AP - 111

AOC-24

2020

NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6313
Phone (505) 476-6000 Fax (505) 476-6030
www.env.nm.gov

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Michelle Lujan Grisham
Governor

Howie C. Morales
Lt. Governor

James C. Kenney
Cabinet Secretary

Jennifer J. Pruett
Deputy Secretary

APR 0 3 2020

John Moore
Environmental Superintendent
Western Refining, Southwest Inc., Gallup Refinery
92 Giant Crossing Road
Gallup, New Mexico 87301

RE: APPROVAL
AREA OF CONCERN 24 – CRUDE OIL TANK FARM ASSESSMENT REPORT
JANUARY 20, 2017 ORDER ON CONSENT
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-WRG-19-021

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has reviewed the *Area of Concern 24 – Crude Oil Tank Farm Assessment Report January 20, 2017 Order on Consent* (Report), dated December 11, 2019, submitted on behalf of Marathon Petroleum Company dba Western Refining Southwest Inc., Gallup Refinery (the Permittee). The Report was submitted in accordance with the requirements of the January 2017 Consent Order (Consent Order).

The purpose of the Consent Order is to determine whether areas of concern (AOCs) listed in Attachment 1 of the Consent Order require investigation or if the Permittee can provide sufficient information to determine that no further investigation or remediation is necessary.

Consent Order Section IV.B requires NMED to review the Report and determine whether the report "approved, disapproved, or disapproved in part ... " The Permittee provided information

required by Consent Order Section IV.C (Contents of AOC Assessment Report). NMED reviewed the Report and hereby issues this Approval.

As specified by the Consent Order Section IV.D (NMED Determination of AOC Entry or Elimination), NMED will make a determination of whether or not AOC 24 should be restored to the RCRA Permit or eliminated from corrective action requirements when NMED receives the last Assessment Report.

If you have questions regarding this correspondence, please contact Michiya Suzuki of my staff at 505-476-6046.

Sincerely,

Kevin Pierard
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
M. Suzuki, NMED HWB
C. Chavez, OCD
L. King, EPA Region 6 (6LCRRC)
B. Moore, WRG

File: Reading File and WRG 2020 File
HWB-WRG-19-021

Marathon Petroleum Company LP

December 11, 2019

Mr. John E. Kieling, Chief
New Mexico Environmental Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87SOS-6303

RE: **Area of Concern 24 – Crude Oil Tank Farm Assessment Report**
January 20, 2017 Order on Consent
Marathon Petroleum Company LP, Gallup Refinery
(dba Western Refining Southwest, Inc.)
EPA ID# NMD000333211

Dear Mr. Kieling:

Gallup Refinery is submitting the enclosed Assessment Report for Area of Concern (AOC) 24 – Crude Oil Tank Farm (Tanks 101 and102) pursuant to Section IV.B of the Order on Consent, which was signed on January 20, 2017. If there are any questions, please call Brian Moore at 505-726-9745.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to 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.

Sincerely,
Marathon Petroleum Company LP, Gallup Refinery

Robert S. Hanks
Refinery General Manager

Enclosure

cc K. Van Horn NMED
C. Chavez NMOCD
B. Moore Marathon Gallup Refinery

92 Giant Crossing Road
Jamestown, NM 87347

AOC 24 – Crude Oil Tank Farm (tanks 101 and 102)

(1) location of unit(s) on a topographic map of appropriate scale, as required under 40 CFR §270.14(b)(19);

See Figure 1 (Site Location Map) and Figure 2 (Site Topographic Map) for location of AOC 24 (crude oil tanks 101 and 102) with topographic information. Figure 3 provides an aerial image of the area.

(2) designation of type and function of unit(s);

The tanks are used to store crude oil.

(3) dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);

There are two 80,000 bbl steel tanks with approximate diameter of 110 feet.

(4) dates that the unit(s) was operated;

Tanks 101 and 102 were placed into service in approximately 1957 and 1991, respectively. Both tanks are still in service.

(5) all available site history information;

The refinery began operation in the late 1950s and the refinery property covers an area of approximately 810 acres. The refinery location and the regional vicinity is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.

The Gallup Refinery is a crude oil refinery that processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

(6) specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes;

No wastes have been managed in the tanks. The tanks are used to store crude oil and any sediment, which accumulates in the tanks, is not a listed hazardous waste while still present in the tanks. Crude oil would be expected to contain various hazardous constituents (e.g., benzene, toluene, ethylbenzene, and xylenes). The crude oil was recently tested for metals and the lab report (#1910C18) is attached. Only barium and zinc were detected in the two samples analyzed.

(7) All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water data).

On December 31, 2006, approximately 6 barrels (250 gallons) of crude oil was spilled onto the ground when a process sewer drain line from the water draw on Tank 102 became clogged causing the drain box to overflow. Subsequently, a C-141 Release

Notification report was submitted to the New Mexico Oil Conservation Division (NMOCD) and New Mexico Environment Department (NMED) on Jan. 2, 2007. The impacted soils were subsequently removed and disposed. During the removal of the spill impacted soils, unrelated impacts to deeper soils were observed. Seeps west of the crude tanks were observed at this time and subsequently surface water samples were collected and analyzed. These water samples were found to contain chlorinated solvents, which were obviously not related to the crude oil tanks. The activities conducted after the initial spill notification are documented in the attached copies of emails related to the incident and associated documents submitted to NMED at that time.

More recently, hydrocarbons were observed in the same seep locations west of the crude tanks and Western implemented emergency measures to identify the source of the hydrocarbons and associated impacts to soils and groundwater. From these investigations, Western determined that a portion of the Contact Wastewater Collection System (SWMU No. 12) near the Bundle Cleaning Pad was corroded and had allowed contaminants to impact groundwater, which flows northwest toward the seep location. Marathon believes that the spill of six barrels of crude oil that occurred on December 31, 2006 was addressed, but that releases from SWMU No. 12 have impacted the subsurface beneath at least a portion the containment area that surrounds the crude oil tanks.

The most recent tank inspection at Tank 102 was conducted in June 2015. The previous internal inspection was conducted in 2005. In June 2015, there was one hole identified in the bottom of the tank that measured 1 inch by 2 inches. The most recent tank inspection at Tank 101 was conducted in August 2016. The previous internal inspection was conducted in 2006. In August 2016, there was one hole identified in the bottom of the tank that measured approximately 7 inches in diameter. The floors of both tanks were replaced with new double bottoms and leak detection; however, prior to the repairs it appears both tanks were leaking.

NMED previously request for information on AOC 24 and those questions and the response are shown below with some updated information.

- Is there underground piping associated with the tanks or are all of the pipes exposed? If they are exposed, were they always exposed?

  The lines to the crude oil tanks have always been aboveground.

- In an email to NMED on June 11, 2007 regarding the crude oil spill, Giant Refining stated “Giant had recovered the spilled crude oil and conducted excavation of the spill impacted soils in the area of the tank. The spill was contained in the berm surrounding the Tank 102. We noticed there was evident some oil impacted soils near the Tank 102. Due to frequent rain, very wet conditions until recently in the berm area made further excavation nearly impossible until recently. So last week we dug down in the impacted areas. Oil impacted soils became evident at depth in the additional excavation. The oil impacted soil appears to be resulting from past spillage of a historical nature. We excavated in several additional locations in the bermed area. The oil impaction exists also in these excavations.” Subsequently seeps were discovered.

  A workplan in letter format to investigate water seeps and any potentially impacted

soils near Tanks 101 and 102 was submitted to NMED on August 7, 2007. Site investigations took place during the week of August 20, 2007, which included sampling of soils and surface water and a conductivity survey.

An additional update was provided to NMED and MNOCD via email on December 20, 2007 in which it was reported that a ground conductivity study (EM-31) was completed during the summer of 2007 in the area of Tank 102. It was noted that a report on the study would be completed and provide by the end of 2007 (see the attached Trihydo report dated December 11, 2007).

- In 2008 Trihydro was contracted – after a memo dated March 2008 there is no follow up report.

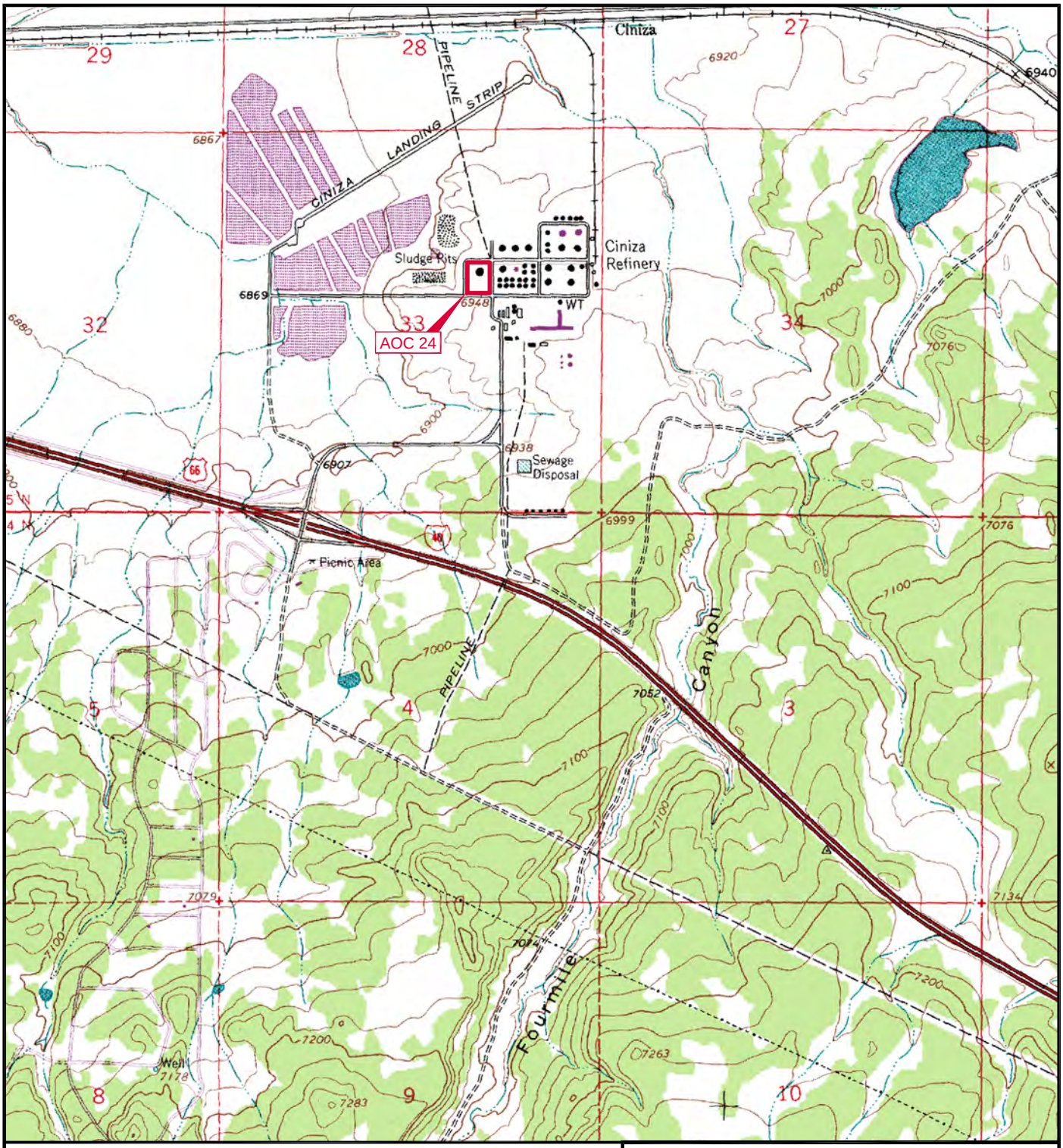
The information collected in November 2007 indicated that the deeper impacts observed near the crude oil tanks were associated with an unrelated source. The spill incident had been addressed and it appears no further work related to the crude oil spill was conducted in 2008.

- Has the soil been cleaned up?

Yes, the soil impacted by the release of six barrels of crude oil was removed; however, deeper unrelated impacts were identified in 2007 and are now believed to be associated with a release from SWMU No. 12. Confirmation samples, which would have been collected from the excavation for removal of the spill impacted materials, have not been located.

- Was the source of the seeps found?

More recent investigations in the same area indicates the seeps, which were first observed in 2006 along the drainage to the west of Tank 102, are most likely associated with leaks that were identified in the Contact Wastewater Collection System (SWMU No. 12). The corroded section of wastewater pipeline was replaced in 2013. The fact that the hole found in Tank 102 in June 2015 was not identified in 2005 also suggest another source was present as early as 2006. The hole in Tank 102 may have contributed later to the seep. Similarly, the hole found in Tank 101 in 2016 was not identified in 2006 suggesting another source was present as early as 2006. The hole in Tank 101 may have contributed later to the seep.



Map Source: USGS 7.5 min Quad, CINIZA, NEW MEXICO, 1962, Photorevised 1980.

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon	DATE: 12/04/19	FILE: Mathon-dA171

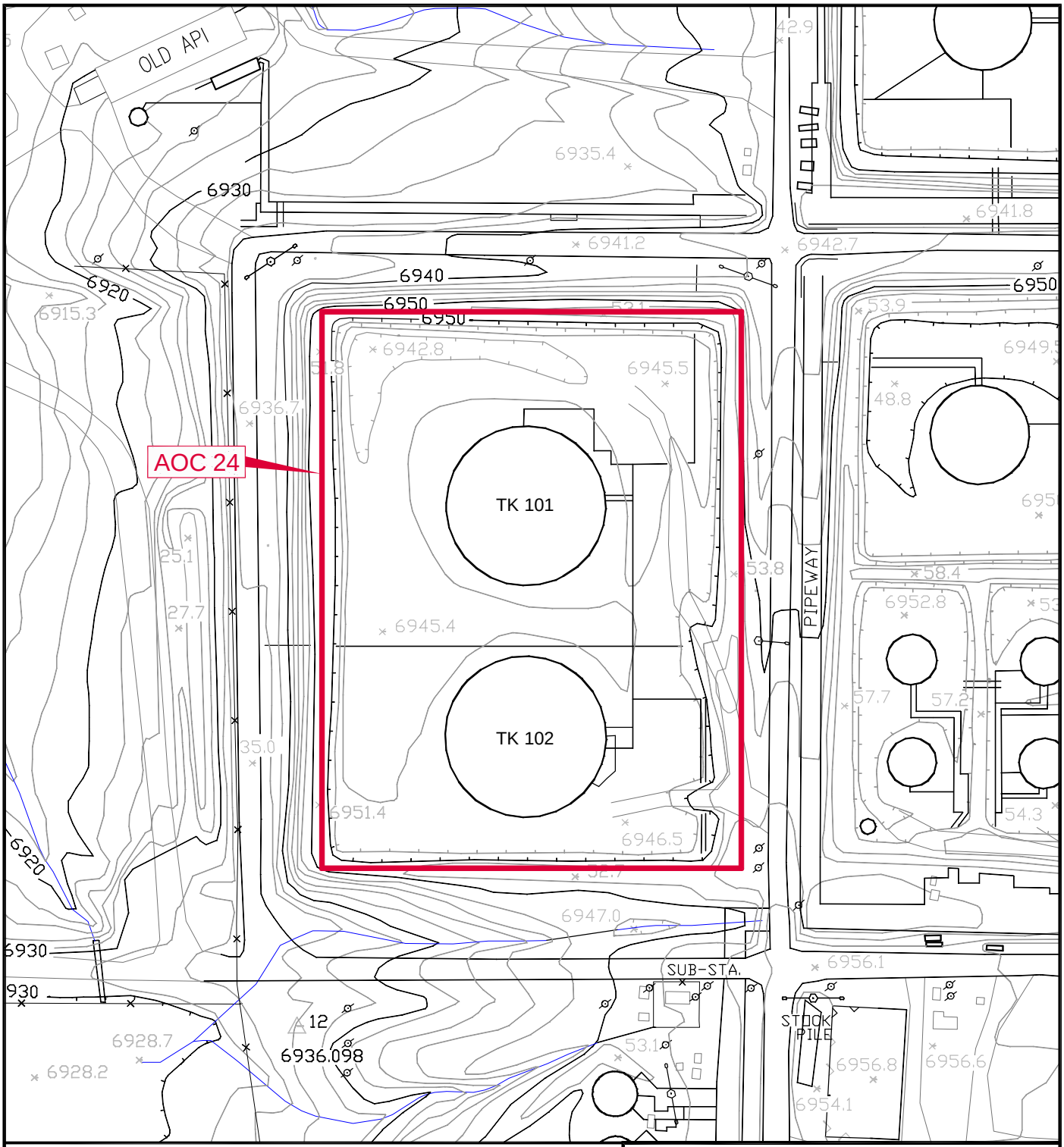
FIGURE 1
SITE LOCATION MAP
AOC 24 AREA

N

0 2000
SCALE IN FEET

NEW MEXICO
SITE LOCATION

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Map Source: Compiled by Photogrammetric Methods from Photography Acquired on March 1, 1998.

N

0 100

SCALE IN FEET

NEW MEXICO

SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon	DATE: 12/04/19	FILE: Mathon-dA172

FIGURE 2
SITE TOPOGRAPHIC MAP
AOC 24 AREA

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

Map Source: Google Aerial, 03/18/2016.

N

0 100

SCALE IN FEET

NEW MEXICO

SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon	DATE: 12/04/19	FILE: Mathon-dA173

FIGURE 3
AERIAL PHOTO OF TANKS 101 AND 102
AOC 24 AREA

DiSorbo
Environmental Consulting Firm

8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 26, 2019

Brian Moore
Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL: (505) 722-3833
FAX:

RE: Crude Oil Metals OrderNo.: 1910C18

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/22/2019 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued November 12, 2019.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

ENERGY LABORATORIES
Trust our People. Trust our Data.
Billings, MT 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

ANALYTICAL SUMMARY REPORT

November 22, 2019

Hall Environmental
4901 Hawkins St NE Ste D
Albuquerque, NM 87109-4372

Work Order: B19102348

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 2 samples for Hall Environmental on 10/25/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B19102348-001	1910C18-001A, Hospah East Pipeline	10/21/19 12:48	10/25/19	Oil	Metals by ICP/ICPMS, Total or Soluble Mercury in Solid By CVAA Total Metals Digestion by SW3050B Mercury Digestion by SW7471B
B19102348-002	1910C18-002A, BISTI West Pipeline	10/21/19 12:50	10/25/19	Oil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

Lisa Bradley
Vice President - Director of Laboratory Operations

Digitally signed by
Lisa Bradley
Date: 2019.11.22 10:36:07 -07:00

CLIENT: Hall Environmental
Project: Not Indicated
Work Order: B19102348

Revised Date: 11/22/19
Report Date: 11/11/19

CASE NARRATIVE

Revised Date: 11/22/2019

On 11/21/2019 a request was received from Andy Freeman at Hall Environmental to revise this workorder by adding Total Manganese to both samples.

The report has been revised and replaces any previously issued report in its entirety.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B19102348-001
Client Sample ID: 1910C18-001A, Hospah East Pipeline

Revised Date: 11/22/19
Report Date: 11/11/19
Collection Date: 10/21/19 12:48
DateReceived: 10/25/19
Matrix: Oil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL - EPA SW846							
Antimony	ND	mg/kg		1		SW6020	11/01/19 21:09 / car
Arsenic	ND	mg/kg		1		SW6020	11/01/19 21:09 / car
Barium	ND	mg/kg		1		SW6010B	11/01/19 05:27 / rlh
Beryllium	ND	mg/kg		1		SW6010B	11/01/19 05:27 / rlh
Cadmium	ND	mg/kg		1		SW6020	11/01/19 21:09 / car
Chromium	ND	mg/kg		1		SW6020	11/01/19 21:09 / car
Cobalt	ND	mg/kg		1		SW6020	11/01/19 21:09 / car
Lead	ND	mg/kg		1		SW6020	11/06/19 19:00 / pap
Manganese	ND	mg/kg		1		SW6020	11/01/19 21:09 / car
Mercury	ND	mg/kg		1		SW7471B	11/05/19 10:48 / jag
Nickel	ND	mg/kg		1		SW6020	11/01/19 21:09 / car
Selenium	ND	mg/kg		1		SW6020	11/01/19 21:09 / car
Silver	ND	mg/kg		1		SW6020	11/04/19 20:37 / car
Vanadium	ND	mg/kg	D	2		SW6020	11/04/19 20:37 / car
Zinc	2	mg/kg		1		SW6020	11/01/19 21:09 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B19102348-002
Client Sample ID: 1910C18-002A, BISTI West Pipeline

Revised Date: 11/22/19
Report Date: 11/11/19
Collection Date: 10/21/19 12:50
DateReceived: 10/25/19
Matrix: Oil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL - EPA SW846							
Antimony	ND	mg/kg		1		SW6020	11/01/19 21:13 / car
Arsenic	ND	mg/kg		1		SW6020	11/01/19 21:13 / car
Barium	2	mg/kg		1		SW6010B	11/01/19 05:31 / rlh
Beryllium	ND	mg/kg		1		SW6010B	11/01/19 05:31 / rlh
Cadmium	ND	mg/kg		1		SW6020	11/01/19 21:13 / car
Chromium	ND	mg/kg		1		SW6020	11/01/19 21:13 / car
Cobalt	ND	mg/kg		1		SW6020	11/01/19 21:13 / car
Lead	ND	mg/kg		1		SW6020	11/04/19 21:01 / car
Manganese	ND	mg/kg		1		SW6020	11/01/19 21:13 / car
Mercury	ND	mg/kg		1		SW7471B	11/05/19 10:49 / jag
Nickel	ND	mg/kg		1		SW6020	11/01/19 21:13 / car
Selenium	ND	mg/kg		1		SW6020	11/04/19 21:01 / car
Silver	ND	mg/kg		1		SW6020	11/04/19 21:01 / car
Vanadium	ND	mg/kg	D	2		SW6020	11/04/19 21:01 / car
Zinc	2	mg/kg		1		SW6020	11/01/19 21:13 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Hall Environmental

B19102348

Login completed by: Richard L. Shular
Reviewed by: BL2000\darcy
Reviewed Date: 10/28/2019

Date Received: 10/25/2019
Received by: sso
Carrier name: Return-UPS NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
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? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	1.8°C Blue Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B19102348 **Report Date:** 11/11/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Analytical Run: ICP203-B_191031A	
Lab ID: QCS	2	Initial Calibration Verification Standard							10/31/19 10:47	
Barium		0.807	mg/L	0.10	101	90	110			
Beryllium		0.404	mg/L	0.010	101	90	110			
Lab ID: ICSA	2	Interference Check Sample A							10/31/19 10:51	
Barium		0.000100	mg/L	0.10						
Beryllium		0.000300	mg/L	0.010						
Lab ID: ICSAB	2	Interference Check Sample AB							10/31/19 10:55	
Barium		0.467	mg/L	0.10	93	80	120			
Beryllium		0.461	mg/L	0.010	92	80	120			
Method: SW6010B									Batch: 138618	
Lab ID: MB-138618	2	Method Blank				Run: ICP203-B_191031A			11/01/19 05:18	
Barium		ND	mg/kg	0.1						
Beryllium		ND	mg/kg	0.03						
Lab ID: SRM2-138618	2	Standard Reference Material				Run: ICP203-B_191031A			11/01/19 05:23	
Barium		96.7	mg/kg	1.0	97	70	130			
Beryllium		0.0786	mg/kg	1.0						
Lab ID: B19102348-002ADIL	2	Serial Dilution				Run: ICP203-B_191031A			11/01/19 05:35	
Barium		2.23	mg/kg	1.0					10	N
Beryllium		ND	mg/kg	1.0					10	
Lab ID: B19102348-002APDS	2	Post Digestion/Distillation Spike				Run: ICP203-B_191031A			11/01/19 05:40	
Barium		87.7	mg/kg	1.0	89	75	125			
Beryllium		42.4	mg/kg	1.0	88	75	125			
Lab ID: B19102348-002AMS3	2	Sample Matrix Spike				Run: ICP203-B_191031A			11/01/19 05:44	
Barium		93.3	mg/kg	1.0	93	75	125			
Beryllium		45.0	mg/kg	1.0	92	75	125			
Lab ID: B19102348-002AMSD3	2	Sample Matrix Spike Duplicate				Run: ICP203-B_191031A			11/01/19 05:48	
Barium		94.6	mg/kg	1.0	93	75	125	1.4	20	
Beryllium		45.8	mg/kg	1.0	92	75	125	1.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B19102348 **Report Date:** 11/11/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Analytical Run: ICPMS206-B_191104A	
Lab ID: ICSA	4	Interference Check Sample A							11/04/19 14:06	
Lead		0.0000782	mg/L	0.0010						
Selenium		0.00114	mg/L	0.0010						
Silver		8.66E-06	mg/L	0.0010						
Vanadium		-0.00188	mg/L	0.0012						
Lab ID: ICSAB	4	Interference Check Sample AB							11/04/19 14:11	
Lead		0.0000794	mg/L	0.0010						
Selenium		0.0111	mg/L	0.0010	111	80	120			
Silver		0.00457	mg/L	0.0010	91	80	120			
Vanadium		0.0188	mg/L	0.0012	94	80	120			
Lab ID: QCS	4	Initial Calibration Verification Standard							11/04/19 17:58	
Lead		0.0481	mg/L	0.0010	96	90	110			
Selenium		0.0500	mg/L	0.0010	100	90	110			
Silver		0.0243	mg/L	0.0010	97	90	110			
Vanadium		0.0492	mg/L	0.0012	98	90	110			
Method: SW6020									Batch: 138618	
Lab ID: MB-138618	4	Method Blank				Run: ICPMS206-B_191104A			11/04/19 20:23	
Lead		ND	mg/kg	0.2						
Selenium		ND	mg/kg	0.5						
Silver		ND	mg/kg	0.04						
Vanadium		ND	mg/kg	1						
Lab ID: SRM2-138618	4	Standard Reference Material				Run: ICPMS206-B_191104A			11/04/19 20:28	
Lead		82.1	mg/kg	1.0	82	70	130			
Selenium		87.0	mg/kg	1.0		0	0			
Silver		77.9	mg/kg	1.0	78	70	130			
Vanadium		79.7	mg/kg	2.1	80	70	130			
Lab ID: B19102348-002ADIL	4	Serial Dilution				Run: ICPMS206-B_191104A			11/04/19 21:05	
Lead		ND	mg/kg	2.1					10	
Selenium		ND	mg/kg	4.8					10	
Silver		ND	mg/kg	1.0					10	
Vanadium		ND	mg/kg	9.8					10	
Lab ID: B19102348-002APDS1	4	Post Digestion/Distillation Spike				Run: ICPMS206-B_191104A			11/04/19 21:10	
Lead		3.88	mg/kg	1.0	81	75	125			
Selenium		4.18	mg/kg	1.0	88	75	125			
Silver		1.45	mg/kg	1.0	76	75	125			
Vanadium		4.14	mg/kg	2.0	87	75	125			
Lab ID: B19102348-002AMS3	4	Sample Matrix Spike				Run: ICPMS206-B_191104A			11/04/19 21:15	
Lead		94.4	mg/kg	2.2	96	75	125			
Selenium		99.9	mg/kg	5.0	102	75	125			
Silver		35.5	mg/kg	1.0	72	75	125			S
Vanadium		93.4	mg/kg	10	95	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B19102348 **Report Date:** 11/11/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Batch: 138618	
Lab ID: B19102348-002AMSD3	4	Sample Matrix Spike Duplicate				Run: ICPMS206-B_191104A			11/04/19 21:19	
Lead		94.3	mg/kg	2.2	95	75	125	0.2	20	
Selenium		101	mg/kg	5.1	101	75	125	0.7	20	
Silver		35.0	mg/kg	1.0	70	75	125	1.5	20	S
Vanadium		94.7	mg/kg	10	95	75	125	1.3	20	
Lab ID: MB-138618	4	Method Blank				Run: ICPMS206-B_191104A			11/04/19 20:23	
Lead		ND	mg/kg	0.2						
Selenium		ND	mg/kg	0.5						
Silver		ND	mg/kg	0.04						
Vanadium		ND	mg/kg	1						
Lab ID: SRM2-138618	4	Standard Reference Material				Run: ICPMS206-B_191104A			11/04/19 20:28	
Lead		91.0	mg/kg	1.0	91	70	130			
Selenium		87.0	mg/kg	1.0		0	0			
Silver		77.9	mg/kg	1.0	78	70	130			
Vanadium		79.7	mg/kg	2.1	80	70	130			
Lab ID: B19102348-002ADIL	4	Serial Dilution				Run: ICPMS206-B_191104A			11/04/19 21:05	
Lead		ND	mg/kg	2.1					10	
Selenium		ND	mg/kg	4.8					10	
Silver		ND	mg/kg	1.0					10	
Vanadium		ND	mg/kg	9.8					10	
Lab ID: B19102348-002APDS1	4	Post Digestion/Distillation Spike				Run: ICPMS206-B_191104A			11/04/19 21:10	
Lead		4.16	mg/kg	1.0	87	75	125			
Selenium		4.18	mg/kg	1.0	88	75	125			
Silver		1.45	mg/kg	1.0	76	75	125			
Vanadium		4.14	mg/kg	2.0	87	75	125			
Lab ID: B19102348-002AMS3	4	Sample Matrix Spike				Run: ICPMS206-B_191104A			11/04/19 21:15	
Lead		103	mg/kg	2.2	105	75	125			
Selenium		99.9	mg/kg	5.0	102	75	125			
Silver		35.5	mg/kg	1.0	72	75	125			S
Vanadium		93.4	mg/kg	10	95	75	125			
Lab ID: B19102348-002AMSD3	4	Sample Matrix Spike Duplicate				Run: ICPMS206-B_191104A			11/04/19 21:19	
Antimony		129	mg/kg	1.0	129	75	125	1.7	20	S
Barium		99.3	mg/kg	1.0	98	75	125	1.3	20	
Beryllium		37.1	mg/kg	1.0	74	75	125	0.9	20	S
Boron		77.0	mg/kg	1.4	77	75	125	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B19102348 **Report Date:** 11/11/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Analytical Run: ICPMS207-B_191106A	
Lab ID: ICSA		Interference Check Sample A							11/06/19 12:58	
Lead		0.0000444	mg/L	0.0010						
Lab ID: ICSAB		Interference Check Sample AB							11/06/19 13:03	
Lead		0.0000405	mg/L	0.0010						
Lab ID: QCS		Initial Calibration Verification Standard							11/06/19 12:11	
Lead		0.0497	mg/L	0.0010	99	90	110			
Method: SW6020									Batch: 138618	
Lab ID: MB-138618		Method Blank				Run: ICPMS207-B_191106A			11/06/19 18:46	
Lead		ND	mg/kg	0.2						
Lab ID: SRM2-138618		Standard Reference Material				Run: ICPMS207-B_191106A			11/06/19 18:51	
Lead		82.7	mg/kg	1.0	83	70	130			
Lab ID: B19102348-002AMS3		Sample Matrix Spike				Run: ICPMS207-B_191106A			11/06/19 19:05	
Lead		95.3	mg/kg	2.2	97	75	125			
Lab ID: B19102348-002AMSD3		Sample Matrix Spike Duplicate				Run: ICPMS207-B_191106A			11/06/19 19:10	
Lead		95.8	mg/kg	2.2	96	75	125	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B19102348 **Report Date:** 11/11/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7471B									Analytical Run: HGCV202-B_191105A	
Lab ID: ICV		Initial Calibration Verification Standard							11/05/19 10:39	
Mercury		0.00199	mg/kg	1.0	100	90	110			
Method: SW7471B									Batch: 138820	
Lab ID: MB-138820		Method Blank				Run: HGCV202-B_191105A			11/05/19 10:44	
Mercury		0.010	mg/kg	0.005						
Lab ID: LCS3-138820		Laboratory Control Sample				Run: HGCV202-B_191105A			11/05/19 10:46	
Mercury		0.203	mg/kg	1.0	102	80	120			
Lab ID: B19102623-001BDIL		Serial Dilution				Run: HGCV202-B_191105A			11/05/19 11:03	
Mercury		0.378	mg/kg	1.0					10	
Lab ID: B19102623-001BMS3		Sample Matrix Spike				Run: HGCV202-B_191105A			11/05/19 11:05	
Mercury		0.543	mg/kg	1.0	88	80	120			
Lab ID: B19102623-001BMSD		Sample Matrix Spike Duplicate				Run: HGCV202-B_191105A			11/05/19 11:26	
Mercury		0.542	mg/kg	1.0	84	80	120		20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch **Revised Date:** 11/22/19

Client: Hall Environmental **Work Order:** B19102348 **Report Date:** 11/11/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Analytical Run: ICPMS206-B_191101A	
Lab ID: QCS	9	Initial Calibration Verification Standard								11/01/19 18:33
Antimony		0.0462	mg/L	0.0010	92	90	110			
Arsenic		0.0491	mg/L	0.0010	98	90	110			
Cadmium		0.0251	mg/L	0.0010	100	90	110			
Chromium		0.0507	mg/L	0.0010	101	90	110			
Cobalt		0.0522	mg/L	0.0010	104	90	110			
Manganese		0.246	mg/L	0.0010	98	90	110			
Nickel		0.0524	mg/L	0.0010	105	90	110			
Selenium		0.0507	mg/L	0.0010	101	90	110			
Zinc		0.0520	mg/L	0.0037	104	90	110			
Lab ID: ICSA	9	Interference Check Sample A								11/01/19 19:11
Antimony		0.000641	mg/L	0.0010						
Arsenic		0.0000883	mg/L	0.0010						
Cadmium		0.000229	mg/L	0.0010						
Chromium		0.000190	mg/L	0.0010						
Cobalt		0.000662	mg/L	0.0010						
Manganese		0.000376	mg/L	0.0010						
Nickel		-0.0000966	mg/L	0.0010						
Selenium		0.00288	mg/L	0.0010						
Zinc		-0.000814	mg/L	0.0037						
Lab ID: ICSAB	9	Interference Check Sample AB								11/01/19 19:26
Antimony		-6.22E-06	mg/L	0.0010						
Arsenic		0.0103	mg/L	0.0010	103	80	120			
Cadmium		0.0100	mg/L	0.0010	100	80	120			
Chromium		0.0200	mg/L	0.0010	100	80	120			
Cobalt		0.0219	mg/L	0.0010	109	80	120			
Manganese		0.0210	mg/L	0.0010	105	80	120			
Nickel		0.0196	mg/L	0.0010	98	80	120			
Selenium		0.00921	mg/L	0.0010	92	80	120			
Zinc		0.00912	mg/L	0.0037	91	80	120			
Method: SW6020										Batch: 138618
Lab ID: MB-138618	9	Method Blank				Run: ICPMS206-B_191101A				11/01/19 20:55
Antimony		0.07	mg/kg	0.04						
Arsenic		ND	mg/kg	0.3						
Cadmium		ND	mg/kg	0.01						
Chromium		ND	mg/kg	0.10						
Cobalt		ND	mg/kg	0.01						
Manganese		ND	mg/kg	0.2						
Nickel		ND	mg/kg	0.2						
Selenium		ND	mg/kg	0.5						
Zinc		0.6	mg/kg	0.3						
Lab ID: SRM2-138618	9	Standard Reference Material				Run: ICPMS206-B_191101A				11/01/19 20:59
Antimony		0.326	mg/kg	1.0		70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch **Revised Date:** 11/22/19

Client: Hall Environmental **Work Order:** B19102348 **Report Date:** 11/11/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 138618
Lab ID: SRM2-138618	9	Standard Reference Material				Run: ICPMS206-B_191101A				11/01/19 20:59
Arsenic		94.6	mg/kg	1.0	95	70	130			
Cadmium		107	mg/kg	1.0	107	70	130			
Chromium		88.4	mg/kg	1.0	88	70	130			
Cobalt		0.151	mg/kg	1.0		70	130			
Manganese		91.6	mg/kg	1.0	92	70	130			
Nickel		99.1	mg/kg	1.0	99	70	130			
Selenium		71.6	mg/kg	1.1		0	0			
Zinc		102	mg/kg	1.0	102	70	130			
Lab ID: B19102348-002ADIL	9	Serial Dilution				Run: ICPMS206-B_191101A				11/01/19 21:18
Antimony		ND	mg/kg	1.0					10	
Arsenic		ND	mg/kg	3.0					10	
Cadmium		ND	mg/kg	1.0					10	
Chromium		ND	mg/kg	1.0					10	
Cobalt		ND	mg/kg	1.0					10	
Manganese		ND	mg/kg	2.0					10	
Nickel		ND	mg/kg	1.5					10	
Selenium		ND	mg/kg	4.8					10	
Zinc		ND	mg/kg	2.9					10	
Lab ID: B19102348-002APDS1	9	Post Digestion/Distillation Spike				Run: ICPMS206-B_191101A				11/01/19 21:23
Antimony		4.49	mg/kg	1.0	94	75	125			
Arsenic		4.33	mg/kg	1.0	91	75	125			
Cadmium		3.64	mg/kg	1.0	76	75	125			
Chromium		4.12	mg/kg	1.0	86	75	125			
Cobalt		3.38	mg/kg	1.0	71	75	125			S
Manganese		4.19	mg/kg	1.0	88	75	125			
Nickel		4.22	mg/kg	1.0	88	75	125			
Selenium		5.82	mg/kg	1.0	122	75	125			
Zinc		6.14	mg/kg	1.0	83	75	125			
Lab ID: B19102348-002AMS3	9	Sample Matrix Spike				Run: ICPMS206-B_191101A				11/01/19 21:27
Antimony		107	mg/kg	1.0	109	75	125			
Arsenic		95.1	mg/kg	3.1	97	75	125			
Cadmium		44.4	mg/kg	1.0	91	75	125			
Chromium		97.4	mg/kg	1.0	99	75	125			
Cobalt		86.3	mg/kg	1.0	88	75	125			
Manganese		472	mg/kg	2.1	96	75	125			
Nickel		101	mg/kg	1.6	103	75	125			
Selenium		115	mg/kg	5.0	117	75	125			
Zinc		102	mg/kg	3.0	102	75	125			
Lab ID: B19102348-002AMSD	9	Sample Matrix Spike Duplicate				Run: ICPMS206-B_191101A				11/01/19 21:32
Antimony		107	mg/kg	1.0	107	75	125	0.5	20	
Arsenic		98.9	mg/kg	3.2	99	75	125	4.0	20	
Cadmium		44.8	mg/kg	1.0	90	75	125	0.9	20	
Chromium		101	mg/kg	1.0	101	75	125	3.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 11/22/19

Client: Hall Environmental

Work Order: B19102348

Report Date: 11/11/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 138618
Lab ID: B19102348-002AMSD	9	Sample Matrix Spike Duplicate				Run: ICPMS206-B_191101A				11/01/19 21:32
Cobalt		86.0	mg/kg	1.0	86	75	125	0.3	20	
Manganese		489	mg/kg	2.1	98	75	125	3.5	20	
Nickel		106	mg/kg	1.6	107	75	125	4.9	20	
Selenium		119	mg/kg	5.1	119	75	125	3.7	20	
Zinc		106	mg/kg	3.1	104	75	125	3.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

SUB CONTRATOR: **Bil-Energy**	COMPANY: **Energy Laboratories**	PHONE: **(800) 735-4489**	FAX: **(406) 252-6069**
ADDRESS: **1120 South 27th Street**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Billings, MT 59107**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1910C18-001A	Hospah East Pipeline B190234S-001	500HDPE	Oil	10/21/2019 12:48:00 PM	1	Skinner List Metals: Ba, Be, Cd, Cr, Co, Ni, Ag, V, Z, Sb, As, Pb, Se, Hg
2	1910C18-002A	BISTI West Pipeline -002	500HDPE	Oil	10/21/2019 12:50:00 PM	1	Skinner List Metals: Ba, Be, Cd, Cr, Co, Ni, Ag, V, Z, Sb, As, Pb, Se, Hg

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 10/23/2019	Time: 1:30 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: Shanne Ojeda	Date: 10/25/19	Time: 10:10

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples _____ °C Attempt to Cool ? _____
Comments: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **MARATHON GALLUP** Work Order Number: **1910C18** RcptNo: 1

Received By: Juan Rojas **10/22/2019 3:34:00 PM**

Completed By: **Leah Baca** **10/22/2019 4:56:52 PM** Leah Baca

Reviewed By: LB 10/23/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: YG 10/23/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes			

Chain-of-Custody Record

Client: MARATHON PET. Co. LP
GALLUP REFINERY
Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301
Phone #: 505-726-9745
email or Fax#: BMOORE1@MARATHONPETROLEUM.COM
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) EXCEL

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: CRUDE OIL – METALS
Project #:
Project Manager: BRIAN MOORE
Sampler: TRACY PAYNE - 919-561-7055
On Ice: ☒ Yes ☐ No
Sample Temperature: 0.5 - 0.4 = 0.1

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. 1910C18	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	SKINNER LIST METALS				Air Bubbles (Y or N)
10/21/19	1248	OIL	HOSPAH EAST PIPELINE	500ML PLASTIC-1	NONE	-001												X				
10/21/19	1250	OIL	BISTI WEST PIPELINE	500ML PLASTIC-1	NONE	-002												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/22/19	0700		carrier	10/22/19	345
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.

From: Price, Wayne, EMNRD [mailto:wayne.price@state.nm.us]
Sent: Monday, June 11, 2007 8:53 PM
To: Jim Lieb; Monzeglio, Hope, NMENV
Cc: Ed Riege; Steve Morris; Chavez, Carl J, EMNRD
Subject: RE: Giant (Western Refining) - Ciniza Refinery Tank 102 Cleanup

Dear Mr. Lieb:

In the furture please include Carl Chavez on your corrospondence. Mr. Chavez is the permit writer fro your facility.

Wayne Price-Environmental Bureau Chief
Oil Conservation Division
1220 S. Saint Francis
Santa Fe, NM 87505
E-mail wayne.price@state.nm.us
Tele: 505-476-3490
Fax: 505-476-3462

From: Jim Lieb [mailto:jlieb@giant.com]
Sent: Mon 6/11/2007 8:45 AM
To: Monzeglio, Hope, NMENV; Price, Wayne, EMNRD
Cc: Ed Riege; Steve Morris
Subject: RE: Giant (Western Refining) - Ciniza Refinery Tank 102 Cleanup

Hope, Wayne:

Ciniza refinery is continuing the cleanup at Tank 102. As you may recall, a spill at Tank 102 (crude oil) occurred on December 31, 2006. Giant submitted the OCD's Form C-141 for this spill soon after the incident (a copy is attached to this email for your convenience). Giant had recovered the spilled crude oil and conducted excavation of the spill impacted soils in the area of the tank. The spill was contained in the berm surrounding the Tank 102.

We noticed there was evident some oil impacted soils near the Tank 102. Due to frequent rain, very wet conditions until recently in the berm area made further excavation nearly impossible until recently. So last week we dug down in the impacted areas. Oil impacted soils became evident at depth in the additional excavation. The oil impacted soil appears to be resulting from past spillage of a historical nature. We excavated in several additional locations in the bermed area. The oil impaction exists also in these excavations. We will show this to you during tomorrow's visit here.

Regards,

Jim Lieb
Environmental Engineer
Giant Industries, Inc.
Ciniza Refinery
I-40, Exit 39
Jamestown, NM 87347
(505) 722-0227
fax (505) 722-0210
jlieb@giant.com

From: Jim Lieb
Sent: Monday, June 11, 2007 8:46 AM
To: 'Monzeglio, Hope, NMENV'; 'wprice@state.nm.us'
Cc: Ed Riege; Steve Morris
Subject: RE: Giant (Western Refining) - Ciniza Refinery Tank 102 Cleanup

Hope, Wayne:

Ciniza refinery is continuing the cleanup at Tank 102. As you may recall, a spill at Tank 102 (crude oil) occurred on December 31, 2006. Giant submitted the OCD's Form C-141 for this spill soon after the incident (a copy is attached to this email for your convenience). Giant had recovered the spilled crude oil and conducted excavation of the spill impacted soils in the area of the tank. The spill was contained in the berm surrounding the Tank 102.

We noticed there was evident some oil impacted soils near the Tank 102. Due to frequent rain, very wet conditions until recently in the berm area made further excavation nearly impossible until recently. So last week we dug down in the impacted areas. Oil impacted soils became evident at depth in the additional excavation. The oil impacted soil appears to be resulting from past spillage of a historical nature. We excavated in several additional locations in the bermed area. The oil impaction exists also in these excavations. We will show this to you during tomorrow's visit here.

Regards,

Jim Lieb
Environmental Engineer
Giant Industries, Inc.
Ciniza Refinery
I-40, Exit 39
Jamestown, NM 87347
(505) 722-0227
fax (505) 722-0210
jlieb@giant.com

From: Jim Lieb
Sent: Tuesday, August 07, 2007 3:03 PM
To: 'Monzeglio, Hope, NMENV'; 'Chavez, Carl J, EMNRD'
Cc: Ed Riege; Steve Morris; 'Regina Allen'
Subject: WorkPlan for Tank 102 Subsurafce Investigation at Giant Refining Gallup

Hope and Carl:

Attached is the workplan for the Tanks 101 and 102 subsurface investigation. Trihydro will be on-site on August 20 for the work.

Regards,
Jim Lieb
Environmental Engineer
Giant Industries, Inc.
Ciniza Refinery
I-40, Exit 39
Jamestown, NM 87347
(505) 722-0227
fax (505) 722-0210
jlieb@giant.com

From: Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
Sent: Tuesday, August 14, 2007 4:15 PM
To: Jim Lieb; Ed Riege
Cc: Cobrain, Dave, NMENV; Frischkorn, Cheryl, NMENV; Kieling, John, NMENV; Price, Wayne, EMNRD; Martinez, Cynthia, NMENV; Steve Morris
Subject: Approval with Direction Tank 101 and 102

Ed and Jim

The hard copy will go out in the mail tomorrow.

Hope

Hope Monzeglio
Environmental Specialist
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, BLDG 1
Santa Fe NM 87505
Phone: (505) 476-6045
Main No.: (505-476-6000
Fax: (505)-476-6030
hope.monzeglio@state.nm.us

Websites:
New Mexico Environment Department
Hazardous Waste Bureau

Please note the new phone numbers

From: Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
Sent: Tuesday, August 21, 2007 2:25 PM
To: Regina Allen; Chavez, Carl J, EMNRD
Cc: Jim Lieb; Ed Riege; Steve Morris; Grant Price; Cobrain, Dave, NMENV; Frischkorn, Cheryl, NMENV
Subject: RE: Revised Work Plan for Tank 101/102 soil contamination delineation

Jim and Regina

Looks good, I have no further comments.

Hope

From: Regina Allen [mailto:rmallen@trihydro.com]
Sent: Thursday, August 16, 2007 11:28 AM
To: Monzeglio, Hope, NMENV; Chavez, Carl J, EMNRD
Cc: Jim Lieb; Ed Riege; Steve Morris; Grant Price
Subject: Revised Work Plan for Tank 101/102 soil contamination delineation

Hope and Carl,

I have attached a pdf version of the work plan for delineating the soil contamination near Tanks 101 and 102. The comments from Hope have been incorporated as per our conference call yesterday (Aug. 15, 2007).

Let me know if you have any further questions. Thanks.

Regina Allen
Environmental Scientist

Trihydro CORPORATION

1252 Commerce Drive
Laramie, Wyoming 82070
307/745-7474 (phone)
307/745-7729 (fax)
rmallen@trihydro.com
www.trihydro.com

From: Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
Sent: Monday, November 26, 2007 2:22 PM
To: Jim Lieb; Ed Riege
Cc: Cobrain, Dave, NMENV; Frischkorn, Cheryl, NMENV
Subject: Tank 101 and 102

Jim

What is the status of the investigation at Tanks 101 and 102?

Thanks
Hope

Hope Monzeglio
Environmental Specialist
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, BLDG 1
Santa Fe NM 87505
Phone: (505) 476-6045; Main No.: (505)-476-6000
Fax: (505)-476-6060
hope.monzeglio@state.nm.us

Websites:
New Mexico Environment Department
Hazardous Waste Bureau

From: Jim Lieb
Sent: Thursday, December 06, 2007 8:16 AM
To: 'Regina Allen'
Cc: Ed Riege; Steve Morris
Subject: RE: Tank 101/102 path forward discussion

As of this date/ time, I am available any time on Thursday 12/13.
Jim

From: Regina Allen [mailto:rmallen@trihydro.com]
Sent: Wednesday, December 05, 2007 4:42 PM
To: Ed Riege; Steve Morris; Jim Lieb
Cc: Eric Worden; Grant Price; Peter Schulmeyer; Chelsea Neuman
Subject: Tank 101/102 path forward discussion

Ed, Jim, and Steve,

I would like to schedule a meeting to discuss a path forward for the Tank 101/102 Area sometime on Thursday December 13th (a week from tomorrow and Van's birthday). The rest of this email is a preface/summary of a future meeting and to give you a heads up on what we (Trihydro) is thinking. Let me know what time works for you next Thursday and I will send out a meeting request.

We had a meeting today with our expert who can interpret EM data and this is where we're at:

I have attached DRAFTS of the figures that I am going to talk about in this email. We have talked internally with our EM data expert (Pete). Figure 1 shows the data with topography overlaid onto it. Figure 2 shows the results of the soil and water samples we collected also overlaid on the topography. I am summarizing a lot in this email that will be included in the progress report in more detail.

Figure 1: Generally clean water does not have as high of a conductivity reading as water that is contaminated. Based on our field observations and the EM data, it looks like there might be something else going on near Seep 1 and to the north of seep one. We think there might be something else going on *north* of seep 1 because we don't think that that conductivity change is solely related to is water because if you look at photos or are familiar with the area, it seems very dry in that area (EM data penetrated to about 3 meters).

Figure 2 & results spreadsheet: If you look at the results spreadsheet you will notice that there are hits of MTBE and other chlorinated compounds in the water in seep 1. It is possible that the seep is not related to the tank burm area. However, the sand lens that we encountered in our test pits of seep 1, 2 and west ditch (noted on figure 1) appears to be sloping downward; which leads us to think that maybe the sand lens extends back into the tank burm which would lead us to think that the seep *could* be coming from the tank burm area. Additionally, there are rather large hits of DRO and MRO in seep 1 and from the tank burm area.

Path forward
The goal of this project was to determine if the seeps were related to Tanks 101 & 102. Trihydro has discussed internally and we would like to sample the tank burm at deeper depths in order to try to connect to the sand lens that we suspect might connect the seep 1 with the tank burm area. In order to DO this, we would like to use the drill rig. We would like to see if we can collect samples while we are out there during the week of the 17th (but caution that we need to make sure we have thoroughly thought through the process and have all safety policies in place). We would also like to sample to the north of seep 1 in

the above mentioned suspect area and at a point between the Tank burm area and seep 1. The analyses we would like to run include a PIANO analysis and/or an isotope analysis. The PIANO analysis would provide a footprint of the hydrocarbon at each of the areas and the isotope analysis would give us an age of the hydrocarbon.

I want to reiterate that IF we can't get all of our ducks in a row (know exactly what we want to do, field memos, safe work practices, etc) prior to trying to using the drill rig in the Tank area while we are out there for the Fan Out Area, we can always come back because we've planned for it.

Again, I would like to schedule a meeting for Thursday December 13th. What time works for all of you?

Regina Allen
Environmental Scientist

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
307/745-7474 (phone)
307/745-7729 (fax)
rmallen@trihydro.com

December 11, 2007

Mr. Jim Lieb
Environmental Engineer
Giant Refining
Route 3 Box 7
Gallup, NM 87301

RE: Project Status Report, Tank 101 and 102 Soil Investigation, Giant Refining – Gallup Refinery

Dear Mr. Lieb:

This correspondence has been prepared to provide a brief summary of field activities associated with the Tank 101 and 102 Soil Investigation. The investigation of this area was conducted in response to a request by the Giant Refining Company, Gallup Refinery (Gallup). Gallup requested Trihydro to identify the source of two water seeps located down gradient of Tank 102 and to delineate the soil contamination associated with these seeps. The New Mexico Environmental Department (NMED) was verbally contacted by Gallup personnel as part of the project preparation activities and is aware of the seeps/soil contamination near Tanks 101 and 102. As a result NMED requested that a work plan be approved before field work commenced. A work plan, in letter format, was submitted to NMED on August 16, 2007 (Work Plan).

FIELD ACTIVITIES

Trihydro personnel were on-site during the week of August 20, 2007. Field activities associated with the Tank 101 and 102 Soil Investigation consisted of a site walk-through, an EM31-MK2 survey, surface water sampling, and soil sampling. These activities are described below.

Site Walk-Through

A site walk-through was conducted with Gallup personnel prior to commencing the EM31-MK2 survey. During this walk through the seeps were located and a plan was developed to conduct the EM31-MK2 survey. As a health and safety issue, Gallup and Trihydro personnel decided that the sage brush needed to be removed before the EM31-MK2 survey could commence (i.e. reducing the danger of rattlesnake bites). In accordance with the work plan the area was staked out in 15 feet intervals to assist the EM31-MK2 survey coverage. As the brush was being cleared the area was staked out using wooden 3 foot stakes. After the majority of the sage brush had been cleared a second site walk-through was conducted to look for any surface contamination. Some residuum was observed in and along the drainage ditch. These locations were logged with a global positioning system (GPS) and are included on Figure 1. Other features that had the potential interest to the EM31-MK2 survey were also logged (e.g. test pits, rebar, fence, roadways, and tank berms).

EM31-MK2 Survey

An electromagnetic survey was performed on an area west of Tanks 101 and 102 which encompassed both seeps. The area was approximately 440 feet (north-south) by 625 feet (east-west) and is illustrated on Figure 1. The survey was performed with a Geonics EM31-MK2 ground conductivity meter.

The EM31-MK2 ground conductivity meter creates an electromagnetic induction field into the ground and measures two components of the return electromagnetic field which vary with changes in geology or other subsurface features. The two components are a quadrature-phase component and an in-phase component. The quadrature-phase component is a direct conductivity reading of subsurface geology measured in millisiemens per meter (mS/m). Since moisture content can affect conductivity of the subsurface geology, this phase may be useful in delineating soil contamination associated with the seeps. The in-phase component is a measurement of the magnetic susceptibility of subsurface features and is a good indicator of high-conductivity features such as metal objects and is measured as the ratio of the secondary to primary magnetic field in parts per thousand (ppt). This phase may be helpful in identifying metallic subsurface utilities. The effective depth of response is up to 9 ft bgs. Calibration of the EM31-MK2 ground conductivity meter was performed per the manufacturer's instruction.

Continuous measurement and recording of ground conductivity and metallic response was performed in conjunction with GPS navigation. The survey was completed on foot by Trihydro personnel with the EM31-MK2 and GPS units. The survey area was divided into a bi-directional grid with a grid spacing of approximately 15 feet. The boundaries of the survey area and the boundary/grid line intersects were staked prior to conducting the survey.

The EM31-MK2 data was plotted and mapped using Geosoft's OasisMontaj software. A color grid was generated using the "minimum curvature" algorithm within the program. The color grid was overlain on an existing contour map of the refinery to assist in analyzing the image. This is illustrated on Figure 1.

Surface Water Sampling

Surface water samples were collected from Seep 1 and Seep 2 and analyzed for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Diesel Range Organics (DRO), Gasoline Range Organics (GRO), Motor Oil Range Organics (MRO), and Resource Conservation and Recovery Act (RCRA) metals. Surface water samples were not collected from the West Ditch test pit because surface water was not present. Results are summarized in Table 1 and discussed below.

Soil Sampling

The subsurface soil investigation of the area began the week of August 20, 2007. Three test pits were installed directly up-gradient of Tanks 101 and 102 inside the tank berm, three test pits were installed direction down-gradient of Tanks 101 and 102 inside the tank berm, one test pit was installed at Seep 1 (Seep 1 Test Pit), one test pit was installed in between Seep 1 and Seep 2 (Seep 2 Test Pit), and one test

pit was installed west of the drainage ditch located directly west of Seep 2 (West Ditch Test Pit). The test pit sampling and logging procedures were followed in accordance with the Work Plan and locations are shown on Figure 1.

The three test pits installed directly up-gradient of Tanks 101 and 102 were installed at the request of NMED to assist in determining if the source of the seeps was a result of these up-gradient tanks. The test pits are identified as TK 102_SE, TK Center, and TK 101_NE on Figure 1. These test pits were sampled at 2 and 8 feet below ground surface (ft bgs), 2 and 6 ft bgs, and 2 and 8 ft bgs respectively and analyzed for DRO and GRO. The samples were also field-screened using a photo-ionization detector (PID) as outlined in the Work Plan. The results were logged on field forms that will be included in the final report. No elevated PID readings were identified and soil samples were collected at each location in accordance with the Work Plan. As shown in Table 1, analytical results from each discreet interval were reported as non-detect.

The three test pits installed directly down-gradient of Tanks 101 and 102 were installed to determine any potential connection to the seeps with contamination within the tank berms. These are identified as TK 101_W, TK 102_W, and Tank 102_SW on Figure 1. These test pits were sampled at 2 and 5.5 ft bgs, 2 and 6 ft bgs, and 2 and 6 ft bgs respectively and analyzed for DRO and GRO. The samples were also field-screened using a PID. The results were logged on field forms that will be included in the final report. As with the previous set of test pits, no elevated PID readings were identified.

Seep 1, Seep 2, and West Ditch test pits were excavated to a water-bearing sand lens layer. Seep 1 test pit was located against an embankment and was excavated to a total depth of 3 ft bgs. During the excavation a black seam was encountered. Soil samples were collected from above and below the black seam, directly from the black seam, and from the water-bearing sand lens layer. The water-bearing sand lens layer is located at approximately 1.5 to 2 ft bgs. Seep 2 test pit was excavated to a depth of 7 ft bgs and sampled at 2 and 6 ft bgs. A water-bearing sand lens layer was encountered at 7 ft bgs. The test pit became unstable at 7 ft bgs due to the high moisture content making it impossible to collect a sample below the water-bearing sand lens layer. The West Ditch test pit was excavated to a depth of 9 ft bgs and sampled at 4, 8, and 9 ft bgs. A water-bearing sand lens layer was encountered at 8 ft bgs. As with the Seep 1 test pit, this test pit became unstable at this depth due to the high moisture content; therefore a sample was not collected below the water-bearing sand lens layer.

Photo Documentation

Field work was documented and recorded in Trihydro personnel's field log book in accordance with the Work Plan. Photos were taken at the test pits, residuum locations, and seeps. These photos will be included as part of the final report.

ANALYTICAL DATA

Samples were shipped to Hall Environmental located in Albuquerque, New Mexico for analysis. The surface water samples collected from the seeps were analyzed for VOCs by method 8260, SVOCs by 8270, DRO, GRO, MRO, and RCRA metals. The soil samples collected from the test pits were analyzed for DRO, GRO, MRO, and VOCs. The analytical detections reported for soil and surface water are illustrated on Figure 2 and summarized in Table 1. A detailed summary of the analytical data will be presented in the final report.

PATH FORWARD

In order to further determine if the seeps are related to the Tank 101 and 102 bermed area, Trihydro proposes to collect additional soil and/or water samples. The samples would be collected from the area of the test pits, TK 102 W, and TK 102 SW at deeper depths in order to try to connect the water-bearing sand lens layer to the seeps.

Additionally, the area north of Seep 1 and Seep 2 and the area west of Seep 1 would be soil sampled. These locations would be sampled in order to confirm the EM31-MK2 signals (i.e. contamination, water, or other).

The samples will be collected using the hollow stem auger drill rig procedures as described in the Work Plan. The analyses would consist of a PIANO analysis and/or an Isotope analysis, as well as, DRO and GRO. The PIANO analysis should provide a footprint of the hydrocarbon at each of the areas and Isotope analysis should give an age of the hydrocarbon.

If you have any questions, please feel free to contact us at (307) 745-7474.

Sincerely,
Trihydro Corporation

for Eric Worden
Business Unit Manager-Petrochemical Services

for Regina Allen
Project Manager

697-007-001

cc: Ed Riege, Giant Refining