an SDWA Class I permitted non-hazardous UIC well.

The North ABT-W averages 5.5 feet in depth with a surface area of 10,000 square feet. The total volume is approximately 411,500 gallons. The North ABT-W unit is equipped with two (each) 2-horsepower aerators and wastewater retention time (at 80 gpm) is 3.6 days

The North ABT-E (the second of the two in the North area) averages 5.7 feet in depth, with a surface area of 8,440 square feet and a volume of approximately 360,000 gallons. The North ABT-E is equipped with two 2-horsepower aerators and wastewater retention time (at 80 gpm) is 3.1 days

The North and South ABT units have been operated with a minimum freeboard of two feet under normal operating conditions. At the lowest points during operation, the South ABT, North ABT-W and North ABT-E have freeboards of 2.97, 2.54 and 3.08 feet respectively. Influent flow into the South ABT unit is limited by the size of the overflow pipe coming from the API separator/wastewater treatment unit system. Operating personnel monitor pond water levels on a daily basis. The only non-controlled inflow is direct rainfall onto the North and South unit areas.

To manage precipitation, outflow from the ABT unit system is routed to a sump, which has an automatic level control pump. Excess water from process areas generated during a 100-year storm (2.6") is easily handled by this system. The impoundments have 698,000 gallons of additional capacity to the top of the freeboard and the pump can remove 720,000 gallons of water daily. This capacity management total greatly exceeds the 406,000 gallons of water that would be drained from 250,000 square feet of process area. The pump is backed up by two portable diesel backup pumps, which can function in the event of a power outage.

3 WWTU Upgrades

As a result of an EPA Consent Agreement and Final Order (CAFO) dated May 18, 2006, upgrades were made to wastewater treatment operations at the Bloomfield Refinery. This EPA-mandated change at the Bloomfield Refinery was accomplished through construction and operation of a benzene stripper/tank system that will decharacterize all hazardous process wastewater prior to further biological treatment in the ABT impoundments. The tank system is equipped with an additional 10,000 barrel tank to provide surge capacity. As a result, all process wastewater streams, including any contaminated runoff, will be decharacterized prior to discharge into the ABT units for aggressive biological treatment.

3.1 Contingency Plan

In the event of a major failure, the first contingency response is to direct the wastewaters that have not been through the benzene stripping treatment process into the 10,000 barrel surge tank. At a rate of wastewater flow of 80 gpm, that would permit 87.5 hours of flow to be managed without discharge to the ABT units in the event of a benzene stripper failure. During those 87.5 hours for repair work, the benzene strippers in most cases could be fixed and returned to operation. In the event the surge tank capacity may be exceeded, it may be possible to make additional surge tank capacity available, depending on other tank usage at the Bloomfield Refinery. Such evaluation would occur if there was a significant likelihood the strippers could not be restored to working order within the 87.5 hour time frame available for repairs.

Once the benzene strippers are made operational again, wastewaters collected in the surge tank will be appropriately metered back through the wastewater treatment system by being introduced upstream of the API separator consistent with capacity available (in excess of the 80 gpm flow being handled). After the wastewater in the surge tank has been removed, the tank will be inspected to determine if any potentially F037 or F038 listed waste has accumulated. If residual sludge (potentially F037 or F038 listed waste) is present, it will physically removed from the tank via the manway, and characterized and sent off-site for disposal in accordance with all applicable Hazardous Waste regulations.

4 ABT Unit Closure

This modified Closure Plan is submitted to bring the Bloomfield Refinery into compliance with both the requirements of the EPA CAFO from May 18, 2006 and the requirements of the NMED Order dated July 27, 2007 (also referred to as the Enforceable Document). Because the hazardous characteristic (D018 benzene) will be removed from the wastewater prior to placement in the ABT units (as the result of the wastewater treatment upgrades discussed in Section 3) no further treatment of hazardous waste will occur in the ABT units. Instead, the ABT units will continue to perform their essential function of biologically treating/aerating the non-hazardous wastewater. Such aggressive biological treatment of non-hazardous wastewater in the ABT units will be essential for the operation of the Bloomfield Refinery to assure that F037/F038 formation does not occur at Bloomfield and to achieve water quality required for wastewater disposition pursuant to the Class I UIC permit.

The applicable closure standard for the North and South Aeration Lagoons is 40 CFR §265.111 (Closure Performance Standard), which requires that the owner or operator must close the facility in a manner that:

> (a) Minimizes the need for further maintenance, and
>
> (b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.

4.1 Closure Procedures

When the ABT impoundments became RCRA units as a result of the TC regulations, the Bloomfield Refinery became obligated to prepare and maintain a closure plan for the regulated unit. The previous closure plan for the ABT units was submitted on December 21, 1995 as a portion of the Part B RCRA permit application for this facility.

This modified closure plan coordinates retention of the environmental safeguards of the liners and leachate collection systems for the ABT units with corrective action that includes removal and appropriate disposition of all hazardous wastes, hazardous constituents, decomposition products, and leachate above that liner system while addressing any historic contamination (below the liners/leachate collection system) under the corrective action portion of the NMED Order (Enforceable Document) and any post-closure monitoring. In order to implement these requirements

consistent with the guidance provided by NMED and EPA, the original 1995 closure plan for the ABT Units is modified as set forth below. "Modified closure" is defined as the process by which each aeration lagoon is removed from service, the existing water and sludge is removed and the liner is cleaned, inspected, and, if necessary, repaired before being return to service.

In accordance with guidance from NMED, the South ABT unit will be initially taken through this modified closure process, followed by the North ABT unit once the South ABT unit is placed back into service for the nonhazardous wastewaters coming from the upgraded wastewater treatment system. To accomplish closure of the South ABT Unit, nonhazardous wastewaters will flow directly from the API separator/benzene stripper system to the North ABT units, bypassing the South ABT unit.

After completion of the modified closure of the South ABT unit, the aggressive biological treatment system in the South ABT unit will become operational and the wastewater will be routed from the API separator/benzene stripper system back to the South ABT unit. Following appropriate aggressive biological treatment conducted in accordance with 40 CFR §261.31(b)(2)(i), the treated wastewaters will be then routed from the South ABT unit directly for disposition via evaporation and/or UIC-permitted injection, bypassing the North ABT. After completion of the modified closure for the North ABT unit, it will be restored to service as an additional wastewater treatment unit.

Each ABT unit will be decontaminated following the procedures discussed below. After the flow of decharacterized wastewater to an ABT unit is shut off as part of the closure process, the wastewater in the ABT unit will be pumped back to the WWTU to a location upstream of the API separator. The sludges (including some attendant watery solution entrained with the sludges) in the ABT unit above the liner will be sampled for hazardous characteristics in accordance with 40 CFR Part 261, Subpart C – Characteristics of Hazardous Waste. Sample(s) of the sludge will be collected for waste characterization at a minimum of one sample per each 10 cubic yards. If the sludges do not exhibit any hazardous characteristics, they will be removed from the ABT units by a vacuum truck for appropriate disposal. Additional wastes not amenable to vacuum removal may be removed through careful shovel or other similar small-scale operations in such a manner as to assure protection of the 100 mil liner. The remaining materials [after vacuum and other removal operations have occurred] and the entire top liner will then be powerwashed with water. This nonhazardous washwater will be placed in the WWTU upstream of the API separator.

If wastes removed from the ABT units exhibit one or more hazardous characteristics, the wastes will be removed and placed into appropriate RCRA tanks/containers for disposal offsite as hazardous waste. All of the equipment used will then be decontaminated with a high pressure steam cleaner and the rinse waters will be collected and placed in the WWTU upstream of the API separator. In addition, the remaining materials [after vacuum and other removal operations have occurred] and the entire top liner then will be powerwashed with water. The liner/residue washwater will be collected in the impoundment and pumped back to the WWTU system for handling through the oil/water separator and benzene strippers, followed by aggressive biological treatment in the other ABT unit still in service. This procedure will be followed even if the washwaters do not exhibit a hazardous characteristic.

As required by NMED, the RCRA liners will be inspected for any damage and repaired if necessary. If there is damage to the 100-mil HDPE top liner, then the upper 100-mil liner will be removed from an area of sufficient size to allow for a thorough inspection of the underlying 60-mil HDPE secondary liner. If the 60-mil liner is damaged, then it will be repaired.

There has not been any indication based on an accumulation of fluids in the underlying (non-RCRA) collection system that the RCRA 60-mil HPDE secondary liner has any damage. However, if the 60-mil liner is damaged, then the underlying (i.e., lowermost) 100-mil HDPE liner will be inspected and may also be repaired although this liner is not required. If the lowermost 100-mil liner is damaged, then the underlying environmental media (e.g., 6" layer of soil with 33% bentonite and native soils) will be investigated to determine if mobile non-aqueous phase liquid (NAPL) hydrocarbons are present immediately beneath the ponds. Only if mobile NAPL is present immediately beneath the ponds, which could migrate to ground water, will remediation of the underlying environmental media be conducted to remove the mobile NAPL. Otherwise, any impacts to the underlying media should not present a threat to human health or the environment due to the fact that multiple overlying liners will prevent any direct contact to or leaching of contaminants.

After all repairs are completed, the impacted leachate collection systems will be flushed with clean water. The leachate collection system consists of a geonet, which is designed to collect any leaks passing through the overlying 100-mil HDPE top liner, drain lines to a sump equipped with a 6" observation pipe, and a 60-mil HDPE secondary liner. Samples of the flush water will be analyzed for hazardous characteristics using methods specified in 40 CFR Part 261 C –Characteristics of Hazardous Waste to determine when flushing has adequately cleaned the collection system. The

collected flush water will be pumped back to the WWTU system for handling through the API separator and benzene strippers.

All hazardous waste and waste residues will be removed and properly disposed by conducting the modified closure process and there will be no potential for any post-closure escape of such wastes, thus meeting the Enforceable Document modified closure performance standards in §§265.111(a) and (b) as specified by §265.110(d)(2).

5 Construction Details

The original Schedule of Closure in the 1995 closure plan provided about 13 weeks for the closure of the ABT units. The closure time frame will be doubled for serial closure of the South ABT unit, followed by North ABT-E and North ABT-W, plus any additional time to repair damage to the liners and address impacts to underlying environmental media.

The schedule for closure of the ABT South ABT unit is as follows:

"Description	Duration
Start of closure [in this case 60 days after NMED plan approval]	
Aeration of impoundments	2 weeks
Testing of treated waste water	1 week
Removal of treated waste water	1 week
Drying of residual solids	4 weeks
Testing of residual solids	1 week
Removal of residual solids	1 week
Washing of impoundments	1 week
Inspection and repair of liners, as necessary	1 week
Flushing of equipment	1 week
Final testing and certification	1 week
Total time required	14 weeks"

The current cost of ABT unit closure[5] is presently estimated at $35,532.00, based on the following:

> "Since these impoundments are undergoing continuous treatment in which the waste stream (a D018 waste because of benzene concentration) is being rendered non-hazardous, closure will simply require:
>
> 1) Stop adding new waste to the treatment stream [in this case the ABT unit];
> 2) Continue treatment until TC characteristic is gone;
> 3) Empty impoundments;
> 4) Analyze sediments for TC characteristics; and
> 5) Remove and dispose of sediments.

[5]The 1995 Closure Plan estimated closure costs at $20,800 total, based on the same type of analysis used here; but this plan updates those costs to be current for 2007.

Cost Estimate

Vigorous aeration with diesel pump		
Operator: 168 hours @ $30/hr	$	5,040
Fuel for Pump: 8 gph x $3.00/gal x 168 hrs		4,032
Testing of treated water		
Benzene: 15 samples @ $120/sample		1,800
Testing of residual solids		
TCLP: 15 samples @ $500/sample		7,500
Removal of residual solids		
Labor: 2 workers @ 40 hrs/ea x $30/hr		2,400
Disposal: 40,000 lbs x $0.20/lb + $2,200 freight		10,200
Washing of impoundments		
Mobil wash: 24 hours x $80/hr		1,920
Flushing of equipment		
Mobil wash: 8 hrs x $80.hr		640
Final testing and certification		2,000
Total Closure Cost (estimate)		**$35,532**

NMED Approval with Modifications

NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

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DIANE DENISH
Lieutenant Governor

RON CURRY
Secretary

JON GOLDSTEIN
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 7, 2008

James R. Schmaltz
Environmental Manager
Western Refining Southwest, Inc
Bloomfield Refinery.
P.O. Box 159
Bloomfield, NM 87413

RE: APPROVAL WITH MODIFICATIONS
CLOSURE PLAN FOR THE AERATION LAGOONS
WESTERN REFINING SOUTHWEST, INC., BLOOMFIELD REFINERY
EPA ID # NMD089416416
HWB-GRCB-07-006

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) has reviewed Western Refining Southwest, Inc., Bloomfield Refinery's (Western) *Closure Plan North and South Aeration Lagoons* (Closure Plan), dated May 2008. NMED hereby approves this Closure Plan with modifications. Western must adhere to all requirements established below.

Comment 1
A typographical error was found in Section 4.2 (Closure Procedures), page 10, paragraph three which states "[f]ollowing appropriate aggressive biological treatment conducted in accordance with 40 CFR §261.3(b)(2)(i), the treated wastewaters will then be routed..."

The correct citation is 40 CFR §261.31(b)(2)(i), which was stated accurately in your response to comments, Comment 6. Western must submit a replacement page with this revision.

Comment 2

Western stated in their May 28, 2008 letter *Response to March 31, 2008 Notice of Disapproval*, Comment 14 that "[i]n NMED's letter dated June 1, 2007, which instructed Western in the preparation of the closure plan and noted the requirement for a post-closure care permit, the NMED stated that, "[t]he permit will require to conduct short-term and long-term monitoring of soil and groundwater in the vicinity of the surface impoundment." Western requests that installation of the ground water monitoring system be implemented pursuant to the post-closure care permit instead of the closure plan for the aeration lagoons."

As part of the closure process, Western must install the four monitoring wells at the locations identified in the attachment Figure 1 (refer to 40 CFR 264.112(b)(5)) and must adhere to the following:

a. Western must follow the Monitoring Well Construction Requirements located in Section IX of the Order.

b. The well screen must be approximately 15 feet in length, intersect the water table with approximately five feet of screen above the water table and approximately 10 feet of screen below the water table.

c. Western must collect soil samples at five foot intervals. The most contaminated sample(s), sample(s) obtained from just above the water table, and any other sample collected at the discretion of Western must be submitted to a certified analytical laboratory for chemical analysis. The chemical analysis must include diesel range organics (DRO) extended, gasoline range organics (GRO), volatile organic compounds (VOCs), and RCRA metals. If DRO exceeds 2,000 part per million, then the samples must be analyzed for semi-volatile organic compounds (SVOCs).

d. Groundwater samples must be collected from the four newly installed monitoring wells no later than five days after the completion of the well development. The samples must be analyzed for DRO extended, GRO, VOCs, SVOCs, RCRA metals, and general chemistry to include major cations and anions. When sampling, Western must follow the applicable requirements found in Section VIII.B (Groundwater and Surface Water Monitoring) of the July 27, 2007 Order.

e. Since closure of the Aeration Lagoons will begin 60 days after NMED's approval, the monitoring wells must be installed 180 days from the day closure begins. Western must contact NMED one week prior to the start date of closure.

Western must submit a closure report to NMED within 210 days from the day closure is completed and notify NMED in writing of the completion of closure activities at the aeration lagoons within 5 business days of the closure completion date. The closure report must address all closure activities as well as summarize all details of monitoring well installation.

Please contact Hope Monzeglio of my staff at (505) 476-6045, should you have any questions.

Sincerely,

John E. Kieling
Program Manager
Permits Management Program
Hazardous Waste Bureau

cc: J. Bearzi, NMED HWB
D. Cobrain, NMED HWB
H. Monzeglio, NMED HWB
L. King, EPA Region 6
A. Hains, Western Refining El Paso

File: GRCB 2008 and Reading
GRCB 07-006

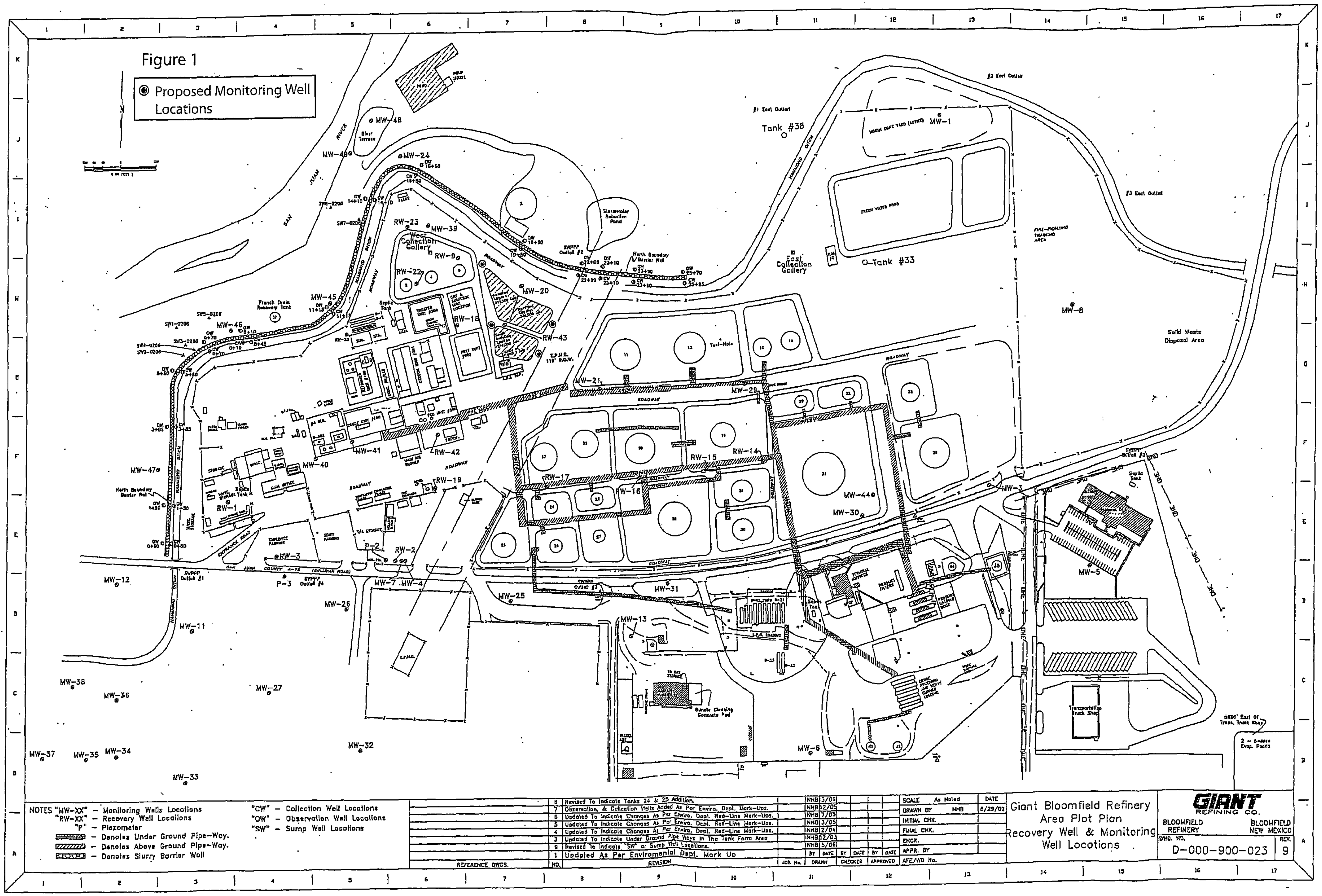
Figure 1
Proposed Monitoring Well Locations
NOTES "MW-XX" - Monitoring Wells Locations
"RW-XX" - Recovery Well Locations
"P" - Piezometer
- Denotes Under Ground Pipe-Way.
- Denotes Above Ground Pipe-Way.
- Denotes Slurry Barrier Wall
"CW" - Collection Well Locations
"OW" - Observation Well Locations
"SW" - Sump Well Locations
8 Revised To Indicate Tanks 24 & 25 Addition. NHB 3/06
7 Observation & Collection Wells Added As Per Enviro. Dept. Mark-Ups. NHB 12/05
6 Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups. NHB 7/05
5 Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups. NHB 3/05
4 Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups. NHB 2/04
3 Updated To Indicate Under Ground Pipe Ways In The Tank Farm Area NHB 12/03
9 Revised To Indicate "SW" or Sump Well Locations. NHB 5/06
1 Updated As Per Enviromental Dept. Mark Up
SCALE As Noted
DRAWN BY NHB
DATE 8/29/02
Giant Bloomfield Refinery
Area Plot Plan
Recovery Well & Monitoring
Well Locations
GIANT REFINING CO.
BLOOMFIELD REFINERY
BLOOMFIELD NEW MEXICO
DWG. NO. D-000-900-023
REV. 9
San Juan River
Tank #38
Tank #33
East Collection Gallery
West Collection Gallery
Solid Waste Disposal Area
MW-1
MW-3
MW-5
MW-6
MW-8
MW-11
MW-12
MW-13
MW-20
MW-21
MW-24
MW-25
MW-26
MW-27
MW-29
MW-30
MW-31
MW-32
MW-33
MW-34
MW-35
MW-36
MW-37
MW-38
MW-39
MW-40
MW-41
MW-44
MW-45
MW-46
MW-47
MW-48
MW-49
RW-1
RW-2
RW-3
RW-9
RW-14
RW-15
RW-16
RW-17
RW-18
RW-19
RW-22
RW-23
RW-42
RW-43
P-2
P-3

Attachment 2

Photographs of Closure (Before)

Photo 1
South ABT Unit

Photo 2
Northeast ABT Unit

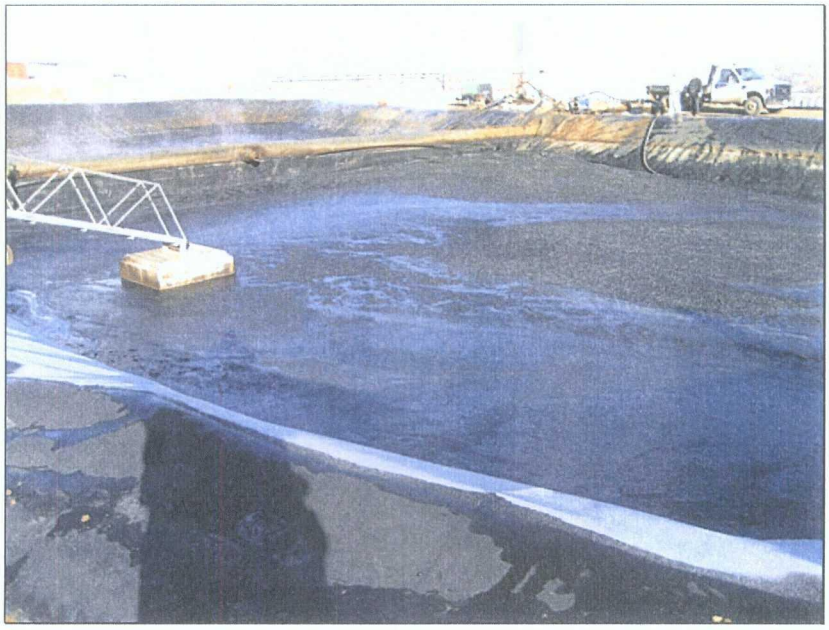

Photo 3
Northwest ABT Unit

Attachment 3

Photographs of Closure (After)

Photo 1
South ABT Unit – Cleaned and Repaired

Photo 2
Pressure Washing Northwest ABT Unit

Photo 3
Northeast ABT Unit After Cleaning – Before Discharge Piping Replacement and Liner Repair

Attachment 4

Liner Repair Photos

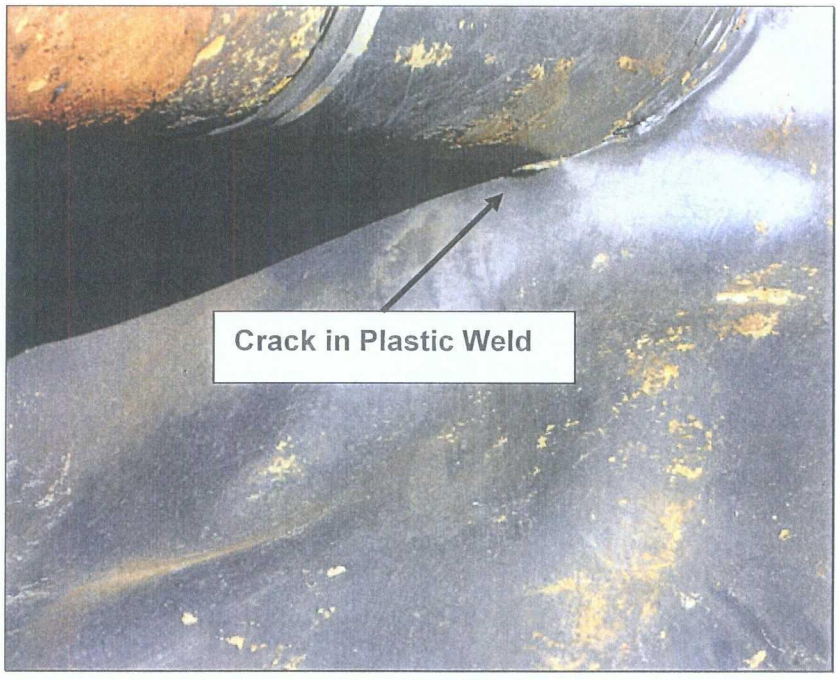

Photo 1
Tear in the Liner Underneath the West Crossover
Pipe between #1 ABT Unit and #2 ABT Unit

Photo 2
West Crossover Piping Replacement between #1 ABT Unit
and #2 ABT Unit and Liner Repair in Progress

Photo 3
Completed Repair of Liner and West Crossover Piping in the #1 ABT Unit

Photo 4
Completed Repair of Liner and West Crossover Piping From #1 ABT Unit into #2 ABT Unit

Photo 5
Example of Scrape in the #2 ABT Unit

Photo 6
Example of Plastic Weld Bead to Reinforce the Scrape in #2 ABT Unit

Photo 7
Completed Repair of East Crossover Piping From #1 ABT Unit to #3 ABT Unit

Photo 8
Tear on East Wall of #3 ABT Unit

Photo 9
Repair of East Tear with a Plastic Weld Bead

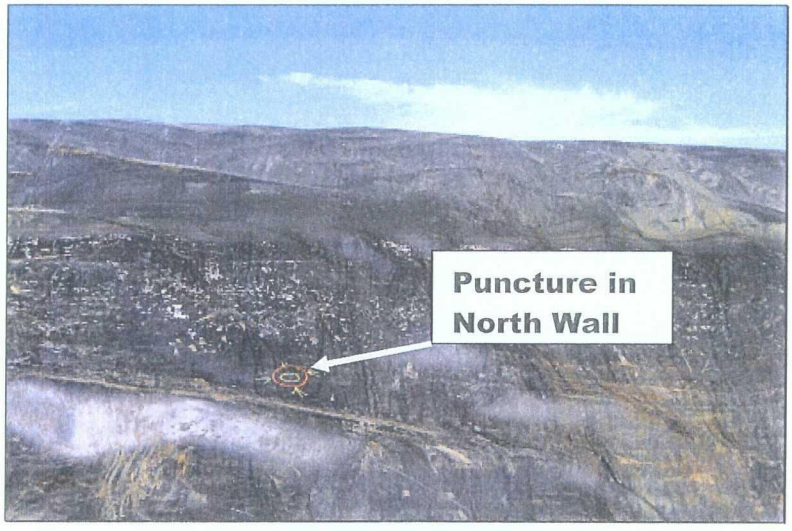

Photo 10
Puncture in North Wall of #3 ABT Unit

Photo 11
Plastic Weld Bead Repair on north Wall of #3 ABT Unit

Attachment 5

Sludge Sample Locations

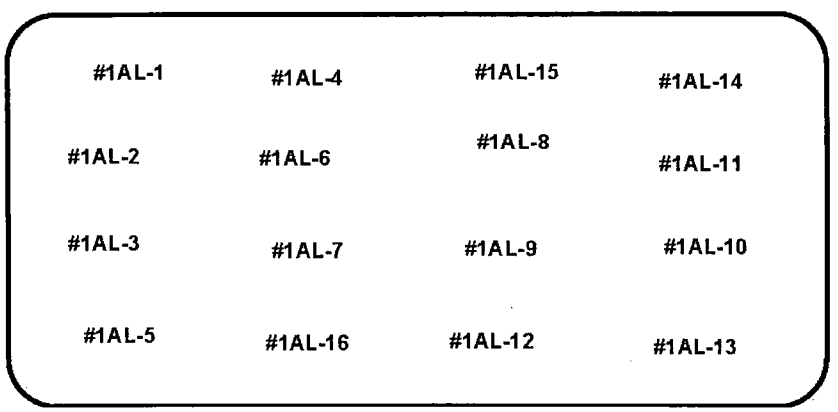

Figure 1 - South ABT Unit

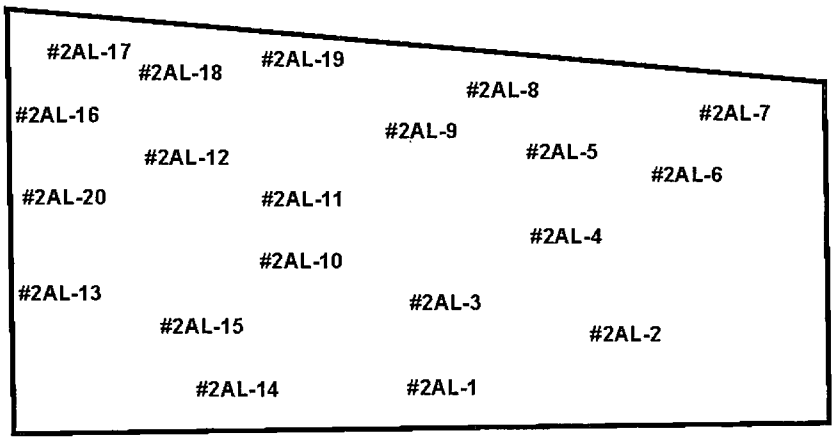

Figure 2 – Northwest ABT Unit

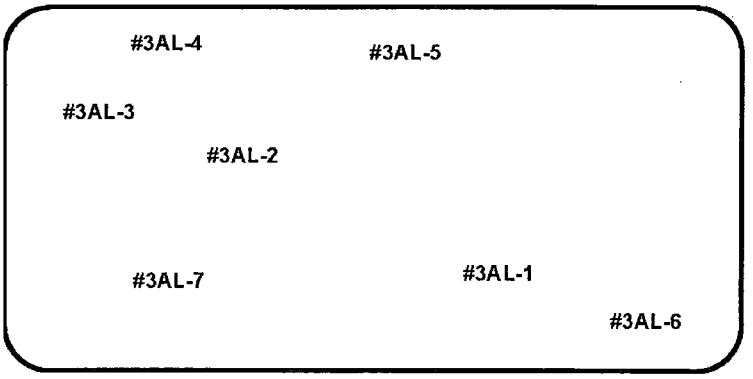

Figure 3 - Northeast ABT Unit

Attachment 6

Chain-of-Custody Forms and CD of Laboratory Analytical Reports

Contents

- Sludge Characterization #1 Aeration Lagoon
- Sludge Characterization #2 Aeration Lagoon
- Sludge Characterization #3 Aeration Lagoon
- #1 Aeration Lagoon Flush Water
- #3 Aeration Lagoon Liner Water
- Soil Analysis from #1 to #2 Crossover Piping
- Soil Analysis from #3 Lagoon Discharge
- Soil Boring Samples
- Monitoring Well Ground Water Sample

Sludge Characterization #1 Aeration Lagoon

Chain-of-Custody Record

Client: Western Refining Southwest Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield NM
Phone #: (505) 632-4161
email or Fax#: Cindy.Hurtado@Wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
☐ Other
☑ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 4 day
Project Name: Aeration Lagoon #1 Characterization
Project #:
Project Manager: Cindy Hurtado
Sampler: Bob K. / Cindy Hurtado
On Ice: ☑ Yes ☐ No
Sample Temperature: 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO3,NO2,PO4,SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TCLP RCT	TCLP-RCRA 8 Metals	TCLP-8260-Benzene only	Air Bubbles (Y or N)
10/7/8	1445	Sludge	#1AL-7	(1) 1L	None	1												X	XX		
	↓		↓	(1) 4oz		1														X	
	1440		#1AL-8	(1) 1L		2												X	XX		
	↓		↓	(1) 4oz		2														X	
	1435		#1AL-9	(1) 1L		3												X	XX		
	↓		↓	(1) 4oz		3														X	
	1430		#1AL-10	(1) 1L		4												X	XX		
	↓		↓	(1) 4oz		4														X	
	1425		#1AL-11	(1) 1L		5												X	XX		
	↓		#1AL-11	(1) 4oz		5														X	
	1420		#1AL-12	(1) 1L		6												X	XX		
	↓		↓	(1) 4oz		6														X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/7/08	1610	Cindy Hurtado		10/8/08	1119
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: 8260 - Full TCLP - df
8260 ran for Benzene Only
Per Cindy Analyze 1-8 only for 8260/8270 df

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Western Refining (Blmfld)

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 4-day

Project Name: Aeration Lagoon #1 Characterization

Project #:

Project Manager:

Sampler: CH/PMK

On Ice: ☒ Y ☐ N

Sample Temperature: 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO
10/07/08	1405	Sludge	#1AL-15	1-liter		7
	/		/	1-4ozjar		7
	1400		#1AL-16	1-liter		8
	/			1-4ozjar		8

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	8260 TCLP - Benzene Only	Rcra 8 metals TCLP	RCT		Air Bubbles (Y or N)
											X	X	X		
											X	X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/07/08	1617	Cindy Hurtado			
Date:	Time:	Relinquished by:	Received by:	10/8/08	1119

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Western Refining Southwest Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM
Phone #: (505) 632-4161
email ~~or Fax#~~: Cindy.Hurtado@wnr.com

QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 4-day
Project Name: Aeration Lagoon #1 Characterization
Project #: —
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krawl
On Ice: ☑ Yes ☐ No
Sample Temperature: 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 08101402	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	RCI	TCLP-RCRA Metals	TCLP - 8260 Benzene Only		Air Bubbles (Y or N)
10/7/08	1515	Sludge	#1 AL - 1	(1) 1L	None	9												X	X			
	↓		↓	(1) 4oz		9														X		
	1520		#1 AL - 2	(1) 1L		10												X	X			
	↓		↓	(1) 4oz		10														X		
	1505		#1 AL - 3	(1) 1L		11												X	X			
	↓		↓	(1) 4oz		11														X		
	1500		#1 AL - 4	(1) 1L		12												X	X			
	↓		↓	(1) 4oz		12														X		
	1455		#1 AL - 5	(1) 1L		13												X	X			
	↓		" ↓	(1) 4oz		13														X		
	1450		#1 AL - 6	(1) 1L		14												X	X			
	↓		↓	(1) 4oz		14														X		

Date: 10/7/08 Time: 1616 Relinquished by: Cindy Hurtado
Received by: Date 10/8/08 Time 1119
Date: Time: Relinquished by:
Received by: Date Time

Remarks: Per Cindy cancel all samples past heat # 9
Refer to ~~RCRA~~ Order
8260 run for Benzene Only

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Western Refining (Bmfld)

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 4-day

Project Name: Aeration Lagoon #1 Characterization

Project #:

Project Manager:

Sampler: Cindy Hurtado

On Ice: ☑ Yes ☐ No

Sample Temperature: 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0810102
10/07/08	1415	Sludge	#1AL-13	1-liter		15
/	/	/	↓	1-4oz jar		15
/	1410	/	#1AL-14	1-liter		16
/	/	/	/	1-4oz		16
			~~trip blank~~			17
				ID 10/21/08		

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO3,NO2,PO4,SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	8260 TCLP-Benzene Only	RCRA8 Metals-TCLP	RCI		Air Bubbles (Y or N)
											X	X	X		
											X				
												X	X		
											X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/07/08	1615	Cindy Hurtado			
Date:	Time:	Relinquished by:	Received by:	10/8/08	1119

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Sludge Characterization #2 Aeration Lagoon

Chain-of-Custody Record

Client: Western Refining Southwest, Inc. Bloomfield Refinery

Mailing Address: 50 Road 4990 Bloomfield, NM

Phone #: (505) 632-4171

email or Fax#: Cindy.Hurtado@wnr.com

QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
☐ Other
☑ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 4 day

Project Name: #2AL Characterization

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurt/Bob Kraker

On Ice: ☒ Yes ☐ No

Sample Temperature: 2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TCLP - 8260 Benzene	TCLP - RCRA 8 Metals	RCI		Air Bubbles (Y or N)
10/9/08	0930	Sludge	#2AL-1	(2) glass	None	08/0240-1												X	X	X		
	0935		#2AL-2			-2												X	X	X		
	0940		#2AL-3			-3												X	X	X		
	0945		#2AL-4			-4												X	X	X		
	0950		#2AL-5			-5												X	X	X		
	0955		#2AL-6			-6												X	X	X		
	1000		#2AL-7			-7												X	X	X		
	1005		#2AL-8			-8												X	X	X		
	1010		#2AL-9			-9												X	X	X		
	1015		#2AL-10			-10												X	X	X		
	1020		#2AL-11			-11												X	X	X		
—	—		TB	(2) VOA	HCl	-12										X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/09/08	2pm	Cindy Hurtado		10/10/08	10:00
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:
Provide hard-copy of Level II DV.
" disc with " IV DV.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Western Refining Southwest Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM
Phone #: (505) 632-4171
email or ~~Fax#~~: Cindy.Hurtado@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
☐ Other
☑ EDD (Type)

Turn-Around Time:
☐ Standard ☑ ~~Rush~~ 4 day
Project Name: #2AL Characterization
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob K.
On Ice: ☑ Yes ☐ No
Sample Temperature: 2°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
10/9/8	1025	Sludge	#2AL-12	(2) glass	None	08102240-13
	1030		#2AL-13			-14
	1035		#2AL-14			-15
	1040		#2AL-15			-16
	1045		#2AL-16			-17
	1050		#2AL-17			-18
	1055		#2AL-18			-19
	1100		#2AL-19			-20
	1105	↓	#2AL-20	↓	↓	-21
↓	NA	Water	TB	(2) VOAs	HCL	-22

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TCLP-8260 Benzene Only	TCLP-Metals RCRA8	RCI		Air Bubbles (Y or N)
											X	X	X		
											X	X	X		
											X	X	X		
											X	X	X		
											X	X	X		
											X	X	X		
											X	X	X		
											X	X	X		
											X	X	X		
									X						

Date: 10/9/8 Time: 205pm Relinquished by: Cindy Hurtado
Received by: Date 10/10/08 Time 10:00
Date: Time: Relinquished by:
Received by: Date Time

Remarks: Run TCLP 8260 for Benzene Only
" " RCRA 8 metals.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Sludge Characterization #3 Aeration Lagoon

Chain-of-Custody Record

Client: Western Refining (Bloomfield)

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time: Results by
☐ Standard ☒ Rush 10-31-08

Project Name: #3AL Characterization

Project #: ~~#3AL~~

Project Manager: Cindy Hurtado

Sampler: GH/Rmk

On Ice: ☒ Yes ☐ No

Sample Temperature: 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0810473
10/21/08	1300	Sludge	#3AL-1	(1) 4oz (1) 8oz	None	-1
	1305		#3AL-2	(1) 4oz (1) 8oz		-2
	1310		#3AL-3			-3
	1315		#3AL-4			-4
	1320		#3AL-5			-5
	1325		#3AL-6			-6
	1330		#3AL-7			-7

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TCLP-8260	TCLP-8270	TCLP-Metals/RCRA 8	RCI	Air Bubbles (Y or N)
								(1)			X	X	X	X	
											X	X	X	X	
											X	X	X	X	
											X	X	X	X	
											X	X	X	X	
											X	X	X	X	
											X	X	X	X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/21/08	215p	Cindy Hurtado			
Date:	Time:	Relinquished by:	Received by:	10/22/08	11:43

Remarks:
Contact Cindy Hurtado with questions and verbal results (505) 632-4161.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

#1 Aeration Lagoon Flush Water

CHAIN-OF-CUSTODY RECORD

QA/QC Package: Std ☐ Level 4 ☑
Other:

Client: Western Refining (Blmfld)

Address: ~~#50~~ CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: #1 AL flush water 11-19-08
Project #:
Project Manager:
Sampler: Cindy & Bob
Sample Temperature: 3°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative:	HEAL No.
								0811321
11-19-08	8:40	H_2O	#1 AL flush water	3-VOA			HCl	1
				1 liter*			Amber	1
				1 500 ml			NaOH	1
				1 500 ml			Zn Acetate NaOH	1
				1 500 ml			N/A	1
				1 500 ml		X		1

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	RCI				Air Bubbles or Headspace (Y or N)
										X						
											X					
												X				
												X				
												X				
							X									

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
11-19-08	9:10	Robert Erickson		1125
			11/20/08	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

#3 Aeration Lagoon Liner Water

Chain-of-Custody Record

Client: Western Refining (Blmfld)

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush

Project Name: #3 AL Liner water 1-20-09

Project #:

Project Manager:

Sampler: Cindy + Bob

On Ice: ☑ Yes ☐ No

Sample Temperature: 2

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www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0901243	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	RCI				Air Bubbles (Y or N)
1-20-09	3:25	H_2O	#3 AL liner water	3-VOA	HCl	-1										X						
				1-liter	Amber	-1											X						
				1-500ml	NaOH	-1												X				
				1-500ml	ZN ACETATE NaOH	-1												X				
				1-500ml	H/A	-1												X				
				1-500ml	HNO_3	-1							X									
			tripblank			-2																

Date: 1/20/09 Time: 345 PM Relinquished by: Cindy Hurtado

Received by: [signature] Date: 1/21/09 Time: 1005

Date: Time: Relinquished by:

Received by: Date: Time:

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Soil Analysis from #1 to #2 Crossover Piping

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

Client: Western Refining (Blmfld)

Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: #1AL-#2AL Crossover

Project #:

Project Manager:

Sampler:

Sample Temperature: 6

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4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.
11/13/08	1pm	Soil	#1AL-#2AL Crossover	Boy JAR			0811228 -1

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	TCLP - Benzene only	TCLP - RCRA 8 Metals			Air Bubbles or Headspace (Y or N)
												X	X			

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
11/13/08	2pm	Cindy Hurtado	12:15 11/14/08
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

Benzene only per C. Hurtado
11/17/08

Soil Analysis From #3 Lagoon Discharge

Chain-of-Custody Record

Client: Western Refining - Bloomfield

Mailing Address: #50 Rd 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☐ Rush _____

Project Name: #3AL Discharge - Soil

Project #:

Project Manager:

Sampler: CH/Rak

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.7

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www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO 0901354
01-28-09	930A	Soil	#3AL Discharge - Soil	2-4oz jar		-1

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TCLP Benzene Only	TCLP RCRA 8 Metals			Air Bubbles (Y or N)
											X	X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
1-28-09	11:05	Robert Krakow		1/29/09	955
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Soil Boring Samples

COC 1 of 2

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Western Refining Southwest Inc Bloomfield Refinery

Mailing Address: 50 Road 4990 Bloomfield, NM

Phone #: (505) 632-41666

email or Fax#: Kelly.Robinson@wnr.com

QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☑ EDD (Type) EXCEL

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: RCRA Investigation - Gap 1

Project #:

Project Manager: Kelly Robinson

Sampler: Tracy Payne

On Ice: ☑ Yes ☐ No

Sample Temperature: 5°

HEAL No. 0904632

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO3,NO2,PO4,SO4)	8081 Pesticides / 8082 PCB's	8260B (~~VOA~~)	8270 (Semi-VOA)*	~~8015~~ TPH-DRO, GRO, MRO				Air Bubbles (Y or N)
3/31/9	1615	Soil	IM 1-3 (15-17')	(3) Jars	None	-1							X				X	X				
				(2) Encores	"	-1										X						
				(2) Vials	MeOH	-1										X						
3/31/9	1645	Soil	IM 1-3 (4-6')	(3) Jars	None	-2							X				X	X				
				(2) Encore	None	-2										X						
				(2) Vials	MeOH	-2										X						
3/31/9	1700	Water	EBS-033109	(6) VOAs	(5) w/HCl (1) w/None	-3										X		X				
				(1) Poly	HNO_3	-3							X									
				(1) Amber	None	-3											X					
				(1) Poly	~~H_2SO_4~~ NaOH	-3							X									
3/31/09	—	MeOH	MeOH BLANK	(1) VIAL	MeOH	-4										X						
3/31/09	—	GW	TRIP BLANK-033109	(2) VOAs	HCl	-5										X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/1/09	1200	Kelly Robinson	Fed Ex		
Date:	Time:	Relinquished by:	Received by:	Date	Time
				4/2/09	0955

Remarks:
* HOLD SVOC samples; Analyze if DRO results are higher than 2,000ppm.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

COC2of2

Chain-of-Custody Record

Client: Western Refining Southwest, Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☑ EDD (Type) EXCEL

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA Investigation - Group 1
Project #:
Project Manager: Kelly Robinson
Sampler: Tracy Payne
On Ice: ☑ Yes ☐ No
Sample Temperature: 4°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 090632
3/31/09	1730	GW	FB-033109	(6) VOAs	5w/HCl 1w/NONE	-16
				(1) Poly	HNO_3	-16
				(1) Amber	None	-16
				(1) Poly	~~H_2SO_4~~ NaOH	-16

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA) #	TPH - DRO GRO MRO				Air Bubbles (Y or N)
									X		X				
						X									
										X					
						X									

Date	Time	Relinquished by:	Received by:	Date	Time
4/1/09	1200	Kelly Robinson	FedEx		
Date:	Time:	Relinquished by:	Received by:	Date	Time
				4/2/09	0955

Remarks:
Analyze for SVOCs on FB if any IM sample is analyzed for SVOCs.
↳ Refer to Andy if there are questions.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

COC 1 of 3

Chain-of-Custody Record

Client: Western Refining Southwest, Bloomfield Refinery
Mailing Address: 50 Road 4990, Bloomfield, NM
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package: ☐ Standard ☑ Level 4 (Full Validation)
Accreditation: ☐ NELAP ☐ Other
☑ EDD (Type) Excel

Turn-Around Time: ☑ Standard ☐ Rush
Project Name: RCRA INVESTIGATION - GROUP 1
Project #: —
Project Manager: Kelly Robinson
Sampler: Tracy Payne
On Ice: ☑ Yes ☐ No
Sample Temperature: 4°

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Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 904076	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Cyanide	TPH-DRO, GRO, MRO			Air Bubbles (Y or N)
4/1/09	1645	Water	EBS-040109	(1) Poly	NaOH	-1												X				
				(1) Poly	HNO_3	-1							X									
				(1) Amber	None	-1											X					
				(5) VOAs	HCl	-1										X						
				(1) VOA	None	-1													X			
4/1/09	1700	Water	FB-040109	(1) Poly	NaOH	-2																
				(1) Poly	HNO_3	-2																
				(1) Amber	None	-2																
				(5) VOAs	HCl	-2																
				(1) VOA	None	-2																
—	—	Water	Trip Blank	(3) VOAs	HCl	-3										X						

Date	Time	Relinquished by:	Received by:	Date	Time
4/2/09	12:00		FedEx		
				4/3/09	0955

Remarks: See other COCs for Remarks

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

COC 2 of 3

Chain-of-Custody Record

Client: Western Refining Southwest Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☑ EDD (Type) Excel

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA INVESTIGATION GROUP 1
Project #:
Project Manager: Kelly Robinson
Sampler: Tracy Payne
On Ice: ☑ Yes ☐ No
Sample Temperature: 4°

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1904078	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)*	Metals**	TPH - DRO, GRO, MRO			Air Bubbles (Y or N)
			~~IM 1-2 (16')~~																			
4/1/09	1630	Soil	IM 1-2 (16-18')	(2) Vials	MeOH	-4										X						
				(2) Encors	None	-4										X						
				(3) Jars		-4											X	X	X			
4/1/09	1615	Soil	IM 1-2 (4-6')	(2) VIALS	MeOH	-5										X						
				(2) Encors	None	-5										X						
				(3) Jars		-5											X	X	X			
—	—	GW	MEOH BLANK	(2) VIALS	MeOH	-6										X						
4/2/09	1045	Soil	IM 1-1 (8-10')	(2) VIALS	MeOH	-7										X						
				(2) Encore	None	-7										X						
				(3) Jars		-7											X	X	X			

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/2/09	1200	Kelly Robinson	Fed Ex		
Date:	Time:	Relinquished by:	Received by:	Date	Time
				4/3/09	0955

Remarks:
* = Analyze for SVOCs if DRO is above 2,000 ppm.
** = Refer to Work Plan for list (8 RCRA Metals)

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

COC 3 of 3

Chain-of-Custody Record

Client: Western Refining Southwest Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield NM
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☑ EDD (Type) EXCEL

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA INVESTIGATION-Group1
Project #:
Project Manager: Kelly Robinson
Sampler: Tracy Payne
On Ice: ☑ Yes ☐ No
Sample Temperature: 4

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0904402	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)*	TPH-GRO DRO MRO	Air Bubbles (Y or N)
4/2/09	1100	Soil	IM1-1(18-20')	(2) VIALS		-8										X			
				(2) Encore		-8										X			
				(3) Jars		-8							X				X	X	
4/2/09	1115	Soil	IM1-1(20-22')	(2) VIALS		-9										X			
				(2) Encore		-9										X			
				(3) Jars		-9							X				X	X	

Date: 4/2/09 Time: 1200 Relinquished by: Kelly Robinson
Received by: Fed Ex. Date Time
Date: Time: Relinquished by:
Received by: Date 4/3/09 Time 0935

Remarks:
Refer to Work Plan
*Analyze SVOCs if DRO concentration is above 2,000ppm.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Western Refining Southwest, Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM 87413
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
☐ Other
☑ EDD (Type) EXCEL

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA INVESTIGATION
Project #:
Project Manager: Kelly Robinson
Sampler: Tracy Payne
On Ice: ☑ Yes ☐ No
Sample Temperature: 4°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO 0904085	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO3,NO2,PO4,SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)*	TPH - DRO, GRO, MRO	Air Bubbles (Y or N)
4/3/9	1215	Soil	IM 1-4 (2-4')	(2) 4oz Jars	None	-1										X			
				(2) VIALS	MeOH	-1										X			
				(3) Jars	None	-1							X				X	X	
	1230	Soil	IM 1-4 (18-18.5')	(2) 4oz Jars	None	-2							X			X			
				(2) VIALS	MeOH	-2										X			
				(3) Jars	None	-2							X				X	X	
4/3/9	1245	GW	FB-040309	(5) VOAs	HCl	-3										X			
				(1) VOA	None	-3												X	
				(1) Poly	HNO_3	-3							X						
				(1) Amber	None	-3											X		
4/3/9	1300	GW	EBS-040309	(5) VOAs	HCl	-4										X			
				(1) VOA	None	-4												X	

Date: 4/3/9 Time: 1500 Relinquished by: Kelly Robinson
Received by: Fed Ex Date Time
Date: Time: Relinquished by:
Received by: Date 4/9/09 Time 9:30 am

Remarks:
* See previous COC for Remarks

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Western Refining Southwest Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield NM 87413
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
☐ Other
☑ EDD (Type) Excel

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA INVESTIGATION - Gap 1
Project #:
Project Manager: Kelly Robinson
Sampler: Tracy Payne
On Ice: ☑ Yes ☐ No
Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0904076	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)*	TPH + DRO, GRO, MRO				Air Bubbles (Y or N)
4/2/9	1630	GW	FB-040209	(1) Poly	HNO_3	-5							X									
				(1) Amber	None	-5											X					
				(5) VOAs	HCl	-5										X						
				(1) VOA	NONE	-5												X				
4/2/9	1645	GW	EBS-040209	(1) Poly	HNO_3	-6							X									
				(1) Amber	None	-6											X					
				(5) VOAs	HCl	-6										X						
				(1) VOA	NONE	-6												X				
—	—	GW	MeOH Blank	(2) VIALS	MeOH	-7										X						
—	—	GW	TRIP BLANK	(3) VOAs	HCl	-8										X						
4/3/9	1300	GW	EBS-040309	(1) Amber	None	-9									~~X~~	~~X~~	X	* 4/6/09				
				(1) Poly	HNO_3	-9							X									

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/3/9	1500	Kelly Robinson	Fed Ex		
Date:	Time:	Relinquished by:	Received by:	Date	Time
			Andy	4/4/09	9:30

Remarks:
* = HOLD SVOC samples. Analyze if DRO results are greater than 2,000 ppm. Call Client PM w/ Results.

Monitoring Well Ground Water Sample

Chain-of-Custody Record

Client: Western Refining Southwest Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM 87413
Phone #: (505) 632-4166
email or Fax#: kellyRobinson@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☑ EDD (Type) Excel

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA Investigation - Group 1
Project #:
Project Manager: Kelly Robinson
Sampler: Kelly Robinson
On Ice: Type: Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0905061	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (~~Method 418.1~~) DRO, MRO GRO	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Gen Chemistry *				Air Bubbles (Y or N)
5/5/9	1300	Aq	EBW-050509	(1) VOA	None	-1				X												
				(5) VOAs	HCl	-1										X						
				(1) Poly	HNO_3	-1							X									
				(1) Amber	None	-1											X					
				(1) Poly	None	-1								X				X				
5/5/9	1100	Aq	FB-050509	(1) VOA	None	-2				X												
				(5) VOAs	HCl	-2										X						
				(1) Poly	HNO_3	-2							X									
				(1) Amber	None	-2											X					
				(1) Poly	None	-2								X				X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/5/9	1309	Kelly Robinson			
Date:	Time:	Relinquished by:	Received by:	5/10/09	920

Remarks: * Refer to attached analyte list.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Western Refining Southwest, Inc.
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM 87413
Phone #: (505)632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☑ EDD (Type) EXCEL

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA INVESTIGATION - GROUP 1
Project #:
Project Manager: Kelly Robinson
Sampler: Kelly Robinson
On Ice: ☑ Yes ☐ No
Sample Temperature: 7

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Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO 0905017	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (~~Method 418.1~~) GRO, DRO, MRO	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Gen Chemistry *				Air Bubbles (Y or N)
5/5/9	1000	Aq	MW-58	(1) VOA	NONE	-3				X												
				(5) VOAs	HCl	-3										X						
				(1) Poly	HNO_3	-3							X									
				(1) Amber	None	-3											X					
				(1) Poly	None	-3								X				X				
5/5/9	1130	Aq	MW-57	(1) VOA	NONE	-4				X												
				(5) VOAs	HCl	-4										X						
				(1) Poly	HNO_3	-4							X									
				(1) Amber	None	-4											X					
				(1) Poly	None	-4								X				X				
—	—	Aq	TRIP BLANK	(3) VOAs	HCl	-5										X						

Date	Time	Relinquished by:	Received by:	Date	Time
5/5/9	1500	Kelly Robinson		5/6/09	920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:
* See attached list of anions - cations.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Western Refining Southwest, Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM 87413
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☑ EDD (Type) EXCEL

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA INVESTIGATION - GROUP 1
Project #: —
Project Manager: Kelly Robinson
Sampler: Kelly Robinson
On Ice: ☑ Yes ☐ No
Sample Temperature: 6

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Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1204584
5/5/9	1130	Aq	MW-57 (DUP)	(1) VOA	None	-6
				(5) VOA	HCl	-6
				(1) Poly	HNO_3	-6
				(1) Amber	None	-6
				(1) Poly	None	-6
5/5/9	1300	Aq	EBW-050509	(1) Poly	H_2SO_4	-1
	1130	Aq	MW-57	(1) Poly		-4
	1130	Aq	MW-57 (DUP)	(1) Poly		6
	1100	Aq	FB-050509	(1) Poly		-2
	1000	Aq	MW-58	(1) Poly		-3

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (~~Method 418.1~~) DRO GRO ORO	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Gen Chemistry	NO_2/NO_3			Air Bubbles (Y or N)
			X												
									X						
						X									
										X					
											X				
												X			
												X			
												X			
												X			

Date: 5/5/9 Time: 1500 Relinquished by: Kelly Robinson
Received by: [signature] Date: 5/6/09 Time: 900
Date: Time: Relinquished by:
Received by: Date: Time:

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

METALS ANALYSES

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.3/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020

GENERAL CHEMISTRY ANALYSES

Analyte	Analytical Method
Total Dissolved Solids	SM-2540C
Bicarbonate	SW-846 method 310.1
Chloride	EPA method 300.0
Sulfate	EPA method 300.0
Calcium	SW-846 method 7140
Magnesium	SW-846 method 7450
Sodium	SW-846 method 7770
Potassium	SW-846 method 7610
Manganese	SW-846 method 6010/6020
Nitrate/nitrite	EPA method 300.0
Ferric/ferrous Iron	SW-846 method 6010/6020 & SM 3500F e2+

Total Fe ✓ Dissolved

KT 5/6/09

add cation/Anion balance per kelly 5/6 ✓

No Cyanide ✓ 5/6

Chain-of-Custody Record

Client: Western Refining Southwest, Inc
Bloomfield Refinery
Mailing Address: 50 Road 4990
Bloomfield, NM 87413
Phone #: (505) 632-4166
email or Fax#: Kelly.Robinson@wnr.com
QA/QC Package:
☐ Standard ☑ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☑ EDD (Type) EXCEL

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: RCRA INVESTIGATION - Group 1
Project #: —
Project Manager: Kelly Robinson
Sampler: Kelly Robinson
On Ice: ☑ Yes ☐ No
Sample Temperature: 1

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Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1005113
5/5/9	1500	Aq	MW-54 (AT 5/7/09)	(1) VOA	NONE	-1
				(5) VOAs	HCl	-1
				(1) Poly	HNO_3	-1
				(1) Amber	None	-1
				(1) Poly	None	-1
5/5/9	1630	Aq	MW-55	(1) VOA	None	-2
				(5) VOAs	HCl	-2
				(1) Poly	HNO_3	-2
				(1) Amber	None	-2
				(1) Poly	None	-2
—	—	Aq	TRIP BLANK	(3) VOAs	HCl	-3
5/5/9	1500	Aq	MW-57	(1) Poly	H_2SO_4	-1
5/5/9	1630	Aq	MW-55	(1) Poly	H_2SO_4	-2

Date	Time	Relinquished by:	Received by:	Date	Time
5/6/9	1500	Kelly Robinson		5/7/09	1012
Date:	Time:	Relinquished by:	Received by:	Date	Time

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1) DRO MRO GRO	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Gen Chemistry * NO_2/NO_3			Air Bubbles (Y or N)
			X											
									X					
						X								
										X				
							X				X			
			X											
									X					
						X								
										X				
							X				X			
									X			X		
												X		

Remarks:
* See attached list for anions / cation analyte list.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

METALS ANALYSES

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.3/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020

GENERAL CHEMISTRY ANALYSES

Analyte	Analytical Method
Total Dissolved Solids	SM-2540C
Bicarbonate	SW-846 method 310.1
Chloride	EPA method 300.0
Sulfate	EPA method 300.0
Calcium	SW-846 method 7140
Magnesium	SW-846 method 7450
Sodium	SW-846 method 7770
Potassium	SW-846 method 7610
Manganese	SW-846 method 6010/6020
Nitrate/nitrite	EPA method 300.0
Ferric/ferrous Iron	SW-846 method 6010/6020 & SM 3500F e2+

Total v Diss Fe per AF AT 5/7/09

AT 5/6/09

Attachment 7

Soil Boring and Monitoring Well Location Map

ATTACHMENT 7

Soil Boring and Monitoring Well Location Map

Western Refining

Attachment 8

Soil Boring Logs & Well Construction Diagrams

WELL CONSTRUCTION

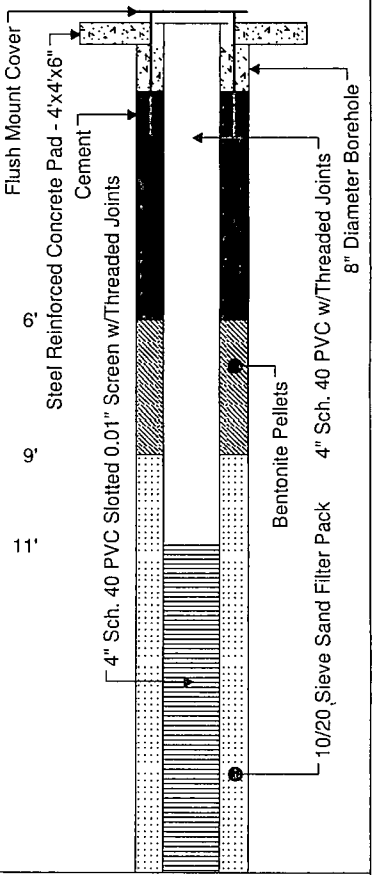
Well No.: MW-55 (IM1-1)
Start Date: 4/2/2009
Finish Date: 4/2/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #1, Bloomfield Refinery
Job No.: 354 - Bloomfield, NM
Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75
Drilling Method: Hollow-Stem Auger/ODEX
Sampling Method: Split Spoon
Comments: N36º41.964 W107º58.552

Total Depth: 27.25' bgl
Ground Water: Saturated @ 22' bgl
Elev., TOC (ft. msl): 5519.840
Elev., PAD (ft. msl): 5520.139
Elev., GL (ft. msl): 5519.938
Site Coordinates:
N 36º41'57.80286" **W** 107º58'33.06266"

Depth (ft.)	Sampling: Sample Depth	Sampling: Time	Sampling: Sample Type/Container/No	Sampling: Saturation	Sampling: Organic Vapor (ppm)	Sampling: USCS Class	Recovery (%)	Sample Description
								Ground Surface
0					0.0 49ºF		70	**Fill/Clay (CL)** Low plasticity, soft, damp, brown
2					0.2 49ºF		50	**Fill/Clay (CL)** Similar to above
4					434 49ºF		70	**Fill/Clay (CL)** Low plasticity, soft, damp, brown and gray, hydrocarbon odor
6					623 49ºF		70	**Fill/Clay (CL)** Similar to above, grayish brown, hydrocarbon odor
8	8-10'	1045	G/2V/2E/3J		891 49ºF		60	**Fill/Sand (SP)** Fine grain, loose, damp, brown to dark brown, hydrocarbon odor
10					630 48ºF		90	**Fill/Sand (SP)** Similar to above, hydrocarbon odor
12					518 48ºF		90	**Gravelly Sand (SW)** Fine to coarse grain, loose, damp, dark gray, hydrocarbon odor
14					806 48ºF		50	**Gravelly Sand (SW)** Similar to above, hydrocarbon odor, black discoloration, not oily
16					432 48ºF		50	**Gravelly Sand (SW)** Similar to above, damp, odor, black discoloration, not oily

Completion Results



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Austin, Texas 78746

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512/347-8243 fax

WELL CONSTRUCTION

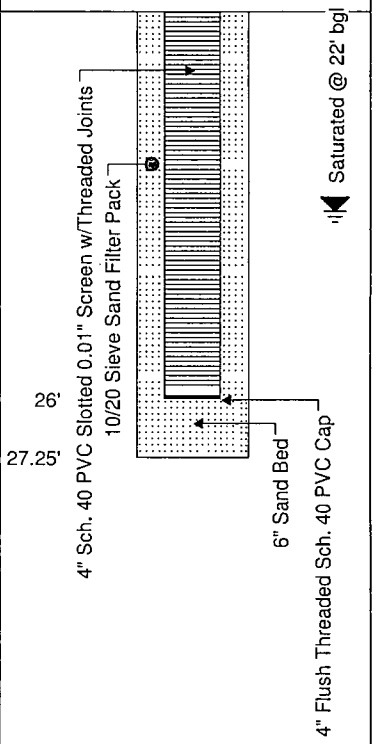
Well No.: MW-55 (IM1-1)
Start Date: 4/2/2009
Finish Date: 4/2/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #1, Bloomfield Refinery
Job No.: 354 - Bloomfield, NM
Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75
Drilling Method: Hollow-Stem Auger/ODEX
Sampling Method: Split Spoon
Comments: N36º41.964 W107º58.552

Total Depth: 27.25' bgl
Ground Water: Saturated @ 22' bgl
Elev., TOC (ft. msl): 5519.840
Elev., PAD (ft. msl): 5520.139
Elev., GL (ft. msl): 5519.938
Site Coordinates:
N 36º41'57.80286" **W** 107º58'33.06266"

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/Container/No	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description
19	18-20'	1100	G/2V/2E/3J		1085 48ºF		50	**Gravelly Sand (SW)** Similar to above, damp, black discoloration, odor, not oily
21	20-22'	1115	G/2V/2E/3J	22'	1047 48ºF		50	**Gravelly Sand (SW)** Fine to coarse grain, loose, damp, gray, black discoloration, hydrocarbon odor
23							50	**Gravelly Sand (SW)** Similar to above, oily, saturated
25							90	**Gravelly Sand (SW)** Similar to above, saturated, black, hydrocarbon odor
27								**Weathered Sandstone/Sand (SS)** Fine to medium grain, soft, damp, greenish gray, faint odor
29								Total Depth = 27.25' BGL
31								
33								
35								
37								

Completion Results



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WELL CONSTRUCTION

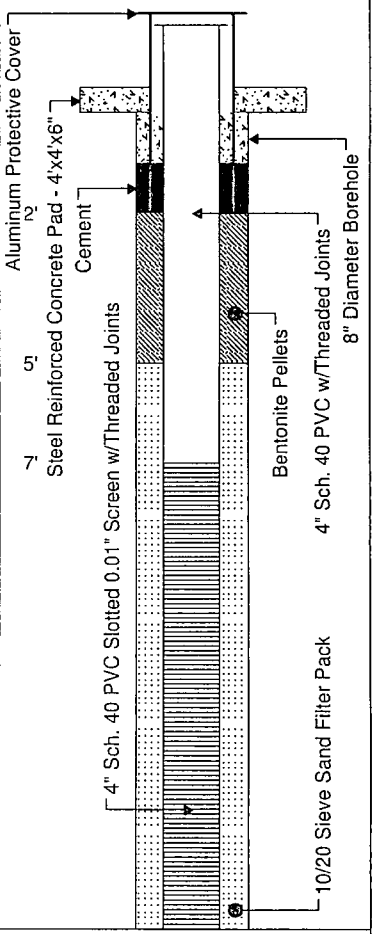
Well No.: MW-56 (IM1-2)
Start Date: 4/1/2009 13:40
Finish Date: 4/1/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #1, Bloomfield Refinery
Job No.: 354 - Bloomfield, NM
Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75
Drilling Method: Hollow-Stem Auger/ODEX
Sampling Method: Split Spoon
Comments: N36º41.935 W107º58.507; Hydroexcavated to 8'

Total Depth: 23.75' bgl
Ground Water: Saturated @ 19' bgl
Elev., TOC (ft. msl): 5519.308
Elev., PAD (ft. msl): 5516.884
Elev., GL (ft. msl): 5516.737
Site Coordinates:
N 36º41'56.12123" **W** 107º58'30.28358"

Depth (ft.)	Sampling: Sample Depth	Sampling: Time	Sampling: Sample Type/Container/No	Sampling: Saturation	Sampling: Organic Vapor (ppm)	Sampling: USCS Class	Recovery (%)	Sample Description
								Ground Surface
0					1.1 51ºF		60	**Fill/Clay (CL)** Low plasticity, soft, damp, brown
2					1.8 51ºF		80	**Fill/Clay (CL)** Similar to above
4	4-6'	1615	G/2V/ 2E/3J		116 51ºF		70	**Fill/Clay (CL)** Similar to above, brown to dark gray, hydrocarbon odor, sand/gravel at base
6					40 51ºF		60	**Gravelly Sand (SW)** Fine to coarse, loose, damp, light gray, no odor
8					0.4 53ºF		60	**Gravelly Sand (SW)** Fine to coarse, loose, damp, light gray, no odor
10					1.3 53ºF		80	**Gravelly Sand (SW)** Similar to above
12					10.8 53ºF		80	**Gravelly Sand (SW)** Similar to above
14					13.2 53ºF		80	**Gravelly Sand (SW)** Similar to above
16								

Completion Results



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404 Camp Craft Road
Austin, Texas 78746

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WELL CONSTRUCTION

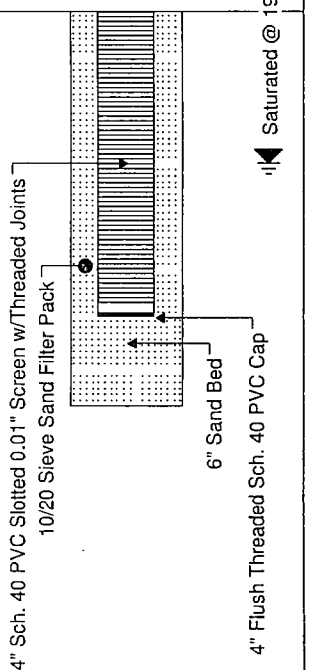
Well No.: MW-56 (IM1-2)
Start Date: 4/1/2009 13:40
Finish Date: 4/1/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #1, Bloomfield Refinery
Job No.: 354 - Bloomfield, NM
Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75
Drilling Method: Hollow-Stem Auger/ODEX
Sampling Method: Split Spoon
Comments: N36º41.935 W107º58.507; Hydroexcavated to 8'

Total Depth: 23.75' bgl
Ground Water: Saturated @ 19' bgl
Elev., TOC (ft. msl): 5519.308
Elev., PAD (ft. msl): 5516.884
Elev., GL (ft. msl): 5516.737
Site Coordinates:
N 36º41'56.12123" **W** 107º58'30.28358"

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/Container/No	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description
18	16-18'	1630	G/2V/2E/3J	19' ▼	50 53ºF		80	**Gravelly Sand (SW)** Similar to above, fine to coarse, loose, moist at base, light gray, hydrocarbon odor
20							30	**Gravelly Sand (SW)** Medium to coarse, loose, saturated, black, hydrocarbon odor, coarse gravel
22							70	**Weathered Sandstone/Sand (SS)** Loose, damp to moist, faint odor, gray to brown, trace gray clay
24								Total Depth = 23.75' BGL
26								
28								
30								
32								
34								

Completion Results



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Austin, Texas 78746

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WELL CONSTRUCTION

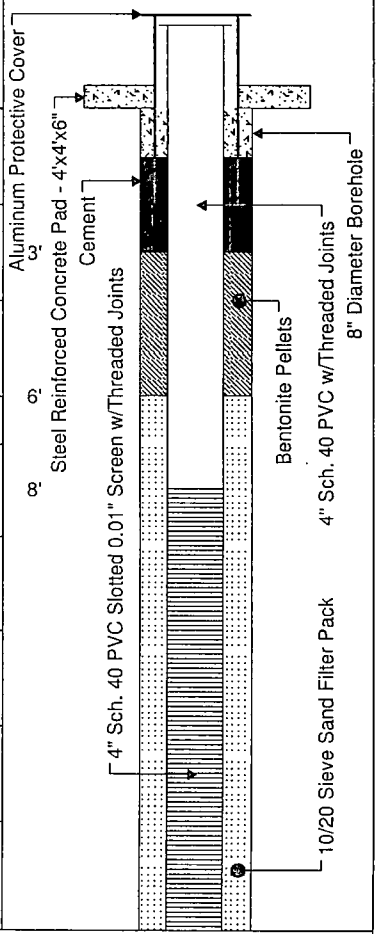
Well No.: MW-57 (IM1-3)
Start Date: 3/31/2009
Finish Date: 3/31/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #1, Bloomfield Refinery
Job No.: 354 - Bloomfield, NM
Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75
Drilling Method: Hollow-Stem Auger/ODEX
Sampling Method: Split Spoon
Comments: N36º41.925 W107º58.516; Hydroexcavated to 7'

Total Depth: 24.25' bgl
Ground Water: Saturated @ 19' bgl
Elev., TOC (ft. msl): 5521.174
Elev., PAD (ft. msl): 5518.538
Elev., GL (ft. msl): 5518.456
Site Coordinates:
N 36º41'55.48996" **W** 107º58'30.93918"

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/Container/No	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description
								Ground Surface
0					1.1 57ºF		40	**Fill/Clay (CL)** Damp, brown
2					237 57ºF		60	**Fill/Clay (CL)** Damp, brown to dark gray, hydrocarbon odor
4	4-6'	1645	G/2V/ 2E/3J		567 57ºF		80	**Fill/Clay (CL)** Dark gray
6							0	**Fill/Clay (CL)** Similar to above, no recovery
8					415 46ºF		20	**Gravelly Sand (SW)** Fine to coarse grain, loose, damp, gray, fine to coarse gravel, odor
10					35.9 46ºF		70	**Gravelly Sand (SW)** Similar to above, odor
12					107 46ºF		70	**Gravelly Sand (SW)** Similar to above, odor
14					14.7 46ºF		10	**Gravelly Sand (SW)** Similar to above, odor
16	15- 17'	1615	G/2V/ 2E/3J		10.8 48ºF		70	**Gravelly Sand (SW)** Similar to above, moist to very moist

Completion Results



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404 Camp Craft Road
Austin, Texas 78746

512/347-7588
512/347-8243 fax

WELL CONSTRUCTION

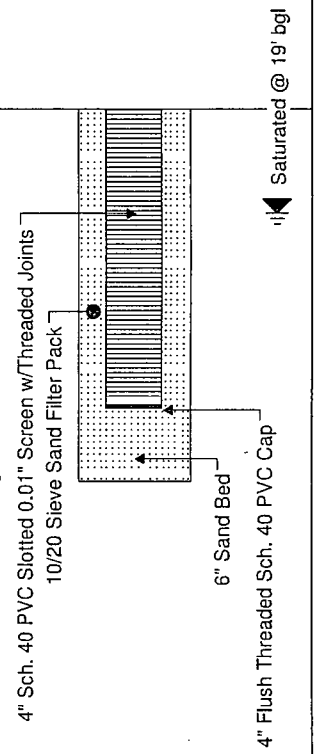
Well No.: MW-57 (IM1-3)
Start Date: 3/31/2009
Finish Date: 3/31/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #1, Bloomfield Refinery
Job No.: 354 - Bloomfield, NM
Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75
Drilling Method: Hollow-Stem Auger/ODEX
Sampling Method: Split Spoon
Comments: N36º41.925 W107º58.516; Hydroexcavated to 7'

Total Depth: 24.25' bgl
Ground Water: Saturated @ 19' bgl
Elev., TOC (ft. msl): 5521.174
Elev., PAD (ft. msl): 5518.538
Elev., GL (ft. msl): 5518.456
Site Coordinates:
N 36º41'55.48996" **W** 107º58'30.93918"

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/Container/No	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description
18				19'				**Gravelly Sand (SW)** Fine to coarse grain, loose, moist to saturated, dark gray, strong hydrocarbon odor
20							90	**Gravelly Sand (SW)** Similar to above, saturated, strong hydrocarbon odor
22							100	**Gravelly Sand (SW)** Similar to above
24							100	**Clay (CH)** High plasticity, very stiff, damp, gray and light yellowish orange
26								Total Depth = 24.25' BGL
28								
30								
32								
34								
36								

Completion Results



RPS
404 Camp Craft Road
Austin, Texas 78746

512/347-7588
512/347-8243 fax

WELL CONSTRUCTION

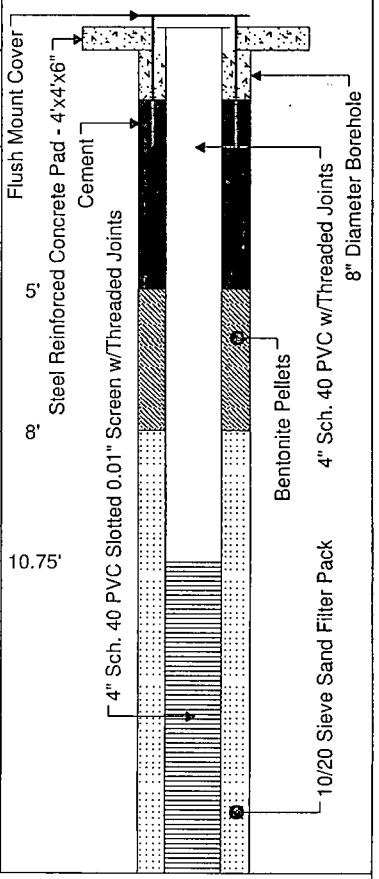
Well No.: MW-58 (IM1-4)
Start Date: 4/3/2009
Finish Date: 4/3/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #1, Bloomfield Refinery
Job No.: 354 - Bloomfield, NM
Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75
Drilling Method: Hollow-Stem Auger/ODEX
Sampling Method: Split Spoon
Comments: N36º41.930 W107º58.548

Total Depth: 27' bgl
Ground Water: Saturated @ 19.5' bgl
Elev., TOC (ft. msl): 5520.289
Elev., PAD (ft. msl): 5520.554
Elev., GL (ft. msl): 5520.466
Site Coordinates:
N 36º41'55.88264" **W** 107º58'32.76780"

Depth (ft.)	Sampling: Sample Depth	Sampling: Time	Sampling: Sample Type/Container/No	Sampling: Saturation	Sampling: Organic Vapor (ppm)	Sampling: USCS Class	Recovery (%)	Sample Description
0								Ground Surface
0–2					1.1 57ºF		80	**Fill/Clay (CL)** Low plasticity, soft, damp, brown
2–4	2-4'	1215	G/2V/ 2E/3J		395 57ºF		80	**Fill/Clay (CL)** Similar to above, hydrocarbon odor, gray discoloration
4–6					380 57ºF		80	**Fill/Clay (CH)** High plasticity, firm, damp, gray and brown, hydrocarbon odor, black discoloration
6–8					58 57ºF		80	**Fill/Clay (CH)** Similar to above, hydrocarbon odor, black discoloration
8–10					80 57ºF		80	**Fill/Clay (CH)** Similar to above
10–12					43 70ºF		60	**Gravelly Sand (SW)** Medium to coarse grain, compact, damp, dark gray, faint hydrocarbon odor, trace clay, coarse gravel
12–14					29 70ºF		80	**Gravelly Sand (SW)** Similar to above, hydrocarbon odor, damp to slightly moist, dark gray
14–16					17 70ºF		80	**Gravelly Sand (SW)** Similar to above, damp, to slighly moist
16							--	**Gravelly Sand (SW)** Similar to above

Completion Results



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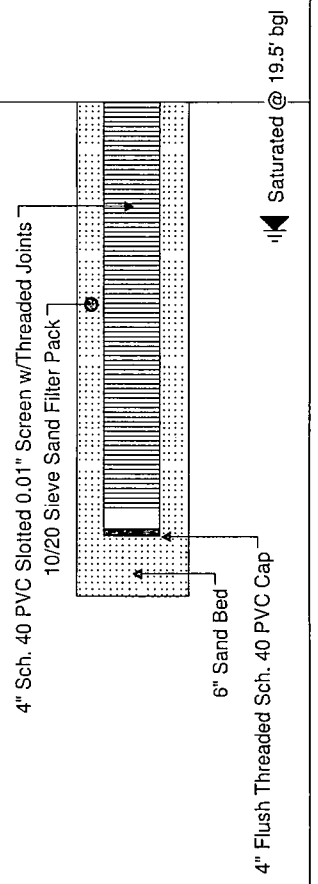
Elev., PAD (ft. msl): 5520.554
Elev., GL (ft. msl): 5520.466
Site Coordinates:
N 36º41'55.88264" **W** 107º58'32.76780"

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/Container/No	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description
18	18-19.5'	1230	G/2V/2E/3J	19.5'	312 70ºF		90	**Gravelly Sand (SW)** Medium to coarse grain, compact, damp to moist, gray, hydrocarbon odor
20							90	**Sand (SP)** Medium grain, compact, moist to very moist, black, strong hydrocarbon odor
22							90	**Sand (SP)** Similar to above, saturated, strong hydrocarbon odor
24							--	**Sand/Clay (SP/CH)** No recovery
26							90	**Clay (CH)** High plasticity, firm, damp, moist in sand seams, olive brown, odor
28								Total Depth = 27' BGL
30								
32								
34								
36								

Completion Results



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Attachment 9

Field Monitoring Parameter Results

ATTACHMENT 9
Soil Sample Vapor Screening Results

North and South Lagoon Closure Report
Western Refining - Bloomfield Refinery

Sample Interval Depth	IM-1-1 (MW-55)	IM-1-2 (MW-56)	IM-1-4 (MW-58)	Sample Interval Depth	IM-1-3 (MW-57)
0 – 2'	0	1.1	1.1	0 – 2'	1.1
2 – 4'	0.2	1.8	395	2 – 4'	237
4 – 6'	434	116	380	4 – 6'	567
6 – 8'	623	40	58	6 – 8'	--
8 –10'	891	0.4	80	7 – 9'	415
10 – 12'	630	1.3	43	9 – 11'	35.9
12 – 14'	518	10.8	29	11 – 13'	107
14 – 16'	806	13.2	17	13 – 15'	14.7
16 – 18'	432	50	--	15 – 17'	10.8
18 – 20'	1085		312	17 – 19'	856
20 – 22'	1047				

Notes:

Units - ppm

ATTACHMENT 9
Ground Water Level Field Data

North and South Lagoon Closure Report
Western Refining - Bloomfield Refinery

Well	Date	Top of Casing (ft msl)	Depth to Bottom (ft bgs)	Depth to Product (ft bgs)	Depth to Water (ft bgs)	Groundwater Elevation (ft msl)
MW-55	5/5/2009	5519.84	26.29	NPP	21.7	5498.14
MW-56	5/5/2009	5519.308	25.36	19.88	20.12	5499.188
MW-57	5/5/2009	5518.538	26.00	21.53	21.55	5496.988
MW-58	5/5/2009	5520.289	27.42	NPP	20.87	5499.419

Notes:

ft msl = feet above mean sea level.

ft bgs = feet below grade surface

MW = Monitoring well

NPP = No product present

ATTACHMENT 9
Ground Water Sampling Field Parameter Data

North and South Lagoon Closure Report
Western Refining - Bloomfield Refinery

Well	Date	Well Volume	Temp (degrees C)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	pH	ORP	PID * (ppm)	O2 * (% by Vol)	CO2 * (% by Vol)
MW-55	5/5/2009	0	17.77	1.285	2.23	26.1	7.88	-207.2	205	1.3	2.9
		1	17.05	1.221	2.48	24.4	7.61	-182.4	-	-	-
		2	17.04	1.139	2.43	24.3	7.56	-159	-	-	-
		3	17.17	1.118	2.65	24.6	7.6	-145.5	-	-	-
MW-56	5/5/2009	0	17.8	2.285	2.37	23.1	7.49	-146.4	218	0.5	3.1
		1	17.44	2.282	0.75	7.9	7.21	-126.1	-	-	-
		2	17.2	2.288	1.37	13.8	7.41	-115.8	-	-	-
		3	16.98	2.277	1.3	12.7	7.37	-114.2	-	-	-
MW-57	5/5/2009	0	19.61	2.228	4.42	42.7	7.49	-101.8	295	0.0	7.2
		1	19.23	2.239	1.47	15.2	7.48	-95.4	-	-	-
		2	19.07	2.233	0.91	9.7	7.38	-91.2	-	-	-
		3	19.28	2.239	0.85	8.7	7.37	-83.7	-	-	-
		4	19.37	2.245	0.63	6.8	7.25	-73.0	-	-	-
MW-58	5/5/2009	0	17.40	1.92	2.44	32.5	7.46	-102.6	260	0.0	4.7
		1	17.33	1.852	1.04	11	7.31	-77.4	-	-	-
		2	17.22	1.901	1.24	13	7.26	-62.9	-	-	-
		3	17.31	1.918	1.5	18.5	7.19	-82.7	-	-	-

Notes:

ppm = parts per million

mg/L = milligrams per liter

* = Soil gas field monitoring collected prior to ground water purging.

Attachment 10

Well Survey Information

Fixed width point lat/long/elevation listing

Project : WESTERN REFINERY

User name	hwilleto	**Date & Time**	2:38:25 PM 7/30/2009
Coordinate System	Projection from data collector	**Zone**	Zone from data collector
Project Datum	(WGS 84)		
Vertical Datum		**Geoid Model**	GEOID03
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

Point listing

Name	Latitude	Longitude	Elevation	Feature Code
9039	36°41'56.11551"N	107°58'30.25904"W	5516.737	MW-56 GRADE
9040	36°41'56.11791"N	107°58'30.27063"W	5516.884	MW-56 PAD
9041	36°41'56.12123"N	107°58'30.28358"W	5519.308	MW-56 TOP OF CASING
9042	36°41'57.82465"N	107°58'33.05812"W	5519.938	MW-55 GRADE
9043	36°41'57.81222"N	107°58'33.06291"W	5520.139	MW-55 PAD
9044	36°41'57.80286"N	107°58'33.06266"W	5519.840	MW-55 TOP OF CASING
9045	36°41'55.95435"N	107°58'32.16664"W	5520.016	RW-43 TOP OF CASING
9046	36°41'55.51141"N	107°58'30.95023"W	5518.456	MW-57 GRADE
9047	36°41'55.49527"N	107°58'30.94312"W	5518.538	MW-57 PAD BOLT
9048	36°41'55.48996"N	107°58'30.93918"W	5521.174	MW-57 TOP OF CASING
9107	36°41'55.88382"N	107°58'32.74826"W	5520.466	MW-58 GRADE
9108	36°41'55.88269"N	107°58'32.75829"W	5520.554	MW-58 PAD
9109	36°41'55.88264"N	107°58'32.76780"W	5520.289	MW-58 TOP OF CASING

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Attachment 11

Soil and Ground Water Analytical Summaries

ATTACHMENT 11
Soil Sample Analytical Results Summary

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	NMED Residential Soil Screening Level [2]	IM 1-1 (8-10')	IM 1-1 (18-20')	IM 1-1 (20-22')	IM 1-2 (4-6')	IM 1-2 (16-18')	IM 1-3 (4-6')	IM 1-3 (15-17')	IM 1-4 (2-4')	IM 1-4 (18-19.5')
Total Petroleum Hydrocarobons (mg/kg)										
Diesel Range Organics (DRO)	520	**1400**	510	360	< 10	< 10	**4000**	14	**5700**	50
Gasoline Range Organics (GRO)	NS	92	< 50	35	< 5.0	< 5.0	110	< 5.0	26	< 5.0
Motor Oil Range Organics (MRO)	440	**570**	< 50	61	80	< 50	**2000**	< 50	**3700**	< 50
Volatile Organic Compounds (VOCs) (ug/kg-dry)										
1,1,1,2-Tetrachloroethane	43,200	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,1,1-Trichloroethane	563,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,1,2,2-Tetrachloroethane	5,550	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,1,2-Trichloroethane	11,900	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,1-Dichloroethane	1,400,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,1-Dichloroethene	206,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,1-Dichloropropene	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,2,3-Trichlorobenzene	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,2,3-Trichloropropane	86	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,2,4-Trichlorobenzene	69,300	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,2,4-Trimethylbenzene	58,000,000	6,000	18.0	800	< 0.826	< 0.928	2,400	< 0.928	< 0.780	2.52
1,2-Dibromo-3-chloropropane	1,840	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,2-Dibromoethane (EDB)	504	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,2-Dichlorobenzene	37,400	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,2-Dichloroethane (EDC)	6,080	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,2-Dichloropropane	6,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,3,5-Trimethylbenzene	24,800	170	< 0.880	31.5	< 0.826	< 0.928	330	< 0.928	< 0.780	< 0.949
1,3-Dichlorobenzene	32,600	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,3-Dichloropropane	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
1,4-Dichlorobenzene	39,500	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
2,2-Dichloropropane	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
2-Butanone	31,800,000	30.9	23.7	20.7	35.1	< 3.71	11.9	< 3.71	9.06	5.55
2-Chlorotoluene	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
2-Hexanone	NS	< 3.78	< 3.52	< 3.59	< 3.31	< 3.71	< 3.10	< 3.71	< 3.12	< 3.80
4-Chlorotoluene	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
4-Isopropyltoluene	NS	34.1	< 0.880	12.2	< 0.826	< 0.928	7.93	< 0.928	< 0.780	< 0.949
4-Methyl-2-pentanone	NS	< 3.78	< 3.52	< 3.59	14.0	< 3.71	< 3.10	< 3.71	< 3.12	< 3.80
Acetone	28,100,000	<1.5	<0.75	<0.75	< 0.75	10.3	92.1	7.73	52.9	26.6
Benzene	10,300	200	69	32.0	< 0.826	< 0.928	22.5	< 0.928	1.76	< 0.949
Bromobenzene	37,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Bromodichloromethane	14,400	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Bromoform	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Bromomethane	8,510	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Carbon disulfide	460,000	< 3.78	< 3.52	4.01	< 3.31	< 3.71	< 3.10	< 3.71	< 3.12	< 3.80
Carbon tetrachloride	3,470	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Chlorobenzene	194,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Chloroethane	63,300	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Chloroform	4,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Chloromethane	21,800	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
cis-1,2-DCE	76,500	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
cis-1,3-Dichloropropene	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Dibromochloromethane	14,800	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Dibromomethane	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Dichlorodifluoromethane	161,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Ethylbenzene	128,000	3,500	790	480	< 0.826	< 0.928	18.0	< 0.928	2.27	1.55
Hexachlorobutadiene	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Isopropylbenzene	NS	560	370	220	< 0.826	< 0.928	6.23	< 0.928	< 0.780	< 0.949
Methyl tert-butyl ether (MTBE)	NS	35.6	69.8	25.5	76.7	1.29	0.31	11.4	< 0.780	2.63
Methylene chloride	182,000	6.03	3.50	2.88	3.97	4.18	4.40	4.19	1.79	2.03
Naphthalene	79,500	810	2,000	1,400	< 0.826	< 0.928	< 0.50	< 0.928	< 0.780	20.7
n-Butylbenzene	62,100	1,200	760	660	< 0.826	< 0.928	16.9	< 0.928	< 0.780	2.43
n-Propylbenzene	62,100	2,200	1,600	1,200	< 0.826	< 0.928	11.6	< 0.928	0.819	1.87
sec-Butylbenzene	60,600	460	450	310	< 0.826	< 0.928	9.59	< 0.928	< 0.780	1.66
Styrene	100,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
tert-Butylbenzene	106,000	5.09	2.32	2.02	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Tetrachloroethene (PCE)	12,500	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Toluene	252,000	2.55	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
trans-1,2-DCE	112,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
trans-1,3-Dichloropropene	NS	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Trichloroethene (TCE)	638	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Trichlorofluoromethane	588,000	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Vinyl chloride	4,370	< 0.945	< 0.880	< 0.898	< 0.826	< 0.928	< 0.775	< 0.928	< 0.780	< 0.949
Xylenes, Total	82,000	69.8	3.55	24.7	< 0.826	< 0.928	40.1	< 0.928	< 0.780	< 0.949

ATTACHMENT 11
Soil Sample Analytical Results Summary

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	NMED Residential Soil Screening Level [2]	IM 1-1 (8-10')	IM 1-1 (18-20')	IM 1-1 (20-22')	IM 1-2 (4-6')	IM 1-2 (16-18')	IM 1-3 (4-6')	IM 1-3 (15-17')	IM 1-4 (2-4')	IM 1-4 (18-19.5')
Semi-Volatile Organic Compounds (mg/kg) [1]										
1,2,4-Trichlorobenzene	69	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
1,2-Dichlorobenzene	37	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
1,3-Dichlorobenzene	33	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
1,4-Dichlorobenzene	40	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
2,4,5-Trichlorophenol	6,110	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
2,4,6-Trichlorophenol	6	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
2,4-Dichlorophenol	183	< 0.40	NA	NA	NA	NA	< 2.0	NA	< 2.0	NA
2,4-Dimethylphenol	1,220	< 0.30	NA	NA	NA	NA	< 1.5	NA	< 1.5	NA
2,4-Dinitrophenol	122	< 0.40	NA	NA	NA	NA	< 2.0	NA	< 2.0	NA
2,4-Dinitrotoluene	122	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
2,6-Dinitrotoluene	NS	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
2-Chloronaphthalene	NS	< 0.25	NA	NA	NA	NA	< 1.3	NA	< 1.3	NA
2-Chlorophenol	166	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
2-Methylnaphthalene	310	0.58	NA	NA	NA	NA	1.3	NA	< 1.3	NA
2-Methylphenol	NS	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
2-Nitroaniline	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
2-Nitrophenol	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
3,3'-Dichlorobenzidine	11	< 0.25	NA	NA	NA	NA	< 1.3	NA	< 1.3	NA
3+4-Methylphenol	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
3-Nitroaniline	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
4,6-Dinitro-2-methylphenol	NS	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
4-Bromophenyl phenyl ether	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
4-Chloro-3-methylphenol	NS	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
4-Chloroaniline	NS	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
4-Chlorophenyl phenyl ether	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
4-Nitroaniline	NS	< 0.25	NA	NA	NA	NA	< 1.3	NA	< 1.3	NA
4-Nitrophenol	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Acenaphthene	3,730	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Acenaphthylene	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Aniline	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Anthracene	22,000	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Azobenzene	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Benz(a)anthracene	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Benzo(a)pyrene	1	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Benzo(b)fluoranthene	6	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Benzo(g,h,i)perylene	NS	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
Benzo(k)fluoranthene	62	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Benzoic acid	NS	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
Benzyl alcohol	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Bis(2-chloroethoxy)methane	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Bis(2-chloroethyl)ether	2	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Bis(2-chloroisopropyl)ether	39	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Bis(2-ethylhexyl)phthalate	347	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
Butyl benzyl phthalate	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Carbazole	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Chrysene	615	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Dibenz(a,h)anthracene	1	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Dibenzofuran	142	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Diethyl phthalate	48,900	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Dimethyl phthalate	100,000	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Di-n-butyl phthalate	6,110	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
Di-n-octyl phthalate	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Fluoranthene	2,290	< 0.25	NA	NA	NA	NA	< 1.3	NA	< 1.3	NA
Fluorene	2,660	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
Hexachlorobenzene	3	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Hexachlorobutadiene	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Hexachlorocyclopentadiene	366	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Hexachloroethane	61	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Indeno(1,2,3-cd)pyrene	6	< 0.25	NA	NA	NA	NA	< 1.3	NA	< 1.3	NA
Isophorone	5,120	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
Naphthalene	80	0.25	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Nitrobenzene	23	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA
N-Nitrosodi-n-propylamine	NS	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
N-Nitrosodiphenylamine	993	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Pentachlorophenol	30	< 0.40	NA	NA	NA	NA	< 2.0	NA	< 2.0	NA
Phenanthrene	1,830	< 0.20	NA	NA	NA	NA	1.1	NA	< 1.0	NA
Phenol	18,300	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Pyrene	2,290	< 0.20	NA	NA	NA	NA	< 1.0	NA	< 1.0	NA
Pyridine	NS	< 0.50	NA	NA	NA	NA	< 2.5	NA	< 2.5	NA

ATTACHMENT 11
Soil Sample Analytical Results Summary

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	NMED Residential Soil Screening Level (2)	IM 1-1 (8-10')	IM 1-1 (18-20')	IM 1-1 (20-22')	IM 1-2 (4-6')	IM 1-2 (16-18')	IM 1-3 (4-6')	IM 1-3 (15-17')	IM 1-4 (2-4')	IM 1-4 (18-19.5')
Total Metals (mg/kg)										
Arsenic	4	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	2.5	< 2.5	2.8	< 2.5
Barium	15,600	82	170	120	160	280	200	110	200	360
Cadmium	39	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chromium	100,000	2.0	2.9	15	8.4	29	6.9	8.6	160	6.4
Lead	400	2.3	2.1	2.0	5.1	2.3	5.9	1.1	8.8	**6100**
Mercury	100,000	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033
Selenium	391	< 13	< 13	< 13	< 12	< 12	< 13	< 12	< 13	< 12
Silver	391	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25

Notes:
(1) = SVOC analysis was only required for samples with DRO results greater than 2,000 mg/kg.
(2) = NMED Soil Screening Levels, June 2006. Future reporting will be compared to the revised Soil Screening Levels issued by NMED in August 2009.
mg/kg = milligrams per kilogram
bgs = below grade surface
ug/kg = micrograms per kilogram

ATTACHMENT 11
Ground Water Analytical Results Summary

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	Screening Level [1]	MW-55	MW-56	MW-57	MW-57 (DUP)	MW-58
Total Petroleum Hydrocarbons (TPHs) - (mg/L)						
Diesel Range Organics (DRO)	1.72	**5.7**	**5.2**	**5.0**	**4.7**	**3.5**
Motor Oil Range Organics (MRO)	1.34	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Gasoline Range Organics (GRO)	-	42	16	8.0	7.3	21
Volatile Organic Compounds (VOCs) - (ug/L)						
1,1,1,2-Tetrachloroethane	0.52	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	60	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	10	< 40	< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	10	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	25	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	-	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	-	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	70	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	0.0096	< 40	< 10	< 10	< 10	< 10
1,2,4-Trichlorobenzene	-	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	15	**510**	**340**	**270**	**280**	**81**
1,2-Dibromo-3-chloropropane	0.2	< 40	< 10	< 10	< 10	< 10
1,2-Dibromoethane (EDB)	0.05	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	600	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane (EDC)	5	< 20	< 5.0	< 5.0	< 5.0	9.3
1,2-Dichloropropane	5	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	12	**120**	**61**	**36**	**37**	**47**
1,3-Dichlorobenzene	-	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	5	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	75	< 20	< 5.0	< 5.0	< 5.0	< 5.0
1-Methylnaphthalene	2.3	**100**	**210**	**220**	**250**	**58**
2,2-Dichloropropane	-	< 40	< 10	< 10	< 10	< 10
2-Butanone	7100	< 200	50	< 50	< 50	< 50
2-Chlorotoluene	-	< 20	< 5.0	< 5.0	< 5.0	< 5.0
2-Hexanone	-	< 200	< 50	< 50	< 50	< 50
2-Methylnaphthalene	150	120	**260**	**250**	**290**	87
4-Chlorotoluene	-	< 20	< 5.0	< 5.0	< 5.0	< 5.0
4-Isopropyltoluene	-	< 20	8.2	9.2	9.4	< 5.0
4-Methyl-2-pentanone	-	< 200	< 50	< 50	< 50	< 50
Acetone	22000	< 200	82	< 50	54	99
Benzene	5	**10000**	**2800**	**1100**	**910**	**1000**
Bromobenzene	20	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	1.1	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	8.5	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	8.7	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	1000	< 200	< 50	< 50	< 50	< 50
Carbon Tetrachloride	5	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	100	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	-	< 40	< 10	< 10	< 10	< 10
Chloroform	100	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Chloromethane	1.8	< 20	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-DCE	70	< 20	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	-	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	0.8	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	370	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Dichlorodifluoromethane	390	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	700	**1300**	310	260	260	210
Hexachlorobutadiene	0.86	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	680	55	42	47	46	140
Methyl tert-butyl ether (MTBE)	12	**1900**	**2100**	**1900**	**1700**	**18000**

ATTACHMENT 11
Ground Water Analytical Results Summary

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	Screening Level [1]	MW-55	MW-56	MW-57	MW-57 (DUP)	MW-58
Methylene Chloride	5	< 60	< 15	< 15	< 15	< 15
Naphthalene	0.14	**330**	**360**	**380**	**430**	**100**
n-Butylbenzene	68	< 20	16	16	16	6.1
n-Propylbenzene	60.8	**98**	**71**	**78**	**81**	**130**
sec-Butylbenzene	68	< 20	11	12	13	15
Styrene	100	< 20	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	-	< 20	< 5.0	< 5.0	< 5.0	6.0
Tetrachloroethene (PCE)	20	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	750	**760**	5.5	< 5.0	< 5.0	< 5.0
trans-1,2-DCE	100	< 20	< 5.0	< 5.0	< 5.0	< 5.0
trans-1,3-Dichloropropene	-	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene (TCE)	5	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	1300	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl chloride	1	< 20	< 5.0	< 5.0	< 5.0	< 5.0
Xylenes, Total	620	**1500**	390	78	78	320
Semi-Volatile Organic Compounds (ug/L)						
1,2,4-Trichlorobenzene	-	< 10	< 10	< 20	< 20	< 20
1,2-Dichlorobenzene	600	< 10	< 10	< 20	< 20	< 20
1,3-Dichlorobenzene	-	< 10	< 10	< 20	< 20	< 20
1,4-Dichlorobenzene	75	< 10	< 10	< 20	< 20	< 20
2,4,5-Trichlorophenol	3700	< 10	< 10	< 20	< 20	< 20
2,4,6-Trichlorophenol	6.1	< 10	< 10	< 20	< 20	< 20
2,4-Dichlorophenol	110	< 20	< 20	< 40	< 40	< 40
2,4-Dimethylphenol	730	< 10	< 10	< 20	< 20	< 20
2,4-Dinitrophenol	73	< 20	< 20	< 40	< 40	< 40
2,4-Dinitrotoluene	73	< 10	< 10	< 20	< 20	< 20
2,6-Dinitrotoluene	37	< 10	< 10	< 20	< 20	< 20
2-Chloronaphthalene	2900	< 10	< 10	< 20	< 20	< 20
2-Chlorophenol	180	< 10	< 10	< 20	< 20	< 20
2-Methylnaphthalene	150	53	85	100	100	38
2-Methylphenol	1800	< 10	< 10	< 20	< 20	< 20
2-Nitroaniline	-	< 10	< 10	< 20	< 20	< 20
2-Nitrophenol	-	< 10	< 10	< 20	< 20	< 20
3,3'-Dichlorobenzidine	-	< 10	< 10	< 20	< 20	< 20
3+4-Methylphenol	180	< 10	< 10	< 20	< 20	< 20
3-Nitroaniline	3.2	< 10	< 10	< 20	< 20	< 20
4,6-Dinitro-2-methylphenol	-	< 20	< 20	< 40	< 40	< 40
4-Bromophenyl phenyl ether	-	< 10	< 10	< 20	< 20	< 20
4-Chloro-3-methylphenol	-	< 10	< 10	< 20	< 20	< 20
4-Chloroaniline	-	< 10	< 10	< 20	< 20	< 20
4-Chlorophenyl phenyl ether	-	< 10	< 10	< 20	< 20	< 20
4-Nitroaniline	-	< 10	< 10	< 20	< 20	< 20
4-Nitrophenol	-	< 10	< 10	< 20	< 20	< 20
Acenaphthene	2200	< 10	< 10	< 20	< 20	< 20
Acenaphthylene	-	< 10	< 10	< 20	< 20	< 20
Aniline	12	< 10	< 10	< 20	< 20	< 20
Anthracene	11000	< 10	< 10	< 20	< 20	< 20
Azobenzene	0.12	< 10	< 10	< 20	< 20	< 20
Benz(a)anthracene	0.029	< 10	< 10	< 20	< 20	< 20
Benzo(a)pyrene	0.2	< 10	< 10	< 20	< 20	< 20
Benzo(b)fluoranthene	0.029	< 10	< 10	< 20	< 20	< 20
Benzo(g,h,i)perylene	-	< 10	< 10	< 20	< 20	< 20
Benzo(k)fluoranthene	0.29	< 10	< 10	< 20	< 20	< 20
Benzoic acid	150000	< 20	< 20	< 40	< 40	< 40
Benzyl alcohol	18000	< 10	< 10	< 20	< 20	< 20

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Ground Water Analytical Results Summary

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Western Refining Southwest, Inc. - Bloomfield Refinery

	Screening Level [1]	MW-55	MW-56	MW-57	MW-57 (DUP)	MW-58
Bis(2-chloroethoxy)methane	110	< 10	< 10	< 20	< 20	< 20
Bis(2-chloroethyl)ether	0.012	< 10	< 10	< 20	< 20	< 20
Bis(2-chloroisopropyl)ether	-	< 10	< 10	< 20	< 20	< 20
Bis(2-ethylhexyl)phthalate	6	< 10	< 10	< 20	< 20	< 20
Butyl benzyl phthalate	35	< 10	< 10	< 20	< 20	< 20
Carbazole	-	< 10	< 10	< 20	< 20	< 20
Chrysene	2.9	< 10	< 10	< 20	< 20	< 20
Dibenz(a,h)anthracene	0.0029	< 10	< 10	< 20	< 20	< 20
Dibenzofuran	-	< 10	< 10	< 20	< 20	< 20
Diethyl phthalate	29000	< 10	< 10	< 20	< 20	< 20
Dimethyl phthalate	-	< 10	< 10	< 20	< 20	< 20
Di-n-butyl phthalate	-	< 10	< 10	< 20	< 20	< 20
Di-n-octyl phthalate	-	< 10	< 10	< 20	< 20	< 20
Fluoranthene	1500	< 10	< 10	< 20	< 20	< 20
Fluorene	1500	< 10	< 10	< 20	< 20	< 20
Hexachlorobenzene	1	< 10	< 10	< 20	< 20	< 20
Hexachlorobutadiene	0.86	< 10	< 10	< 20	< 20	< 20
Hexachlorocyclopentadiene	50	< 10	< 10	< 20	< 20	< 20
Hexachloroethane	4.8	< 10	< 10	< 20	< 20	< 20
Indeno(1,2,3-cd)pyrene	0.029	< 10	< 10	< 20	< 20	< 20
Isophorone	71	< 10	< 10	< 20	< 20	< 20
Naphthalene	0.14	**200**	**120**	**150**	**150**	**45**
Nitrobenzene	3.4	< 10	< 10	< 20	< 20	< 20
N-Nitrosodimethylamine	0.00042	< 10	< 10	< 20	< 20	< 20
N-Nitrosodi-n-propylamine	0.0096	< 10	< 10	< 20	< 20	< 20
N-Nitrosodiphenylamine	14	< 10	< 10	< 20	< 20	< 20
Pentachlorophenol	1	< 20	< 20	< 40	< 40	< 40
Phenanthrene	-	< 10	< 10	< 20	< 20	< 20
Phenol	5	15	< 10	< 20	< 20	< 20
Pyrene	1100	< 10	< 10	< 20	< 20	< 20
Pyridine	37	< 10	< 10	< 20	< 20	< 20
General Chemistry - (mg/L)						
Total Dissolved Solids	1000	740	**1700**	**1700**	**1600**	**1400**
Chloride	250	77	270	**260**	**260**	230
Fluoride	1.6	0.56	0.56	0.56	0.57	0.38
Nitrogen, Nitrate (As N)	10	0.32	8.1	0.14	0.15	0.14
Nitrogen, Nitrite (As N)	1.0	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0
Phosphorus, Orthophosphate (As P)	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulfate	600	4.0	19	9.3	9.3	110
Alkalinity, Total (As CaCO3)	-	570	1100	1100	1100	800
Bicarbonate	-	570	1100	1100	1100	800
Carbonate	-	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Specific Conductance (umhos/cm)	-	1200	2100	2100	2100	1900
Calcium	-	35	130	120	120	130
Iron	-	0.88	0.26	0.32	0.30	0.020
Magnesium	-	11	36	44	44	33
Potassium	-	6.0	3.1	4.7	4.7	4.6
Sodium	-	220	420	410	410	340
Total Metals - (mg/L)						
Arsenic	0.01	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Barium	1.0	0.60	**1.2**	**1.8**	**1.7**	0.53
Cadmium	0.005	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Calcium	-	36	130	120	120	180
Chromium	0.05	< 0.0060	< 0.0060	< 0.0060	< 0.0060	0.0091
Iron	1.0	**3.3**	**2.9**	**3.7**	**3.7**	**29**

ATTACHMENT 11
Ground Water Analytical Results Summary

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Western Refining Southwest, Inc. - Bloomfield Refinery

	Screening Level (1)	MW-55	MW-56	MW-57	MW-57 (DUP)	MW-58
Lead	0.015	0.0098	< 0.0050	< 0.0050	< 0.0050	**0.13**
Magnesium	-	12	42	47	46	44
Manganese	0.2	**1.6**	**3.6**	**3.5**	**3.4**	**5.3**
Mercury	0.002	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Potassium	-	6.0	3.5	5.0	5.0	5.9
Selenium	0.05	< 0.050	< 0.050	< 0.25	< 0.25	< 0.25
Silver	0.05	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sodium	-	220	430	420	420	350

Notes:
(1) = Screening level is most conservative regulatory screening limit based on guidelines outlined in Order.
ug/L = micrograms per liter
mg/L = milligrams per liter

Attachment 12

Quality Assurance / Quality Control Report

ATTACHMENT 12
Quality Assessment / Quality Control Report

1.0 DATA VALIDATION INTRODUCTION

This summary presents data verification results for soil and groundwater samples collected from monitoring wells installed at the Bloomfield Refinery in accordance with the approved North and South Aeration Lagoon Closure Work Plan. The data review was performed in accordance with the procedures specified in the Order issued by NMED (NMED, 2007), USEPA Functional Guidelines for Organic and Inorganic Data Review, and quality assurance and control parameters set by the project laboratory Hall Environmental Analysis Laboratory, Inc.

A total of 9 soil samples and 5 groundwater samples were collected between March 2009 and May 2009 in accordance with the North and South Aeration Lagoons Closure Work Plan. Soil and groundwater samples were submitted to Hall Environmental Analysis Laboratory for the following parameters:

- volatile organic compounds (VOCs) by USEPA Method 8260B;
- semi-volatile organic compounds (SVOCs) by USEPA Method 8270;
- Gasoline and diesel range organics by SW-846 Method 8015B;
- Total recoverable metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) by SW846 Method 6010/6020;
- Mercury by EPA Method 7470.

Groundwater samples submitted to Hall Environmental Analysis Laboratory were also analyzed for the following additional analytes:

- Anions (chloride, Nitrate+Nitrite, sulfate, fluoride,) by USEPA Method 300.0;
- Alkalinity (total alkalinity, carbonate, and bicarbonate) by SM 2320B;
- Dissolved metals (iron, calcium, magnesium, manganese, potassium, and sodium) by USEPA Method 6010B;
- Specific conductance by USEPA Method 120.1 ; and
- Total dissolved solids (TDS) by Method SM2320B

Additionally, 10 quality assurance samples consisting of trip blanks, field blanks, equipment rinsate blanks, and field duplicates were collected and analyzed as part of the investigation activities. Table A presents a summary of the sample identifications, laboratory sample identifications, and requested analytical parameters.

2.0 QUALITY CONTROL PARAMETERS REVIEWED

Sample results were subject to a Level II data review that includes an evaluation of the following quality control (QC) parameters:

- Chain-of-Custody;
- Sample Preservation and Temperature Upon Laboratory Receipt
- Holding Times;
- Blank Contamination (method blanks, trip blanks, field blanks, and equipment rinsate blanks);
- Surrogate Recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD);
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD;
- Duplicates (field duplicate, laboratory duplicate); and
- Other Applicable QC Parameters.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives are defined below:

J	The analyte was positively identified; however, the result should be considered an estimated value.
UJ	The reporting limit is considered an estimated value.
R	Quality control indicates that the data is not usable.

Results qualified as "J" or UJ" are of acceptable data quality and may be used quantitatively to fulfill the objectives of the analytical program, per EPA guidelines.

Results for the performance monitoring events that required qualification based on the data verification are summarized in Table B.

2.1 CHAIN-OF-CUSTODY

The chain-of-custody documentation associated with project samples was found to be complete. Chain-of-custodies included sample identifications, date and time of collection, requested parameters, and relinquished/received signatures.

2.2 SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact at the respective project laboratories. The samples were received by the laboratory at the correct temperature (4 ± 2° Celsius) with the following exceptions:

- Samples collected on March 31, 2009 through April 2, 2009, and May 5th, 2009 were received as low as 1.0 degrees Celsius. The temperature outlier did not significantly impact the sample results; therefore, data qualification was not required.
- Samples collected on April 3, 2009 were received as low as 2.0 degrees Celsius. The temperature outlier did not significantly impact the sample results; therefore, data qualification was not required.

2.3 HOLDING TIMES

All samples were extracted and analyzed within method-specified holding time limits, except for the following:

- Equipment blank sample EBS-033109 exceeded EPA hold time for SVOC analysis extraction by 0.8 days. Data qualification was not needed because associated field samples were not analyzed for SVOCs.

2.4 BLANK CONTAMINATION

2.4.1 Method Blank

Method blanks were analyzed at the appropriate frequency. Target compounds were not detected in the method blanks except for the following:

- Methylene chloride was detected in the method blank for analytical batch 18762 at a concentration of 4.140 ug/kg-dry. Methylene chloride was detected above the laboratory reporting limit in associated soil sample IM 1-1 (8-10') at 6.03 ug/kg-dry, IM 1-1 (18-20') at 3.50 ug/kg-dry, IM 1-1 (20-22') at 2.88 ug/kg-dry, IM 1-2 (4-6') at 3.97 ug/kg-dry, IM 1-2 (16-18') at 4.18 ug/kg-dry, IM 1-3 (4-6') at 4.40 ug/kg-dry and IM 1-3 (15-17') at 4.19 ug/kg-dry. Detected concentrations for associated field samples were qualified "J+" to account for a potential high bias.
- Acetone was detected in the method blank for analytical batch R33094 at a concentration of 19.78 ug/L. Data qualification was not needed because all associated field samples were non-detect.

2.4.2 Trip Blank

Trip blanks were analyzed at the appropriate frequency as specified in the Order. Target compounds were not detected in the trip blanks.

2.4.3 Field Blanks/Equipment Rinsate Blank

Equipment rinsate blanks were performed at the appropriate frequency as specified in the Final Stipulated Order (NMED, 2007). Target compounds were not detected in the field blanks and equipment rinsate blank except for the following:

Field Blanks

- Bromodichloromethane (2.1 ug/L) and chloroform (17 ug/L) were detected in the field blank FB-033109 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane and chloroform were non-detect.
- Bromodichloromethane (8.6 ug/L), chloroform (38 ug/L), and dibromochloromethane (1.0 ug/L) were detected in the field blank FB-040109 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane, chloroform, and dibromochloromethane were non-detect.
- Bromodichloromethane (2.0 ug/L) and chloroform (17 ug/L) were detected in the field blank FB-040209 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane and chloroform were non-detect.
- Bromodichloromethane (1.2 ug/L) and chloroform (9.2 ug/L) were detected in the field blank FB-040309 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane and chloroform were non-detect.
- Bromodichloromethane (2.2 ug/L), chloroform (6.3 ug/L), and dibromochloromethane (2.1 ug/L) were detected in the field blank FB-050509 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane, chloroform, and dibromochloromethane were non-detect.

Equipment Rinsate Blanks

- Bromodichloromethane (1.3 ug/L) and chloroform (7.9 ug/L) were detected in the soil equipment blank EBS-033109 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane and chloroform were non-detect.
- Bromodichloromethane (8.6 ug/L) and chloroform (43 ug/L) were detected in the soil equipment blank EBS-040109 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane and chloroform were non-detect.
- Bromodichloromethane (1.8 ug/L) and chloroform (15 ug/L) were detected in the soil equipment blank EBS-040209 above the respective laboratory detection

limits. Data qualification was not needed because all associated field sample results for bromodichloromethane and chloroform were non-detect.

- Bromodichloromethane (1.2 ug/L) and chloroform (9.2 ug/L) were detected in the soil equipment blank EBS-040309 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane and chloroform were non-detect.
- Bromodichloromethane (2.0 ug/L) and chloroform (19 ug/L) were detected in the field blank EBW-050509 above the respective laboratory detection limits. Data qualification was not needed because all associated field sample results for bromodichloromethane and chloroform were non-detect.

2.4.4 Common Laboratory Contaminants

Per USEPA guidelines, common laboratory contaminants for VOC analysis are acetone, 2-butanone (MEK), cyclohexane, and methylene chloride. Common laboratory contaminants for SVOC analysis include phthalates. Analytical results were qualified for respective sample batches that corresponded to a methylene chloride detection in the method blank. The samples were qualified because the laboratory confirmed the detection is likely a result of an air circulation issue at the lab. Refer to Section 2.4.1 for samples qualified due to method blank detections most likely resulting from common laboratory contamination.

2.5 SURROGATE RECOVERY

Surrogate recoveries for the organic and inorganic analyses were performed at the required frequency and were within laboratory acceptance limits, with the following exceptions:

- Surrogate recovery for 2,4,6-Tribromophenol (29.4%) and Phenol-d5 (37.5%) were below the lower acceptance limits of 35.5% and 37.6%, respectively, for soil sample IM 1-3 (4-6'). Data qualification was not required because four other acid and base/neutral fractions were within acceptance limits.
- Surrogate recovery for BFB (179%) was above the upper acceptance limit of 123% for soil sample IM 1-1 (8-10'). The associated gasoline range organics (GRO) sample result was qualified "J+" for sample IM 1-1 (8-10') due to potential high bias.
- Surrogate recoveries for 4-Bromofluorobenzene (149%), Dibromofluoromethane (119%), and Toluene-d8 (120%) were above the upper acceptance limits of 111%, 105%, and 113%, respectively, for soil sample IM 1-1 (8-10'). Associated sample results were qualified "J+" to account for a potential high bias.
- Surrogate recoveries for Dibromofluoromethane (61.2%) were below the lower acceptance limit of 70% for soil sample IM 1-1 (8-10'). Data was not qualified since the other surrogates were recovered within acceptance limits.

- Surrogate recoveries for 2-Fluorophenol (24.1%), and Phenol-d5 (32.9%) were below the respective lower acceptance limits (28.1% and 37.6%) for sample IM 1-1 (8-10'). Data qualification was not required because the two other acid and base/neutral fractions were within acceptance limits.
- Surrogate recovery for BFB (156%) was above the upper acceptance limit of 123% for soil sample IM 1-1 (18-20'). Data qualification was not required because the associated sample result was non-detect.
- Surrogate recoveries for Dibromofluoromethane (110%) and Toluene-d8 (126%) were above the upper acceptance limits of 110% and 126%, respectively, for soil sample IM 1-1 (18-20'). Data was not qualified since the other surrogates were recovered within acceptance limits.
- Surrogate recovery for BFB (210%) was above the upper acceptance limit of 123% for soil sample IM 1-1 (20-22'). The associated field sample result was qualified "J+" due to potential high bias.
- Surrogate recoveries for Dibromofluoromethane (109%) was above the upper acceptance limits of 110% for soil sample IM 1-1 (20-22'). Data was not qualified since the other surrogates were recovered within acceptance limits.
- Surrogate recoveries for Dibromofluoromethane (67.8%) was below the lower acceptance limits of 70% for soil sample IM 1-1 (20-22'). Data was not qualified since the other surrogates were recovered within acceptance limits.
- Surrogate recoveries for DNOP (0%) was below the lower acceptance limit of 61.7% for soil sample IM 1-4 (2-4'). The associated field sample results were qualified "J-" due to a potential low bias.
- Surrogate recovery for BFB (125%) was above the upper acceptance limit of 123% for soil sample IM 1-4 (2-4'). The associated field sample result was qualified "J+" due to potential high bias.
- Surrogate recoveries for 1,2-Dichloroethane-d4 (67%), 4-Bromofluorobenzene (47.7%), and Toluene-d8 (58.8%) were below the lower acceptance limits of 70% for soil sample IM 1-4 (18-19.5'). The associated field sample results were qualified "J-" for detected concentrations, and "UJ" for non-detects due to potential low bias.

2.6 LCS RECOVERY AND RPD

LCS/LCS duplicates were performed at the required frequency and were evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J".
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then the analyte results in the associated analytical batch were qualified ("UJ" for non-detects and "J" for detected results).
- If the analyte recovery was less than 10 percent, the analyte results in the associated analytical batch were rejected and qualified "R".

LCS/LCSD percent recoveries and RPDs were within acceptance limits except for the following:

- The LCS recovery for benzene (84.2%), 1,1-Dichloroethene (92.0%), and trichloroethene (86.6%) were below the lower acceptance limit of 88%, 97.9%, and 90.5%, respectively for analytical batch R33094. Data qualification was not needed since all associated samples were for equipment and field blanks.

2.7 MS/MSD RECOVERY AND RPD

MS/MSD samples were performed at the required frequency and were evaluated by the following criteria:

- If the MS or MSD recovery for an analyte was above acceptance limits but the analyte was not detected in the associated analytical batch, then data qualification was not required.
- If the MS or MSD recovery for an analyte was above acceptance limits and the analyte was detected in the associated analytical batch, then analyte results were qualified "J".
- Low MS/MSD recoveries for inorganic parameters result in sample qualification of the associated analytical batch.
- Low MS/MSD recoveries for organic parameters result in the data qualification of the unspiked sample rather than the analytical batch.
- Results were not qualified based on non-project specific MS/MSD (i.e., batch QC) recoveries.

MS/MSD percent recoveries and RPDs were within acceptance limits.

2.8 DUPLICATES

2.8.1 Field Duplicates

Field duplicates were collected at a rate of 10 percent and submitted for analysis. The RPDs between the field duplicate and its associated sample were calculated and are presented in Table C. The field duplicates were evaluated by the following criteria:

- If an analyte was detected at a concentration greater than five times the method reporting limit, the RPD should be less than 35percent for soil and 25 percent for groundwater samples.
- If an analyte was detected at a concentration that is less than five times the method reporting limit, then the difference between the sample and the field duplicate should not exceed the method reporting limit.
- Duplicate RPDs are calculated by dividing the difference of the concentrations by the average of the concentrations.

Field duplicate RPDs were within acceptance limits.

2.9 OTHER APPLICABLE QC PARAMETERS

2.9.1 Calibration

The Method 8260B continuing calibration verification (CCV) standards were within acceptance limits.

3.0 COMPLETENESS SUMMARY

Two types of completeness were calculated for this project: contract and technical. The following equations were used to calculate the two types of completeness:

$$\% \text{ Contract Completeness} = \left(\frac{\text{Number of contract compliant results}}{\text{Number of reported results}}\right) \times 100$$

$$\% \text{ Technical Completeness} = \left(\frac{\text{Number of usable results}}{\text{Number of reported results}}\right) \times 100$$

The overall contract completeness, which includes the evaluation of protocol and contract deviations, and includes the evaluation of the QC parameters listed in Section 2.0, was 98 percent for sample analysis (85 out of a total 1,713 results required qualification). The technical completeness attained for North and South Aeration Lagoon Closure activities was 100 percent. The completeness results are provided in Table D. The results for the performance monitoring events were considered usable for the intended purposes and the project DQOs have been met.

ATTACHMENT 12
Quality Assessment / Quality Control Report

TABLE A
Sampling and Analysis Schedule

Table A
Sampling and Analysis Schedule

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

Sample ID	Lab ID	Date Collected	Sample Type	Parameters
IM 1-4 (2-4')	904085-01	4/3/2009	N	VOCs, SVOCs, TPHs, Metals, Mercury
IM 1-4 (18-19.5')	904085-02	4/3/2009	N	VOCs, TPHs, Metals, Mercury
FB-040309	904085-03	4/3/2009	FB	VOCs, SVOCs, TPHs, Metals, Mercury
EBS-040309	904085-04	4/3/2009	EB-Soil	VOCs, TPHs
FB-040209	904085-05	4/2/2009	FB	VOCs, SVOCs, TPHs, Metals, Mercury
EBS-040209	904085-06	4/2/2009	EB-Soil	VOCs, SVOCs, TPHs, Metals, Mercury
Methanol Blank	904085-07	4/2/2009	MB	VOCs, TPHs
Trip Blank	904085-08	4/2/2009	TB	VOCs, TPHs
EBS-0403609	904085-09	4/3/2009	EB-Soil	Metals, Mercury
IM 1-3 (15-17')	904032-01	3/31/2009	N	VOCs, TPHs, Metals, Mercury
IM 1-3 (4-6')	904032-02	3/31/2009	N	VOCs, SVOCs, TPHs, Metals, Mercury
EBS-033109	904032-03	3/31/2009	EB-Soil	VOCs, SVOCs, TPHs, Metals, Mercury
Methanol Blank	904032-04	3/31/2009	MB	VOCs, TPHs
Trip Blank	904032-05	3/31/2009	TB	VOCs, TPHs
FB-033109	904032-06	3/31/2009	FB	VOCs, SVOCs, TPHs, Metals, Mercury
EBS-0401009	904060-01	4/1/2009	EB-Soil	VOCs, SVOCs, TPHs, Metals, Mercury
FB-040109	904060-02	4/1/2009	FB	VOCs, SVOCs, TPHs, Metals, Mercury
Trip Blank	904060-03	4/1/2009	TB	VOCs, TPHs
IM1-2 (16-18')	904060-04	4/1/2009	N	VOCs, TPHs, Metals, Mercury
IM1-2 (4-6')	904060-05	4/1/2009	N	VOCs, TPHs, Metals, Mercury
Methanol Blank	904060-06	4/1/2009	MB	VOCs, TPHs
IM 1-1 (8-10')	904060-07	4/2/2009	N	VOCs, TPHs, Metals, Mercury
IM 1-1 (18-20')	904060-08	4/2/2009	N	VOCs, TPHs, Metals, Mercury
IM 1-1 (20-22')	904060-09	4/2/2009	N	VOCs, TPHs, Metals, Mercury
EBW-050509	905067-01	5/5/2009	EB-Soil	VOCs, SVOCs, TPHs, Metals, Mercury, General Chemistry
FB-050509	905067-02	5/5/2009	FB	VOCs, SVOCs, TPHs, Metals, Mercury, General Chemistry
MW-58	905067-03	5/5/2009	N	VOCs, SVOCs, TPHs, Metals, Mercury, General Chemistry
MW-57	905067-04	5/5/2009	N	VOCs, SVOCs, TPHs, Metals, Mercury, General Chemistry
Trip Blank	905067-05	5/5/2009	TB	VOCs, TPH
MW-57 (DUP)	905067-06	5/5/2009	N-dup	VOCs, SVOCs, TPHs, Metals, Mercury, General Chemistry
MW-56	905113-01	5/5/2009	N	VOCs, SVOCs, TPHs, Metals, Mercury, General Chemistry
MW-55	905113-02	5/5/2009	N	VOCs, SVOCs, TPHs, Metals, Mercury, General Chemistry
Trip Blank	905113-03	5/5/2009	TB	VOCs, TPH

Notes:
VOCs = Volatile Organic Compounds
N = Normal field sample
FD = Field duplicate
TB = Trip Blank
EB = Equipment Blank
MB = Methanol Blank
FB = Field Blank
TPH = Total Petroleum Hydrocarbons

ATTACHMENT 12
Quality Assessment / Quality Control Report

TABLE B
Qualified Data

Table B
Qualified Data

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
IM 1-4 (18-19.5')	4/3/2009	1,1,1,2-Tetrachloroethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,1,1-Trichloroethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,1,2,2-Tetrachloroethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,1,2-Trichloroethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,1-Dichloroethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,1-Dichloroethene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,1-Dichloropropene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2,3-Trichlorobenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2,3-Trichloropropane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2,4-Trichlorobenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	1,2,4-Trimethylbenzene	6.0	mg/Kg	Soil	J+	Qualified due to high surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2,4-Trimethylbenzene	2.52	µg/Kg-dry	Soil	J-	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2-Dibromo-3-chloropropane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2-Dibromoethane (EDB)	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2-Dichlorobenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2-Dichloroethane (EDC)	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,2-Dichloropropane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	1,3,5-Trimethylbenzene	0.17	mg/Kg	Soil	J+	Qualified due to high surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,3,5-Trimethylbenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,3-Dichlorobenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,3-Dichloropropane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	1,4-Dichlorobenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	2,2-Dichloropropane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	2-Butanone	5.55	µg/Kg-dry	Soil	J-	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	2-Chlorotoluene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	2-Hexanone	< 3.80	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	4-Chlorotoluene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	4-Isopropyltoluene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	4-Methyl-2-pentanone	< 3.80	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Acetone	26.6	µg/Kg-dry	Soil	J-	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	Benzene	0.20	mg/Kg	Soil	J+	Qualified due to high surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Benzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Bromobenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Bromodichloromethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Bromoform	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Bromomethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Carbon disulfide	< 3.80	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Carbon tetrachloride	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Chlorobenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Chloroethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Chloroform	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Chloromethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	cis-1,2-DCE	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.

Table B
Qualified Data

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
IM 1-4 (18-19.5')	4/3/2009	cis-1,3-Dichloropropene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Dibromochloromethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Dibromomethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Dichlorodifluoromethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (2-4')	4/3/2009	Diesel Range Organics (DRO)	5700	mg/Kg	Soil	J-	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	Ethylbenzene	3.5	mg/Kg	Soil	J+	Qualified due to high surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Ethylbenzene	1.55	µg/Kg-dry	Soil	J-	Qualified due to low surrogate recovery.
IM 1-1 (20-22')	4/2/2009	Gasoline Range Organics (GRO)	35	mg/Kg	Soil	J+	Qualified due to high surrogate recovery
IM 1-1 (8-10')	4/2/2009	Gasoline Range Organics (GRO)	92	mg/Kg	Soil	J+	Qualified due to high surrogate recovery
IM 1-4 (2-4')	4/3/2009	Gasoline Range Organics (GRO)	26	mg/Kg	Soil	J+	Qualified due to high surrogate recovery
IM 1-4 (18-19.5')	4/3/2009	Hexachlorobutadiene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	Isopropylbenzene	0.56	mg/Kg	Soil	J+	Qualified due to high field duplicate RPD
IM 1-4 (18-19.5')	4/3/2009	Isopropylbenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low MS/MSD recovery
IM 1-4 (18-19.5')	4/3/2009	Methyl tert-butyl ether (MTBE)	2.63	µg/Kg-dry	Soil	J-	Qualified due to low MS recoveries
IM 1-1 (18-20')	4/2/2009	Methylene chloride	3.50	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-1 (20-22')	4/2/2009	Methylene chloride	2.88	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-1 (8-10')	4/2/2009	Methylene chloride	6.03	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-2 (4-6')	4/1/2009	Methylene chloride	3.97	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-2 (16-18')	4/1/2009	Methylene chloride	4.18	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-3 (15-17')	3/31/2009	Methylene chloride	4.19	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-3 (4-6')	3/31/2009	Methylene chloride	4.40	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-4 (18-19.5')	4/3/2009	Methylene chloride	2.03	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-4 (2-4')	4/3/2009	Methylene chloride	1.79	µg/Kg-dry	Soil	J+	Qualified due to detection in associated method blank
IM 1-4 (2-4')	4/3/2009	Motor Oil Range Organics (MRO)	3700	mg/Kg	Soil	J-	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	Naphthalene	0.81	mg/Kg	Soil	J+	Qualified due to high surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Naphthalene	20.7	µg/Kg-dry	Soil	J-	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	n-Butylbenzene	1.2	mg/Kg	Soil	J+	Qualified due to high surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	n-Butylbenzene	2.43	µg/Kg-dry	Soil	J-	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	n-Propylbenzene	2.2	mg/Kg	Soil	J+	Qualified due to high surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	n-Propylbenzene	1.87	µg/Kg-dry	Soil	J-	Qualified due to low surrogate recovery.
IM 1-1 (8-10')	4/2/2009	sec-Butylbenzene	0.46	mg/Kg	Soil	J+	Qualified due to high surrogate recovery
IM 1-4 (18-19.5')	4/3/2009	sec-Butylbenzene	1.66	µg/Kg-dry	Soil	J-	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Styrene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	tert-Butylbenzene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Tetrachloroethene (PCE)	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Toluene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	trans-1,2-DCE	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	trans-1,3-Dichloropropene	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Trichloroethene (TCE)	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Trichlorofluoromethane	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Vinyl chloride	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.
IM 1-4 (18-19.5')	4/3/2009	Xylenes, Total	< 0.949	µg/Kg-dry	Soil	UJ	Qualified due to low surrogate recovery.

Notes:
mg/L = milligrams per liter
ug/L = micrograms per liter
UJ = Estimated reporting limit
J- = Potential low bias
J+ = Potential high bias
RPD = Relative Percent Difference
MS/MSD = Matrix spike / Matrix spike duplicate

ATTACHMENT 12
Quality Assessment / Quality Control Report

TABLE C
Field Duplicate Summary

Table C
Field Duplicate Summary

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	Parameter	MW-57 Sample Result	MW-57 (DUP) Field Duplicate	RPD (%)
TPH (mg/L):	Diesel Range Organics (DRO)	5.0	4.7	6.2
	Motor Oil Range Organics (MRO)	< 5.0	< 5.0	NC
	Gasoline Range Organics (GRO)	8.0	7.3	9.2
VOCs (ug/L)	1,1,1,2-Tetrachloroethane	< 5.0	< 5.0	NC
	1,1,1-Trichloroethane	< 5.0	< 5.0	NC
	1,1,2,2-Tetrachloroethane	< 10	< 10	NC
	1,1,2-Trichloroethane	< 5.0	< 5.0	NC
	1,1-Dichloroethane	< 5.0	< 5.0	NC
	1,1-Dichloroethene	< 5.0	< 5.0	NC
	1,1-Dichloropropene	< 5.0	< 5.0	NC
	1,2,3-Trichlorobenzene	< 5.0	< 5.0	NC
	1,2,3-Trichloropropane	< 10	< 10	NC
	1,2,4-Trichlorobenzene	< 5.0	< 5.0	NC
	1,2,4-Trimethylbenzene	270	280	3.6
	1,2-Dibromo-3-chloropropane	< 10	< 10	NC
	1,2-Dibromoethane (EDB)	< 5.0	< 5.0	NC
	1,2-Dichlorobenzene	< 5.0	< 5.0	NC
	1,2-Dichloroethane (EDC)	< 5.0	< 5.0	NC
	1,2-Dichloropropane	< 5.0	< 5.0	NC
	1,3,5-Trimethylbenzene	36	37	2.7
	1,3-Dichlorobenzene	< 5.0	< 5.0	NC
	1,3-Dichloropropane	< 5.0	< 5.0	NC
	1,4-Dichlorobenzene	< 5.0	< 5.0	NC
	1-Methylnaphthalene	220	250	12.8
	2,2-Dichloropropane	< 10	< 10	NC
	2-Butanone	< 50	< 50	NC
	2-Chlorotoluene	< 5.0	< 5.0	NC
	2-Hexanone	< 50	< 50	NC
	2-Methylnaphthalene	250	290	14.8
	4-Chlorotoluene	< 5.0	< 5.0	NC
	4-Isopropyltoluene	9.2	9.4	2.2
	4-Methyl-2-pentanone	< 50	< 50	NC
	Acetone	< 50	54	7.7
	Benzene	1100	910	18.9
	Bromobenzene	< 5.0	< 5.0	NC
	Bromodichloromethane	< 5.0	< 5.0	NC
	Bromoform	< 5.0	< 5.0	NC
	Bromomethane	< 5.0	< 5.0	NC
	Carbon disulfide	< 50	< 50	NC
	Carbon Tetrachloride	< 5.0	< 5.0	NC
	Chlorobenzene	< 5.0	< 5.0	NC
	Chloroethane	< 10	< 10	NC
	Chloroform	< 5.0	< 5.0	NC
	Chloromethane	< 5.0	< 5.0	NC
	cis-1,2-DCE	< 5.0	< 5.0	NC
	cis-1,3-Dichloropropene	< 5.0	< 5.0	NC
	Dibromochloromethane	< 5.0	< 5.0	NC
	Dibromomethane	< 5.0	< 5.0	NC
	Dichlorodifluoromethane	< 5.0	< 5.0	NC
	Ethylbenzene	260	260	0.0
	Hexachlorobutadiene	< 5.0	< 5.0	NC
	Isopropylbenzene	47	46	2.2
	Methyl tert-butyl ether (MTBE)	1900	1700	11.1
	Methylene Chloride	< 15	< 15	NC
	Naphthalene	380	430	12.3
	n-Butylbenzene	16	16	0.0
	n-Propylbenzene	78	81	3.8
	sec-Butylbenzene	12	13	8.0
	Styrene	< 5.0	< 5.0	NC
	tert-Butylbenzene	< 5.0	< 5.0	NC
	Tetrachloroethene (PCE)	< 5.0	< 5.0	NC
	Toluene	< 5.0	< 5.0	NC
	trans-1,2-DCE	< 5.0	< 5.0	NC
	trans-1,3-Dichloropropene	< 5.0	< 5.0	NC
	Trichloroethene (TCE)	< 5.0	< 5.0	NC
	Trichlorofluoromethane	< 5.0	< 5.0	NC
	Vinyl chloride	< 5.0	< 5.0	NC
	Xylenes, Total	78	78	0.0

Table C
Field Duplicate Summary

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	Parameter	MW-57 Sample Result	MW-57 (DUP) Field Duplicate	RPD (%)
SVOCs (ug/L):	1,2,4-Trichlorobenzene	< 20	< 20	NC
	1,2-Dichlorobenzene	< 20	< 20	NC
	1,3-Dichlorobenzene	< 20	< 20	NC
	1,4-Dichlorobenzene	< 20	< 20	NC
	2,4,5-Trichlorophenol	< 20	< 20	NC
	2,4,6-Trichlorophenol	< 20	< 20	NC
	2,4-Dichlorophenol	< 40	< 40	NC
	2,4-Dimethylphenol	< 20	< 20	NC
	2,4-Dinitrophenol	< 40	< 40	NC
	2,4-Dinitrotoluene	< 20	< 20	NC
	2,6-Dinitrotoluene	< 20	< 20	NC
	2-Chloronaphthalene	< 20	< 20	NC
	2-Chlorophenol	< 20	< 20	NC
	2-Methylnaphthalene	100	100	0.0
	2-Methylphenol	< 20	< 20	NC
	2-Nitroaniline	< 20	< 20	NC
	2-Nitrophenol	< 20	< 20	NC
	3,3´-Dichlorobenzidine	< 20	< 20	NC
	3+4-Methylphenol	< 20	< 20	NC
	3-Nitroaniline	< 20	< 20	NC
	4,6-Dinitro-2-methylphenol	< 40	< 40	NC
	4-Bromophenyl phenyl ether	< 20	< 20	NC
	4-Chloro-3-methylphenol	< 20	< 20	NC
	4-Chloroaniline	< 20	< 20	NC
	4-Chlorophenyl phenyl ether	< 20	< 20	NC
	4-Nitroaniline	< 20	< 20	NC
	4-Nitrophenol	< 20	< 20	NC
	Acenaphthene	< 20	< 20	NC
	Acenaphthylene	< 20	< 20	NC
	Aniline	< 20	< 20	NC
	Anthracene	< 20	< 20	NC
	Azobenzene	< 20	< 20	NC
	Benz(a)anthracene	< 20	< 20	NC
	Benzo(a)pyrene	< 20	< 20	NC
	Benzo(b)fluoranthene	< 20	< 20	NC
	Benzo(g,h,i)perylene	< 20	< 20	NC
	Benzo(k)fluoranthene	< 20	< 20	NC
	Benzoic acid	< 40	< 40	NC
	Benzyl alcohol	< 20	< 20	NC
	Bis(2-chloroethoxy)methane	< 20	< 20	NC
	Bis(2-chloroethyl)ether	< 20	< 20	NC
	Bis(2-chloroisopropyl)ether	< 20	< 20	NC
	Bis(2-ethylhexyl)phthalate	< 20	< 20	NC
	Butyl benzyl phthalate	< 20	< 20	NC
	Carbazole	< 20	< 20	NC
	Chrysene	< 20	< 20	NC
	Dibenz(a,h)anthracene	< 20	< 20	NC
	Dibenzofuran	< 20	< 20	NC
	Diethyl phthalate	< 20	< 20	NC
	Dimethyl phthalate	< 20	< 20	NC
	Di-n-butyl phthalate	< 20	< 20	NC
	Di-n-octyl phthalate	< 20	< 20	NC
	Fluoranthene	< 20	< 20	NC
	Fluorene	< 20	< 20	NC
	Hexachlorobenzene	< 20	< 20	NC
	Hexachlorobutadiene	< 20	< 20	NC
	Hexachlorocyclopentadiene	< 20	< 20	NC
	Hexachloroethane	< 20	< 20	NC
	Indeno(1,2,3-cd)pyrene	< 20	< 20	NC
	Isophorone	< 20	< 20	NC
	Naphthalene	150	150	0.0
	Nitrobenzene	< 20	< 20	NC
	N-Nitrosodimethylamine	< 20	< 20	NC
	N-Nitrosodi-n-propylamine	< 20	< 20	NC
	N-Nitrosodiphenylamine	< 20	< 20	NC
	Pentachlorophenol	< 40	< 40	NC
	Phenanthrene	< 20	< 20	NC
	Phenol	< 20	< 20	NC
	Pyrene	< 20	< 20	NC
	Pyridine	< 20	< 20	NC

Table C
Field Duplicate Summary

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	Parameter	MW-57 Sample Result	MW-57 (DUP) Field Duplicate	RPD (%)
Total Metals (mg/L):	Arsenic	< 0.020	< 0.020	NC
	Barium	1.8	1.7	5.7
	Cadmium	< 0.0020	< 0.0020	NC
	Calcium	120	120	0.0
	Chromium	< 0.0060	< 0.0060	NC
	Iron	3.7	3.7	0.0
	Lead	< 0.0050	< 0.0050	NC
	Magnesium	47	46	2.2
	Manganese	3.5	3.4	2.9
	Mercury	< 0.00020	< 0.00020	NC
	Potassium	5.0	5.0	0.0
	Selenium	< 0.25	< 0.25	NC
	Silver	< 0.0050	< 0.0050	NC
	Sodium	420	420	0.0
Dissolved Metals (mg/L):	Calcium	120	120	0.0
	Iron	0.32	0.30	6.5
	Magnesium	44	44	0.0
	Potassium	4.7	4.7	0.0
	Sodium	410	410	0.0
General Chemistry (mg/L)	Specific Conductance *	2100	2100	0.0
	Total Dissolved Solids	1700	1600	6.1
	Chloride	260	260	0.0
	Fluoride	0.56	0.57	1.8
	Nitrogen, Nitrate (As N)	0.14	0.15	6.9
	Nitrogen, Nitrite (As N)	< 1.0	< 1.0	NC
	Phosphorus, Orthophosphate (As P)	< 0.50	< 0.50	NC
	Sulfate	9.3	9.3	0.0
	Alkalinity, Total (As CaCO3)	1100	1100	0.0
	Bicarbonate	1100	1100	0.0
	Carbonate	< 2.0	< 2.0	NC

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/L = micrograms per liter
mg/L = milligrams per liter
mg/kg = milligrams per kilogram
* = units are umhs/cm
RPD Outlier = RPD limit > 25%

ATTACHMENT 12
Quality Assessment / Quality Control Report

TABLE D
Completeness Summaries

Table D
Completeness Summaries

North and South Aeration Lagoon Closure Report
Western Refining Southwest, Inc. - Bloomfield Refinery

	Parameter	Total Number of Samples	Number of Contractual Compliance	Percent Contractural Compliance	Number of Usable Results	Percent Technical Complianc
TPH (mg/L):	Diesel Range Organics (DRO)	14	13 a	92.9	14	100
	Motor Oil Range Organics (MRO)	14	13 a	92.9	14	100
	Gasoline Range Organics (GRO)	14	11 b	78.6	14	100
VOCs (ug/L):	All analytes	892	812 a c d	91.0	892	100
SVOCs (ug/L):	All analytes	557	557	100	557	100
Total Metals (mg/L):	Arsenic	14	14	100	14	100
	Barium	14	14	100	14	100
	Cadmium	14	14	100	14	100
	Calcium	5	5	100	5	100
	Chromium	14	14	100	14	100
	Iron	5	5	100	5	100
	Lead	14	14	100	14	100
	Magnesium	5	5	100	5	100
	Manganese	5	5	100	5	100
	Mercury	14	14	100	14	100
	Potassium	5	5	100	5	100
	Selenium	14	14	100	14	100
	Sodium	5	5	100	5	100
	Silver	14	14	100	14	100
General Chemistry (mg/L):	Total Dissolved Solids	5	5	100	5	100
	Chloride	5	5	100	5	100
	Fluoride	5	5	100	5	100
	Nitrogen, Nitrate (As N)	5	5	100	5	100
	Nitrogen, Nitrite (As N)	5	5	100	5	100
	Phosphorus, Orthophosphate (As P)	5	5	100	5	100
	Sulfate	5	5	100	5	100
	Alkalinity, Total (As CaCO3)	5	5	100	5	100
	Bicarbonate	5	5	100	5	100
	Carbonate	5	5	100	5	100
	Specific Conductance (umhos/cm)	5	5	100	5	100
	Calcium	5	5	100	5	100
	Iron	5	5	100	5	100
	Magnesium	5	5	100	5	100
	Potassium	5	5	100	5	100
	Sodium	5	5	100	5	100

Notes:
Number of samples used in completeness calculations includes field duplicates but does not include equipment rinsate, field, or trip blanks.
Percent Contractural Compliance = (number of contract compliant results / Number of reported results)*100
Percent Technial Compliance = (Number of usable results / Number of reported results) * 100
a = Qualified due to low surrogate recoveries.
b = Qualified due to high surrogate recoveries.
c = Qualified due to associated blank detection.
d = Qualified due to potential laboratory contamination.