AP - 111

LANDFARMS

2019

From:	Caitlin Fields
To:	Chavez, Carl J, EMNRD
Cc:	Cobrain, Dave, NMENV; Suzuki, Michiya, NMENV; Heidi Jones; Paul Hildebrandt
Subject:	[EXT] OCD Landfarm Closure Letter
Date:	Wednesday, April 29, 2020 1:11:07 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png 202004_OCDLandfarmClosure_LTR_Signed.pdf

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Hi Carl,

Please find Marathon's response to the requests made by OCD regarding the Central OCD Landfarm Closure Request at the Gallup Refinery. Marathon would like to request the closure of the OCD Landfarm independent of NMED. Please let us know if you have any questions.

Thank you,
Caitlin

Caitlin Fields
Associate Engineer

Trihydro CORPORATION

OUR SAFETY IS MY RESPONSIBILITY

1252 Commerce Drive
Laramie, Wyoming 82070
(307) 745-7474 (phone)
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cfields@trihydro.com

Connect with us on:

Western Refining Southwest, Inc.
A subsidiary of Marathon Petroleum Corporation

92 Giant Crossing Road
Jamestown, NM 87347
Tel: 505.722.3833

April 28, 2020

Mr. Carl J. Chavez
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505

RE: RE: Request for Closure, Central Oil Conservation Division Landfarm
Marathon Petroleum Company LP, Gallup Refinery
EPA ID# NMD000333211

Dear Mr. Chavez:

The Marathon Petroleum Company LP (MPC) Gallup Refinery (Refinery) is submitting this correspondence to the Oil Conservation Division (OCD) to request closure of the Central OCD Landfarm (Landfarm) and to clarify requests made by OCD on March 24, 2020. As concluded in the *OCD Landfarm Closure Request* letter of January 16, 2020, the Refinery does not believe that the referenced chloride exceedances are the result of Landfarm operation. Accordingly, the Refinery does not believe that the chloride exceedances and investigation of Pond 10 need to be addressed prior to Landfarm closure as requested in OCD March 24, 2020 correspondence.

MPC received an approval from the New Mexico Environmental Department (NMED) for the *Response to Comments NMED Approval with Modifications Letter Dated March 17, 2017 [Chloride Exceedance Excavation Report]* on May 16, 2019 regarding a previously submitted report. NMED Comment 2, in that approval, states that "a work plan to install soil borings to collect soil samples of the underlying native soils, pond sediments, and the upper zone waste" needs to be submitted but no due date was stated in the letter.

OCD, in a March 24, 2020 email, agreed with the findings of the OCD Landfarm Closure Plan Report, but preferred "to await the results of the deeper environmental investigation of former Evaporation Pond 10" requested by NMED in the above-referenced Approval Letter. As stated above, Pond 10 which lies within the footprint of the Landfarm, will be investigated when MPC deems the Landfarm is accessible per the RCRA permit. MPC considers that the Landfarm is not accessible in part because the OCD Landfarm is not closed.

Therefore, MPC is requesting that the OCD formally grant MPC closure of the Central OCD Landfarm. If OCD believes that insufficient information is available for Landfarm closure, MPC will work with OCD to

develop a workplan and sampling program to address their concerns. In addition, MPC will include OCD on any communications with NMED related to the Pond 10 investigation.

Upon OCD approval of this request, the Refinery shall proceed with closure in general accordance with NMAC Rule 36 and the submittal of Form C-137 EZ and its requirements. If you have any questions or comments, please do not hesitate to 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

Robert S. Hanks
Refinery General Manager

cc D. Cobrain, NMED HWB
M. Suzuki, NMED HWB
B. Moore, Marathon Gallup Refinery
H. Jones, Trihydro Corporation

From:	Chavez, Carl J, EMNRD
To:	Moore, Brian; "Scott Crouch"
Cc:	Griswold, Jim, EMNRD; Wade, Gabriel, EMNRD; Cobrain, Dave, NMENV; Suzuki, Michiya, NMENV
Subject:	OCD Centralized Landfarm (Former Evaporation Pond 10) Closure Plan Report
Date:	Tuesday, March 24, 2020 8:57:00 AM

Brian, et al.:

The New Mexico Oil Conservation Division (OCD) has completed review of the above subject closure plan report.

While OCD agrees with the findings of the report, OCD prefers to await the results of the deeper environmental investigation of former Evaporation Pond 10 requested by the New Mexico Environment Department to assess the complete investigation of the area of concern before issuing a final determination.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division (Albuquerque Office)
Energy Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113
Ph. (505) 660-7923
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to:
http://www.emnrd.state.nm.us/OCD **and see "Publications")**

Marathon Petroleum Company LP

January 6, 2020

Mr. Carl J. Chavez
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505

RE: Request for Closure, Central Oil Conservation Division Landfarm
Marathon Petroleum Company LP, Gallup Refinery
EPA ID# NMD000333211

Dear Mr. Chavez:

The Marathon Petroleum Company LP Gallup Refinery (Refinery) is submitting this correspondence to the Oil Conservation Division (OCD) to request closure of the Central OCD Landfarm (Landfarm). To support this recommendation, the Refinery is re-submitting the September and October 2016 Chloride Exceedance Excavation Report (under Marathon's letterhead). The report is provided as Attachment A. As concluded in the report, the Refinery does not believe that the referenced chloride exceedances are the result of Landfarm operation. Accordingly, the Refinery does not believe that the chloride exceedances need to be addressed prior to Landfarm closure.

The Refinery has conducted semiannual Landfarm sampling since the original submittal of the above-referenced report (January 2017). To further support the closure recommendation, this submittal includes a data summary and evaluation of the DiSorbo-collected data. The semiannual data were collected from randomly selected locations within the Landfarm in general accordance with New Mexico Administrative Code (NMAC) Rule 36 (19.15.36 NMAC). For each semiannual sampling event, four samples were collected from the treatment zone and four samples from the vadose zone. Lab reports for the data are included as an Attachment B, and a Tier II data validation report for the June 2019 sampling event (the most recent sampling event) is provided as (Attachment C). The June 2019 data received additional validation because it is this data set that the Refinery is using to support the Landfarm closure request.

The June 2019 sampling data were compared to OCD Form C-137 EZ closure performance standards and alternative beneficial reuse soil screening levels (ABRSC). ABRSCs were developed by the Refinery conditionally approved by OCD in a letter dated November 4, 2011, and have been used to conduct Landfarm evaluations since that time. Rule 36 closure criteria rely on evaluation of treatment zone data; June 2019 treatment zone and vadose zone data are provided in Table 1. No sampling results (treatment zone or vadose zone) exceed the above-referenced standards/screening levels for the June 2019 sampling event.

92 Giant Crossing Road
Gallup, NM 87301

The Refinery would like to move forward with the closure of the Central OCD Landfarm. Upon OCD approval of this request, the Refinery shall proceed with closure in general accordance with NMAC Rule 36 and the submittal of Form C-137 EZ and its requirements. If you have any questions or comments, please do not hesitate to 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

Robert S. Hanks
Refinery General Manager

Enclosures

cc B. Moore Marathon Gallup Refinery

Table

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	1,1,1,2-Tetrachloroethane (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1,2,2-Tetrachloroethane (mg/kg)	1,1,2-Trichloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,1-Dichloropropene (mg/kg)	1,2,3-Trichlorobenzene (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)	ND(0.096)
	06/27/19	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.1)	ND(0.1)
CentralOCD-TZ02-06272019	06/27/19	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.099)	ND(0.099)
CentralOCD-TZ03-06272019	06/27/19	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.1)	ND(0.1)
CentralOCD-TZ04-06272019	06/27/19	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.099)	ND(0.099)
CentralOCD-VZ01-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)	ND(0.096)
CentralOCD-VZ02-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.097)	ND(0.097)
CentralOCD-VZ03-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)	ND(0.096)
CentralOCD-VZ04-06272019	06/27/19	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.098)	ND(0.098)
Action Level and ABRSC	NA	64,300	NA	1,240	6,880	1,830	NA	NA
NMAC Closure Standard	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	1,2,3-Trichloropropane (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)	1,2,4-Trimethylbenzene (mg/kg)	1,2-Dibromo-3-chloropropane (mg/kg)	1,2-Dibromoethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,2-Dichloroethane (mg/kg)	1,2-Dichloropropane (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.096)	ND(0.23)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.23)	ND(0.048)	ND(0.048)
	06/27/19	ND(0.1)	ND(0.2)	ND(0.05)	ND(0.1)	ND(0.05)	ND(0.2)	ND(0.05)	ND(0.05)
CentralOCD-TZ02-06272019	06/27/19	ND(0.099)	ND(0.19)	ND(0.049)	ND(0.099)	ND(0.049)	ND(0.19)	ND(0.049)	ND(0.049)
CentralOCD-TZ03-06272019	06/27/19	ND(0.1)	ND(2.1)	ND(0.05)	ND(0.1)	ND(0.05)	ND(2.1)	ND(0.05)	ND(0.05)
CentralOCD-TZ04-06272019	06/27/19	ND(0.099)	ND(2)	ND(0.05)	ND(0.099)	ND(0.05)	ND(2)	ND(0.05)	ND(0.05)
CentralOCD-VZ01-06272019	06/27/19	ND(0.096)	ND(2)	ND(0.048)	ND(0.096)	ND(0.048)	ND(2)	ND(0.048)	ND(0.048)
CentralOCD-VZ02-06272019	06/27/19	ND(0.097)	ND(0.21)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.21)	ND(0.048)	ND(0.048)
CentralOCD-VZ03-06272019	06/27/19	ND(0.096)	ND(0.23)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.23)	ND(0.048)	ND(0.048)
CentralOCD-VZ04-06272019	06/27/19	ND(0.098)	ND(0.47)	ND(0.049)	ND(0.098)	ND(0.049)	ND(0.47)	ND(0.049)	ND(0.049)
Action Level and ABRSC		NA	NA	NA	NA	NA	NA	751	NA
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	1,3,5-Trimethylbenzene (mg/kg)	1,3-Dichlorobenzene (mg/kg)	1,3-Dichloropropane (mg/kg)	1,4-Dichlorobenzene (mg/kg)	1-Methylnaphthalene (mg/kg)	2,2-Dichloropropane (mg/kg)	2,2'-oxybis (1-Chloropropane) (mg/kg)	2,4,5-Trichlorophenol (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.048)	ND(0.23)	ND(0.048)	ND(0.23)	ND(0.23)	ND(0.096)	ND(0.23)	ND(0.23)
	06/27/19	ND(0.05)	ND(0.2)	ND(0.05)	ND(0.2)	ND(0.2)	ND(0.1)	ND(0.2)	ND(0.2)
CentralOCD-TZ02-06272019	06/27/19	ND(0.049)	ND(0.19)	ND(0.049)	ND(0.19)	ND(0.2)	ND(0.099)	ND(0.19)	ND(0.19)
CentralOCD-TZ03-06272019	06/27/19	ND(0.05)	ND(2.1)	ND(0.05)	ND(2.1)	ND(2.1)	ND(0.1)	ND(2.1)	ND(2.1)
CentralOCD-TZ04-06272019	06/27/19	ND(0.05)	ND(2)	ND(0.05)	ND(2)	ND(2)	ND(0.099)	ND(2)	ND(2)
CentralOCD-VZ01-06272019	06/27/19	ND(0.048)	ND(2)	ND(0.048)	ND(2)	ND(2)	ND(0.096)	ND(2)	ND(2)
CentralOCD-VZ02-06272019	06/27/19	ND(0.048)	ND(0.21)	ND(0.048)	ND(0.21)	ND(0.21)	ND(0.097)	ND(0.21)	ND(0.21)
CentralOCD-VZ03-06272019	06/27/19	ND(0.048)	ND(0.23)	ND(0.048)	ND(0.23)	ND(0.23)	ND(0.096)	ND(0.23)	ND(0.23)
CentralOCD-VZ04-06272019	06/27/19	ND(0.049)	ND(0.47)	ND(0.049)	ND(0.47)	ND(0.47)	ND(0.098)	ND(0.47)	ND(0.47)
Action Level and ABRSC		NA	NA	NA	NA	0.6	NA	NA	23,800
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	2,4,6-Trichlorophenol (mg/kg)	2,4-Dichlorophenol (mg/kg)	2,4-Dimethylphenol (mg/kg)	2,4-Dinitrophenol (mg/kg)	2,4-Dinitrotoluene (mg/kg)	2,6-Dinitrotoluene (mg/kg)	2-Butanone (mg/kg)	2-Chloronaphthalene (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.47)	ND(0.35)	ND(0.59)	ND(0.59)	ND(0.59)	0.1 J	ND(0.29)
	06/27/19	ND(0.2)	ND(0.4)	ND(0.3)	ND(0.5)	ND(0.5)	ND(0.5)	0.069 J	ND(0.25)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.37)	ND(0.28)	ND(0.46)	ND(0.46)	ND(0.46)	0.084 J	ND(0.23)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(4.3)	ND(3.2)	ND(5.4)	ND(5.4)	ND(5.4)	0.1 J	ND(2.7)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(4.1)	ND(3)	ND(5.1)	ND(5.1)	ND(5.1)	0.081 J	ND(2.5)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(3.9)	ND(2.9)	ND(4.9)	ND(4.9)	ND(4.9)	0.073 J	ND(2.4)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.42)	ND(0.31)	ND(0.52)	ND(0.52)	ND(0.52)	0.078 J	ND(0.26)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.46)	ND(0.34)	ND(0.57)	ND(0.57)	ND(0.57)	ND(0.48)	ND(0.29)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.94)	ND(0.71)	ND(1.2)	ND(1.2)	ND(1.2)	0.096 J	ND(0.59)
Action Level and ABRSC		238	715	4,760	476	NA	NA	NA	NA
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	2-Chlorophenol (mg/kg)	2-Chlorotoluene (mg/kg)	2-Hexanone (mg/kg)	2-Methylnaphthalene (mg/kg)	2-Methylphenol (mg/kg)	2-Nitroaniline (mg/kg)	2-Nitrophenol (mg/kg)	3,3'-Dichlorobenzidine (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.048)	ND(0.48)	ND(0.23)	ND(0.47)	ND(0.23)	ND(0.23)	ND(0.29)
	06/27/19	ND(0.2)	ND(0.05)	ND(0.5)	ND(0.2)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.25)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.049)	ND(0.49)	ND(0.2)	ND(0.37)	ND(0.19)	ND(0.19)	ND(0.23)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(0.05)	ND(0.5)	ND(2.1)	ND(4.3)	ND(2.1)	ND(2.1)	ND(2.7)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(0.05)	ND(0.5)	ND(2)	ND(4.1)	ND(2)	ND(2)	ND(2.5)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(0.048)	ND(0.48)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(2.4)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.048)	ND(0.48)	ND(0.21)	ND(0.42)	ND(0.21)	ND(0.21)	ND(0.26)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.048)	ND(0.48)	ND(0.23)	ND(0.46)	ND(0.23)	ND(0.23)	ND(0.29)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.049)	ND(0.49)	ND(0.47)	ND(0.94)	ND(0.47)	ND(0.47)	ND(0.59)
Action Level and ABRSC		1,550	NA	NA	0.6	0.1	NA	0.1	NA
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	3,4-Methylphenol (mg/kg)	3-Nitroaniline (mg/kg)	2-Methyl-4,6-dinitrophenol (mg/kg)	4-Bromophenyl phenyl ether (mg/kg)	4-Chloro-3-Methylphenol (mg/kg)	4-Chloroaniline (mg/kg)	4-Chlorophenyl phenyl ether (mg/kg)	4-Chlorotoluene (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.47)	ND(0.23)	ND(0.59)	ND(0.59)	ND(0.23)	ND(0.048)
	06/27/19	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.2)	ND(0.5)	ND(0.5)	ND(0.2)	ND(0.05)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.19)	ND(0.46)	ND(0.46)	ND(0.19)	ND(0.049)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(2.1)	ND(4.3)	ND(2.1)	ND(5.4)	ND(5.4)	ND(2.1)	ND(0.05)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(2)	ND(4.1)	ND(2)	ND(5.1)	ND(5.1)	ND(2)	ND(0.05)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(4.9)	ND(4.9)	ND(2)	ND(0.048)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.21)	ND(0.42)	ND(0.21)	ND(0.52)	ND(0.52)	ND(0.21)	ND(0.048)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.46)	ND(0.23)	ND(0.57)	ND(0.57)	ND(0.23)	ND(0.048)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.47)	ND(0.94)	ND(0.47)	ND(1.2)	ND(1.2)	ND(0.47)	ND(0.049)
Action Level and ABRSC		0.1	NA	23.8	NA	0.1	NA	NA	NA
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	4-Methyl-2-Pentanone (mg/kg)	4-Nitroaniline (mg/kg)	4-Nitrophenol (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Acetone (mg/kg)	Aniline (mg/kg)	Anthracene (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.48)	ND(0.47)	ND(0.29)	ND(0.23)	ND(0.23)	ND(0.72)	ND(0.23)	ND(0.23)
	06/27/19	ND(0.5)	ND(0.4)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.75)	ND(0.2)	ND(0.2)
CentralOCD-TZ02-06272019	06/27/19	ND(0.49)	ND(0.37)	ND(0.23)	ND(0.19)	ND(0.19)	ND(0.74)	ND(0.19)	ND(0.19)
CentralOCD-TZ03-06272019	06/27/19	ND(0.5)	ND(4.3)	ND(2.7)	ND(2.1)	ND(2.1)	ND(0.75)	ND(2.1)	ND(2.1)
CentralOCD-TZ04-06272019	06/27/19	ND(0.5)	ND(4.1)	ND(2.5)	ND(2)	ND(2)	ND(0.74)	ND(2)	ND(2)
CentralOCD-VZ01-06272019	06/27/19	ND(0.48)	ND(3.9)	ND(2.4)	ND(2)	ND(2)	ND(0.72)	ND(2)	ND(2)
CentralOCD-VZ02-06272019	06/27/19	ND(0.48)	ND(0.42)	ND(0.26)	ND(0.21)	ND(0.21)	ND(0.73)	ND(0.21)	ND(0.21)
CentralOCD-VZ03-06272019	06/27/19	ND(0.48)	ND(0.46)	ND(0.29)	ND(0.23)	ND(0.23)	ND(0.72)	ND(0.23)	ND(0.23)
CentralOCD-VZ04-06272019	06/27/19	ND(0.49)	ND(0.94)	ND(0.59)	ND(0.47)	ND(0.47)	ND(0.74)	ND(0.47)	ND(0.47)
Action Level and ABRSC	NA	NA	0.1	18,600	0.6	NA	NA	66,800
NMAC Closure Standard	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
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TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Azobenzene (mg/kg)	Benzene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(ghi)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Benzoic Acid (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.024)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	0.12 J
	06/27/19	ND(0.2)	ND(0.025)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.5)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.025)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	0.096 J
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(0.025)	ND(2.1)	ND(2.1)	ND(2.1)	ND(2.1)	ND(2.1)	ND(5.4)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(0.025)	1.1 J	ND(2)	ND(2)	ND(2)	ND(2)	1.1 J
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(0.024)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(4.9)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.024)	ND(0.21)	ND(0.21)	ND(0.21)	ND(0.21)	ND(0.21)	0.11 J
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.024)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.57)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.025)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	0.24 J
Action Level and ABRSC		NA	0.2	213	21.3	213	0.6	2,060	NA
NMAC Closure Standard		NA	0.2	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
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TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Benzyl Alcohol (mg/kg)	Bis(2-chloroethoxy) methane (mg/kg)	Bis(2-chloroethyl)ether (mg/kg)	Bis(2-ethylhexyl) phthalate (mg/kg)	Bromobenzene (mg/kg)	Bromodichloromethane (mg/kg)	Bromoform (mg/kg)	Bromomethane (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.59)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.14)
	06/27/19	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.15)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.19)	ND(0.19)	0.14 J	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.15)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(2.1)	ND(2.1)	ND(5.4)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.15)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(2)	ND(2)	ND(5.1)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.15)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(2)	ND(2)	ND(4.9)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.14)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.21)	ND(0.21)	0.28 J	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.15)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.57)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.14)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.47)	ND(0.47)	ND(1.2)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.15)
Action Level and ABRSC		NA	NA	NA	NA	NA	NA	NA	NA
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
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UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Benzyl Butyl Phthalate (mg/kg)	Carbazole (mg/kg)	Carbon Disulfide (mg/kg)	Carbon Tetrachloride (mg/kg)	Chlorobenzene (mg/kg)	Chloroethane (mg/kg)	Chloroform (mg/kg)	Chloromethane (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.48)	ND(0.048)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.14)
	06/27/19	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.05)	ND(0.05)	ND(0.1)	ND(0.05)	ND(0.15)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.19)	ND(0.49)	ND(0.049)	ND(0.049)	ND(0.099)	ND(0.049)	ND(0.15)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(2.1)	ND(0.5)	ND(0.05)	ND(0.05)	ND(0.1)	ND(0.05)	ND(0.15)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(2)	ND(0.5)	ND(0.05)	ND(0.05)	ND(0.099)	ND(0.05)	ND(0.15)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(2)	ND(0.48)	ND(0.048)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.14)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.21)	ND(0.48)	ND(0.048)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.15)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.48)	ND(0.048)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.14)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.47)	ND(0.49)	ND(0.049)	ND(0.049)	ND(0.098)	ND(0.049)	ND(0.15)
Action Level and ABRSC		NA	NA	NA	199	NA	NA	671	NA
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
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J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
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TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Chrysene (mg/kg)	cis-1,2-Dichloroethene (mg/kg)	cis-1,3-Dichloropropene (mg/kg)	Dibenz(a,h)anthracene (mg/kg)	Dibenzofuran (mg/kg)	Dibromochloromethane (mg/kg)	Dibromomethane (mg/kg)	Dichlorodifluoromethane (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.048)	ND(0.048)	ND(0.23)	ND(0.23)	ND(0.048)	ND(0.048)	ND(0.048)
	06/27/19	ND(0.2)	ND(0.05)	ND(0.05)	ND(0.2)	ND(0.2)	ND(0.05)	ND(0.05)	ND(0.05)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.049)	ND(0.049)	ND(0.19)	ND(0.19)	ND(0.049)	ND(0.049)	ND(0.049)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(0.05)	ND(0.05)	ND(2.1)	ND(2.1)	ND(0.05)	ND(0.05)	ND(0.05)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(0.05)	ND(0.05)	ND(2)	ND(2)	ND(0.05)	ND(0.05)	ND(0.05)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(0.048)	ND(0.048)	ND(2)	ND(2)	ND(0.048)	ND(0.048)	ND(0.048)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.048)	ND(0.048)	ND(0.21)	ND(0.21)	ND(0.048)	ND(0.048)	ND(0.048)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.048)	ND(0.048)	ND(0.23)	ND(0.23)	ND(0.048)	ND(0.048)	ND(0.048)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.049)	ND(0.049)	ND(0.47)	ND(0.47)	ND(0.049)	ND(0.049)	ND(0.049)
Action Level and ABRSC	20,600	NA	NA	21.3	NA	NA	0.002	NA	
NMAC Closure Standard	NA	NA	NA	NA	NA	NA	NA	NA	

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
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J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
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TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Diethyl Phthalate (mg/kg)	Dimethyl Phthalate (mg/kg)	Di-n-butylphthalate (mg/kg)	Di-n-octylphthalate (mg/kg)	Ethylbenzene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Hexachlorobenzene (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.47)	ND(0.47)	ND(0.048)	ND(0.23)	ND(0.23)	ND(0.23)
	06/27/19	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.05)	ND(0.2)	ND(0.2)	ND(0.2)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.37)	ND(0.049)	ND(0.19)	ND(0.19)	ND(0.19)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(2.1)	ND(4.3)	ND(4.3)	ND(0.05)	ND(2.1)	ND(2.1)	ND(2.1)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(2)	ND(4.1)	ND(4.1)	ND(0.05)	ND(2)	ND(2)	ND(2)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(0.048)	ND(2)	ND(2)	ND(2)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.21)	0.23 J	ND(0.42)	ND(0.048)	ND(0.21)	ND(0.21)	ND(0.21)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.46)	ND(0.46)	ND(0.048)	ND(0.23)	ND(0.23)	ND(0.23)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.47)	ND(0.94)	ND(0.94)	ND(0.049)	ND(0.47)	ND(0.47)	ND(0.47)
Action Level and ABRSC	NA	NA	NA	NA	50	8,910	8,910	NA
NMAC Closure Standard	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
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mg/kg - milligrams per kilogram
NA - Not Applicable
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TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Hexachlorobutadiene (mg/kg)	Hexachloro cyclopentadiene (mg/kg)	Hexachloroethane (mg/kg)	Indeno-(1,2,3-cd)pyrene (mg/kg)	Isophorone (mg/kg)	Isopropylbenzene (mg/kg)	Methylene Chloride (mg/kg)	MTBE (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.47)	ND(0.048)	ND(0.14)	ND(0.048)
	06/27/19	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.05)	ND(0.15)	ND(0.05)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.049)	ND(0.15)	ND(0.049)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(2.1)	ND(2.1)	ND(2.1)	ND(4.3)	ND(0.05)	ND(0.15)	ND(0.05)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(2)	ND(2)	ND(2)	ND(4.1)	ND(0.05)	ND(0.15)	ND(0.05)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(0.048)	ND(0.14)	ND(0.048)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.21)	ND(0.21)	ND(0.21)	ND(0.42)	ND(0.048)	ND(0.15)	ND(0.048)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.46)	ND(0.048)	ND(0.14)	ND(0.048)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.94)	ND(0.049)	ND(0.15)	ND(0.049)
Action Level and ABRSC		NA	NA	NA	213	NA	NA	10,600	NA
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
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mg/kg - milligrams per kilogram
NA - Not Applicable
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TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Naphthalene (mg/kg)	n-Butylbenzene (mg/kg)	Nitrobenzene (mg/kg)	Nitrogen, Nitrate (mg/kg)	N-Nitrosodi-n-propylamine (mg/kg)	N-Nitroso diphenylamine (mg/kg)	n-Propylbenzene (mg/kg)	Pentachlorophenol (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.14)	ND(0.47)	4.5 J-	ND(0.23)	ND(0.23)	ND(0.048)	ND(0.47)
	06/27/19	ND(0.2)	ND(0.15)	ND(0.4)	4.9 J-	ND(0.2)	ND(0.2)	ND(0.05)	ND(0.4)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.15)	ND(0.37)	4.2 J-	ND(0.19)	ND(0.19)	ND(0.049)	ND(0.37)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(0.15)	ND(4.3)	13 J-	ND(2.1)	ND(2.1)	ND(0.05)	ND(4.3)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(0.15)	ND(4.1)	4 J-	ND(2)	ND(2)	ND(0.05)	ND(4.1)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(0.14)	ND(3.9)	2.4 J-	ND(2)	ND(2)	ND(0.048)	ND(3.9)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.15)	ND(0.42)	2 J-	ND(0.21)	ND(0.21)	ND(0.048)	ND(0.42)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.14)	ND(0.46)	6.7 J-	ND(0.23)	ND(0.23)	ND(0.048)	ND(0.46)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.15)	ND(0.94)	3.1 J-	ND(0.47)	ND(0.47)	ND(0.049)	ND(0.94)
Action Level and ABRSC	702	NA	NA	496,000	NA	NA	NA	1,030	
NMAC Closure Standard	NA	NA	NA	NA	NA	NA	NA	NA	

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
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J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
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TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Phenanthrene (mg/kg)	Phenol (mg/kg)	p-Isopropyltoluene (mg/kg)	Pyrene (mg/kg)	Pyridine (mg/kg)	sec-Butylbenzene (mg/kg)	Styrene (mg/kg)	tert-Butylbenzene (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.048)	ND(0.23)	ND(0.47)	ND(0.048)	ND(0.048)	ND(0.048)
	06/27/19	ND(0.2)	ND(0.2)	ND(0.05)	ND(0.2)	ND(0.4)	ND(0.05)	ND(0.05)	ND(0.05)
CentralOCD-TZ02-06272019	06/27/19	ND(0.19)	ND(0.19)	ND(0.049)	ND(0.19)	ND(0.37)	ND(0.049)	ND(0.049)	ND(0.049)
CentralOCD-TZ03-06272019	06/27/19	ND(2.1)	ND(2.1)	ND(0.05)	ND(2.1)	ND(4.3)	ND(0.05)	ND(0.05)	ND(0.05)
CentralOCD-TZ04-06272019	06/27/19	ND(2)	ND(2)	ND(0.05)	ND(2)	ND(4.1)	ND(0.05)	ND(0.05)	ND(0.05)
CentralOCD-VZ01-06272019	06/27/19	ND(2)	ND(2)	ND(0.048)	ND(2)	ND(3.9)	ND(0.048)	ND(0.048)	ND(0.048)
CentralOCD-VZ02-06272019	06/27/19	ND(0.21)	ND(0.21)	ND(0.048)	ND(0.21)	ND(0.42)	ND(0.048)	ND(0.048)	ND(0.048)
CentralOCD-VZ03-06272019	06/27/19	ND(0.23)	ND(0.23)	ND(0.048)	ND(0.23)	ND(0.46)	ND(0.048)	ND(0.048)	ND(0.048)
CentralOCD-VZ04-06272019	06/27/19	ND(0.47)	ND(0.47)	ND(0.049)	ND(0.47)	ND(0.94)	ND(0.049)	ND(0.049)	ND(0.049)
Action Level and ABRSC		7,150	68,800	NA	6,680	NA	NA	NA	NA
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Tetrachloroethene (mg/kg)	Toluene (mg/kg)	trans-1,2-Dichloroethene (mg/kg)	trans-1,3-Dichloropropene (mg/kg)	Trichloroethene (mg/kg)	Trichlorofluoromethane (mg/kg)	Vinyl Chloride (mg/kg)	Xylenes, Total (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)
	06/27/19	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.1)
CentralOCD-TZ02-06272019	06/27/19	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.099)
CentralOCD-TZ03-06272019	06/27/19	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.1)
CentralOCD-TZ04-06272019	06/27/19	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.099)
CentralOCD-VZ01-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)
CentralOCD-VZ02-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.097)
CentralOCD-VZ03-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)
CentralOCD-VZ04-06272019	06/27/19	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.098)
Action Level and ABRSC		338	50	NA	NA	4,600	NA	248	50
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Chloride (mg/kg)	Fluoride, Total (mg/kg)	Sulfate (mg/kg)	Mercury, Total (mg/kg)	Arsenic, Total (mg/kg)	Barium, Total (mg/kg)	Cadmium, Total (mg/kg)	Chromium, Total (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	140	7.3	990	0.0068 J	ND(4.9)	350	ND(0.2)	13
	06/27/19	160	5.4 J-	920	0.043	ND(5)	300	ND(0.2)	14
CentralOCD-TZ02-06272019	06/27/19	150	10 J-	700	0.14	3.4 J	320	ND(0.2)	13
CentralOCD-TZ03-06272019	06/27/19	330	7.1	1300	0.094	ND(5.1)	260	ND(0.2)	15
CentralOCD-TZ04-06272019	06/27/19	300	14	1500	0.077	ND(5)	350	ND(0.2)	16
CentralOCD-VZ01-06272019	06/27/19	240	3.7 J-	740	0.018 J	2.9 J	180	ND(0.2)	15
CentralOCD-VZ02-06272019	06/27/19	150	3.1 J-	850	0.0051 J	ND(5.1)	240	ND(0.2)	16
CentralOCD-VZ03-06272019	06/27/19	180	5.2	650	0.0053 J	ND(5)	290	ND(0.2)	14
CentralOCD-VZ04-06272019	06/27/19	280	2.4	550	0.0043 J	ND(4.9)	260	ND(0.2)	15
Action Level and ABRSC		500	18,600	12,000	63.6	65.4	4,350	309	447,000
NMAC Closure Standard		500	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Copper, Total (mg/kg)	Cyanide, Total (mg/kg)	Iron, Total (mg/kg)	Lead, Total (mg/kg)	Manganese, Total (mg/kg)	Selenium, Total (mg/kg)	Silver, Total (mg/kg)	Uranium, Total (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	4 J	0.89 J-	17000	2.9	450	3.3 J	ND(0.49) UJ	ND(9.8) UJ
	06/27/19	12 J	ND(0.25) UJ	18000	3.4	380	ND(5)	ND(0.5) UJ	ND(10) UJ
CentralOCD-TZ02-06272019	06/27/19	17	ND(0.25) UJ	16000	3.9	410	ND(5)	ND(0.5) UJ	ND(9.9) UJ
CentralOCD-TZ03-06272019	06/27/19	15	ND(0.25) UJ	20000	5.8	400	ND(5.1)	ND(0.51) UJ	ND(10) UJ
CentralOCD-TZ04-06272019	06/27/19	7	ND(0.25) UJ	17000	20	430	ND(5)	ND(0.5) UJ	ND(10) UJ
CentralOCD-VZ01-06272019	06/27/19	4.1	ND(0.25) UJ	18000	ND(0.5)	340	ND(5)	ND(0.5) UJ	ND(10) UJ
CentralOCD-VZ02-06272019	06/27/19	4.2	ND(0.25) UJ	21000	1.8	370	3 J	ND(0.51) UJ	ND(10) UJ
CentralOCD-VZ03-06272019	06/27/19	7.4	ND(0.25) UJ	19000	3.1	430	ND(5)	ND(0.5) UJ	ND(10) UJ
CentralOCD-VZ04-06272019	06/27/19	3.9	0.27 J-	18000	3	400	3.5 J	ND(0.49) UJ	ND(9.8) UJ
Action Level and ABRSC		12,400	6,190	217,000	800	463	1,550	1,550	929
NMAC Closure Standard		NA	NA	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Zinc, Total (mg/kg)	Total Petroleum Hydrocarbon (mg/kg)	Diesel Range Organics (mg/kg)	Gasoline Range Organics (mg/kg)	Motor Oil (mg/kg)	Aroclor-1016 (mg/kg)	Aroclor-1221 (mg/kg)	Aroclor-1232 (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	24	5.6 J	24 J	ND(4.8)	ND(49)	ND(0.024)	ND(0.024)	ND(0.024)
	06/27/19	33	ND(19)	ND(8.5) UJ	ND(5)	ND(43)	ND(0.023)	ND(0.023)	ND(0.023)
CentralOCD-TZ02-06272019	06/27/19	59	54	33	ND(4.9)	57	ND(0.025)	ND(0.025)	ND(0.025)
CentralOCD-TZ03-06272019	06/27/19	53	52	87	ND(5)	110	ND(0.023)	ND(0.023)	ND(0.023)
CentralOCD-TZ04-06272019	06/27/19	49	600	490	ND(5)	480	ND(0.048)	ND(0.048)	ND(0.048)
CentralOCD-VZ01-06272019	06/27/19	21	ND(19)	ND(9.6)	ND(4.8)	ND(48)	ND(0.023)	ND(0.023)	ND(0.023)
CentralOCD-VZ02-06272019	06/27/19	23	ND(20)	ND(8.6)	ND(4.8)	ND(43)	ND(0.018)	ND(0.018)	ND(0.018)
CentralOCD-VZ03-06272019	06/27/19	47	ND(19)	ND(9.9)	ND(4.8)	ND(50)	ND(0.024)	ND(0.024)	ND(0.024)
CentralOCD-VZ04-06272019	06/27/19	24	ND(20)	ND(10)	ND(4.9)	ND(50)	ND(0.024)	ND(0.024)	ND(0.024)
Action Level and ABRSC		92,900	2,500	NA	NA	NA	15.3	71.3	71.3
NMAC Closure Standard		NA	2,500	NA	NA	NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

TABLE 1. JUNE 2019 CENTRAL OCD LANDFARM SAMPLING RESULTS
MARATHON PETROLEUM COMPANY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Aroclor-1242 (mg/kg)	Aroclor-1248 (mg/kg)	Aroclor-1254 (mg/kg)	Aroclor-1260 (mg/kg)
CentralOCD-TZ01-06272019	06/27/19	ND(0.024)	ND(0.024)	ND(0.024)	ND(0.024)
	06/27/19	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.023)
CentralOCD-TZ02-06272019	06/27/19	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)
CentralOCD-TZ03-06272019	06/27/19	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.023)
CentralOCD-TZ04-06272019	06/27/19	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)
CentralOCD-VZ01-06272019	06/27/19	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.023)
CentralOCD-VZ02-06272019	06/27/19	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)
CentralOCD-VZ03-06272019	06/27/19	ND(0.024)	ND(0.024)	ND(0.024)	ND(0.024)
CentralOCD-VZ04-06272019	06/27/19	ND(0.024)	ND(0.024)	ND(0.024)	ND(0.024)
Action Level and ABRSC		75.8	75.8	4.36	75.8
NMAC Closure Standard		NA	NA	NA	NA

Notes:
There are no Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances.
Dup - Duplicate
J - Estimated concentration
J- - Estimated concentration, but may be biased low
mg/kg - milligrams per kilogram
NA - Not Applicable
ND - Non-Detect
NMAC - New Mexico Administrative Code
OCD - Oil Conservation Division
UJ - Estimated reporting limit

Appendix A

MARATHON REFINING LOGISTICS SERVICES

SEPTEMBER AND OCTOBER 2016 CHLORIDE EXCEEDANCE EXCAVATION REPORT

Table of Contents

Marathon Petroleum Company, Gallup Refining Division (Gallup) is submitting this report to present the results of chloride-contaminated soil excavation and confirmation sampling conducted in accordance with the "Chloride Exceedance Response Action Plan, Central Oil Conservation Division Landfarm, Western Refining Company Southwest, Inc., Gallup Refinery, Gallup, New Mexico" (Response Action Plan), dated July 26, 2016. This report is also intended to inform the Oil Conservation Division (OCD) of a non-landfarm potential alternate chloride source believed to be the cause of the elevated chloride concentrations reported in samples collected from the vadose zone beneath the Central OCD Landfarm.

Background

Semiannual vadose zone monitoring is conducted at random locations in accordance with New Mexico Administrative Code (NMAC) Rule 36 (19.15.36 NMAC). The landfarm has been divided into 6 foot (ft) by 6 ft grids to assist with random sample location selection. As required by the Response Action Plan, Gallup excavated chloride-contaminated soil associated with two these grids. Chloride contamination was originally identified within these grids during the April 2016 semiannual vadose zone sampling event and the June 2016 confirmation sampling event. Per the Response Action Plan, soils with chloride concentrations in excess of the 500 milligram per kilogram (mg/kg) action level/alternate beneficial reuse screening concentration (ABRSC) were to be excavated. Confirmation samples were to be collected from the floor of the excavations, as well as the from the sidewalls of the excavation at the depths of the original exceedances (6 ft below ground surface (bgs)) in the four cardinal directions. The excavations were to be extended or deepened in the direction of chloride concentrations in excess of 500 mg/kg, as determined via the confirmation sampling.

Excavation Extents and Confirmation Sampling Results

Excavation of chloride contaminated soils began in September 2016 and continued through October 2016. Gallup contracted Trihydro Corporation (Trihydro) to oversee excavation completion and collect confirmation samples. The two grids scheduled for excavation were grids 1021 and 2271. The excavations associated with each grid are shown on Figure 1. Confirmation sampling results are summarized in Table 1. Analytical laboratory reports and data validation reports are provided as Attachments A and B, respectively.

As shown in Table 1, the chloride concentrations reported for the September 2016 floor and sidewall samples associated with Grid 1021 are below the 500 mg/kg action level/ARBSC. Accordingly, the excavation of chloride-

contaminated soil associated with Grid 1021 was deemed complete. The approximate excavation extents are illustrated on Figure 1, and the total depth of the excavation is 8 ft bgs.

Chloride concentrations reported for two of the September 2016 sidewall samples associated with Grid 2271 exceed the 500 mg/kg action level/ARBSC. In response to these confirmation sample exceedances, the excavation was expanded in the direction of the exceedances and additional confirmation samples were collected. Two such excavation expansion/resampling events were conducted in October 2016, and as shown on Figure 1, sidewall sample exceedances persist on the northern and eastern excavation boundaries. The growing size of the Grid 2271 excavation and the fact that contamination appears to extend to and possibly beyond the berms of the landfarm prompted Gallup and Trihydro to regroup and assess whether the current excavation plans (those outlined in the Response Action Plan) remain appropriate. This resulted in the acknowledgement that the refinery's former Evaporation Pond #10 occupied nearly the exact footprint of the Central OCD Landfarm prior to landfarm operation. Figure 2 illustrates the location of the former Evaporation Pond #10 and the Central OCD Landfarm. As discussed in the following section, former Evaporation Pond # 10 is believed to be the source of the elevated chloride concentrations present in the vadose zone soils beneath the Central OCD Landfarm.

Former Evaporation Pond #10

According to the "Inventory of Solid Waste Management Units", dated June 14, 1985, "cell" or Evaporation Pond # 10 received "wastewater from the boiler house and water softener regeneration wastes". The pond was replaced in 1980 with an in-line neutralization tank. Both of these wastes would be expected to contain elevated chloride concentrations. Since these wastes were stored in the unlined evaporation pond whose footprint is similar to the Central OCD Landfarm prior to landfarm operation, it is likely that the pond may have contributed to the chloride contamination in the area and may be the cause of the vadose zone chloride exceedances.

This idea is further supported by soil data collected from the landfarm's treatment zone over the past four years. Gallup has collected 6 treatment zone samples since 2013 to assist in determining if the landfarm may be eligible for closure or soil reuse. As shown in Table 2, the maximum reported chloride concentration for samples collected from the treatment zone (1 ft bgs) is 310 mg/kg. This is less than the 500 mg/kg action level/ABRSC and far less than some of the more elevated vadose zone samples which are in excess of 2,500 mg/kg (see Table 1). If soils treated in the landfarm were the source of the vadose zone chloride contamination, it would be

expected that the treatment zone chloride concentrations would be greater than the vadose zone chloride concentrations, but the data indicate the opposite. This line of evidence suggests a non-landfarm chloride source.

Proposed Path Forward

OCD Landfarm operation is governed by NMAC Rule 36. The Response Action Plan and subsequent excavations were intended to satisfy Rule 36 requirements and Central OCD Landfarm-specific agreements reached between Gallup and OCD. In light of the information presented in this correspondence, Gallup does not believe that vadose zone chloride concentrations in excess of the 500 mg/kg action level/ABRSC are a result of landfarm operation. Accordingly, Gallup does not believe vadose zone chloride contamination needs be addressed or remedied in accordance with NMAC Rule 36 or previous Central OCD Landfarm-specific agreements. The elevated chloride concentrations are believed to be associated with former Evaporation Pond # 10. Former Evaporation Pond # 10 is part of Solid Waste Management Unit (SWMU) 2. Therefore, Gallup believes that it would be appropriate to address the chloride contaminated soil as part of SWMU 2 remedies.

Gallup does intend to dispose of the already excavated chloride contaminated soil at an off-site disposal facility permitted to receive such wastes and to the fill the excavations with clean fill material. The excavated soil is currently stock piled on plastic sheeting within the landfarm berms. Pending OCD approval of this correspondence, Gallup will begin soil disposal and excavation backfilling.

Gallup is also still considering closure of the Central OCD landfarm. When closure is sought, Gallup believes that closure should still be conducted in general accordance with NMAC Rule 36. However, Central OCD Landfarm-specific agreements reached between Gallup and OCD, as well as the alternate chloride source identified in this correspondence (i.e., former Evaporation Pond # 10) should be taken into consideration. Pending OCD approval of this correspondence, Gallup will discuss closure details and expectations with OCD. If you have any questions or comments, please do not hesitate to call me at (505) 722-0217.

Tables

TABLE 1. CHLORIDE-CONTAMINATED SOIL EXCAVATION CONFIRMATION SAMPLING RESULTS
WESTERN REFINING COMPANY SOUTHWEST, INC., GALLUP, NEW MEXICO

Sample Type	Sample ID	Date Sampled	Chloride (mg/kg)
Grid 1021 Confirmation Sample	CentralOCD-1021-09062016-F	09/06/16	270
Grid 1021 Confirmation Sample	CentralOCD-1021-09062016-SW-E	09/06/16	130
Grid 1021 Confirmation Sample	CentralOCD-1021-09062016-SW-E Dup	09/06/16	110
Grid 1021 Confirmation Sample	CentralOCD-1021-09062016-SW-N	09/06/16	160
Grid 1021 Confirmation Sample	CentralOCD-1021-09062016-SW-S	09/06/16	280
Grid 1021 Confirmation Sample	CentralOCD-1021-09062016-SW-W	09/06/16	490
Grid 2271 Confirmation Sample	CentralOCD-2271-09062016-F	09/06/16	170
Grid 2271 Confirmation Sample	CentralOCD-2271-09062016-SW-E	09/06/16	**1500**
Grid 2271 Confirmation Sample	CentralOCD-2271-09062016-SW-N	09/06/16	**2200**
Grid 2271 Confirmation Sample	CentralOCD-2271-09062016-SW-S	09/06/16	160
Grid 2271 Confirmation Sample	CentralOCD-2271-09062016-SW-W	09/06/16	300
Grid 2271 Confirmation Sample	CentralOCD-2271-10062016-SW-E	10/06/16	**800**
Grid 2271 Confirmation Sample	CentralOCD-2271-10062016-SW-E Dup	10/06/16	480
Grid 2271 Confirmation Sample	CentralOCD-2271-10062016-SW-N	10/06/16	**790**
Grid 2271 Confirmation Sample	CentralOCD-2271-10202016-SW-E	10/20/16	**640**
Grid 2271 Confirmation Sample	CentralOCD-2271-10202016-SW-E Dup	10/20/16	**600**
Grid 2271 Confirmation Sample	CentralOCD-2271-10202016-SW-NE	10/20/16	**2600**
Grid 2271 Confirmation Sample	CentralOCD-2271-10202016-SW-NW	10/20/16	**2600**
Action Level and ABRSC			500

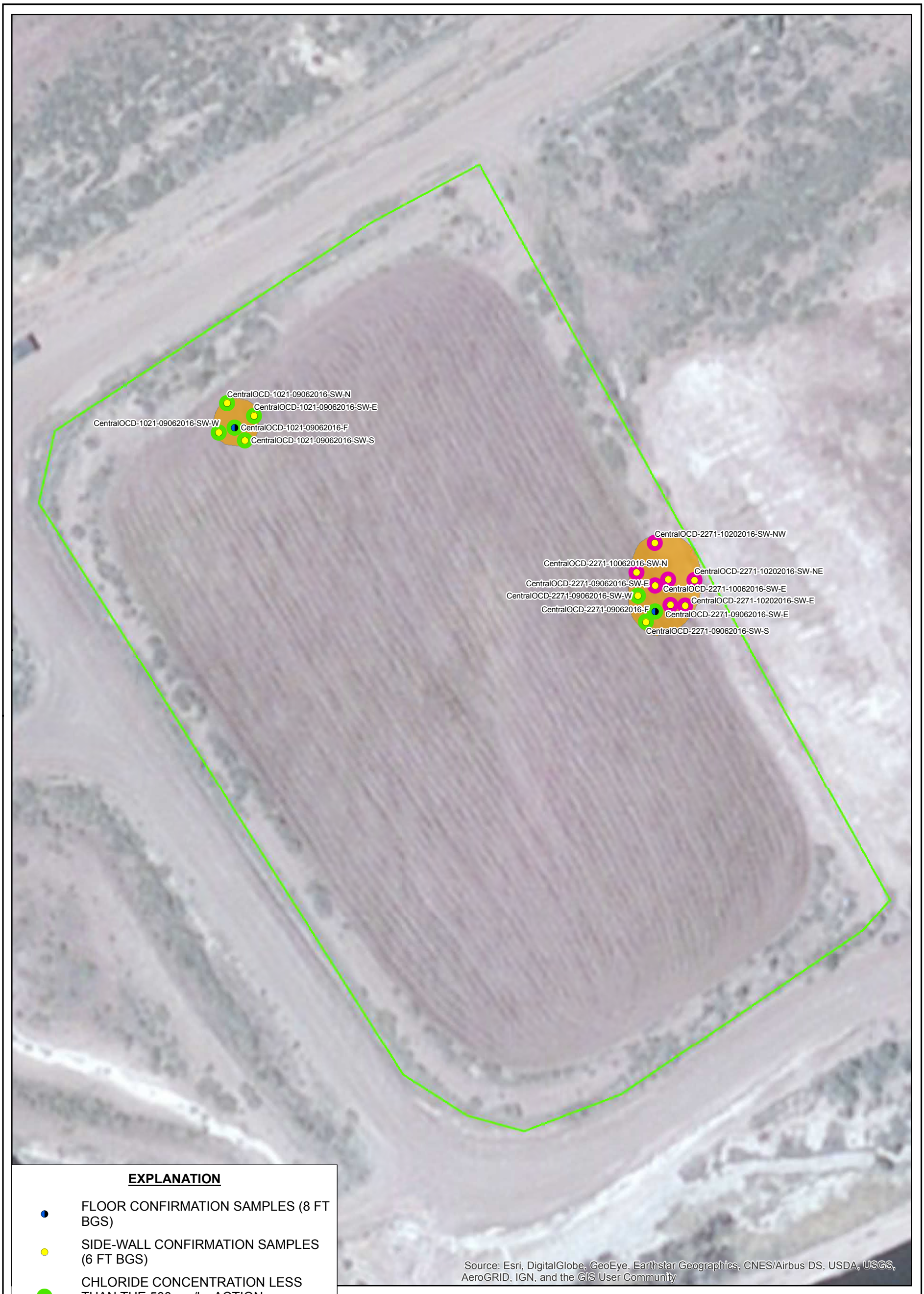
Notes:
Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances are shown in bold font.

TABLE 2. HISTORICAL TREATMENT ZONE CHLORIDE ANALYTICAL DATA SUMMARY
WESTERN REFINING COMPANY SOUTHWEST, INC., GALLUP, NEW MEXICO

Sample Type	Sample ID	Date Sampled	Chloride (mg/kg)
Treatment Zone Sample	CentralOCD-TZ_032713	03/27/13	310
Treatment Zone Sample	CentralOCD-TZ_091614	09/16/14	130
Treatment Zone Sample	CentralOCD-TZ-04062015	04/06/15	130
Treatment Zone Sample	Central OCD-TZ-11242015	11/24/15	280
Treatment Zone Sample	CentralOCD-TZ-04072016	04/07/16	260 J
Treatment Zone Sample	CentralOCD-TZ-06162016	06/16/16	290
Action Level and ABRSC			500

Notes:
Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances are shown in bold font.
J - Estimated concentration

Figures



EXPLANATION

- FLOOR CONFIRMATION SAMPLES (8 FT BGS)
- SIDE-WALL CONFIRMATION SAMPLES (6 FT BGS)
- CHLORIDE CONCENTRATION LESS THAN THE 500 mg/kg ACTION LEVEL/ABRSC
- CHLORIDE CONCENTRATION GREATER THAN THE 500 mg/kg ACTION LEVEL/ABRSC
- APPROXIMATE EXCAVATION EXTENT
- CENTRAL OCD LANDFARM

N

0 42'

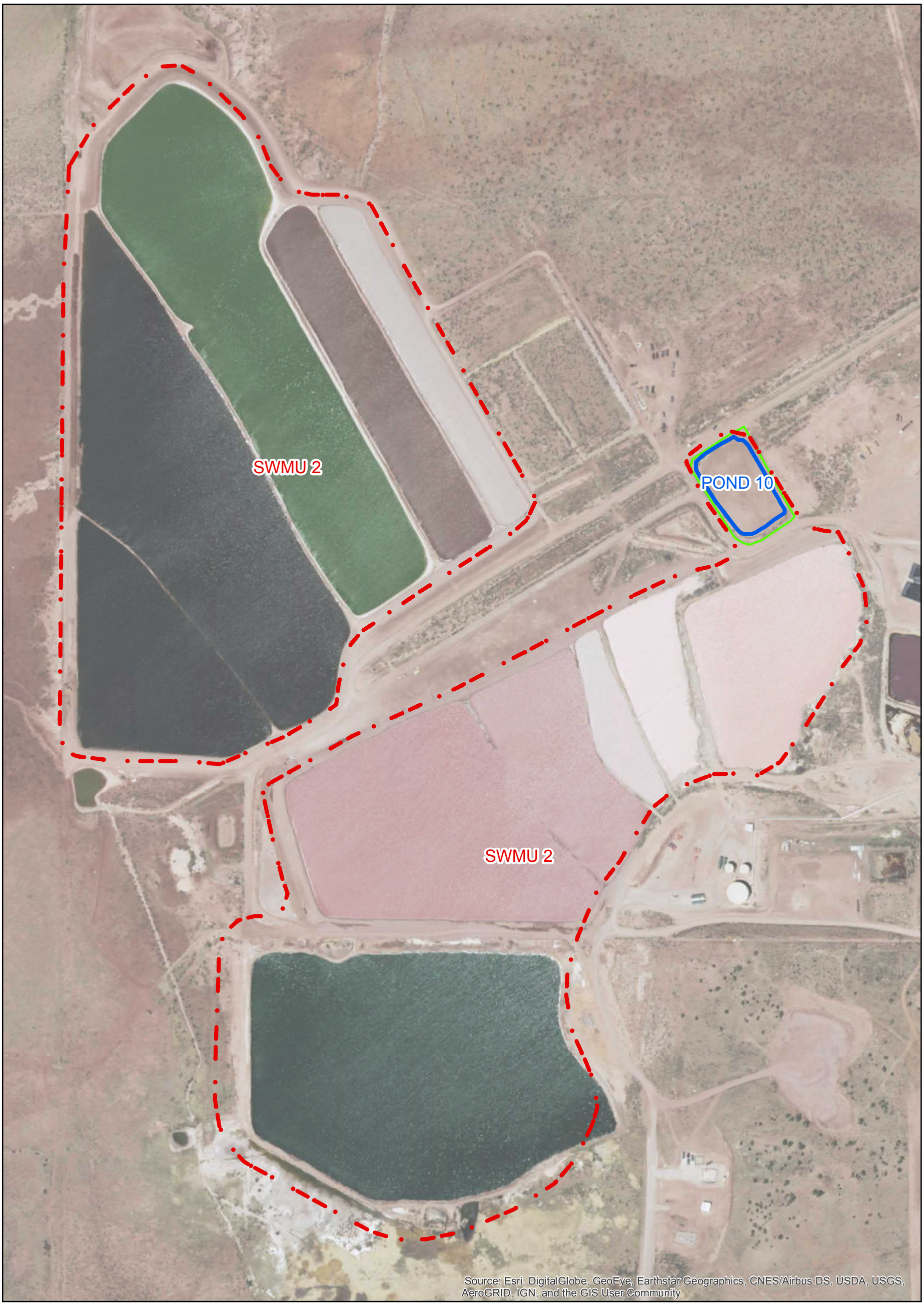
Trihydro CORPORATION
1252 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 1

SEPTEMBER/OCTOBER 2016 CHLORIDE EXCAVATION CONFIRMATION SAMPLE LOCATIONS

**WESTERN REFINING COMPANY L.L.C
GALLUP REFINERY
GALLUP, NEW MEXICO**

Drawn By: PH	Checked By: GP	Scale: 1" = 42'	Date: 12/5/16	File: Gallup_OCDLF_Fig1.mxd



EXPLANATION

- FORMER EVAPORATION POND #10
- SWMU 2
- CENTRAL OCD LANDFARM

N

0 350'

Trihydro CORPORATION
1252 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 2

LOCATIONS OF FORMER EVAPORATION POND #10 AND THE CENTRAL OCD LANDFARM

WESTERN REFINING COMPANY L.L.C
GALLUP REFINERY
GALLUP, NEW MEXICO

Drawn By: PH	Checked By: GP	Scale: 1" = 350'	Date: 12/5/16	File: Gallup_OCDLF_Fig2.mxd

Appendix A: September 2016 and October 2016 Analytical Laboratory Reports

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

November 03, 2016

Ed Riege

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: OCD Central Landfarm Semiannual Sampling OrderNo.: 1610A38

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 4 sample(s) on 10/20/2016 for the analyses presented in the following report.

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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order: **1610A38**
Date Reported: **11/3/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling
Lab Order: 1610A38

Lab ID: 1610A38-001 **Collection Date:** 10/20/2016 9:38:00 AM
Client Sample ID: CentralOCD-2271-10202016-SW-NW **Matrix:** SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	2600	31	75		mg/Kg	50	10/29/2016 12:36:19 AM	28324

Lab ID: 1610A38-002 **Collection Date:** 10/20/2016 10:40:00 AM
Client Sample ID: CentralOCD-2271-10202016-SW-NE **Matrix:** SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	2600	31	75		mg/Kg	50	10/29/2016 12:48:43 AM	28324

Lab ID: 1610A38-003 **Collection Date:** 10/20/2016 11:10:00 AM
Client Sample ID: CentralOCD-2271-10202016-SW-E **Matrix:** SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	640	12	30		mg/Kg	20	10/27/2016 3:14:33 PM	28324

Lab ID: 1610A38-004 **Collection Date:** 10/20/2016
Client Sample ID: CentralOCD-BD-10202016 **Matrix:** SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	600	12	30		mg/Kg	20	10/27/2016 3:26:57 PM	28324

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610A38**

03-Nov-16

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**MB-28324**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**28324**	RunNo:	**38293**					
Prep Date:	**10/27/2016**	Analysis Date:	**10/27/2016**	SeqNo:	**1194989**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-28324**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**28324**	RunNo:	**38293**					
Prep Date:	**10/27/2016**	Analysis Date:	**10/27/2016**	SeqNo:	**1194990**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: **Western Refining Gallup** Work Order Number: **1610A38** RcptNo: **1**

Received by/date: LC 10/20/16

Logged By: **Lindsay Mangin** 10/20/2016 4:40:00 PM

Completed By: **Lindsay Mangin** 10/21/2016 8:47:40 AM

Reviewed By: JC 10/21/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

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

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Not Present			

Chain-of-Custody Record

Client: ~~W~~ ~~Refining~~ West Western Refining

Mailing Address: Route 3 Box 7

Gallup, NM 87301

Phone #: 505-722-3833

email or Fax#: 505-722-0210

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

Accreditation:
☐ NELAP ☐ Other_____

☐ EDD (Type) _Please provide EDD_____

Turn-Around Time:
☒ Standard ☐ Rush_____

Project Name:
OCD Central Landfarm Semiannual Sampling

Project #:
697-052-004

Project Manager:
Ed Riege

Sampler: Zac Bitsie

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.8

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. 1610A38	Analysis Request: Chloride by EPA 300.0	Air Bubbles (Y or N)
10/20/2016	938	soil	CentralOCD-2271-10202016-SW-NW	4oz-1	none	-001	X	
10/20/2016	1040	soil	CentralOCD-2271-10202016-SW-NE	4oz-1	none	-002	X	
10/20/2016	1110	soil	CentralOCD-2271-10202016-SW-E	4oz-1	none	-003	X	
10/20/2016	NA	soil	CentralOCD-BD-~~10020216~~ 10202016	4oz-1	none	-004	X	

Date	Time	Relinquished by:	Received by:	Date	Time
10-20-16	1300			10/20/16	1325
10/20/16	1620		Lindsey Conoha	10/20/16	1640

Remarks: Please cc Grant Price (gprice@trihydro.com) with results. Call Grant @ 307-745-7474 w/ questions. **Data report and package w/ Trihydro EDD needed within 10 days of reciept.**

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.

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

September 22, 2016

Ed Riege

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: OCD Central Landfarm Semiannual Sampling OrderNo.: 1609455

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 11 sample(s) on 9/8/2016 for the analyses presented in the following report.

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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling
Lab Order: 1609455

Lab ID: 1609455-001 **Collection Date:** 9/6/2016 4:13:00 PM
Client Sample ID: CentralOCD-1021-09062016-F **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	270	12	30		mg/Kg	20	9/19/2016 9:00:29 PM	27590

Lab ID: 1609455-002 **Collection Date:** 9/6/2016 4:07:00 PM
Client Sample ID: CentralOCD-1021-09062016-SW-N **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	160	12	30		mg/Kg	20	9/19/2016 9:12:53 PM	27590

Lab ID: 1609455-003 **Collection Date:** 9/6/2016 4:20:00 PM
Client Sample ID: CentralOCD-1021-09062016-SW-S **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	280	12	30		mg/Kg	20	9/19/2016 9:25:18 PM	27590

Lab ID: 1609455-004 **Collection Date:** 9/6/2016 3:55:00 PM
Client Sample ID: CentralOCD-1021-09062016-SW-E **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	130	12	30		mg/Kg	20	9/20/2016 12:53:42 PM	27599

Lab ID: 1609455-005 **Collection Date:** 9/6/2016 4:25:00 PM
Client Sample ID: CentralOCD-1021-09062016-SW-W **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	490	12	30		mg/Kg	20	9/20/2016 1:06:07 PM	27599

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling
Lab Order: 1609455

Lab ID: 1609455-006 **Collection Date:** 9/6/2016 1:30:00 PM
Client Sample ID: CentralOCD-2271-09062016-F **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	170	12	30		mg/Kg	20	9/20/2016 1:18:31 PM	27599

Lab ID: 1609455-007 **Collection Date:** 9/6/2016 1:20:00 PM
Client Sample ID: CentralOCD-2271-09062016-SW-N **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	2200	31	75		mg/Kg	50	9/22/2016 5:18:25 AM	27599

Lab ID: 1609455-008 **Collection Date:** 9/6/2016 1:37:00 PM
Client Sample ID: CentralOCD-2271-09062016-SW-S **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	160	12	30		mg/Kg	20	9/20/2016 1:43:20 PM	27599

Lab ID: 1609455-009 **Collection Date:** 9/6/2016 1:05:00 PM
Client Sample ID: CentralOCD-2271-09062016-SW-E **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	1500	30	75		mg/Kg	50	9/22/2016 5:30:50 AM	27599

Lab ID: 1609455-010 **Collection Date:** 9/6/2016 1:45:00 PM
Client Sample ID: CentralOCD-2271-09062016-SW-W **Matrix:**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	300	12	30		mg/Kg	20	9/20/2016 2:45:23 PM	27599

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Lab Order: 1609455

Lab ID: 1609455-011
Collection Date: 9/6/2016
Client Sample ID: CentralOCD-BD-09062016
Matrix:

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	110	12	30		mg/Kg	20	9/20/2016 3:22:36 PM	27599

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609455**

22-Sep-16

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**MB-27590**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**27590**	RunNo:	**37316**					
Prep Date:	**9/19/2016**	Analysis Date:	**9/19/2016**	SeqNo:	**1158856**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-27590**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**27590**	RunNo:	**37316**					
Prep Date:	**9/19/2016**	Analysis Date:	**9/19/2016**	SeqNo:	**1158857**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	90	110			

Sample ID	**MB-27599**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**27599**	RunNo:	**37349**					
Prep Date:	**9/20/2016**	Analysis Date:	**9/20/2016**	SeqNo:	**1160293**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-27599**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**27599**	RunNo:	**37349**					
Prep Date:	**9/20/2016**	Analysis Date:	**9/20/2016**	SeqNo:	**1160294**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: **Western Refining Gallup** Work Order Number: **1609455** RcptNo: **1**

Received by/date: AG 09/08/16

Logged By: **Ashley Gallegos** **9/8/2016 5:10:00 PM** AG

Completed By: **Ashley Gallegos** **9/9/2016 12:34:02 PM** AG

Reviewed By: JC 09/12/16

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: West Texas Refining

Mailing Address: Route 3 Box 7

Gallup, NM 87301

Phone #: 505-722-3833

email or Fax#: 505-722-0210

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

Accreditation:
☐ NELAP ☐ Other_____
☐ EDD (Type) _Please provide EDD_____

Turn-Around Time:
☒ Standard ☐ Rush_____

Project Name:
OCD Central Landfarm Semiannual Sampling

Project #:
697-052-004

Project Manager:
Ed Riege

Sampler: Zac Bitsuie
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

HALL ENVIRONMENT 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. 1609455	Chloride by EPA 300.0	Air Bubbles (Y or N)
9/6/2016	1613	soil	CentralOCD-1021-09062016-F	two 4-oz	none	-001	X	
9/6/2016	1607	soil	CentralOCD-1021-09062016-SW-N	two 4-oz	none	-002	X	
9/6/2016	1620	soil	CentralOCD-1021-09062016-SW-S	two 4-oz	none	-003	X	
9/6/2016	1555	soil	CentralOCD-1021-09062016-SW-E	two 4-oz	none	-004	X	
9/6/2016	1625	soil	CentralOCD-1021-09062016-SW-W	two 4-oz	none	-005	X	
9/6/2016	1330	soil	CentralOCD-2271-09062016-F	two 4-oz	none	-006	X	
9/6/2016	1320	soil	CentralOCD-2271-09062016-SW-N	two 4-oz	none	-007	X	
9/6/2016	1337	soil	CentralOCD-2271-09062016-SW-S	two 4-oz	none	-008	X	
9/6/2016	1305	soil	CentralOCD-2271-09062016-SW-E	two 4-oz	none	-009	X	
9/6/2016	1345	soil	CentralOCD-2271-09062016-SW-W	two 4-oz	none	-010	X	
9/6/2016	1310	soil	CentralOCD-2271-09062016-SWE-MS	two 4-oz	none	-010009	X	
9/6/2016	1315	soil	CentralOCD-2271-09062016-SWE-MSD	two 4-oz	none	-010009	X	
9/6/2016	NA	soil	CentralOCD-BD-09062016	two 4-oz	none	-011	X	
9/6/2016	1635	water	EB-09062016	VOA - 3	HCL	-012	X	
9/6/2016	1640	water	FB-09062016	VOA - 3	HCL	-013	X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-6-16	1830			9/8/16	1500
9/8/16	1110			09/08/16	1710

Remarks: Please cc Grant Price (gprice@trihydro.com) with results. Call Grant @ 307-745-7474 w/ questions. **Data report and package w/ Trihydro EDD needed within 10 days of reciept.**

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

October 13, 2016

Ed Riege

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: OCD Central Landfarm Semiannual Sampling OrderNo.: 1610345

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/7/2016 for the analyses presented in the following report.

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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1610345**
Date Reported: **10/13/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CentralOCD-2271-10062016-S
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 10/6/2016 10:50:00 AM
Lab ID: 1610345-001 **Matrix:** SOIL
Received Date: 10/7/2016 9:22:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	790	12	30		mg/Kg	20	10/12/2016 4:19:05 PM	28015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CentralOCD-2271-10062016-S
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 10/6/2016 10:40:00 AM
Lab ID: 1610345-002 **Matrix:** SOIL
Received Date: 10/7/2016 9:22:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	800	12	30		mg/Kg	20	10/12/2016 4:56:18 PM	28015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CentralOCD-BD-10062016
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 10/6/2016
Lab ID: 1610345-003
Matrix: SOIL
Received Date: 10/7/2016 9:22:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	480	12	30		mg/Kg	20	10/12/2016 5:08:43 PM	28015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610345**

13-Oct-16

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**MB-28015**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**28015**	RunNo:	**37905**					
Prep Date:	**10/11/2016**	Analysis Date:	**10/12/2016**	SeqNo:	**1180857**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-28015**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**28015**	RunNo:	**37905**					
Prep Date:	**10/11/2016**	Analysis Date:	**10/12/2016**	SeqNo:	**1180858**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: Western Refining Gallup Work Order Number: 1610345 RcptNo: 1

Received by/date: AT 10/07/16

Logged By: Anne Thorne 10/7/2016 9:22:00 AM Anne Thorne

Completed By: Anne Thorne 10/7/2016 Anne Thorne

Reviewed By: LC 10/07/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

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: ~~Wes~~ Refining ~~)~~
Western Refining

Mailing Address: Route 3 Box 7
Gallup, NM 87301

Phone #: 505-722-3833

Email or Fax#: 505-722-0210

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

Accreditation:
☐ NELAP ☐ Other_____
☐ EDD (Type) _Please provide EDD_____

☒ Standard ☐ ~~sh~~_____

Project Name:
OCD Central Landfarm Semiannual Sampling

Project #:
697-052-004

Project Manager:
Ed Riege

Sampler: Zac Bitonio

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1610345	Chloride by EPA 300.0	Air Bubbles (Y or N)
10/6/2016	1050	soil	CentralOCD-2271-10062016-SW-N	two 4-oz	none	-001	X	
10/6/2016	1040	soil	CentralOCD-2271-10062016-SW-E	two 4-oz	none	-002	X	
10/6/2016	NA	soil	CentralOCD-BD-10062016	two 4-oz	none	-003	X	

Analysis Request

Date	Time	Relinquished by:	Received by:	Date Time
10-6-16	1300			10/7/16 725
10/7/16	922			10/07/16 0922

Remarks: Please cc Grant Price (gprice@trihydro.com) with results. Call Grant @ 307-745-7474 w/ questions. **Data report and package w/ Trihydro EDD needed within 10 days of reciept.**

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.

Appendix B: September 2016 and October 2016 Tier II Data Validation Reports

Tier II Data Validation Report Summary

Client: Western Refining Southwest, Inc.	Laboratory: Hall Environmental
Project Name: OCD Landfarm Semiannual Sampling	Sample Matrix: Soil
Project Number: 697-052-003	Sample Start Date: 10/20/2016
Date Validated: 11/14/2016	Sample End Date: 10/20/2016
Parameters Included: ▪ Chloride by Environmental Protection Agency (EPA) Method 300.0	
Laboratory Project ID: 1610A38	
Data Validator: Charles Ballek, Senior Chemist	
Reviewer: Kyle Power, Environmental Chemist	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services Group on the analytical data report package generated by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, evaluating samples from the Western Refining Southwest, Inc. site located in Gallup, New Mexico.

Precision, accuracy, method compliance, and completeness of this data package were assessed during this data review. Precision was determined by evaluating the calculated relative percent difference (RPD) values from:

- Field duplicate pairs

Laboratory accuracy was established by reviewing the demonstrated percent recoveries (%R) of the following items to verify that data are not biased.

- Laboratory control sample (LCS)

Method compliance was established by reviewing sample integrity, holding times, detection limits, laboratory blanks, initial and continuing calibrations (where applicable), and the LCS percent recoveries against method-specific requirements.

Completeness was evaluated by determining the overall ratio of the number of samples and analyses planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody (CoC), laboratory analytical methods, and other laboratory and field documents associated with this analytical data set.

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
CentralOCD-2271-10202016-SW-NW	1610A38-001A
CentralOCD-2271-10202016-SW-NE	1610A38-002A
CentralOCD-2271-10202016-SW-E	1610A38-003A
CentralOCD-BD-10202016	1610A38-004A

Tier II Data Validation Report Summary

The laboratory data were reviewed to evaluate compliance with the methods and the quality of the reported data. Assessment of CoC completeness is included in Item 3 of the Data Validation Checklist. A check mark (✓) indicates that the referenced validation criteria were deemed acceptable, whereas a crossed circle (⊗) indicates validation criteria for which the data have been qualified by the data validator. An empty circle (○) indicates that the specified criterion does not apply to the reviewed data. Details are noted in the tables below.

Validation Criteria

- ✓ Data Completeness
- ✓ CoC Documentation (Item 3)
- ✓ Holding Times and Preservation (Items 6 and 7)
- ○ Initial and Continuing Calibrations (Item 9)
- ✓ Laboratory Blanks (Item 11)
- ○ Matrix Spike/Matrix Spike Duplicate (MS/MSD) (Item 13)
- ✓ LCS (Item 15)
- ○ System Monitoring Compounds (i.e., Surrogates) (Item 17)
- ○ Field, Equipment, and Trip Blanks (Item 18)
- ✓ Field Duplicates (Item 20)
- ○ Laboratory Duplicates (Item 22)

Guidance References

Chemical data validation was conducted in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines for the analyses listed below, or by the appropriate method if not covered in the National Functional Guidelines.

- Data for inorganic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Inorganic Superfund Data Review, document number EPA-540-R-013-001, August 2014 with additional reference to the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540-R-04-004, October 2004.
- Review of field duplicates was conducted according to the USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.
- Trihydro Data Validation Variance Documentation, February 2016.
- Project-specific Quality Assurance Project Plans (QAPP) data validation requirements, as applicable.

Tier II Data Validation Report Summary

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Item 2 of the Validation Criteria Checklist.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data that are not qualified meet the site data quality objectives.

Data qualifiers were not applied as a result of this validation.

Data Completeness

The analyses were performed as requested on the CoC records. The associated samples were received by the laboratory and analyzed properly unless otherwise noted in the Criteria Checklist below. The complete data package consisted of 4 data points. No data points were rejected. The data completeness measure for this data package is calculated to be 100% and is acceptable.

VALIDATION CRITERIA CHECKLIST	
1. Was the report free of non-conformances identified by the laboratory?	Yes
Comments: The laboratory did not identify non-conformances regarding the analytical data.	
2. Were the data free of data qualification flags and/or notes used by the laboratory? If no, define.	Yes
Comments: The laboratory did not apply data qualification flags to results in this data set.	
3. Were sample CoC forms and procedures complete?	Yes
Comments: The CoC records from field to laboratory were complete and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. Custody seals were not present nor required since the samples were delivered to the laboratory by field personnel and custody was maintained at all times.	
4. Were detection limits in accordance with the quality assurance project plan (QAPP), permit, or method, or indicated as acceptable?	Yes
Comments: The detection limits appeared to be acceptable. The following dilutions were applied. Method 300.0: Samples CentralOCD-2271-10202016-SW-E and CentralOCD-BD-10202016 were diluted by factors of 20 times for the chloride analyses and dilutions of 50 times were applied to samples CentralOCD-2271-10202016-SW-NW and CentralOCD-2271-10202016-SW-NE.	
5. Were the reported analytical methods and constituents in compliance with the QAPP, permit, or CoC? Specify if any analytes were reported by more than one method.	Yes
Comments: The reported analytical method was in compliance with the CoC and the laboratory reported the requested constituents in accordance with the CoC.	
6. Were samples received in good condition within method-specified requirements?	Yes
Comments: Samples were received on ice, in good condition, and with the cooler temperature within the recommended temperature range of 4°C ± 2°C at 2.8°C as noted on the Sample Log-In Check List.	
7. Were samples extracted/digested and analyzed within method-specified or technical holding times?	Yes
Comments: The samples were analyzed within method-specific holding times.	
8. Were reported units appropriate for the sample matrix/matrices and analytical method(s)? Specify if wet or dry units were used for soil.	Yes
Comments: The results were reported in concentration units of milligrams per kilogram (mg/kg), which were acceptable for the sample matrices and the analyses requested. Analytical results for the soil samples were reported on an as-received, wet weight basis.	
9. Did the laboratory provide any specific initial and/or continuing calibration results?	No
Comments: Initial and continuing calibration data were not included as part of this data set.	
10. If initial and/or continuing calibration results were provided, were the results within acceptable limits?	N/A
Comments: Initial and continuing calibration data were not included as part of this data set.	
11. Was the total number of laboratory blank samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method?	Yes
Comments: The number of laboratory blank samples prepared was equal to at least 5% of the total number of samples.	

VALIDATION CRITERIA CHECKLIST	
12. Were target analytes reported as not detected in the laboratory blanks?	Yes
Comments: The target analyte was reported as not detected in the laboratory blank.	
13. Was the total number of MS samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method?	No
Comments: The total number of matrix spike samples prepared was not equal to at least 5% of the total number of samples. Matrix spike samples were not prepared for the analyses reported in this data set.	
14. For MS/MSDs prepared from project samples, were percent recoveries and RPDs within data validation or laboratory quality control (QC) limits?	N/A
Comments: Matrix spike samples were not prepared for the analyses reported in this data set.	
15. Was the total number of LCSs analyzed equal to at least 5% of the total number of samples or analyzed as required by the method?	Yes
Comments: The total number of LCS samples analyzed was equal to at least 5% of the total number of samples.	
16. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within data validation or laboratory QC limits?	Yes
Comments: The LCS percent recovery was within laboratory QC limits.	
17. Were surrogate recoveries within laboratory QC limits?	N/A
Comments: Analysis of surrogates is not required for Method 300.0.	
18. Were the number of trip blank, field blank, and/or equipment blank samples collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	No
Comments: The number of trip, field, and equipment blanks collected was not equal to at least 10% of the number of samples. Trip, field, and equipment blank samples were not collected for this sample set.	
19. Were target analytes reported as not detected in the trip blank, field blank, and/or equipment blank samples?	N/A
Comments: Trip, field, and equipment blank samples were not collected for this sample set.	
20. Was the number of field duplicates collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	Yes
Comments: The number of field duplicates collected was equal to at least 10% of the number of samples. Sample CentralOCD-BD-10202016 was collected as a field duplicate of sample CentralOCD-2271-10202016-SW-E.	
21. Were field duplicate RPD values within data validation QC limits (soil 0-50%, water 0-30%, or air 0-25%)?	Yes
Comments: As indicated in the Field Duplicate Summary Table at the end of this report, field duplicate RPD values were within data validation QC limits of 0-50% for soil samples.	
22. For laboratory duplicates prepared from project samples, were RPDs within laboratory QC limits?	N/A
Comments: Laboratory duplicate samples were not prepared for this sample set.	

FIELD DUPLICATE SUMMARY

Client Sample ID: CentralOCD-2271-10202016-SW-E Field Duplicate Sample ID: CentralOCD-BD-10202016				
Method	**Analyte**	**Laboratory Result (mg/kg)**	**Duplicate Result (mg/kg)**	**Relative Percent Difference (RPD)**
300.0	Chloride	640	600	6.5%
Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.				

DATA QUALIFICATION SUMMARY

Data qualifiers were not applied as a result of this validation.

Tier II Data Validation Report Summary

Client: Western Refining Southwest, Inc.	Laboratory: Hall Environmental Analysis Laboratory
Project Name: OCD Landfarm Semiannual Sampling	Sample Matrix: Soil
Project Number: 697-052-003	Sample Start Date: 09/06/2016
Date Validated: 09/30/2016	Sample End Date: 09/06/2016
Parameters Included: ▪ Chloride by US Environmental Protection Agency (EPA) Method 300.0	
Laboratory Project ID: 1609455	
Data Validator: Charles Ballek, Senior Chemist	
Reviewer: Mike Phillips, Senior Chemist	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services Group on the analytical data report package generated by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, evaluating samples from the Western Refining Southwest, Inc. site, located in Gallup, New Mexico.

Precision, accuracy, method compliance, and completeness of this data package were assessed during this data review. Precision was determined by evaluating the calculated relative percent difference (RPD) values from:

- Field duplicate pairs

Laboratory accuracy was established by reviewing the demonstrated percent recoveries (%R) of the following items to verify that data are not biased.

- Laboratory control sample (LCS)

Method compliance was established by reviewing sample integrity, holding times, detection limits, laboratory blanks, initial and continuing calibrations (where applicable), and the LCS percent recoveries against method-specific requirements.

Completeness was evaluated by determining the overall ratio of the number of samples and analyses planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody (CoC), laboratory analytical methods, and other laboratory and field documents associated with this analytical data set.

Tier II Data Validation Report Summary

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
CentralOCD-1021-09062016-F	1609455-001A
CentralOCD-1021-09062016-SW-N	1609455-002A
CentralOCD-1021-09062016-SW-S	1609455-003A
CentralOCD-1021-09062016-SW-E	1609455-004A
CentralOCD-1021-09062016-SW-W	1609455-005A
CentralOCD-2271-09062016-F	1609455-006A
CentralOCD-2271-09062016-SW-N	1609455-007A
CentralOCD-2271-09062016-SW-S	1609455-008A
CentralOCD-2271-09062016-SW-E	1609455-009A
CentralOCD-2271-09062016-SW-W	1609455-010A
CentralOCD-BD-09062016	1609455-011A

Tier II Data Validation Report Summary

The laboratory data were reviewed to evaluate compliance with the methods and the quality of the reported data. Assessment of CoC completeness is included in Item 3 of the Data Validation Checklist. A check mark (✓) indicates that the referenced validation criteria were deemed acceptable, whereas a crossed circle (⊗) indicates validation criteria for which the data have been qualified by the data validator. An empty circle (○) indicates that the specified criterion does not apply to the reviewed data. Details are noted in the tables below.

Validation Criteria

- ✓ Data Completeness
- ✓ CoC Documentation (Item 3)
- ✓ Holding Times and Preservation (Items 6 and 7)
- ○ Initial and Continuing Calibrations (Item 9)
- ✓ Laboratory Blanks (Item 11)
- ○ MS/MSD (Item 13)
- ✓ LCS (Item 15)
- ○ System Monitoring Compounds (i.e., Surrogates) (Item 17)
- ○ Field, Equipment, and Trip Blanks (Item 18)
- ✓ Field Duplicate (Item 20)
- ○ Laboratory Duplicates (Item 22)

Guidance References

Chemical data validation was conducted in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines for the analyses listed below, or by the appropriate method if not covered in the National Functional Guidelines.

- Data for inorganic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Inorganic Superfund Data Review, document number EPA-540-R-013-001, August 2014 with additional reference to the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540-R-04-004, October 2004.
- Review of field duplicates was conducted according to the USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.
- Trihydro Data Validation Variance Documentation, February 2016.
- Project-specific Quality Assurance Project Plans (QAPP) data validation requirements, as applicable.

Tier II Data Validation Report Summary

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Item 2 of the Validation Criteria Checklist.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data that are not qualified meet the site data quality objectives. Please see the Data Qualification Summary table at the end of this report for a complete list of samples and analytes qualified.

Data qualifiers were not applied as a result of this validation.

Data Completeness

The analyses were performed as requested on the CoC records. The associated samples were received by the laboratory and analyzed properly unless otherwise noted in the Criteria Checklist below. The complete data package consisted of 11 data points. No data points were rejected. The data completeness measure for this data package is calculated to be 100% and is acceptable.

VALIDATION CRITERIA CHECKLIST	
1. Was the report free of non-conformances identified by the laboratory?	Yes
Comments: The laboratory did not identify non-conformances regarding the analytical data.	
2. Were the data free of data qualification flags and/or notes used by the laboratory? If no, define.	Yes
Comments: The laboratory did not apply data qualification flags to results in this data set.	
3. Were sample CoC forms and procedures complete?	Yes
Comments: The CoC records from field to laboratory were complete and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. Custody seals were not present nor required since the samples were transferred to a lab courier for delivery to the laboratory and custody was maintained at all times.	
4. Were detection limits in accordance with the quality assurance project plan (QAPP), permit, or method, or indicated as acceptable?	Yes
Comments: The detection limits appeared to be acceptable. The following dilutions were applied. Method 300.0: Dilutions of 20 times were applied for the chloride analyses of the samples except CentralOCD-2271-09062016-SW-N and CentralOCD-2271-09062016-SW-E that were diluted by factors of 50 times.	
5. Were the reported analytical methods and constituents in compliance with the QAPP, permit, or CoC? Specify if any analytes reported by more than one method?	Yes
Comments: The reported analytical methods were in compliance with the CoC and the laboratory reported the requested constituents in accordance with the CoC.	
6. Were samples received in good condition within method-specified requirements?	No
Comments: Samples were received on ice, in good condition, and with the cooler temperature outside the recommended temperature range of 4°C ± 2°C at 1.0°C as noted on the Sample Log-In Check List. The cooler temperature below 2.0°C was judged as acceptable since the laboratory did not report the sample containers as broken or frozen.	
7. Were samples extracted/digested and analyzed within method-specified or technical holding times?	Yes
Comments: The samples were analyzed within method-specific holding times.	
8. Were reported units appropriate for the sample matrix/matrices and analytical method(s)? Specify if wet or dry units were used for soil.	Yes
Comments: The results were reported in concentration units of milligrams per kilogram (mg/kg) which were acceptable for the sample matrices and the analyses requested. Analytical results for the soil samples were reported on an as-received, wet weight basis.	
9. Did the laboratory provide any specific initial and/or continuing calibration results?	No
Comments: Initial and continuing calibration data were not included as part of this data set.	
10. If initial and/or continuing calibration results were provided, were the results within acceptable limits?	N/A
Comments: Initial and continuing calibration data were not included as part of this data set.	
11. Was the total number of laboratory blank samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method?	Yes
Comments: The number of laboratory blank samples prepared was equal to at least 5% of the total number of samples.	

VALIDATION CRITERIA CHECKLIST	
12. Were target analytes reported as not detected in the laboratory blanks?	Yes
Comments: Target analytes were reported as not detected in the laboratory blanks.	
13. Was the total number of MS samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method?	No
Comments: The total number of matrix spike samples prepared was not equal to at least 5% of the total number of samples. Matrix spike samples were not prepared for the analyses reported in this data set.	
14. For MS/MSDs prepared from project samples, were percent recoveries and RPDs within data validation or laboratory quality control (QC) limits?	N/A
Comments: Matrix spike samples were not prepared for the analyses reported in this data set.	
15. Was the total number of LCSs analyzed equal to at least 5% of the total number of samples or analyzed as required by the method?	Yes
Comments: The total number of LCS samples analyzed was equal to at least 5% of the total number of samples.	
16. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within data validation or laboratory QC limits?	Yes
Comments: The LCS percent recoveries were within laboratory QC limits.	
17. Were surrogate recoveries within laboratory QC limits?	N/A
Comments: Analysis of surrogates is not required for Method 300.0.	
18. Were the number of trip blank, field blank, and/or equipment blank samples collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	No
Comments: The number of trip, field, and equipment blanks collected was not equal to at least 10% of the number of samples. Trip, field, and equipment blank samples were not collected for this sample set.	
19. Were target analytes reported as not detected in the trip blank, field blank, and/or equipment blank samples?	N/A
Comments: Trip, field, and equipment blank samples were not collected for this sample set.	
20. Was the number of field duplicates collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	Yes
Comments: The number of field duplicates collected was equal to at least 10% of the number of samples. Sample CentralOCD-BD-09062016 was collected as a field duplicate of sample CentralOCD-1021-09062016-SW-E.	
21. Were field duplicate RPD values within data validation QC limits (soil 0-50%, water 0-30%, or air 0-25%)?	Yes
Comments: As indicated in the Field Duplicate Summary Table at the end of this report, field duplicate RPD values were within data validation QC limits of 0-50% for soil samples.	
22. For laboratory duplicates prepared from project samples, were RPDs within laboratory QC limits?	N/A
Comments: Laboratory duplicate samples were not prepared for this sample set.	

FIELD DUPLICATE SUMMARY

Client Sample ID: CentralOCD-1021-09062016-SW-E Field Duplicate Sample ID: CentralOCD-BD-09062016				
Analyte	**Method**	**Laboratory Result (mg/kg)**	**Duplicate Result (mg/kg)**	**Relative Percent Difference (RPD)**
Chloride	300.0	130	110	16.7%
Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.				

DATA QUALIFICATION SUMMARY

Data qualifiers were not applied as a result of this validation.

Tier II Data Validation Report Summary

Client: Western Refining Southwest, Inc.	Laboratory: Hall Environmental
Project Name: OCD Landfarm Semiannual Sampling	Sample Matrix: Soil
Project Number: 697-052-003	Sample Start Date: 10/06/2016
Date Validated: 10/17/2016	Sample End Date: 10/06/2016
Parameters Included: ▪ Chloride by Environmental Protection Agency (EPA) Method 300.0	
Laboratory Project ID: 1610345	
Data Validator: Caitlin Fields, Staff Engineer	
Reviewer: Charles Ballek, Senior Chemist	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services Group on the analytical data report package generated by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, evaluating samples from the Western Refining Southwest, Inc. site located in Gallup, New Mexico.

Precision, accuracy, method compliance, and completeness of this data package were assessed during this data review. Precision was determined by evaluating the calculated relative percent difference (RPD) values from:

- Field duplicate pairs

Laboratory accuracy was established by reviewing the demonstrated percent recoveries (%R) of the following items to verify that data are not biased.

- Laboratory control sample (LCS)

Method compliance was established by reviewing sample integrity, holding times, detection limits, laboratory blanks, initial and continuing calibrations (where applicable), and the LCS percent recoveries against method-specific requirements.

Completeness was evaluated by determining the overall ratio of the number of samples and analyses planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody (CoC), laboratory analytical methods, and other laboratory and field documents associated with this analytical data set.

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
CentralOCD-2271-10062016-SW-N	1610345-001
CentralOCD-2271-10062016-SW-E	1610345-002
CentralOCD-BD-10062016	1610345-003

Tier II Data Validation Report Summary

The laboratory data were reviewed to evaluate compliance with the methods and the quality of the reported data. Assessment of CoC completeness is included in Item 3 of the Data Validation Checklist. A check mark (✓) indicates that the referenced validation criteria were deemed acceptable, whereas a crossed circle (⊗) indicates validation criteria for which the data have been qualified by the data validator. An empty circle (○) indicates that the specified criterion does not apply to the reviewed data. Details are noted in the tables below.

Validation Criteria

- ✓ Data Completeness
- ✓ CoC Documentation (Item 3)
- ✓ Holding Times and Preservation (Items 6 and 7)
- ○ Initial and Continuing Calibrations (Item 9)
- ✓ Laboratory Blanks (Item 11)
- ○ MS/MSD (Item 13)
- ✓ LCS (Item 15)
- ○ System Monitoring Compounds (i.e., Surrogates) (Item 17)
- ○ Field, Equipment, and Trip Blanks (Item 18)
- ✓ Field Duplicates (Item 20)
- ○ Laboratory Duplicates (Item 22)

Guidance References

Chemical data validation was conducted in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines for the analyses listed below, or by the appropriate method if not covered in the National Functional Guidelines.

- Data for inorganic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Inorganic Superfund Data Review, document number EPA-540-R-013-001, August 2014 with additional reference to the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540-R-04-004, October 2004.
- Review of field duplicates was conducted according to the USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.
- Trihydro Data Validation Variance Documentation, February 2016.
- Project-specific Quality Assurance Project Plans (QAPP) data validation requirements, as applicable.

Tier II Data Validation Report Summary

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Item 2 of the Validation Criteria Checklist.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data that are not qualified meet the site data quality objectives.

Data qualifiers were not applied as a result of this validation.

Data Completeness

The analyses were performed as requested on the CoC records. The associated samples were received by the laboratory and analyzed properly unless otherwise noted in the Criteria Checklist below. The complete data package consisted of 3 data points. No data points were rejected. The data completeness measure for this data package is calculated to be 100% and is acceptable.

VALIDATION CRITERIA CHECKLIST	
1. Was the report free of non-conformances identified by the laboratory?	Yes
Comments: The laboratory did not identify non-conformances regarding the analytical data.	
2. Were the data free of data qualification flags and/or notes used by the laboratory? If no, define.	Yes
Comments: The laboratory did not apply data qualification flags to results in this data set.	
3. Were sample CoC forms and procedures complete?	Yes
Comments: The CoC records from field to laboratory were complete and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. Custody seals were not present nor required since the samples were delivered to the laboratory by field personnel and custody was maintained at all times.	
4. Were detection limits in accordance with the quality assurance project plan (QAPP), permit, or method, or indicated as acceptable?	Yes
Comments: The detection limits appeared to be acceptable. The following dilutions were applied. Method 300.0: Dilutions of 20 times were applied for the chloride analyses of the samples.	
5. Were the reported analytical methods and constituents in compliance with the QAPP, permit, or CoC? Specify if any analytes were reported by more than one method.	Yes
Comments: The reported analytical methods were in compliance with the CoC and the laboratory reported the requested constituents in accordance with the CoC.	
6. Were samples received in good condition within method-specified requirements?	No
Comments: Samples were received on ice, in good condition, and with the cooler temperature outside the recommended temperature range of 4°C ± 2°C at 1.0°C as noted on the Sample Log-In Check List. The cooler temperature below 2.0°C was judged as acceptable since the laboratory did not report the sample containers as broken or frozen.	
7. Were samples extracted/digested and analyzed within method-specified or technical holding times?	No
Comments: The samples were analyzed within method-specific holding times.	
8. Were reported units appropriate for the sample matrix/matrices and analytical method(s)? Specify if wet or dry units were used for soil.	Yes
Comments: The results were reported in concentration units of milligrams per kilogram (mg/kg) which were acceptable for the sample matrices and the analyses requested. Analytical results for the soil samples were reported on an as-received, wet weight basis.	
9. Did the laboratory provide any specific initial and/or continuing calibration results?	No
Comments: Initial and continuing calibration data were not included as part of this data set.	
10. If initial and/or continuing calibration results were provided, were the results within acceptable limits?	N/A
Comments: Initial and continuing calibration data were not included as part of this data set.	
11. Was the total number of laboratory blank samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method?	Yes
Comments: The number of laboratory blank samples prepared was equal to at least 5% of the total number of samples.	

VALIDATION CRITERIA CHECKLIST	
12. Were target analytes reported as not detected in the laboratory blanks?	Yes
Comments: The target analyte was reported as not detected in the laboratory blank.	
13. Was the total number of MS samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method?	No
Comments: The total number of matrix spike samples prepared was not equal to at least 5% of the total number of samples. Matrix spike samples were not prepared for the analyses reported in this data set.	
14. For MS/MSDs prepared from project samples, were percent recoveries and RPDs within data validation or laboratory quality control (QC) limits?	N/A
Comments: Matrix spike samples were not prepared for the analyses reported in this data set.	
15. Was the total number of LCSs analyzed equal to at least 5% of the total number of samples or analyzed as required by the method?	Yes
Comments: The total number of LCS samples analyzed was equal to at least 5% of the total number of samples.	
16. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within data validation or laboratory QC limits?	Yes
Comments: The LCS percent recovery was within laboratory QC limits.	
17. Were surrogate recoveries within laboratory QC limits?	N/A
Comments: Analysis of surrogates is not required for Method 300.0.	
18. Were the number of trip blank, field blank, and/or equipment blank samples collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	No
Comments: The number of trip, field, and equipment blanks collected was not equal to at least 10% of the number of samples. Trip, field, and equipment blank samples were not collected for this sample set.	
19. Were target analytes reported as not detected in the trip blank, field blank, and/or equipment blank samples?	N/A
Comments: Trip, field, and equipment blank samples were not collected for this sample set.	
20. Was the number of field duplicates collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	Yes
Comments: The number of field duplicates collected was equal to at least 10% of the number of samples. Sample CentralOCD-BD-10062016 was collected as a field duplicate of sample CentralOCD-2271-10062016-SW-E.	
21. Were field duplicate RPD values within data validation QC limits (soil 0-50%, water 0-30%, or air 0-25%)?	Yes
Comments: As indicated in the Field Duplicate Summary Table at the end of this report, field duplicate RPD values were within data validation QC limits of 0-50% for soil samples.	
22. For laboratory duplicates prepared from project samples, were RPDs within laboratory QC limits?	N/A
Comments: Laboratory duplicate samples were not prepared for this sample set.	

FIELD DUPLICATE SUMMARY

Client Sample ID: CentralOCD-2271-10062016-SW-E Field Duplicate Sample ID: CentralOCD-BD-10062016				
Method	**Analyte**	**Laboratory Result (mg/kg)**	**Duplicate Result (mg/kg)**	**Relative Percent Difference (RPD)**
300.0	Chloride	800	480	50.0%
Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.				

DATA QUALIFICATION SUMMARY

Data qualifiers were not applied as a result of this validation.

Appendix B

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

July 31, 2019

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

RE: OCD Central Landfarm Semiannual Sampling OrderNo.: 1906G37

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 13 sample(s) on 6/27/2019 for the analyses presented in the following report.

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. In order to properly interpret your results, it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 9:30:00 AM
Lab ID: 1906G37-001
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.0098	0.023		mg/Kg	1	7/9/2019 11:39:53 PM	45963
Aroclor 1221	ND	0.018	0.023		mg/Kg	1	7/9/2019 11:39:53 PM	45963
Aroclor 1232	ND	0.022	0.023		mg/Kg	1	7/9/2019 11:39:53 PM	45963
Aroclor 1242	ND	0.012	0.023		mg/Kg	1	7/9/2019 11:39:53 PM	45963
Aroclor 1248	ND	0.018	0.023		mg/Kg	1	7/9/2019 11:39:53 PM	45963
Aroclor 1254	ND	0.018	0.023		mg/Kg	1	7/9/2019 11:39:53 PM	45963
Aroclor 1260	ND	0.0085	0.023		mg/Kg	1	7/9/2019 11:39:53 PM	45963
Surr: Decachlorobiphenyl	82.8	0	25.7-135		%Rec	1	7/9/2019 11:39:53 PM	45963
Surr: Tetrachloro-m-xylene	98.4	0	32.3-138		%Rec	1	7/9/2019 11:39:53 PM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.7	8.5		mg/Kg	1	7/5/2019 3:43:02 PM	45994
Motor Oil Range Organics (MRO)	ND	43	43		mg/Kg	1	7/5/2019 3:43:02 PM	45994
Surr: DNOP	96.7	0	70-130		%Rec	1	7/5/2019 3:43:02 PM	45994
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Fluoride	5.4	0.46	1.5		mg/Kg	5	7/10/2019 8:12:14 PM	46094
Chloride	160	0.51	7.5		mg/Kg	5	7/10/2019 8:12:14 PM	46094
Nitrogen, Nitrate (As N)	4.9	0.75	1.5		mg/Kg	5	7/10/2019 8:12:14 PM	46094
Sulfate	920	14	30		mg/Kg	20	7/10/2019 8:24:39 PM	46094
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	0.043	0.0018	0.032		mg/Kg	1	7/10/2019 2:21:22 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.9	5.0		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Barium	300	0.047	0.20		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Cadmium	ND	0.049	0.20		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Chromium	14	0.16	0.60		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Copper	12	0.23	0.60		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Iron	18000	73	250		mg/Kg	100	7/2/2019 8:15:38 AM	45944
Lead	3.4	0.49	0.50		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Manganese	380	0.042	0.20		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Selenium	ND	2.5	5.0		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Silver	ND	0.064	0.50		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Uranium	ND	4.4	10		mg/Kg	2	7/2/2019 8:55:34 AM	45944
Zinc	33	0.80	5.0		mg/Kg	2	7/2/2019 8:55:34 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Aniline	ND	0.13	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 9:30:00 AM
Lab ID: 1906G37-001
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Azobenzene	ND	0.14	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Benz(a)anthracene	ND	0.097	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Benzo(a)pyrene	ND	0.090	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Benzo(b)fluoranthene	ND	0.089	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Benzo(g,h,i)perylene	ND	0.087	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Benzo(k)fluoranthene	ND	0.092	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Benzoic acid	ND	0.10	0.50		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Benzyl alcohol	ND	0.13	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Bis(2-chloroethoxy)methane	ND	0.15	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Bis(2-ethylhexyl)phthalate	ND	0.14	0.50		mg/Kg	1	7/8/2019 5:19:18 PM	45929
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Carbazole	ND	0.12	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
4-Chloro-3-methylphenol	ND	0.15	0.50		mg/Kg	1	7/8/2019 5:19:18 PM	45929
4-Chloroaniline	ND	0.14	0.50		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2-Chloronaphthalene	ND	0.13	0.25		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2-Chlorophenol	ND	0.13	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Chrysene	ND	0.089	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Di-n-butyl phthalate	ND	0.15	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Di-n-octyl phthalate	ND	0.10	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Dibenz(a,h)anthracene	ND	0.092	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
1,3-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
1,4-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
3,3´-Dichlorobenzidine	ND	0.090	0.25		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2,4-Dichlorophenol	ND	0.12	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2,4-Dimethylphenol	ND	0.11	0.30		mg/Kg	1	7/8/2019 5:19:18 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.093	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2,4-Dinitrophenol	ND	0.073	0.50		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2,6-Dinitrotoluene	ND	0.13	0.50		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Fluoranthene	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 9:30:00 AM
Lab ID: 1906G37-001
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Hexachlorocyclopentadiene	ND	0.12	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Indeno(1,2,3-cd)pyrene	ND	0.10	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Isophorone	ND	0.15	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2-Methylphenol	ND	0.12	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
N-Nitrosodiphenylamine	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Naphthalene	ND	0.15	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Nitrobenzene	ND	0.14	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2-Nitrophenol	ND	0.14	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
4-Nitrophenol	ND	0.14	0.25		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Pentachlorophenol	ND	0.10	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Phenanthrene	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Phenol	ND	0.13	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Pyrene	ND	0.095	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Pyridine	ND	0.12	0.40		mg/Kg	1	7/8/2019 5:19:18 PM	45929
1,2,4-Trichlorobenzene	ND	0.16	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
2,4,6-Trichlorophenol	ND	0.11	0.20		mg/Kg	1	7/8/2019 5:19:18 PM	45929
Surr: 2-Fluorophenol	60.5		24.8-95.2		%Rec	1	7/8/2019 5:19:18 PM	45929
Surr: Phenol-d5	61.6		29.9-97.8		%Rec	1	7/8/2019 5:19:18 PM	45929
Surr: 2,4,6-Tribromophenol	65.4		35.7-108		%Rec	1	7/8/2019 5:19:18 PM	45929
Surr: Nitrobenzene-d5	64.0		32.5-106		%Rec	1	7/8/2019 5:19:18 PM	45929
Surr: 2-Fluorobiphenyl	64.4		27.7-114		%Rec	1	7/8/2019 5:19:18 PM	45929
Surr: 4-Terphenyl-d14	65.1		15-148		%Rec	1	7/8/2019 5:19:18 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0041	0.025		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Toluene	ND	0.0048	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Ethylbenzene	ND	0.0029	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Methyl tert-butyl ether (MTBE)	ND	0.012	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 9:30:00 AM
Lab ID: 1906G37-001
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0045	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,3,5-Trimethylbenzene	ND	0.0048	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,2-Dichloroethane (EDC)	ND	0.0051	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,2-Dibromoethane (EDB)	ND	0.0045	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Naphthalene	ND	0.010	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1-Methylnaphthalene	ND	0.029	0.20		mg/Kg	1	7/3/2019 6:33:15 PM	45983
2-Methylnaphthalene	ND	0.022	0.20		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Acetone	ND	0.041	0.75		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Bromobenzene	ND	0.0048	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Bromodichloromethane	ND	0.0045	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Bromoform	ND	0.0045	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Bromomethane	ND	0.012	0.15		mg/Kg	1	7/3/2019 6:33:15 PM	45983
2-Butanone	ND	0.058	0.50		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Carbon disulfide	ND	0.016	0.50		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Carbon tetrachloride	ND	0.0047	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Chlorobenzene	ND	0.0064	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Chloroethane	ND	0.0073	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Chloroform	ND	0.0040	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Chloromethane	ND	0.0048	0.15		mg/Kg	1	7/3/2019 6:33:15 PM	45983
2-Chlorotoluene	ND	0.0043	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
4-Chlorotoluene	ND	0.0041	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
cis-1,2-DCE	ND	0.0068	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
cis-1,3-Dichloropropene	ND	0.0042	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,2-Dibromo-3-chloropropane	ND	0.0051	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Dibromochloromethane	ND	0.0035	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Dibromomethane	ND	0.0054	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,2-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,3-Dichlorobenzene	ND	0.0043	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,4-Dichlorobenzene	ND	0.0042	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Dichlorodifluoromethane	ND	0.012	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,1-Dichloroethane	ND	0.0032	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,1-Dichloroethene	ND	0.020	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,2-Dichloropropane	ND	0.0036	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,3-Dichloropropane	ND	0.0054	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
2,2-Dichloropropane	ND	0.016	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,1-Dichloropropene	ND	0.0045	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Hexachlorobutadiene	ND	0.0051	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
2-Hexanone	ND	0.0083	0.50		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Isopropylbenzene	ND	0.0036	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 9:30:00 AM
Lab ID: 1906G37-001
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0041	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
4-Methyl-2-pentanone	ND	0.0094	0.50		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Methylene chloride	ND	0.0088	0.15		mg/Kg	1	7/3/2019 6:33:15 PM	45983
n-Butylbenzene	ND	0.0046	0.15		mg/Kg	1	7/3/2019 6:33:15 PM	45983
n-Propylbenzene	ND	0.0040	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
sec-Butylbenzene	ND	0.0056	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Styrene	ND	0.0039	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
tert-Butylbenzene	ND	0.0047	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,1,1,2-Tetrachloroethane	ND	0.0034	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,1,2,2-Tetrachloroethane	ND	0.0050	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Tetrachloroethene (PCE)	ND	0.0040	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
trans-1,2-DCE	ND	0.0046	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
trans-1,3-Dichloropropene	ND	0.0053	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,2,3-Trichlorobenzene	ND	0.0044	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,2,4-Trichlorobenzene	ND	0.0050	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,1,1-Trichloroethane	ND	0.0045	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,1,2-Trichloroethane	ND	0.0035	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Trichloroethene (TCE)	ND	0.0058	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Trichlorofluoromethane	ND	0.017	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
1,2,3-Trichloropropane	ND	0.0081	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Vinyl chloride	ND	0.0033	0.050		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Xylenes, Total	ND	0.013	0.10		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Surr: Dibromofluoromethane	110		70-130		%Rec	1	7/3/2019 6:33:15 PM	45983
Surr: 1,2-Dichloroethane-d4	109		70-130		%Rec	1	7/3/2019 6:33:15 PM	45983
Surr: Toluene-d8	99.4		70-130		%Rec	1	7/3/2019 6:33:15 PM	45983
Surr: 4-Bromofluorobenzene	97.2		70-130		%Rec	1	7/3/2019 6:33:15 PM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	5.0		mg/Kg	1	7/3/2019 6:33:15 PM	45983
Surr: BFB	89.2	0	70-130		%Rec	1	7/3/2019 6:33:15 PM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	ND	2.6	19		mg/Kg	1	7/9/2019	45999

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:00:00 AM
Lab ID: 1906G37-002
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.010	0.023		mg/Kg	1	7/10/2019 12:12:55 AM	45963
Aroclor 1221	ND	0.019	0.023		mg/Kg	1	7/10/2019 12:12:55 AM	45963
Aroclor 1232	ND	0.023	0.023		mg/Kg	1	7/10/2019 12:12:55 AM	45963
Aroclor 1242	ND	0.012	0.023		mg/Kg	1	7/10/2019 12:12:55 AM	45963
Aroclor 1248	ND	0.019	0.023		mg/Kg	1	7/10/2019 12:12:55 AM	45963
Aroclor 1254	ND	0.019	0.023		mg/Kg	1	7/10/2019 12:12:55 AM	45963
Aroclor 1260	ND	0.0087	0.023		mg/Kg	1	7/10/2019 12:12:55 AM	45963
Surr: Decachlorobiphenyl	74.4	0	25.7-135		%Rec	1	7/10/2019 12:12:55 AM	45963
Surr: Tetrachloro-m-xylene	78.8	0	32.3-138		%Rec	1	7/10/2019 12:12:55 AM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.9	9.6		mg/Kg	1	7/5/2019 4:05:11 PM	45994
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	7/5/2019 4:05:11 PM	45994
Surr: DNOP	93.2	0	70-130		%Rec	1	7/5/2019 4:05:11 PM	45994
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Fluoride	3.7	0.46	1.5		mg/Kg	5	7/10/2019 8:37:04 PM	46094
Chloride	240	0.51	7.5		mg/Kg	5	7/10/2019 8:37:04 PM	46094
Nitrogen, Nitrate (As N)	2.4	0.75	1.5		mg/Kg	5	7/10/2019 8:37:04 PM	46094
Sulfate	740	14	30		mg/Kg	20	7/10/2019 9:14:16 PM	46094
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	ND	0.0018	0.032		mg/Kg	1	7/10/2019 2:23:22 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.8	5.0		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Barium	180	0.046	0.20		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Cadmium	ND	0.048	0.20		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Chromium	15	0.16	0.60		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Copper	4.1	0.22	0.60		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Iron	18000	72	250		mg/Kg	100	7/2/2019 8:17:23 AM	45944
Lead	ND	0.48	0.50		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Manganese	340	0.041	0.20		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Selenium	ND	2.5	5.0		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Silver	ND	0.064	0.50		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Uranium	ND	4.3	10		mg/Kg	2	7/2/2019 8:57:26 AM	45944
Zinc	21	0.79	5.0		mg/Kg	2	7/2/2019 8:57:26 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Acenaphthylene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Aniline	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:00:00 AM
Lab ID: 1906G37-002
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	1.0	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Azobenzene	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Benz(a)anthracene	ND	0.94	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Benzo(a)pyrene	ND	0.87	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Benzo(b)fluoranthene	ND	0.86	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Benzo(g,h,i)perylene	ND	0.84	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Benzo(k)fluoranthene	ND	0.89	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Benzoic acid	ND	1.0	4.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Benzyl alcohol	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Bis(2-chloroethoxy)methane	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Bis(2-chloroethyl)ether	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Bis(2-chloroisopropyl)ether	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Bis(2-ethylhexyl)phthalate	ND	1.4	4.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
4-Bromophenyl phenyl ether	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Butyl benzyl phthalate	ND	1.0	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Carbazole	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
4-Chloro-3-methylphenol	ND	1.5	4.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
4-Chloroaniline	ND	1.4	4.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2-Chloronaphthalene	ND	1.2	2.4	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2-Chlorophenol	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
4-Chlorophenyl phenyl ether	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Chrysene	ND	0.86	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Di-n-butyl phthalate	ND	1.5	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Di-n-octyl phthalate	ND	0.99	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Dibenz(a,h)anthracene	ND	0.89	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Dibenzofuran	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
1,2-Dichlorobenzene	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
1,3-Dichlorobenzene	ND	1.0	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
1,4-Dichlorobenzene	ND	1.0	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
3,3´-Dichlorobenzidine	ND	0.87	2.4	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Diethyl phthalate	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Dimethyl phthalate	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2,4-Dichlorophenol	ND	1.1	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2,4-Dimethylphenol	ND	1.1	2.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.90	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2,4-Dinitrophenol	ND	0.71	4.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2,4-Dinitrotoluene	ND	1.1	4.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2,6-Dinitrotoluene	ND	1.3	4.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Fluoranthene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:00:00 AM
Lab ID: 1906G37-002
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Hexachlorobenzene	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Hexachlorobutadiene	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Hexachloroethane	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Indeno(1,2,3-cd)pyrene	ND	0.97	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Isophorone	ND	1.4	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
1-Methylnaphthalene	ND	1.5	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2-Methylnaphthalene	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2-Methylphenol	ND	1.2	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
3+4-Methylphenol	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
N-Nitrosodi-n-propylamine	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Naphthalene	ND	1.5	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2-Nitroaniline	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
3-Nitroaniline	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Nitrobenzene	ND	1.3	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2-Nitrophenol	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
4-Nitrophenol	ND	1.3	2.4	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Pentachlorophenol	ND	1.0	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Phenanthrene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Phenol	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Pyrene	ND	0.92	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Pyridine	ND	1.2	3.9	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
1,2,4-Trichlorobenzene	ND	1.5	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2,4,5-Trichlorophenol	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
2,4,6-Trichlorophenol	ND	1.0	2.0	D	mg/Kg	1	7/8/2019 5:49:19 PM	45929
Surr: 2-Fluorophenol	0		24.8-95.2	SD	%Rec	1	7/8/2019 5:49:19 PM	45929
Surr: Phenol-d5	0		29.9-97.8	SD	%Rec	1	7/8/2019 5:49:19 PM	45929
Surr: 2,4,6-Tribromophenol	0		35.7-108	SD	%Rec	1	7/8/2019 5:49:19 PM	45929
Surr: Nitrobenzene-d5	0		32.5-106	SD	%Rec	1	7/8/2019 5:49:19 PM	45929
Surr: 2-Fluorobiphenyl	0		27.7-114	SD	%Rec	1	7/8/2019 5:49:19 PM	45929
Surr: 4-Terphenyl-d14	0		15-148	SD	%Rec	1	7/8/2019 5:49:19 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0039	0.024		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Toluene	ND	0.0046	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Ethylbenzene	ND	0.0028	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Methyl tert-butyl ether (MTBE)	ND	0.011	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:00:00 AM
Lab ID: 1906G37-002
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0044	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,3,5-Trimethylbenzene	ND	0.0047	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,2-Dichloroethane (EDC)	ND	0.0049	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,2-Dibromoethane (EDB)	ND	0.0044	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Naphthalene	ND	0.0096	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1-Methylnaphthalene	ND	0.028	0.19		mg/Kg	1	7/3/2019 7:02:39 PM	45983
2-Methylnaphthalene	ND	0.021	0.19		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Acetone	ND	0.040	0.72		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Bromobenzene	ND	0.0046	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Bromodichloromethane	ND	0.0044	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Bromoform	ND	0.0043	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Bromomethane	ND	0.012	0.14		mg/Kg	1	7/3/2019 7:02:39 PM	45983
2-Butanone	ND	0.056	0.48		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Carbon disulfide	ND	0.016	0.48		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Carbon tetrachloride	ND	0.0046	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Chlorobenzene	ND	0.0062	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Chloroethane	ND	0.0071	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Chloroform	ND	0.0039	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Chloromethane	ND	0.0046	0.14		mg/Kg	1	7/3/2019 7:02:39 PM	45983
2-Chlorotoluene	ND	0.0042	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
4-Chlorotoluene	ND	0.0039	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
cis-1,2-DCE	ND	0.0066	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
cis-1,3-Dichloropropene	ND	0.0041	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,2-Dibromo-3-chloropropane	ND	0.0049	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Dibromochloromethane	ND	0.0034	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Dibromomethane	ND	0.0052	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,2-Dichlorobenzene	ND	0.0039	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,3-Dichlorobenzene	ND	0.0042	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,4-Dichlorobenzene	ND	0.0040	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Dichlorodifluoromethane	ND	0.011	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,1-Dichloroethane	ND	0.0031	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,2-Dichloropropane	ND	0.0035	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,3-Dichloropropane	ND	0.0052	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
2,2-Dichloropropane	ND	0.016	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,1-Dichloropropene	ND	0.0044	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Hexachlorobutadiene	ND	0.0049	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
2-Hexanone	ND	0.0080	0.48		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Isopropylbenzene	ND	0.0035	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:00:00 AM
Lab ID: 1906G37-002
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0040	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
4-Methyl-2-pentanone	ND	0.0091	0.48		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Methylene chloride	ND	0.0085	0.14		mg/Kg	1	7/3/2019 7:02:39 PM	45983
n-Butylbenzene	ND	0.0045	0.14		mg/Kg	1	7/3/2019 7:02:39 PM	45983
n-Propylbenzene	ND	0.0038	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
sec-Butylbenzene	ND	0.0054	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Styrene	ND	0.0038	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
tert-Butylbenzene	ND	0.0045	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,1,1,2-Tetrachloroethane	ND	0.0032	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,1,2,2-Tetrachloroethane	ND	0.0049	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Tetrachloroethene (PCE)	ND	0.0038	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
trans-1,2-DCE	ND	0.0044	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
trans-1,3-Dichloropropene	ND	0.0051	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,2,3-Trichlorobenzene	ND	0.0042	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,2,4-Trichlorobenzene	ND	0.0049	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,1,1-Trichloroethane	ND	0.0043	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,1,2-Trichloroethane	ND	0.0034	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Trichloroethene (TCE)	ND	0.0056	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Trichlorofluoromethane	ND	0.016	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
1,2,3-Trichloropropane	ND	0.0078	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Vinyl chloride	ND	0.0031	0.048		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Xylenes, Total	ND	0.012	0.096		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Surr: Dibromofluoromethane	99.6		70-130		%Rec	1	7/3/2019 7:02:39 PM	45983
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	7/3/2019 7:02:39 PM	45983
Surr: Toluene-d8	98.8		70-130		%Rec	1	7/3/2019 7:02:39 PM	45983
Surr: 4-Bromofluorobenzene	93.3		70-130		%Rec	1	7/3/2019 7:02:39 PM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	4.8		mg/Kg	1	7/3/2019 7:02:39 PM	45983
Surr: BFB	86.0	0	70-130		%Rec	1	7/3/2019 7:02:39 PM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	ND	2.7	19		mg/Kg	1	7/9/2019	45999

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:50:00 AM
Lab ID: 1906G37-003
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.011	0.025		mg/Kg	1	7/10/2019 1:52:12 AM	45963
Aroclor 1221	ND	0.020	0.025		mg/Kg	1	7/10/2019 1:52:12 AM	45963
Aroclor 1232	ND	0.024	0.025		mg/Kg	1	7/10/2019 1:52:12 AM	45963
Aroclor 1242	ND	0.013	0.025		mg/Kg	1	7/10/2019 1:52:12 AM	45963
Aroclor 1248	ND	0.020	0.025		mg/Kg	1	7/10/2019 1:52:12 AM	45963
Aroclor 1254	ND	0.020	0.025		mg/Kg	1	7/10/2019 1:52:12 AM	45963
Aroclor 1260	ND	0.0093	0.025		mg/Kg	1	7/10/2019 1:52:12 AM	45963
Surr: Decachlorobiphenyl	75.6	0	25.7-135		%Rec	1	7/10/2019 1:52:12 AM	45963
Surr: Tetrachloro-m-xylene	87.6	0	32.3-138		%Rec	1	7/10/2019 1:52:12 AM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	33	1.8	9.1		mg/Kg	1	7/8/2019 6:24:41 PM	45994
Motor Oil Range Organics (MRO)	57	46	46		mg/Kg	1	7/8/2019 6:24:41 PM	45994
Surr: DNOP	96.5	0	70-130		%Rec	1	7/8/2019 6:24:41 PM	45994
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Fluoride	10	0.46	1.5		mg/Kg	5	7/10/2019 9:26:41 PM	46094
Chloride	150	0.51	7.5		mg/Kg	5	7/10/2019 9:26:41 PM	46094
Nitrogen, Nitrate (As N)	4.2	0.75	1.5		mg/Kg	5	7/10/2019 9:26:41 PM	46094
Sulfate	700	3.4	7.5		mg/Kg	5	7/10/2019 9:26:41 PM	46094
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	0.14	0.0017	0.031		mg/Kg	1	7/10/2019 2:29:25 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.8	5.0		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Barium	320	0.046	0.20		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Cadmium	ND	0.048	0.20		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Chromium	13	0.16	0.60		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Copper	17	0.22	0.60		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Iron	16000	72	250		mg/Kg	100	7/2/2019 8:24:54 AM	45944
Lead	3.9	0.48	0.50		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Manganese	410	0.041	0.20		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Selenium	ND	2.5	5.0		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Silver	ND	0.064	0.50		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Uranium	ND	4.3	9.9		mg/Kg	2	7/2/2019 9:04:56 AM	45944
Zinc	59	0.79	5.0		mg/Kg	2	7/2/2019 9:04:56 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Acenaphthylene	ND	0.10	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Aniline	ND	0.12	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:50:00 AM
Lab ID: 1906G37-003
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	0.099	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Azobenzene	ND	0.13	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Benz(a)anthracene	ND	0.089	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Benzo(a)pyrene	ND	0.083	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Benzo(b)fluoranthene	ND	0.082	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Benzo(g,h,i)perylene	ND	0.080	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Benzo(k)fluoranthene	ND	0.084	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Benzoic acid	ND	0.096	0.46		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Bis(2-chloroethyl)ether	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Bis(2-ethylhexyl)phthalate	ND	0.13	0.46		mg/Kg	1	7/8/2019 6:19:41 PM	45929
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Butyl benzyl phthalate	ND	0.095	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Carbazole	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
4-Chloro-3-methylphenol	ND	0.14	0.46		mg/Kg	1	7/8/2019 6:19:41 PM	45929
4-Chloroaniline	ND	0.13	0.46		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2-Chloronaphthalene	ND	0.12	0.23		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
4-Chlorophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Chrysene	ND	0.082	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Di-n-butyl phthalate	ND	0.14	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Di-n-octyl phthalate	ND	0.095	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Dibenz(a,h)anthracene	ND	0.084	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Dibenzofuran	ND	0.12	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
1,2-Dichlorobenzene	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
1,3-Dichlorobenzene	ND	0.098	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
1,4-Dichlorobenzene	ND	0.099	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
3,3´-Dichlorobenzidine	ND	0.083	0.23		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Diethyl phthalate	ND	0.13	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Dimethyl phthalate	ND	0.12	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2,4-Dichlorophenol	ND	0.11	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2,4-Dimethylphenol	ND	0.10	0.28		mg/Kg	1	7/8/2019 6:19:41 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.086	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2,4-Dinitrophenol	ND	0.067	0.46		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2,4-Dinitrotoluene	ND	0.11	0.46		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2,6-Dinitrotoluene	ND	0.12	0.46		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Fluoranthene	ND	0.10	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:50:00 AM
Lab ID: 1906G37-003
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Hexachlorobenzene	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Hexachloroethane	ND	0.10	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Indeno(1,2,3-cd)pyrene	ND	0.092	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Isophorone	ND	0.14	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
1-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2-Methylphenol	ND	0.11	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
3+4-Methylphenol	ND	0.11	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
N-Nitrosodi-n-propylamine	ND	0.13	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
N-Nitrosodiphenylamine	ND	0.098	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Naphthalene	ND	0.14	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2-Nitroaniline	ND	0.13	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
4-Nitroaniline	ND	0.12	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Nitrobenzene	ND	0.13	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
4-Nitrophenol	ND	0.13	0.23		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Pentachlorophenol	ND	0.096	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Phenanthrene	ND	0.10	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Phenol	ND	0.12	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Pyrene	ND	0.087	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Pyridine	ND	0.11	0.37		mg/Kg	1	7/8/2019 6:19:41 PM	45929
1,2,4-Trichlorobenzene	ND	0.14	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2,4,5-Trichlorophenol	ND	0.12	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
2,4,6-Trichlorophenol	ND	0.098	0.19		mg/Kg	1	7/8/2019 6:19:41 PM	45929
Surr: 2-Fluorophenol	76.3		24.8-95.2		%Rec	1	7/8/2019 6:19:41 PM	45929
Surr: Phenol-d5	78.6		29.9-97.8		%Rec	1	7/8/2019 6:19:41 PM	45929
Surr: 2,4,6-Tribromophenol	77.1		35.7-108		%Rec	1	7/8/2019 6:19:41 PM	45929
Surr: Nitrobenzene-d5	85.1		32.5-106		%Rec	1	7/8/2019 6:19:41 PM	45929
Surr: 2-Fluorobiphenyl	80.6		27.7-114		%Rec	1	7/8/2019 6:19:41 PM	45929
Surr: 4-Terphenyl-d14	83.7		15-148		%Rec	1	7/8/2019 6:19:41 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0040	0.025		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Toluene	ND	0.0047	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Ethylbenzene	ND	0.0029	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Methyl tert-butyl ether (MTBE)	ND	0.012	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:50:00 AM
Lab ID: 1906G37-003
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0045	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,3,5-Trimethylbenzene	ND	0.0048	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,2-Dichloroethane (EDC)	ND	0.0050	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,2-Dibromoethane (EDB)	ND	0.0045	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Naphthalene	ND	0.0099	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1-Methylnaphthalene	ND	0.028	0.20		mg/Kg	1	7/3/2019 11:56:17 PM	45983
2-Methylnaphthalene	ND	0.022	0.20		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Acetone	ND	0.041	0.74		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Bromobenzene	ND	0.0047	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Bromodichloromethane	ND	0.0045	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Bromoform	ND	0.0044	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Bromomethane	ND	0.012	0.15		mg/Kg	1	7/3/2019 11:56:17 PM	45983
2-Butanone	ND	0.057	0.49		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Carbon disulfide	ND	0.016	0.49		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Carbon tetrachloride	ND	0.0047	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Chlorobenzene	ND	0.0063	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Chloroethane	ND	0.0073	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Chloroform	ND	0.0040	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Chloromethane	ND	0.0047	0.15		mg/Kg	1	7/3/2019 11:56:17 PM	45983
2-Chlorotoluene	ND	0.0043	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
4-Chlorotoluene	ND	0.0040	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
cis-1,2-DCE	ND	0.0067	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
cis-1,3-Dichloropropene	ND	0.0042	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,2-Dibromo-3-chloropropane	ND	0.0051	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Dibromochloromethane	ND	0.0035	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Dibromomethane	ND	0.0053	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,2-Dichlorobenzene	ND	0.0040	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,3-Dichlorobenzene	ND	0.0043	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,4-Dichlorobenzene	ND	0.0041	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Dichlorodifluoromethane	ND	0.011	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,1-Dichloroethane	ND	0.0032	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,1-Dichloroethene	ND	0.020	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,2-Dichloropropane	ND	0.0036	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,3-Dichloropropane	ND	0.0053	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
2,2-Dichloropropane	ND	0.016	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,1-Dichloropropene	ND	0.0045	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Hexachlorobutadiene	ND	0.0050	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
2-Hexanone	ND	0.0082	0.49		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Isopropylbenzene	ND	0.0036	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 10:50:00 AM
Lab ID: 1906G37-003
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0041	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
4-Methyl-2-pentanone	ND	0.0093	0.49		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Methylene chloride	ND	0.0087	0.15		mg/Kg	1	7/3/2019 11:56:17 PM	45983
n-Butylbenzene	ND	0.0046	0.15		mg/Kg	1	7/3/2019 11:56:17 PM	45983
n-Propylbenzene	ND	0.0039	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
sec-Butylbenzene	ND	0.0056	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Styrene	ND	0.0039	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
tert-Butylbenzene	ND	0.0047	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,1,1,2-Tetrachloroethane	ND	0.0033	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,1,2,2-Tetrachloroethane	ND	0.0050	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Tetrachloroethene (PCE)	ND	0.0039	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
trans-1,2-DCE	ND	0.0045	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
trans-1,3-Dichloropropene	ND	0.0052	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,2,3-Trichlorobenzene	ND	0.0043	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,2,4-Trichlorobenzene	ND	0.0050	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,1,1-Trichloroethane	ND	0.0045	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,1,2-Trichloroethane	ND	0.0035	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Trichloroethene (TCE)	ND	0.0057	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Trichlorofluoromethane	ND	0.017	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
1,2,3-Trichloropropane	ND	0.0080	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Vinyl chloride	ND	0.0032	0.049		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Xylenes, Total	ND	0.012	0.099		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Surr: Dibromofluoromethane	107		70-130		%Rec	1	7/3/2019 11:56:17 PM	45983
Surr: 1,2-Dichloroethane-d4	106		70-130		%Rec	1	7/3/2019 11:56:17 PM	45983
Surr: Toluene-d8	98.2		70-130		%Rec	1	7/3/2019 11:56:17 PM	45983
Surr: 4-Bromofluorobenzene	95.4		70-130		%Rec	1	7/3/2019 11:56:17 PM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	4.9		mg/Kg	1	7/3/2019 11:56:17 PM	45983
Surr: BFB	88.6	0	70-130		%Rec	1	7/3/2019 11:56:17 PM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	54	2.7	20		mg/Kg	1	7/9/2019	45999

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 11:10:00 AM
Lab ID: 1906G37-004
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.0077	0.018		mg/Kg	1	7/10/2019 2:25:16 AM	45963
Aroclor 1221	ND	0.014	0.018		mg/Kg	1	7/10/2019 2:25:16 AM	45963
Aroclor 1232	ND	0.017	0.018		mg/Kg	1	7/10/2019 2:25:16 AM	45963
Aroclor 1242	ND	0.0094	0.018		mg/Kg	1	7/10/2019 2:25:16 AM	45963
Aroclor 1248	ND	0.014	0.018		mg/Kg	1	7/10/2019 2:25:16 AM	45963
Aroclor 1254	ND	0.014	0.018		mg/Kg	1	7/10/2019 2:25:16 AM	45963
Aroclor 1260	ND	0.0067	0.018		mg/Kg	1	7/10/2019 2:25:16 AM	45963
Surr: Decachlorobiphenyl	56.0	0	25.7-135		%Rec	1	7/10/2019 2:25:16 AM	45963
Surr: Tetrachloro-m-xylene	65.2	0	32.3-138		%Rec	1	7/10/2019 2:25:16 AM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.7	8.6		mg/Kg	1	7/5/2019 5:34:23 PM	45994
Motor Oil Range Organics (MRO)	ND	43	43		mg/Kg	1	7/5/2019 5:34:23 PM	45994
Surr: DNOP	95.0	0	70-130		%Rec	1	7/5/2019 5:34:23 PM	45994
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Fluoride	3.1	0.46	1.5		mg/Kg	5	7/10/2019 10:16:20 PM	46094
Chloride	150	0.51	7.5		mg/Kg	5	7/10/2019 10:16:20 PM	46094
Nitrogen, Nitrate (As N)	2.0	0.75	1.5		mg/Kg	5	7/10/2019 10:16:20 PM	46094
Sulfate	850	14	30		mg/Kg	20	7/10/2019 10:28:44 PM	46094
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	ND	0.0017	0.031		mg/Kg	1	7/10/2019 2:31:29 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.9	5.1		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Barium	240	0.047	0.20		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Cadmium	ND	0.049	0.20		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Chromium	16	0.16	0.61		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Copper	4.2	0.23	0.61		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Iron	21000	74	250		mg/Kg	100	7/2/2019 8:26:40 AM	45944
Lead	1.8	0.49	0.51		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Manganese	370	0.042	0.20		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Selenium	ND	2.5	5.1		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Silver	ND	0.065	0.51		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Uranium	ND	4.4	10		mg/Kg	2	7/2/2019 9:12:40 AM	45944
Zinc	23	0.80	5.1		mg/Kg	2	7/2/2019 9:12:40 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Acenaphthylene	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Aniline	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 11:10:00 AM
Lab ID: 1906G37-004
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Azobenzene	ND	0.15	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Benz(a)anthracene	ND	0.10	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Benzo(a)pyrene	ND	0.093	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Benzo(b)fluoranthene	ND	0.092	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Benzo(g,h,i)perylene	ND	0.090	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Benzo(k)fluoranthene	ND	0.095	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Benzoic acid	ND	0.11	0.52		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Benzyl alcohol	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Bis(2-chloroethoxy)methane	ND	0.15	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Bis(2-chloroethyl)ether	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Bis(2-chloroisopropyl)ether	ND	0.12	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Bis(2-ethylhexyl)phthalate	ND	0.15	0.52		mg/Kg	1	7/8/2019 6:50:14 PM	45929
4-Bromophenyl phenyl ether	ND	0.12	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Butyl benzyl phthalate	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Carbazole	ND	0.12	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
4-Chloro-3-methylphenol	ND	0.16	0.52		mg/Kg	1	7/8/2019 6:50:14 PM	45929
4-Chloroaniline	ND	0.15	0.52		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2-Chloronaphthalene	ND	0.13	0.26		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2-Chlorophenol	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
4-Chlorophenyl phenyl ether	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Chrysene	ND	0.092	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Di-n-butyl phthalate	ND	0.16	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Di-n-octyl phthalate	ND	0.11	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Dibenz(a,h)anthracene	ND	0.095	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Dibenzofuran	ND	0.14	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
1,2-Dichlorobenzene	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
1,3-Dichlorobenzene	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
1,4-Dichlorobenzene	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
3,3´-Dichlorobenzidine	ND	0.093	0.26		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Diethyl phthalate	ND	0.15	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Dimethyl phthalate	ND	0.14	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2,4-Dichlorophenol	ND	0.12	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2,4-Dimethylphenol	ND	0.12	0.31		mg/Kg	1	7/8/2019 6:50:14 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.097	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2,4-Dinitrophenol	ND	0.076	0.52		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2,4-Dinitrotoluene	ND	0.12	0.52		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2,6-Dinitrotoluene	ND	0.14	0.52		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Fluoranthene	ND	0.12	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 11:10:00 AM
Lab ID: 1906G37-004
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	0.12	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Hexachlorobenzene	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Hexachlorobutadiene	ND	0.15	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Hexachlorocyclopentadiene	ND	0.12	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Hexachloroethane	ND	0.12	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Indeno(1,2,3-cd)pyrene	ND	0.10	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Isophorone	ND	0.15	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
1-Methylnaphthalene	ND	0.16	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2-Methylnaphthalene	ND	0.15	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2-Methylphenol	ND	0.12	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
3+4-Methylphenol	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
N-Nitrosodi-n-propylamine	ND	0.15	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
N-Nitrosodiphenylamine	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Naphthalene	ND	0.16	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2-Nitroaniline	ND	0.15	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
3-Nitroaniline	ND	0.14	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
4-Nitroaniline	ND	0.13	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Nitrobenzene	ND	0.14	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2-Nitrophenol	ND	0.14	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
4-Nitrophenol	ND	0.14	0.26		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Pentachlorophenol	ND	0.11	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Phenanthrene	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Phenol	ND	0.13	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Pyrene	ND	0.098	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Pyridine	ND	0.13	0.42		mg/Kg	1	7/8/2019 6:50:14 PM	45929
1,2,4-Trichlorobenzene	ND	0.16	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2,4,5-Trichlorophenol	ND	0.14	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
2,4,6-Trichlorophenol	ND	0.11	0.21		mg/Kg	1	7/8/2019 6:50:14 PM	45929
Surr: 2-Fluorophenol	69.1		24.8-95.2		%Rec	1	7/8/2019 6:50:14 PM	45929
Surr: Phenol-d5	76.9		29.9-97.8		%Rec	1	7/8/2019 6:50:14 PM	45929
Surr: 2,4,6-Tribromophenol	71.8		35.7-108		%Rec	1	7/8/2019 6:50:14 PM	45929
Surr: Nitrobenzene-d5	82.4		32.5-106		%Rec	1	7/8/2019 6:50:14 PM	45929
Surr: 2-Fluorobiphenyl	83.1		27.7-114		%Rec	1	7/8/2019 6:50:14 PM	45929
Surr: 4-Terphenyl-d14	83.5		15-148		%Rec	1	7/8/2019 6:50:14 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0040	0.024		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Toluene	ND	0.0046	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Ethylbenzene	ND	0.0028	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Methyl tert-butyl ether (MTBE)	ND	0.011	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 11:10:00 AM
Lab ID: 1906G37-004
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0044	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,3,5-Trimethylbenzene	ND	0.0047	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,2-Dichloroethane (EDC)	ND	0.0049	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,2-Dibromoethane (EDB)	ND	0.0044	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Naphthalene	ND	0.0097	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1-Methylnaphthalene	ND	0.028	0.19		mg/Kg	1	7/4/2019 12:25:34 AM	45983
2-Methylnaphthalene	ND	0.021	0.19		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Acetone	ND	0.040	0.73		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Bromobenzene	ND	0.0046	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Bromodichloromethane	ND	0.0044	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Bromoform	ND	0.0044	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Bromomethane	ND	0.012	0.15		mg/Kg	1	7/4/2019 12:25:34 AM	45983
2-Butanone	ND	0.056	0.48		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Carbon disulfide	ND	0.016	0.48		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Carbon tetrachloride	ND	0.0046	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Chlorobenzene	ND	0.0062	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Chloroethane	ND	0.0071	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Chloroform	ND	0.0039	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Chloromethane	ND	0.0046	0.15		mg/Kg	1	7/4/2019 12:25:34 AM	45983
2-Chlorotoluene	ND	0.0042	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
4-Chlorotoluene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
cis-1,2-DCE	ND	0.0066	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
cis-1,3-Dichloropropene	ND	0.0041	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,2-Dibromo-3-chloropropane	ND	0.0050	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Dibromochloromethane	ND	0.0034	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Dibromomethane	ND	0.0052	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,2-Dichlorobenzene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,3-Dichlorobenzene	ND	0.0042	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,4-Dichlorobenzene	ND	0.0041	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Dichlorodifluoromethane	ND	0.011	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,1-Dichloroethane	ND	0.0031	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,2-Dichloropropane	ND	0.0035	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,3-Dichloropropane	ND	0.0052	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
2,2-Dichloropropane	ND	0.016	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,1-Dichloropropene	ND	0.0044	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Hexachlorobutadiene	ND	0.0049	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
2-Hexanone	ND	0.0080	0.48		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Isopropylbenzene	ND	0.0035	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 11:10:00 AM
Lab ID: 1906G37-004
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
4-Methyl-2-pentanone	ND	0.0091	0.48		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Methylene chloride	ND	0.0086	0.15		mg/Kg	1	7/4/2019 12:25:34 AM	45983
n-Butylbenzene	ND	0.0045	0.15		mg/Kg	1	7/4/2019 12:25:34 AM	45983
n-Propylbenzene	ND	0.0039	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
sec-Butylbenzene	ND	0.0055	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Styrene	ND	0.0038	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
tert-Butylbenzene	ND	0.0046	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,1,1,2-Tetrachloroethane	ND	0.0033	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,1,2,2-Tetrachloroethane	ND	0.0049	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Tetrachloroethene (PCE)	ND	0.0039	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
trans-1,2-DCE	ND	0.0044	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
trans-1,3-Dichloropropene	ND	0.0051	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,2,3-Trichlorobenzene	ND	0.0043	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,2,4-Trichlorobenzene	ND	0.0049	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,1,1-Trichloroethane	ND	0.0044	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,1,2-Trichloroethane	ND	0.0034	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Trichloroethene (TCE)	ND	0.0056	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Trichlorofluoromethane	ND	0.016	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
1,2,3-Trichloropropane	ND	0.0078	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Vinyl chloride	ND	0.0032	0.048		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Xylenes, Total	ND	0.012	0.097		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Surr: Dibromofluoromethane	102		70-130		%Rec	1	7/4/2019 12:25:34 AM	45983
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	7/4/2019 12:25:34 AM	45983
Surr: Toluene-d8	96.3		70-130		%Rec	1	7/4/2019 12:25:34 AM	45983
Surr: 4-Bromofluorobenzene	96.0		70-130		%Rec	1	7/4/2019 12:25:34 AM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	4.8		mg/Kg	1	7/4/2019 12:25:34 AM	45983
Surr: BFB	93.2	0	70-130		%Rec	1	7/4/2019 12:25:34 AM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	ND	2.7	20		mg/Kg	1	7/9/2019	45999

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: Trip Blank
Project: OCD Central Landfarm Semiannual Sam
Collection Date:
Lab ID: 1906G37-005
Matrix: AQUEOUS
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **RAA**	
Benzene	ND	0.17	1.0		µg/L	1	7/8/2019 3:11:00 PM	SL6122
Toluene	ND	0.35	1.0		µg/L	1	7/8/2019 3:11:00 PM	SL6122
Ethylbenzene	ND	0.13	1.0		µg/L	1	7/8/2019 3:11:00 PM	SL6122
Xylenes, Total	ND	0.45	1.5		µg/L	1	7/8/2019 3:11:00 PM	SL6122
Surr: 1,2-Dichloroethane-d4	116	0	70-130		%Rec	1	7/8/2019 3:11:00 PM	SL6122
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	7/8/2019 3:11:00 PM	SL6122
Surr: Dibromofluoromethane	111	0	70-130		%Rec	1	7/8/2019 3:11:00 PM	SL6122
Surr: Toluene-d8	95.5	0	70-130		%Rec	1	7/8/2019 3:11:00 PM	SL6122

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 11:50:00 AM
Lab ID: 1906G37-006
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.0098	0.023		mg/Kg	1	7/10/2019 2:58:19 AM	45963
Aroclor 1221	ND	0.018	0.023		mg/Kg	1	7/10/2019 2:58:19 AM	45963
Aroclor 1232	ND	0.022	0.023		mg/Kg	1	7/10/2019 2:58:19 AM	45963
Aroclor 1242	ND	0.012	0.023		mg/Kg	1	7/10/2019 2:58:19 AM	45963
Aroclor 1248	ND	0.018	0.023		mg/Kg	1	7/10/2019 2:58:19 AM	45963
Aroclor 1254	ND	0.018	0.023		mg/Kg	1	7/10/2019 2:58:19 AM	45963
Aroclor 1260	ND	0.0085	0.023		mg/Kg	1	7/10/2019 2:58:19 AM	45963
Surr: Decachlorobiphenyl	78.8	0	25.7-135		%Rec	1	7/10/2019 2:58:19 AM	45963
Surr: Tetrachloro-m-xylene	91.6	0	32.3-138		%Rec	1	7/10/2019 2:58:19 AM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	87	2.0	9.8		mg/Kg	1	7/8/2019 6:47:09 PM	45994
Motor Oil Range Organics (MRO)	110	49	49		mg/Kg	1	7/8/2019 6:47:09 PM	45994
Surr: DNOP	100	0	70-130		%Rec	1	7/8/2019 6:47:09 PM	45994
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	7.1	0.46	1.5		mg/Kg	5	7/11/2019 5:03:32 PM	46126
Chloride	330	2.0	30		mg/Kg	20	7/11/2019 5:15:56 PM	46126
Nitrogen, Nitrate (As N)	13	0.75	1.5		mg/Kg	5	7/11/2019 5:03:32 PM	46126
Sulfate	1300	14	30		mg/Kg	20	7/11/2019 5:15:56 PM	46126
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	0.094	0.0018	0.032		mg/Kg	1	7/10/2019 2:33:43 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.9	5.1		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Barium	260	0.047	0.20		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Cadmium	ND	0.049	0.20		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Chromium	15	0.16	0.61		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Copper	15	0.23	0.61		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Iron	20000	74	250		mg/Kg	100	7/2/2019 8:30:19 AM	45944
Lead	5.8	0.49	0.51		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Manganese	400	0.042	0.20		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Selenium	ND	2.5	5.1		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Silver	ND	0.065	0.51		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Uranium	ND	4.4	10		mg/Kg	2	7/2/2019 9:16:28 AM	45944
Zinc	53	0.80	5.1		mg/Kg	2	7/2/2019 9:16:28 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Acenaphthylene	ND	1.2	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Aniline	ND	1.4	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929

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Hall Environmental Analysis Laboratory, Inc.

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Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 11:50:00 AM
Lab ID: 1906G37-006
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	1.1	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Azobenzene	ND	1.5	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Benz(a)anthracene	ND	1.0	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Benzo(a)pyrene	ND	0.95	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Benzo(b)fluoranthene	ND	0.95	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Benzo(g,h,i)perylene	ND	0.92	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Benzo(k)fluoranthene	ND	0.97	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Benzoic acid	ND	1.1	5.4	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Benzyl alcohol	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Bis(2-chloroethoxy)methane	ND	1.6	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Bis(2-chloroethyl)ether	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Bis(2-chloroisopropyl)ether	ND	1.2	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Bis(2-ethylhexyl)phthalate	ND	1.5	5.4	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
4-Bromophenyl phenyl ether	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Butyl benzyl phthalate	ND	1.1	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Carbazole	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
4-Chloro-3-methylphenol	ND	1.6	5.4	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
4-Chloroaniline	ND	1.5	5.4	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2-Chloronaphthalene	ND	1.3	2.7	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2-Chlorophenol	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
4-Chlorophenyl phenyl ether	ND	1.2	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Chrysene	ND	0.94	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Di-n-butyl phthalate	ND	1.6	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Di-n-octyl phthalate	ND	1.1	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Dibenz(a,h)anthracene	ND	0.97	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Dibenzofuran	ND	1.4	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
1,2-Dichlorobenzene	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
1,3-Dichlorobenzene	ND	1.1	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
1,4-Dichlorobenzene	ND	1.1	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
3,3´-Dichlorobenzidine	ND	0.95	2.7	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Diethyl phthalate	ND	1.5	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Dimethyl phthalate	ND	1.4	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2,4-Dichlorophenol	ND	1.2	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2,4-Dimethylphenol	ND	1.2	3.2	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.99	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2,4-Dinitrophenol	ND	0.78	5.4	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2,4-Dinitrotoluene	ND	1.3	5.4	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2,6-Dinitrotoluene	ND	1.4	5.4	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Fluoranthene	ND	1.2	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 11:50:00 AM
Lab ID: 1906G37-006
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	1.2	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Hexachlorobenzene	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Hexachlorobutadiene	ND	1.5	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Hexachlorocyclopentadiene	ND	1.2	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Hexachloroethane	ND	1.2	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Indeno(1,2,3-cd)pyrene	ND	1.1	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Isophorone	ND	1.6	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
1-Methylnaphthalene	ND	1.6	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2-Methylnaphthalene	ND	1.6	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2-Methylphenol	ND	1.3	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
3+4-Methylphenol	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
N-Nitrosodi-n-propylamine	ND	1.5	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
N-Nitrosodiphenylamine	ND	1.1	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Naphthalene	ND	1.6	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2-Nitroaniline	ND	1.5	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
3-Nitroaniline	ND	1.5	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
4-Nitroaniline	ND	1.4	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Nitrobenzene	ND	1.5	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2-Nitrophenol	ND	1.5	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
4-Nitrophenol	ND	1.5	2.7	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Pentachlorophenol	ND	1.1	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Phenanthrene	ND	1.2	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Phenol	ND	1.3	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Pyrene	ND	1.0	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Pyridine	ND	1.3	4.3	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
1,2,4-Trichlorobenzene	ND	1.7	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2,4,5-Trichlorophenol	ND	1.4	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
2,4,6-Trichlorophenol	ND	1.1	2.1	D	mg/Kg	1	7/8/2019 7:20:47 PM	45929
Surr: 2-Fluorophenol	0		24.8-95.2	SD	%Rec	1	7/8/2019 7:20:47 PM	45929
Surr: Phenol-d5	0		29.9-97.8	SD	%Rec	1	7/8/2019 7:20:47 PM	45929
Surr: 2,4,6-Tribromophenol	0		35.7-108	SD	%Rec	1	7/8/2019 7:20:47 PM	45929
Surr: Nitrobenzene-d5	0		32.5-106	SD	%Rec	1	7/8/2019 7:20:47 PM	45929
Surr: 2-Fluorobiphenyl	0		27.7-114	SD	%Rec	1	7/8/2019 7:20:47 PM	45929
Surr: 4-Terphenyl-d14	0		15-148	SD	%Rec	1	7/8/2019 7:20:47 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0041	0.025		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Toluene	ND	0.0048	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Ethylbenzene	ND	0.0029	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Methyl tert-butyl ether (MTBE)	ND	0.012	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983

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CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ03
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Collection Date: 6/27/2019 11:50:00 AM
Lab ID: 1906G37-006
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0046	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,3,5-Trimethylbenzene	ND	0.0048	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,2-Dichloroethane (EDC)	ND	0.0051	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,2-Dibromoethane (EDB)	ND	0.0046	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Naphthalene	ND	0.010	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1-Methylnaphthalene	ND	0.029	0.20		mg/Kg	1	7/4/2019 12:55:21 AM	45983
2-Methylnaphthalene	ND	0.022	0.20		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Acetone	ND	0.041	0.75		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Bromobenzene	ND	0.0048	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Bromodichloromethane	ND	0.0046	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Bromoform	ND	0.0045	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Bromomethane	ND	0.012	0.15		mg/Kg	1	7/4/2019 12:55:21 AM	45983
2-Butanone	ND	0.058	0.50		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Carbon disulfide	ND	0.016	0.50		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Carbon tetrachloride	ND	0.0047	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Chlorobenzene	ND	0.0064	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Chloroethane	ND	0.0074	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Chloroform	ND	0.0040	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Chloromethane	ND	0.0048	0.15		mg/Kg	1	7/4/2019 12:55:21 AM	45983
2-Chlorotoluene	ND	0.0043	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
4-Chlorotoluene	ND	0.0041	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
cis-1,2-DCE	ND	0.0068	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
cis-1,3-Dichloropropene	ND	0.0042	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,2-Dibromo-3-chloropropane	ND	0.0051	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Dibromochloromethane	ND	0.0035	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Dibromomethane	ND	0.0054	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,2-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,3-Dichlorobenzene	ND	0.0043	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,4-Dichlorobenzene	ND	0.0042	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Dichlorodifluoromethane	ND	0.012	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,1-Dichloroethane	ND	0.0032	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,1-Dichloroethene	ND	0.020	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,2-Dichloropropane	ND	0.0036	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,3-Dichloropropane	ND	0.0054	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
2,2-Dichloropropane	ND	0.016	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,1-Dichloropropene	ND	0.0045	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Hexachlorobutadiene	ND	0.0051	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
2-Hexanone	ND	0.0083	0.50		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Isopropylbenzene	ND	0.0036	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983

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Lab ID: 1906G37-006
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Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0041	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
4-Methyl-2-pentanone	ND	0.0094	0.50		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Methylene chloride	ND	0.0088	0.15		mg/Kg	1	7/4/2019 12:55:21 AM	45983
n-Butylbenzene	ND	0.0047	0.15		mg/Kg	1	7/4/2019 12:55:21 AM	45983
n-Propylbenzene	ND	0.0040	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
sec-Butylbenzene	ND	0.0056	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Styrene	ND	0.0039	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
tert-Butylbenzene	ND	0.0047	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,1,1,2-Tetrachloroethane	ND	0.0034	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,1,2,2-Tetrachloroethane	ND	0.0051	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Tetrachloroethene (PCE)	ND	0.0040	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
trans-1,2-DCE	ND	0.0046	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
trans-1,3-Dichloropropene	ND	0.0053	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,2,3-Trichlorobenzene	ND	0.0044	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,2,4-Trichlorobenzene	ND	0.0050	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,1,1-Trichloroethane	ND	0.0045	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,1,2-Trichloroethane	ND	0.0035	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Trichloroethene (TCE)	ND	0.0058	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Trichlorofluoromethane	ND	0.017	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
1,2,3-Trichloropropane	ND	0.0081	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Vinyl chloride	ND	0.0033	0.050		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Xylenes, Total	ND	0.013	0.10		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Surr: Dibromofluoromethane	107		70-130		%Rec	1	7/4/2019 12:55:21 AM	45983
Surr: 1,2-Dichloroethane-d4	107		70-130		%Rec	1	7/4/2019 12:55:21 AM	45983
Surr: Toluene-d8	90.3		70-130		%Rec	1	7/4/2019 12:55:21 AM	45983
Surr: 4-Bromofluorobenzene	91.7		70-130		%Rec	1	7/4/2019 12:55:21 AM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	5.0		mg/Kg	1	7/4/2019 12:55:21 AM	45983
Surr: BFB	81.9	0	70-130		%Rec	1	7/4/2019 12:55:21 AM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	52	2.8	20		mg/Kg	1	7/9/2019	45999

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:10:00 PM
Lab ID: 1906G37-007
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.010	0.024		mg/Kg	1	7/10/2019 3:31:20 AM	45963
Aroclor 1221	ND	0.019	0.024		mg/Kg	1	7/10/2019 3:31:20 AM	45963
Aroclor 1232	ND	0.023	0.024		mg/Kg	1	7/10/2019 3:31:20 AM	45963
Aroclor 1242	ND	0.013	0.024		mg/Kg	1	7/10/2019 3:31:20 AM	45963
Aroclor 1248	ND	0.019	0.024		mg/Kg	1	7/10/2019 3:31:20 AM	45963
Aroclor 1254	ND	0.019	0.024		mg/Kg	1	7/10/2019 3:31:20 AM	45963
Aroclor 1260	ND	0.0090	0.024		mg/Kg	1	7/10/2019 3:31:20 AM	45963
Surr: Decachlorobiphenyl	61.6	0	25.7-135		%Rec	1	7/10/2019 3:31:20 AM	45963
Surr: Tetrachloro-m-xylene	68.0	0	32.3-138		%Rec	1	7/10/2019 3:31:20 AM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	2.0	9.9		mg/Kg	1	7/5/2019 6:18:57 PM	45994
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	7/5/2019 6:18:57 PM	45994
Surr: DNOP	95.4	0	70-130		%Rec	1	7/5/2019 6:18:57 PM	45994
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	5.2	0.46	1.5		mg/Kg	5	7/11/2019 5:53:10 PM	46126
Chloride	180	0.51	7.5		mg/Kg	5	7/11/2019 5:53:10 PM	46126
Nitrogen, Nitrate (As N)	6.7	0.75	1.5		mg/Kg	5	7/11/2019 5:53:10 PM	46126
Sulfate	650	14	30		mg/Kg	20	7/11/2019 6:05:34 PM	46126
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	ND	0.0017	0.032		mg/Kg	1	7/10/2019 3:34:38 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.9	5.0		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Barium	290	0.047	0.20		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Cadmium	ND	0.049	0.20		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Chromium	14	0.16	0.60		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Copper	7.4	0.23	0.60		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Iron	19000	73	250		mg/Kg	100	7/2/2019 8:32:05 AM	45944
Lead	3.1	0.49	0.50		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Manganese	430	0.042	0.20		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Selenium	ND	2.5	5.0		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Silver	ND	0.064	0.50		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Uranium	ND	4.4	10		mg/Kg	2	7/2/2019 9:18:20 AM	45944
Zinc	47	0.79	5.0		mg/Kg	2	7/2/2019 9:18:20 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.14	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Acenaphthylene	ND	0.13	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Aniline	ND	0.15	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:10:00 PM
Lab ID: 1906G37-007
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	0.12	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Azobenzene	ND	0.16	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Benz(a)anthracene	ND	0.11	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Benzo(a)pyrene	ND	0.10	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Benzo(b)fluoranthene	ND	0.10	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Benzo(g,h,i)perylene	ND	0.098	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Benzo(k)fluoranthene	ND	0.10	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Benzoic acid	ND	0.12	0.57		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Benzyl alcohol	ND	0.14	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Bis(2-chloroethoxy)methane	ND	0.17	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Bis(2-chloroethyl)ether	ND	0.14	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Bis(2-chloroisopropyl)ether	ND	0.13	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Bis(2-ethylhexyl)phthalate	ND	0.16	0.57		mg/Kg	1	7/8/2019 7:51:22 PM	45929
4-Bromophenyl phenyl ether	ND	0.13	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Butyl benzyl phthalate	ND	0.12	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Carbazole	ND	0.13	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
4-Chloro-3-methylphenol	ND	0.18	0.57		mg/Kg	1	7/8/2019 7:51:22 PM	45929
4-Chloroaniline	ND	0.16	0.57		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2-Chloronaphthalene	ND	0.14	0.29		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2-Chlorophenol	ND	0.14	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
4-Chlorophenyl phenyl ether	ND	0.12	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Chrysene	ND	0.10	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Di-n-butyl phthalate	ND	0.17	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Di-n-octyl phthalate	ND	0.12	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Dibenz(a,h)anthracene	ND	0.10	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Dibenzofuran	ND	0.15	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
1,2-Dichlorobenzene	ND	0.14	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
1,3-Dichlorobenzene	ND	0.12	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
1,4-Dichlorobenzene	ND	0.12	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
3,3´-Dichlorobenzidine	ND	0.10	0.29		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Diethyl phthalate	ND	0.16	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Dimethyl phthalate	ND	0.15	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2,4-Dichlorophenol	ND	0.13	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2,4-Dimethylphenol	ND	0.13	0.34		mg/Kg	1	7/8/2019 7:51:22 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.11	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2,4-Dinitrophenol	ND	0.083	0.57		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2,4-Dinitrotoluene	ND	0.13	0.57		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2,6-Dinitrotoluene	ND	0.15	0.57		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Fluoranthene	ND	0.13	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:10:00 PM
Lab ID: 1906G37-007
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	0.13	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Hexachlorobenzene	ND	0.14	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Hexachlorobutadiene	ND	0.16	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Hexachlorocyclopentadiene	ND	0.13	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Hexachloroethane	ND	0.13	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Indeno(1,2,3-cd)pyrene	ND	0.11	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Isophorone	ND	0.17	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
1-Methylnaphthalene	ND	0.17	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2-Methylnaphthalene	ND	0.17	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2-Methylphenol	ND	0.14	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
3+4-Methylphenol	ND	0.14	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
N-Nitrosodi-n-propylamine	ND	0.16	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
N-Nitrosodiphenylamine	ND	0.12	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Naphthalene	ND	0.17	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2-Nitroaniline	ND	0.16	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
3-Nitroaniline	ND	0.16	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
4-Nitroaniline	ND	0.15	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Nitrobenzene	ND	0.16	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2-Nitrophenol	ND	0.16	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
4-Nitrophenol	ND	0.16	0.29		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Pentachlorophenol	ND	0.12	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Phenanthrene	ND	0.12	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Phenol	ND	0.14	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Pyrene	ND	0.11	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Pyridine	ND	0.14	0.46		mg/Kg	1	7/8/2019 7:51:22 PM	45929
1,2,4-Trichlorobenzene	ND	0.18	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2,4,5-Trichlorophenol	ND	0.15	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
2,4,6-Trichlorophenol	ND	0.12	0.23		mg/Kg	1	7/8/2019 7:51:22 PM	45929
Surr: 2-Fluorophenol	63.6		24.8-95.2		%Rec	1	7/8/2019 7:51:22 PM	45929
Surr: Phenol-d5	65.9		29.9-97.8		%Rec	1	7/8/2019 7:51:22 PM	45929
Surr: 2,4,6-Tribromophenol	64.5		35.7-108		%Rec	1	7/8/2019 7:51:22 PM	45929
Surr: Nitrobenzene-d5	72.6		32.5-106		%Rec	1	7/8/2019 7:51:22 PM	45929
Surr: 2-Fluorobiphenyl	72.1		27.7-114		%Rec	1	7/8/2019 7:51:22 PM	45929
Surr: 4-Terphenyl-d14	65.5		15-148		%Rec	1	7/8/2019 7:51:22 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0039	0.024		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Toluene	ND	0.0046	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Ethylbenzene	ND	0.0028	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Methyl tert-butyl ether (MTBE)	ND	0.011	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:10:00 PM
Lab ID: 1906G37-007
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0044	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,3,5-Trimethylbenzene	ND	0.0046	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,2-Dichloroethane (EDC)	ND	0.0049	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,2-Dibromoethane (EDB)	ND	0.0044	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Naphthalene	ND	0.0096	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1-Methylnaphthalene	ND	0.028	0.19		mg/Kg	1	7/4/2019 1:25:05 AM	45983
2-Methylnaphthalene	ND	0.021	0.19		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Acetone	ND	0.040	0.72		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Bromobenzene	ND	0.0046	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Bromodichloromethane	ND	0.0044	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Bromoform	ND	0.0043	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Bromomethane	ND	0.012	0.14		mg/Kg	1	7/4/2019 1:25:05 AM	45983
2-Butanone	ND	0.055	0.48		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Carbon disulfide	ND	0.016	0.48		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Carbon tetrachloride	ND	0.0045	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Chlorobenzene	ND	0.0061	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Chloroethane	ND	0.0071	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Chloroform	ND	0.0038	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Chloromethane	ND	0.0046	0.14		mg/Kg	1	7/4/2019 1:25:05 AM	45983
2-Chlorotoluene	ND	0.0042	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
4-Chlorotoluene	ND	0.0039	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
cis-1,2-DCE	ND	0.0066	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
cis-1,3-Dichloropropene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,2-Dibromo-3-chloropropane	ND	0.0049	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Dibromochloromethane	ND	0.0034	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Dibromomethane	ND	0.0052	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,2-Dichlorobenzene	ND	0.0039	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,3-Dichlorobenzene	ND	0.0042	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,4-Dichlorobenzene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Dichlorodifluoromethane	ND	0.011	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,1-Dichloroethane	ND	0.0031	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,2-Dichloropropane	ND	0.0035	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,3-Dichloropropane	ND	0.0052	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
2,2-Dichloropropane	ND	0.016	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,1-Dichloropropene	ND	0.0044	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Hexachlorobutadiene	ND	0.0049	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
2-Hexanone	ND	0.0080	0.48		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Isopropylbenzene	ND	0.0035	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:10:00 PM
Lab ID: 1906G37-007
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
4-Methyl-2-pentanone	ND	0.0090	0.48		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Methylene chloride	ND	0.0085	0.14		mg/Kg	1	7/4/2019 1:25:05 AM	45983
n-Butylbenzene	ND	0.0045	0.14		mg/Kg	1	7/4/2019 1:25:05 AM	45983
n-Propylbenzene	ND	0.0038	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
sec-Butylbenzene	ND	0.0054	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Styrene	ND	0.0038	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
tert-Butylbenzene	ND	0.0045	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,1,1,2-Tetrachloroethane	ND	0.0032	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,1,2,2-Tetrachloroethane	ND	0.0049	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Tetrachloroethene (PCE)	ND	0.0038	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
trans-1,2-DCE	ND	0.0044	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
trans-1,3-Dichloropropene	ND	0.0051	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,2,3-Trichlorobenzene	ND	0.0042	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,2,4-Trichlorobenzene	ND	0.0048	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,1,1-Trichloroethane	ND	0.0043	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,1,2-Trichloroethane	ND	0.0034	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Trichloroethene (TCE)	ND	0.0055	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Trichlorofluoromethane	ND	0.016	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
1,2,3-Trichloropropane	ND	0.0078	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Vinyl chloride	ND	0.0031	0.048		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Xylenes, Total	ND	0.012	0.096		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Surr: Dibromofluoromethane	106		70-130		%Rec	1	7/4/2019 1:25:05 AM	45983
Surr: 1,2-Dichloroethane-d4	105		70-130		%Rec	1	7/4/2019 1:25:05 AM	45983
Surr: Toluene-d8	96.1		70-130		%Rec	1	7/4/2019 1:25:05 AM	45983
Surr: 4-Bromofluorobenzene	94.5		70-130		%Rec	1	7/4/2019 1:25:05 AM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	4.8		mg/Kg	1	7/4/2019 1:25:05 AM	45983
Surr: BFB	86.4	0	70-130		%Rec	1	7/4/2019 1:25:05 AM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	ND	2.7	19		mg/Kg	1	7/9/2019	45999

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:45:00 PM
Lab ID: 1906G37-008
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.021	0.048		mg/Kg	1	7/10/2019 4:04:20 AM	45963
Aroclor 1221	ND	0.038	0.048		mg/Kg	1	7/10/2019 4:04:20 AM	45963
Aroclor 1232	ND	0.047	0.048		mg/Kg	1	7/10/2019 4:04:20 AM	45963
Aroclor 1242	ND	0.025	0.048		mg/Kg	1	7/10/2019 4:04:20 AM	45963
Aroclor 1248	ND	0.038	0.048		mg/Kg	1	7/10/2019 4:04:20 AM	45963
Aroclor 1254	ND	0.038	0.048		mg/Kg	1	7/10/2019 4:04:20 AM	45963
Aroclor 1260	ND	0.018	0.048		mg/Kg	1	7/10/2019 4:04:20 AM	45963
Surr: Decachlorobiphenyl	113	0	25.7-135		%Rec	1	7/10/2019 4:04:20 AM	45963
Surr: Tetrachloro-m-xylene	130	0	32.3-138		%Rec	1	7/10/2019 4:04:20 AM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	490	1.8	8.9		mg/Kg	1	7/8/2019 7:31:56 PM	45994
Motor Oil Range Organics (MRO)	480	45	45		mg/Kg	1	7/8/2019 7:31:56 PM	45994
Surr: DNOP	121	0	70-130		%Rec	1	7/8/2019 7:31:56 PM	45994
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	14	0.46	1.5		mg/Kg	5	7/11/2019 6:17:59 PM	46126
Chloride	300	2.0	30		mg/Kg	20	7/11/2019 6:30:24 PM	46126
Nitrogen, Nitrate (As N)	4.0	0.75	1.5		mg/Kg	5	7/11/2019 6:17:59 PM	46126
Sulfate	1500	14	30		mg/Kg	20	7/11/2019 6:30:24 PM	46126
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	0.077	0.0017	0.031		mg/Kg	1	7/10/2019 3:36:41 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.9	5.0		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Barium	350	0.047	0.20		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Cadmium	ND	0.049	0.20		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Chromium	16	0.16	0.60		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Copper	7.0	0.23	0.60		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Iron	17000	73	250		mg/Kg	100	7/2/2019 8:33:51 AM	45944
Lead	20	0.49	0.50		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Manganese	430	0.042	0.20		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Selenium	ND	2.5	5.0		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Silver	ND	0.064	0.50		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Uranium	ND	4.4	10		mg/Kg	2	7/2/2019 9:20:12 AM	45944
Zinc	49	0.80	5.0		mg/Kg	2	7/2/2019 9:20:12 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Acenaphthylene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Aniline	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:45:00 PM
Lab ID: 1906G37-008
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Azobenzene	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Benz(a)anthracene	ND	0.98	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Benzo(a)pyrene	ND	0.90	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Benzo(b)fluoranthene	ND	0.90	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Benzo(g,h,i)perylene	ND	0.87	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Benzo(k)fluoranthene	ND	0.92	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Benzoic acid	ND	1.0	5.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Benzyl alcohol	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Bis(2-chloroethoxy)methane	ND	1.5	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Bis(2-chloroethyl)ether	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Bis(2-chloroisopropyl)ether	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Bis(2-ethylhexyl)phthalate	ND	1.5	5.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
4-Bromophenyl phenyl ether	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Butyl benzyl phthalate	ND	1.0	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Carbazole	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
4-Chloro-3-methylphenol	ND	1.6	5.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
4-Chloroaniline	ND	1.4	5.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2-Chloronaphthalene	ND	1.3	2.5	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2-Chlorophenol	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
4-Chlorophenyl phenyl ether	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Chrysene	ND	0.89	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Di-n-butyl phthalate	ND	1.5	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Di-n-octyl phthalate	ND	1.0	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Dibenz(a,h)anthracene	ND	0.92	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Dibenzofuran	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
1,2-Dichlorobenzene	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
1,3-Dichlorobenzene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
1,4-Dichlorobenzene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
3,3´-Dichlorobenzidine	ND	0.90	2.5	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Diethyl phthalate	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Dimethyl phthalate	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2,4-Dichlorophenol	ND	1.2	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2,4-Dimethylphenol	ND	1.1	3.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.94	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2,4-Dinitrophenol	ND	0.74	5.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2,4-Dinitrotoluene	ND	1.2	5.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2,6-Dinitrotoluene	ND	1.3	5.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Fluoranthene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929

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Qualifiers:

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ND	Not Detected at the Reporting Limit
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S	% Recovery outside of range due to dilution or matrix
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P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:45:00 PM
Lab ID: 1906G37-008
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Hexachlorobenzene	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Hexachlorobutadiene	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Hexachlorocyclopentadiene	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Hexachloroethane	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Indeno(1,2,3-cd)pyrene	ND	1.0	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Isophorone	ND	1.5	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
1-Methylnaphthalene	ND	1.5	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2-Methylnaphthalene	ND	1.5	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2-Methylphenol	ND	1.2	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
3+4-Methylphenol	ND	1.2	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
N-Nitrosodi-n-propylamine	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
N-Nitrosodiphenylamine	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Naphthalene	ND	1.5	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2-Nitroaniline	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
3-Nitroaniline	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
4-Nitroaniline	ND	1.3	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Nitrobenzene	ND	1.4	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2-Nitrophenol	ND	1.4	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
4-Nitrophenol	ND	1.4	2.5	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Pentachlorophenol	ND	1.0	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Phenanthrene	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Phenol	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Pyrene	ND	0.95	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Pyridine	ND	1.2	4.1	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
1,2,4-Trichlorobenzene	ND	1.6	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2,4,5-Trichlorophenol	ND	1.3	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
2,4,6-Trichlorophenol	ND	1.1	2.0	D	mg/Kg	1	7/8/2019 8:21:53 PM	45929
Surr: 2-Fluorophenol	0		24.8-95.2	SD	%Rec	1	7/8/2019 8:21:53 PM	45929
Surr: Phenol-d5	0		29.9-97.8	SD	%Rec	1	7/8/2019 8:21:53 PM	45929
Surr: 2,4,6-Tribromophenol	0		35.7-108	SD	%Rec	1	7/8/2019 8:21:53 PM	45929
Surr: Nitrobenzene-d5	0		32.5-106	SD	%Rec	1	7/8/2019 8:21:53 PM	45929
Surr: 2-Fluorobiphenyl	0		27.7-114	SD	%Rec	1	7/8/2019 8:21:53 PM	45929
Surr: 4-Terphenyl-d14	0		15-148	SD	%Rec	1	7/8/2019 8:21:53 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0041	0.025		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Toluene	ND	0.0047	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Ethylbenzene	ND	0.0029	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Methyl tert-butyl ether (MTBE)	ND	0.012	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:45:00 PM
Lab ID: 1906G37-008
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0045	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,3,5-Trimethylbenzene	ND	0.0048	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,2-Dichloroethane (EDC)	ND	0.0051	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,2-Dibromoethane (EDB)	ND	0.0045	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Naphthalene	ND	0.0099	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1-Methylnaphthalene	ND	0.029	0.20		mg/Kg	1	7/4/2019 1:54:19 AM	45983
2-Methylnaphthalene	ND	0.022	0.20		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Acetone	ND	0.041	0.74		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Bromobenzene	ND	0.0048	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Bromodichloromethane	ND	0.0045	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Bromoform	ND	0.0045	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Bromomethane	ND	0.012	0.15		mg/Kg	1	7/4/2019 1:54:19 AM	45983
2-Butanone	ND	0.057	0.50		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Carbon disulfide	ND	0.016	0.50		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Carbon tetrachloride	ND	0.0047	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Chlorobenzene	ND	0.0064	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Chloroethane	ND	0.0073	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Chloroform	ND	0.0040	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Chloromethane	ND	0.0047	0.15		mg/Kg	1	7/4/2019 1:54:19 AM	45983
2-Chlorotoluene	ND	0.0043	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
4-Chlorotoluene	ND	0.0041	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
cis-1,2-DCE	ND	0.0068	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
cis-1,3-Dichloropropene	ND	0.0042	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,2-Dibromo-3-chloropropane	ND	0.0051	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Dibromochloromethane	ND	0.0035	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Dibromomethane	ND	0.0053	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,2-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,3-Dichlorobenzene	ND	0.0043	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,4-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Dichlorodifluoromethane	ND	0.012	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,1-Dichloroethane	ND	0.0032	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,1-Dichloroethene	ND	0.020	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,2-Dichloropropane	ND	0.0036	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,3-Dichloropropane	ND	0.0054	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
2,2-Dichloropropane	ND	0.016	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,1-Dichloropropene	ND	0.0045	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Hexachlorobutadiene	ND	0.0050	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
2-Hexanone	ND	0.0082	0.50		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Isopropylbenzene	ND	0.0036	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 12:45:00 PM
Lab ID: 1906G37-008
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0041	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
4-Methyl-2-pentanone	ND	0.0094	0.50		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Methylene chloride	ND	0.0088	0.15		mg/Kg	1	7/4/2019 1:54:19 AM	45983
n-Butylbenzene	ND	0.0046	0.15		mg/Kg	1	7/4/2019 1:54:19 AM	45983
n-Propylbenzene	ND	0.0040	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
sec-Butylbenzene	ND	0.0056	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Styrene	ND	0.0039	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
tert-Butylbenzene	ND	0.0047	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,1,1,2-Tetrachloroethane	ND	0.0033	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,1,2,2-Tetrachloroethane	ND	0.0050	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Tetrachloroethene (PCE)	ND	0.0040	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
trans-1,2-DCE	ND	0.0045	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
trans-1,3-Dichloropropene	ND	0.0052	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,2,3-Trichlorobenzene	ND	0.0044	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,2,4-Trichlorobenzene	ND	0.0050	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,1,1-Trichloroethane	ND	0.0045	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,1,2-Trichloroethane	ND	0.0035	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Trichloroethene (TCE)	ND	0.0057	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Trichlorofluoromethane	ND	0.017	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
1,2,3-Trichloropropane	ND	0.0080	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Vinyl chloride	ND	0.0032	0.050		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Xylenes, Total	ND	0.013	0.099		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Surr: Dibromofluoromethane	104		70-130		%Rec	1	7/4/2019 1:54:19 AM	45983
Surr: 1,2-Dichloroethane-d4	105		70-130		%Rec	1	7/4/2019 1:54:19 AM	45983
Surr: Toluene-d8	97.7		70-130		%Rec	1	7/4/2019 1:54:19 AM	45983
Surr: 4-Bromofluorobenzene	93.5		70-130		%Rec	1	7/4/2019 1:54:19 AM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	5.0		mg/Kg	1	7/4/2019 1:54:19 AM	45983
Surr: BFB	86.5	0	70-130		%Rec	1	7/4/2019 1:54:19 AM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	600	2.6	19		mg/Kg	1	7/9/2019	45999

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 1:00:00 PM
Lab ID: 1906G37-009
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.011	0.024		mg/Kg	1	7/10/2019 5:10:26 AM	45963
Aroclor 1221	ND	0.020	0.024		mg/Kg	1	7/10/2019 5:10:26 AM	45963
Aroclor 1232	ND	0.024	0.024		mg/Kg	1	7/10/2019 5:10:26 AM	45963
Aroclor 1242	ND	0.013	0.024		mg/Kg	1	7/10/2019 5:10:26 AM	45963
Aroclor 1248	ND	0.020	0.024		mg/Kg	1	7/10/2019 5:10:26 AM	45963
Aroclor 1254	ND	0.020	0.024		mg/Kg	1	7/10/2019 5:10:26 AM	45963
Aroclor 1260	ND	0.0092	0.024		mg/Kg	1	7/10/2019 5:10:26 AM	45963
Surr: Decachlorobiphenyl	73.2	0	25.7-135		%Rec	1	7/10/2019 5:10:26 AM	45963
Surr: Tetrachloro-m-xylene	82.0	0	32.3-138		%Rec	1	7/10/2019 5:10:26 AM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	2.0	10		mg/Kg	1	7/5/2019 7:03:24 PM	45994
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	7/5/2019 7:03:24 PM	45994
Surr: DNOP	94.7	0	70-130		%Rec	1	7/5/2019 7:03:24 PM	45994
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	2.4	0.46	1.5		mg/Kg	5	7/11/2019 6:42:49 PM	46126
Chloride	280	2.1	30		mg/Kg	20	7/11/2019 6:55:14 PM	46126
Nitrogen, Nitrate (As N)	3.1	0.75	1.5		mg/Kg	5	7/11/2019 6:42:49 PM	46126
Sulfate	550	3.4	7.5		mg/Kg	5	7/11/2019 6:42:49 PM	46126
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	ND	0.0018	0.032		mg/Kg	1	7/10/2019 3:38:45 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.8	4.9		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Barium	260	0.046	0.20		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Cadmium	ND	0.048	0.20		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Chromium	15	0.16	0.59		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Copper	3.9	0.22	0.59		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Iron	18000	72	250		mg/Kg	100	7/2/2019 8:35:36 AM	45944
Lead	3.0	0.48	0.49		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Manganese	400	0.041	0.20		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Selenium	ND	2.5	4.9		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Silver	ND	0.063	0.49		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Uranium	ND	4.3	9.8		mg/Kg	2	7/2/2019 9:22:03 AM	45944
Zinc	24	0.78	4.9		mg/Kg	2	7/2/2019 9:22:03 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.28	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Acenaphthylene	ND	0.26	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Aniline	ND	0.30	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 1:00:00 PM
Lab ID: 1906G37-009
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	0.25	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Azobenzene	ND	0.33	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Benz(a)anthracene	ND	0.23	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Benzo(a)pyrene	ND	0.21	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Benzo(b)fluoranthene	ND	0.21	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Benzo(g,h,i)perylene	ND	0.20	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Benzo(k)fluoranthene	ND	0.21	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Benzoic acid	ND	0.24	1.2	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Benzyl alcohol	ND	0.29	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Bis(2-chloroethoxy)methane	ND	0.35	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Bis(2-chloroethyl)ether	ND	0.29	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Bis(2-chloroisopropyl)ether	ND	0.27	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Bis(2-ethylhexyl)phthalate	ND	0.34	1.2	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
4-Bromophenyl phenyl ether	ND	0.28	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Butyl benzyl phthalate	ND	0.24	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Carbazole	ND	0.28	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
4-Chloro-3-methylphenol	ND	0.36	1.2	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
4-Chloroaniline	ND	0.33	1.2	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2-Chloronaphthalene	ND	0.29	0.59	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2-Chlorophenol	ND	0.29	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
4-Chlorophenyl phenyl ether	ND	0.26	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Chrysene	ND	0.21	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Di-n-butyl phthalate	ND	0.35	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Di-n-octyl phthalate	ND	0.24	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Dibenz(a,h)anthracene	ND	0.21	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Dibenzofuran	ND	0.31	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
1,2-Dichlorobenzene	ND	0.28	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
1,3-Dichlorobenzene	ND	0.25	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
1,4-Dichlorobenzene	ND	0.25	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
3,3´-Dichlorobenzidine	ND	0.21	0.59	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Diethyl phthalate	ND	0.34	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Dimethyl phthalate	ND	0.31	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2,4-Dichlorophenol	ND	0.27	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2,4-Dimethylphenol	ND	0.26	0.71	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.22	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2,4-Dinitrophenol	ND	0.17	1.2	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2,4-Dinitrotoluene	ND	0.28	1.2	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2,6-Dinitrotoluene	ND	0.31	1.2	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Fluoranthene	ND	0.26	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 1:00:00 PM
Lab ID: 1906G37-009
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	0.27	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Hexachlorobenzene	ND	0.29	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Hexachlorobutadiene	ND	0.33	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Hexachlorocyclopentadiene	ND	0.27	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Hexachloroethane	ND	0.26	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Indeno(1,2,3-cd)pyrene	ND	0.23	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Isophorone	ND	0.35	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
1-Methylnaphthalene	ND	0.35	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2-Methylnaphthalene	ND	0.34	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2-Methylphenol	ND	0.28	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
3+4-Methylphenol	ND	0.29	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
N-Nitrosodi-n-propylamine	ND	0.34	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
N-Nitrosodiphenylamine	ND	0.25	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Naphthalene	ND	0.36	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2-Nitroaniline	ND	0.34	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
3-Nitroaniline	ND	0.33	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
4-Nitroaniline	ND	0.30	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Nitrobenzene	ND	0.33	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2-Nitrophenol	ND	0.32	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
4-Nitrophenol	ND	0.32	0.59	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Pentachlorophenol	ND	0.24	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Phenanthrene	ND	0.26	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Phenol	ND	0.29	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Pyrene	ND	0.22	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Pyridine	ND	0.28	0.94	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
1,2,4-Trichlorobenzene	ND	0.37	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2,4,5-Trichlorophenol	ND	0.31	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
2,4,6-Trichlorophenol	ND	0.25	0.47	D	mg/Kg	1	7/8/2019 8:52:17 PM	45929
Surr: 2-Fluorophenol	72.5		24.8-95.2	D	%Rec	1	7/8/2019 8:52:17 PM	45929
Surr: Phenol-d5	77.1		29.9-97.8	D	%Rec	1	7/8/2019 8:52:17 PM	45929
Surr: 2,4,6-Tribromophenol	74.0		35.7-108	D	%Rec	1	7/8/2019 8:52:17 PM	45929
Surr: Nitrobenzene-d5	88.1		32.5-106	D	%Rec	1	7/8/2019 8:52:17 PM	45929
Surr: 2-Fluorobiphenyl	83.8		27.7-114	D	%Rec	1	7/8/2019 8:52:17 PM	45929
Surr: 4-Terphenyl-d14	83.7		15-148	D	%Rec	1	7/8/2019 8:52:17 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0040	0.025		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Toluene	ND	0.0047	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Ethylbenzene	ND	0.0029	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Methyl tert-butyl ether (MTBE)	ND	0.012	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 1:00:00 PM
Lab ID: 1906G37-009
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0045	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,3,5-Trimethylbenzene	ND	0.0048	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,2-Dichloroethane (EDC)	ND	0.0050	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,2-Dibromoethane (EDB)	ND	0.0045	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Naphthalene	ND	0.0098	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1-Methylnaphthalene	ND	0.028	0.20		mg/Kg	1	7/4/2019 2:24:18 AM	45983
2-Methylnaphthalene	ND	0.021	0.20		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Acetone	ND	0.041	0.74		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Bromobenzene	ND	0.0047	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Bromodichloromethane	ND	0.0045	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Bromoform	ND	0.0044	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Bromomethane	ND	0.012	0.15		mg/Kg	1	7/4/2019 2:24:18 AM	45983
2-Butanone	ND	0.057	0.49		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Carbon disulfide	ND	0.016	0.49		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Carbon tetrachloride	ND	0.0047	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Chlorobenzene	ND	0.0063	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Chloroethane	ND	0.0072	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Chloroform	ND	0.0039	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Chloromethane	ND	0.0047	0.15		mg/Kg	1	7/4/2019 2:24:18 AM	45983
2-Chlorotoluene	ND	0.0043	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
4-Chlorotoluene	ND	0.0040	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
cis-1,2-DCE	ND	0.0067	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
cis-1,3-Dichloropropene	ND	0.0041	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,2-Dibromo-3-chloropropane	ND	0.0050	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Dibromochloromethane	ND	0.0035	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Dibromomethane	ND	0.0053	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,2-Dichlorobenzene	ND	0.0040	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,3-Dichlorobenzene	ND	0.0043	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,4-Dichlorobenzene	ND	0.0041	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Dichlorodifluoromethane	ND	0.011	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,1-Dichloroethane	ND	0.0031	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,1-Dichloroethene	ND	0.020	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,2-Dichloropropane	ND	0.0036	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,3-Dichloropropane	ND	0.0053	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
2,2-Dichloropropane	ND	0.016	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,1-Dichloropropene	ND	0.0045	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Hexachlorobutadiene	ND	0.0050	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
2-Hexanone	ND	0.0082	0.49		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Isopropylbenzene	ND	0.0035	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 1:00:00 PM
Lab ID: 1906G37-009
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0041	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
4-Methyl-2-pentanone	ND	0.0093	0.49		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Methylene chloride	ND	0.0087	0.15		mg/Kg	1	7/4/2019 2:24:18 AM	45983
n-Butylbenzene	ND	0.0046	0.15		mg/Kg	1	7/4/2019 2:24:18 AM	45983
n-Propylbenzene	ND	0.0039	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
sec-Butylbenzene	ND	0.0055	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Styrene	ND	0.0039	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
tert-Butylbenzene	ND	0.0046	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,1,1,2-Tetrachloroethane	ND	0.0033	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,1,2,2-Tetrachloroethane	ND	0.0050	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Tetrachloroethene (PCE)	ND	0.0039	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
trans-1,2-DCE	ND	0.0045	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
trans-1,3-Dichloropropene	ND	0.0052	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,2,3-Trichlorobenzene	ND	0.0043	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,2,4-Trichlorobenzene	ND	0.0050	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,1,1-Trichloroethane	ND	0.0044	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,1,2-Trichloroethane	ND	0.0035	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Trichloroethene (TCE)	ND	0.0057	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Trichlorofluoromethane	ND	0.017	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
1,2,3-Trichloropropane	ND	0.0079	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Vinyl chloride	ND	0.0032	0.049		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Xylenes, Total	ND	0.012	0.098		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Surr: Dibromofluoromethane	106		70-130		%Rec	1	7/4/2019 2:24:18 AM	45983
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	7/4/2019 2:24:18 AM	45983
Surr: Toluene-d8	96.8		70-130		%Rec	1	7/4/2019 2:24:18 AM	45983
Surr: 4-Bromofluorobenzene	93.5		70-130		%Rec	1	7/4/2019 2:24:18 AM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	4.9		mg/Kg	1	7/4/2019 2:24:18 AM	45983
Surr: BFB	93.7	0	70-130		%Rec	1	7/4/2019 2:24:18 AM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	ND	2.7	20		mg/Kg	1	7/9/2019	45999

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J	Analyte detected below quantitation limits
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF DUP01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019
Lab ID: 1906G37-010
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **TOM**	
Aroclor 1016	ND	0.010	0.024		mg/Kg	1	7/10/2019 5:43:25 AM	45963
Aroclor 1221	ND	0.019	0.024		mg/Kg	1	7/10/2019 5:43:25 AM	45963
Aroclor 1232	ND	0.023	0.024		mg/Kg	1	7/10/2019 5:43:25 AM	45963
Aroclor 1242	ND	0.013	0.024		mg/Kg	1	7/10/2019 5:43:25 AM	45963
Aroclor 1248	ND	0.019	0.024		mg/Kg	1	7/10/2019 5:43:25 AM	45963
Aroclor 1254	ND	0.019	0.024		mg/Kg	1	7/10/2019 5:43:25 AM	45963
Aroclor 1260	ND	0.0090	0.024		mg/Kg	1	7/10/2019 5:43:25 AM	45963
Surr: Decachlorobiphenyl	71.2	0	25.7-135		%Rec	1	7/10/2019 5:43:25 AM	45963
Surr: Tetrachloro-m-xylene	79.6	0	32.3-138		%Rec	1	7/10/2019 5:43:25 AM	45963
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	24	2.0	9.9		mg/Kg	1	7/10/2019 11:18:34 AM	45994
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	7/10/2019 11:18:34 AM	45994
Surr: DNOP	101	0	70-130		%Rec	1	7/10/2019 11:18:34 AM	45994
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	7.3	0.46	1.5		mg/Kg	5	7/11/2019 7:07:39 PM	46126
Chloride	140	0.51	7.5		mg/Kg	5	7/11/2019 7:07:39 PM	46126
Nitrogen, Nitrate (As N)	4.5	0.75	1.5		mg/Kg	5	7/11/2019 7:07:39 PM	46126
Sulfate	990	14	30		mg/Kg	20	7/11/2019 7:20:03 PM	46126
EPA METHOD 7471: MERCURY							Analyst: **JLF**	
Mercury	ND	0.0017	0.032		mg/Kg	1	7/10/2019 3:40:49 PM	46081
EPA METHOD 6010B: SOIL METALS							Analyst: **bcv**	
Arsenic	ND	2.8	4.9		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Barium	350	0.046	0.20		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Cadmium	ND	0.048	0.20		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Chromium	13	0.16	0.59		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Copper	4.0	0.22	0.59		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Iron	17000	71	250		mg/Kg	100	7/2/2019 8:37:22 AM	45944
Lead	2.9	0.48	0.49		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Manganese	450	0.041	0.20		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Selenium	ND	2.5	4.9		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Silver	ND	0.063	0.49		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Uranium	ND	4.3	9.8		mg/Kg	2	7/2/2019 9:23:55 AM	45944
Zinc	24	0.78	4.9		mg/Kg	2	7/2/2019 9:23:55 AM	45944
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.14	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Acenaphthylene	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Aniline	ND	0.15	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF DUP01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019
Lab ID: 1906G37-010
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Anthracene	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Azobenzene	ND	0.16	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Benz(a)anthracene	ND	0.11	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Benzo(a)pyrene	ND	0.10	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Benzo(b)fluoranthene	ND	0.10	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Benzo(g,h,i)perylene	ND	0.10	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Benzo(k)fluoranthene	ND	0.11	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Benzoic acid	ND	0.12	0.59		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Benzyl alcohol	ND	0.15	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Bis(2-chloroethoxy)methane	ND	0.17	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Bis(2-chloroethyl)ether	ND	0.14	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Bis(2-chloroisopropyl)ether	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Bis(2-ethylhexyl)phthalate	ND	0.17	0.59		mg/Kg	1	7/8/2019 9:22:35 PM	45929
4-Bromophenyl phenyl ether	ND	0.14	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Butyl benzyl phthalate	ND	0.12	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Carbazole	ND	0.14	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
4-Chloro-3-methylphenol	ND	0.18	0.59		mg/Kg	1	7/8/2019 9:22:35 PM	45929
4-Chloroaniline	ND	0.17	0.59		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2-Chloronaphthalene	ND	0.15	0.29		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2-Chlorophenol	ND	0.15	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
4-Chlorophenyl phenyl ether	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Chrysene	ND	0.10	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Di-n-butyl phthalate	ND	0.17	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Di-n-octyl phthalate	ND	0.12	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Dibenz(a,h)anthracene	ND	0.11	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Dibenzofuran	ND	0.15	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
1,2-Dichlorobenzene	ND	0.14	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
1,3-Dichlorobenzene	ND	0.12	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
1,4-Dichlorobenzene	ND	0.12	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
3,3´-Dichlorobenzidine	ND	0.10	0.29		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Diethyl phthalate	ND	0.17	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Dimethyl phthalate	ND	0.16	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2,4-Dichlorophenol	ND	0.14	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg	1	7/8/2019 9:22:35 PM	45929
4,6-Dinitro-2-methylphenol	ND	0.11	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2,4-Dinitrophenol	ND	0.085	0.59		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2,4-Dinitrotoluene	ND	0.14	0.59		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2,6-Dinitrotoluene	ND	0.15	0.59		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Fluoranthene	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF DUP01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019
Lab ID: 1906G37-010
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Fluorene	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Hexachlorobenzene	ND	0.15	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Hexachlorobutadiene	ND	0.16	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Hexachlorocyclopentadiene	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Hexachloroethane	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Indeno(1,2,3-cd)pyrene	ND	0.12	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Isophorone	ND	0.17	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
1-Methylnaphthalene	ND	0.18	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2-Methylnaphthalene	ND	0.17	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2-Methylphenol	ND	0.14	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
3+4-Methylphenol	ND	0.14	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
N-Nitrosodi-n-propylamine	ND	0.17	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
N-Nitrosodiphenylamine	ND	0.12	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Naphthalene	ND	0.18	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2-Nitroaniline	ND	0.17	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
3-Nitroaniline	ND	0.16	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
4-Nitroaniline	ND	0.15	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Nitrobenzene	ND	0.16	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2-Nitrophenol	ND	0.16	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
4-Nitrophenol	ND	0.16	0.29		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Pentachlorophenol	ND	0.12	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Phenanthrene	ND	0.13	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Phenol	ND	0.15	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Pyrene	ND	0.11	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Pyridine	ND	0.14	0.47		mg/Kg	1	7/8/2019 9:22:35 PM	45929
1,2,4-Trichlorobenzene	ND	0.18	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2,4,5-Trichlorophenol	ND	0.15	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
2,4,6-Trichlorophenol	ND	0.12	0.23		mg/Kg	1	7/8/2019 9:22:35 PM	45929
Surr: 2-Fluorophenol	54.9		24.8-95.2		%Rec	1	7/8/2019 9:22:35 PM	45929
Surr: Phenol-d5	59.0		29.9-97.8		%Rec	1	7/8/2019 9:22:35 PM	45929
Surr: 2,4,6-Tribromophenol	59.4		35.7-108		%Rec	1	7/8/2019 9:22:35 PM	45929
Surr: Nitrobenzene-d5	64.1		32.5-106		%Rec	1	7/8/2019 9:22:35 PM	45929
Surr: 2-Fluorobiphenyl	65.6		27.7-114		%Rec	1	7/8/2019 9:22:35 PM	45929
Surr: 4-Terphenyl-d14	62.3		15-148		%Rec	1	7/8/2019 9:22:35 PM	45929
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0039	0.024		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Toluene	ND	0.0046	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Ethylbenzene	ND	0.0028	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Methyl tert-butyl ether (MTBE)	ND	0.011	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF DUP01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019
Lab ID: 1906G37-010
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2,4-Trimethylbenzene	ND	0.0044	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,3,5-Trimethylbenzene	ND	0.0047	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,2-Dichloroethane (EDC)	ND	0.0049	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,2-Dibromoethane (EDB)	ND	0.0044	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Naphthalene	ND	0.0097	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1-Methylnaphthalene	ND	0.028	0.19		mg/Kg	1	7/4/2019 2:53:31 AM	45983
2-Methylnaphthalene	ND	0.021	0.19		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Acetone	ND	0.040	0.72		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Bromobenzene	ND	0.0046	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Bromodichloromethane	ND	0.0044	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Bromoform	ND	0.0044	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Bromomethane	ND	0.012	0.14		mg/Kg	1	7/4/2019 2:53:31 AM	45983
2-Butanone	ND	0.056	0.48		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Carbon disulfide	ND	0.016	0.48		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Carbon tetrachloride	ND	0.0046	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Chlorobenzene	ND	0.0062	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Chloroethane	ND	0.0071	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Chloroform	ND	0.0039	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Chloromethane	ND	0.0046	0.14		mg/Kg	1	7/4/2019 2:53:31 AM	45983
2-Chlorotoluene	ND	0.0042	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
4-Chlorotoluene	ND	0.0039	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
cis-1,2-DCE	ND	0.0066	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
cis-1,3-Dichloropropene	ND	0.0041	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,2-Dibromo-3-chloropropane	ND	0.0049	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Dibromochloromethane	ND	0.0034	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Dibromomethane	ND	0.0052	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,2-Dichlorobenzene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,3-Dichlorobenzene	ND	0.0042	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,4-Dichlorobenzene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Dichlorodifluoromethane	ND	0.011	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,1-Dichloroethane	ND	0.0031	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,2-Dichloropropane	ND	0.0035	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,3-Dichloropropane	ND	0.0052	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
2,2-Dichloropropane	ND	0.016	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,1-Dichloropropene	ND	0.0044	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Hexachlorobutadiene	ND	0.0049	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
2-Hexanone	ND	0.0080	0.48		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Isopropylbenzene	ND	0.0035	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF DUP01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019
Lab ID: 1906G37-010
Matrix: SOIL
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
4-Isopropyltoluene	ND	0.0040	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
4-Methyl-2-pentanone	ND	0.0091	0.48		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Methylene chloride	ND	0.0085	0.14		mg/Kg	1	7/4/2019 2:53:31 AM	45983
n-Butylbenzene	ND	0.0045	0.14		mg/Kg	1	7/4/2019 2:53:31 AM	45983
n-Propylbenzene	ND	0.0038	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
sec-Butylbenzene	ND	0.0054	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Styrene	ND	0.0038	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
tert-Butylbenzene	ND	0.0045	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,1,1,2-Tetrachloroethane	ND	0.0033	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,1,2,2-Tetrachloroethane	ND	0.0049	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Tetrachloroethene (PCE)	ND	0.0039	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
trans-1,2-DCE	ND	0.0044	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
trans-1,3-Dichloropropene	ND	0.0051	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,2,3-Trichlorobenzene	ND	0.0042	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,2,4-Trichlorobenzene	ND	0.0049	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,1,1-Trichloroethane	ND	0.0044	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,1,2-Trichloroethane	ND	0.0034	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Trichloroethene (TCE)	ND	0.0056	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Trichlorofluoromethane	ND	0.016	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
1,2,3-Trichloropropane	ND	0.0078	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Vinyl chloride	ND	0.0031	0.048		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Xylenes, Total	ND	0.012	0.096		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Surr: Dibromofluoromethane	102		70-130		%Rec	1	7/4/2019 2:53:31 AM	45983
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	7/4/2019 2:53:31 AM	45983
Surr: Toluene-d8	99.6		70-130		%Rec	1	7/4/2019 2:53:31 AM	45983
Surr: 4-Bromofluorobenzene	98.5		70-130		%Rec	1	7/4/2019 2:53:31 AM	45983
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	1.2	4.8		mg/Kg	1	7/4/2019 2:53:31 AM	45983
Surr: BFB	87.8	0	70-130		%Rec	1	7/4/2019 2:53:31 AM	45983
EPA METHOD 418.1: TPH							Analyst: **lrm**	
Petroleum Hydrocarbons, TR	ND	2.7	20		mg/Kg	1	7/9/2019	45999

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF FB01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 1:15:00 PM
Lab ID: 1906G37-011
Matrix: AQUEOUS
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **RAA**	
Benzene	ND	0.17	1.0		µg/L	1	7/8/2019 3:35:00 PM	SL6122
Toluene	ND	0.35	1.0		µg/L	1	7/8/2019 3:35:00 PM	SL6122
Ethylbenzene	ND	0.13	1.0		µg/L	1	7/8/2019 3:35:00 PM	SL6122
Xylenes, Total	ND	0.45	1.5		µg/L	1	7/8/2019 3:35:00 PM	SL6122
Surr: 1,2-Dichloroethane-d4	120	0	70-130		%Rec	1	7/8/2019 3:35:00 PM	SL6122
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	7/8/2019 3:35:00 PM	SL6122
Surr: Dibromofluoromethane	115	0	70-130		%Rec	1	7/8/2019 3:35:00 PM	SL6122
Surr: Toluene-d8	94.6	0	70-130		%Rec	1	7/8/2019 3:35:00 PM	SL6122

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: CENTRAL OCD LF EB01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/27/2019 1:25:00 PM
Lab ID: 1906G37-012
Matrix: AQUEOUS
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **RAA**	
Benzene	ND	0.17	1.0		µg/L	1	7/8/2019 3:59:00 PM	SL6122
Toluene	ND	0.35	1.0		µg/L	1	7/8/2019 3:59:00 PM	SL6122
Ethylbenzene	ND	0.13	1.0		µg/L	1	7/8/2019 3:59:00 PM	SL6122
Xylenes, Total	ND	0.45	1.5		µg/L	1	7/8/2019 3:59:00 PM	SL6122
Surr: 1,2-Dichloroethane-d4	115	0	70-130		%Rec	1	7/8/2019 3:59:00 PM	SL6122
Surr: 4-Bromofluorobenzene	98.9	0	70-130		%Rec	1	7/8/2019 3:59:00 PM	SL6122
Surr: Dibromofluoromethane	109	0	70-130		%Rec	1	7/8/2019 3:59:00 PM	SL6122
Surr: Toluene-d8	94.7	0	70-130		%Rec	1	7/8/2019 3:59:00 PM	SL6122

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: Trip Blank
Project: OCD Central Landfarm Semiannual Sam
Collection Date:
Lab ID: 1906G37-013
Matrix: AQUEOUS
Received Date: 6/27/2019 4:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **RAA**	
Benzene	ND	0.17	1.0		µg/L	1	7/8/2019 4:23:00 PM	SL6122
Toluene	ND	0.35	1.0		µg/L	1	7/8/2019 4:23:00 PM	SL6122
Ethylbenzene	ND	0.13	1.0		µg/L	1	7/8/2019 4:23:00 PM	SL6122
Xylenes, Total	ND	0.45	1.5		µg/L	1	7/8/2019 4:23:00 PM	SL6122
Surr: 1,2-Dichloroethane-d4	116	0	70-130		%Rec	1	7/8/2019 4:23:00 PM	SL6122
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	7/8/2019 4:23:00 PM	SL6122
Surr: Dibromofluoromethane	112	0	70-130		%Rec	1	7/8/2019 4:23:00 PM	SL6122
Surr: Toluene-d8	94.4	0	70-130		%Rec	1	7/8/2019 4:23:00 PM	SL6122

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	07/12/2019 11:12	WG1308753

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	07/12/2019 11:13	WG1308753

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	07/12/2019 11:18	WG1308753

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	07/12/2019 11:19	WG1308753

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	07/12/2019 11:20	WG1308753

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	07/12/2019 11:21	WG1308753

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	07/12/2019 11:22	WG1308753

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	0.269	PI	0.250	1	07/12/2019 11:23	WG1308753

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	0.887		0.250	1	07/12/2019 11:25	WG1308753

Method Blank (MB)

(MB) R3430073-1 07/12/19 10:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Cyanide	U		0.0390	0.250

L1112842-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1112842-01 07/12/19 11:01 • (DUP) R3430073-3 07/12/19 11:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Cyanide	ND	0.0542	1	0.000		20

L1114971-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1114971-08 07/12/19 11:23 • (DUP) R3430073-8 07/12/19 11:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Cyanide	0.269	0.000	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3430073-2 07/12/19 10:55

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Cyanide	2.50	2.59	104	50.0-150	

L1113860-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113860-02 07/12/19 11:07 • (MS) R3430073-4 07/12/19 11:08 • (MSD) R3430073-5 07/12/19 11:09

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Cyanide	1.67	ND	1.49	1.47	86.4	85.1	1	75.0-125			1.40	20

L1114971-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114971-02 07/12/19 11:13 • (MS) R3430073-6 07/12/19 11:14 • (MSD) R3430073-7 07/12/19 11:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Cyanide	1.67	ND	1.51	1.61	90.9	96.4	1	75.0-125			5.85	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1906G37
Pace Project No.: 30311799

Sample: 1906G37-001DCENTRAL OCD LFTZ01 **Lab ID: 30311799001** Collected: 06/27/19 09:30 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**9.974 ± 2.360 (1.033) C:NA T:NA**	pCi/g	07/30/19 13:42	13966-00-2	
Radium-226	EPA 901.1	**1.372 ± 0.315 (0.189) C:NA T:NA**	pCi/g	07/30/19 13:42	13982-63-3	Ra
Radium-228	EPA 901.1	**1.359 ± 0.581 (0.551) C:NA T:NA**	pCi/g	07/30/19 13:42	15262-20-1	

Sample: 1906G37-002DCENTRAL OCD LFVZ01 **Lab ID: 30311799002** Collected: 06/27/19 10:00 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**11.644 ± 3.379 (2.324) C:NA T:NA**	pCi/g	07/30/19 14:02	13966-00-2	
Radium-226	EPA 901.1	**1.322 ± 0.324 (0.155) C:NA T:NA**	pCi/g	07/30/19 14:02	13982-63-3	Ra
Radium-228	EPA 901.1	**2.012 ± 0.483 (0.261) C:NA T:NA**	pCi/g	07/30/19 14:02	15262-20-1	

Sample: 1906G37-003DCENTRAL OCD LFTZ02 **Lab ID: 30311799003** Collected: 06/27/19 10:50 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**8.101 ± 2.195 (1.415) C:NA T:NA**	pCi/g	07/30/19 14:21	13966-00-2	
Radium-226	EPA 901.1	**0.910 ± 0.237 (0.154) C:NA T:NA**	pCi/g	07/30/19 14:21	13982-63-3	Ra
Radium-228	EPA 901.1	**1.120 ± 0.419 (0.341) C:NA T:NA**	pCi/g	07/30/19 14:21	15262-20-1	

Sample: 1906G37-004DCENTRAL OCD LFVZ02 **Lab ID: 30311799004** Collected: 06/27/19 11:10 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**14.187 ± 3.125 (1.198) C:NA T:NA**	pCi/g	07/30/19 14:21	13966-00-2	
Radium-226	EPA 901.1	**1.398 ± 0.372 (0.239) C:NA T:NA**	pCi/g	07/30/19 14:21	13982-63-3	Ra
Radium-228	EPA 901.1	**1.786 ± 0.443 (0.277) C:NA T:NA**	pCi/g	07/30/19 14:21	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1906G37
Pace Project No.: 30311799

Sample: 1906G37-006DCENTRAL OCD LFTZ03 **Lab ID: 30311799005** Collected: 06/27/19 11:50 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**10.658 ± 2.105 (0.656) C:NA T:NA**	pCi/g	07/30/19 14:41	13966-00-2	
Radium-226	EPA 901.1	**1.455 ± 0.301 (0.134) C:NA T:NA**	pCi/g	07/30/19 14:41	13982-63-3	Ra
Radium-228	EPA 901.1	**1.102 ± 0.410 (0.356) C:NA T:NA**	pCi/g	07/30/19 14:41	15262-20-1	

Sample: 1906G37-007D CENTRALOCD LFVZ03 **Lab ID: 30311799006** Collected: 06/27/19 12:10 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**11.742 ± 2.710 (1.134) C:NA T:NA**	pCi/g	07/30/19 14:42	13966-00-2	
Radium-226	EPA 901.1	**1.282 ± 0.327 (0.212) C:NA T:NA**	pCi/g	07/30/19 14:42	13982-63-3	Ra
Radium-228	EPA 901.1	**1.819 ± 0.530 (0.262) C:NA T:NA**	pCi/g	07/30/19 14:42	15262-20-1	

Sample: 1906G37-008D CENTRALOCD LFTZ04 **Lab ID: 30311799007** Collected: 06/27/19 12:45 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**11.766 ± 2.240 (0.635) C:NA T:NA**	pCi/g	07/30/19 15:00	13966-00-2	
Radium-226	EPA 901.1	**1.207 ± 0.284 (0.149) C:NA T:NA**	pCi/g	07/30/19 15:00	13982-63-3	Ra
Radium-228	EPA 901.1	**1.201 ± 0.437 (0.364) C:NA T:NA**	pCi/g	07/30/19 15:00	15262-20-1	

Sample: 1906G37-009DCENTRAL OCD LFVZ04 **Lab ID: 30311799008** Collected: 06/27/19 13:00 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**12.218 ± 2.741 (1.088) C:NA T:NA**	pCi/g	07/30/19 15:01	13966-00-2	
Radium-226	EPA 901.1	**1.233 ± 0.276 (0.234) C:NA T:NA**	pCi/g	07/30/19 15:01	13982-63-3	Ra
Radium-228	EPA 901.1	**1.731 ± 0.446 (0.252) C:NA T:NA**	pCi/g	07/30/19 15:01	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1906G37
Pace Project No.: 30311799

Sample: 1906G37-010DCENTRAL OCD LFDUP **Lab ID: 30311799009** Collected: 06/27/19 00:01 Received: 07/02/19 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**12.113 ± 2.436 (0.979) C:NA T:NA**	pCi/g	07/30/19 15:17	13966-00-2	
Radium-226	EPA 901.1	**1.354 ± 0.288 (0.173) C:NA T:NA**	pCi/g	07/30/19 15:17	13982-63-3	Ra
Radium-228	EPA 901.1	**1.480 ± 0.392 (0.312) C:NA T:NA**	pCi/g	07/30/19 15:17	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1906G37
Pace Project No.: 30311799

QC Batch: 352550 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30311799001, 30311799002, 30311799003, 30311799004, 30311799005, 30311799006, 30311799007, 30311799008, 30311799009

METHOD BLANK: 1712695 Matrix: Solid
Associated Lab Samples: 30311799001, 30311799002, 30311799003, 30311799004, 30311799005, 30311799006, 30311799007, 30311799008, 30311799009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Potassium-40	0.000 ± 0.188 (1.927) C:NA T:NA	pCi/g	07/30/19 13:25	
Radium-226	0.046 ± 0.086 (0.148) C:NA T:NA	pCi/g	07/30/19 13:25	Ra
Radium-228	0.000 ± 0.108 (0.392) C:NA T:NA	pCi/g	07/30/19 13:25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: 1906G37
Pace Project No.: 30311799

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Ra The reported Ra-226 results were determined by hermetically sealing the dried, processed sample in an appropriate-sized can. Each sample was stored for a minimum of 21 days to ensure that equilibrium between Ra-226 and daughters Bi-214 and Pb-214 was achieved. Reported Ra-226 results were inferred from gamma peaks attributable to Bi-214 and Pb-214.

REPORT OF LABORATORY ANALYSIS

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **1906G37-002AMS** SampType: **MS** TestCode: **EPA Method 300.0: Anions**
Client ID: **CENTRAL OCD LF V** Batch ID: **46094** RunNo: **61307**
Prep Date: **7/10/2019** Analysis Date: **7/10/2019** SeqNo: **2078213** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.4	1.5	3.000	3.729	23.7	15	138			
Chloride	280	7.5	30.00	241.1	128	54.5	140			
Nitrogen, Nitrate (As N)	9.8	1.5	15.00	2.368	49.8	54.8	141			S

Sample ID: **1906G37-002AMSD** SampType: **MSD** TestCode: **EPA Method 300.0: Anions**
Client ID: **CENTRAL OCD LF V** Batch ID: **46094** RunNo: **61307**
Prep Date: **7/10/2019** Analysis Date: **7/10/2019** SeqNo: **2078214** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.8	1.5	3.000	3.729	1.33	15	138	16.4	20	S
Chloride	250	7.5	30.00	241.1	43.4	54.5	140	9.47	20	S
Nitrogen, Nitrate (As N)	9.4	1.5	15.00	2.368	47.1	54.8	141	4.20	20	S

Sample ID: **MB-46094** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **46094** RunNo: **61307**
Prep Date: **7/10/2019** Analysis Date: **7/10/2019** SeqNo: **2078230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: **LCS-46094** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **46094** RunNo: **61307**
Prep Date: **7/10/2019** Analysis Date: **7/10/2019** SeqNo: **2078231** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.30	1.500	0	110	90	110			
Chloride	14	1.5	15.00	0	92.9	90	110			
Nitrogen, Nitrate (As N)	7.4	0.30	7.500	0	99.2	90	110			
Sulfate	29	1.5	30.00	0	96.5	90	110			

Sample ID: **MB-46126** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **46126** RunNo: **61343**
Prep Date: **7/11/2019** Analysis Date: **7/11/2019** SeqNo: **2079410** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **MB-46126** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **46126** RunNo: **61343**
Prep Date: **7/11/2019** Analysis Date: **7/11/2019** SeqNo: **2079410** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: **LCS-46126** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **46126** RunNo: **61343**
Prep Date: **7/11/2019** Analysis Date: **7/11/2019** SeqNo: **2079411** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	103	90	110			
Chloride	14	1.5	15.00	0	93.3	90	110			
Nitrogen, Nitrate (As N)	7.5	0.30	7.500	0	99.4	90	110			
Sulfate	29	1.5	30.00	0	98.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **MB-45999**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **PBS**	Batch ID: **45999**	RunNo: **61241**							
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2075997**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID: **LCS-45999**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **LCSS**	Batch ID: **45999**	RunNo: **61241**							
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2075998**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	111	54.3	153			

Sample ID: **1906G37-002AMS**	SampType: **MS**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **CENTRAL OCD LF V**	Batch ID: **45999**	RunNo: **61241**							
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076001**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	19	94.88	0	116	80	120			

Sample ID: **1906G37-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **CENTRAL OCD LF V**	Batch ID: **45999**	RunNo: **61241**							
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076002**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	19	94.52	0	113	80	120	3.14	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **MB-45994**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **45994**	RunNo: **61163**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2072907** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		83.3	70	130			

Sample ID: **LCS-45994**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **45994**	RunNo: **61163**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2072909** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.9	63.9	124			
Surr: DNOP	4.0		5.000		80.7	70	130			

Sample ID: **1906G37-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **CENTRAL OCD LF V**	Batch ID: **45994**	RunNo: **61157**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2074746** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.2	46.04	0	100	57	142			
Surr: DNOP	4.2		4.604		91.2	70	130			

Sample ID: **1906G37-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **CENTRAL OCD LF V**	Batch ID: **45994**	RunNo: **61157**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2074747** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.1	45.33	0	105	57	142	2.95	20	
Surr: DNOP	4.3		4.533		94.3	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **MB-45963**	SampType: **MBLK**	TestCode: **EPA Method 8082A: PCB's**
Client ID: **PBS**	Batch ID: **45963**	RunNo: **61252**
Prep Date: **7/2/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076333** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.025								
Aroclor 1221	ND	0.025								
Aroclor 1232	ND	0.025								
Aroclor 1242	ND	0.025								
Aroclor 1248	ND	0.025								
Aroclor 1254	ND	0.025								
Aroclor 1260	ND	0.025								
Surr: Decachlorobiphenyl	0.040		0.06250		64.8	25.7	135			
Surr: Tetrachloro-m-xylene	0.047		0.06250		75.2	32.3	138			

Sample ID: **LCS-45963**	SampType: **LCS**	TestCode: **EPA Method 8082A: PCB's**
Client ID: **LCSS**	Batch ID: **45963**	RunNo: **61252**
Prep Date: **7/2/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076334** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.11	0.025	0.1250	0	87.6	32	156			
Aroclor 1260	0.086	0.025	0.1250	0	69.1	32.2	111			
Surr: Decachlorobiphenyl	0.048		0.06250		76.8	25.7	135			
Surr: Tetrachloro-m-xylene	0.046		0.06250		72.8	32.3	138			

Sample ID: **1906G37-002AMS**	SampType: **MS**	TestCode: **EPA Method 8082A: PCB's**
Client ID: **CENTRAL OCD LF V**	Batch ID: **45963**	RunNo: **61252**
Prep Date: **7/2/2019**	Analysis Date: **7/10/2019**	SeqNo: **2076343** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.099	0.022	0.1122	0	88.0	33.5	145			
Aroclor 1260	0.11	0.022	0.1122	0	96.6	39.1	160			
Surr: Decachlorobiphenyl	0.047		0.05610		84.4	25.7	135			
Surr: Tetrachloro-m-xylene	0.042		0.05610		75.6	32.3	138			

Sample ID: **1906G37-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8082A: PCB's**
Client ID: **CENTRAL OCD LF V**	Batch ID: **45963**	RunNo: **61252**
Prep Date: **7/2/2019**	Analysis Date: **7/10/2019**	SeqNo: **2076344** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.088	0.021	0.1057	0	82.9	33.5	145	11.9	36.6	
Aroclor 1260	0.088	0.021	0.1057	0	83.0	39.1	160	21.1	39	
Surr: Decachlorobiphenyl	0.036		0.05283		68.8	25.7	135	0	0	
Surr: Tetrachloro-m-xylene	0.041		0.05283		77.6	32.3	138	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **mb-45983**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **45983**	RunNo: **61138**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072389** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **mb-45983**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **45983**	RunNo: **61138**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072389** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.51		0.5000		103	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.49		0.5000		98.4	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.6	70	130			

Sample ID: **lcs-45983**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **45983**	RunNo: **61138**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072390** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	1.000	0	118	70	130			
Toluene	0.95	0.050	1.000	0	94.9	70	130			
Chlorobenzene	0.92	0.050	1.000	0	92.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **lcs-45983** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **45983** RunNo: **61138**
Prep Date: **7/2/2019** Analysis Date: **7/3/2019** SeqNo: **2072390** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.1	0.050	1.000	0	115	50.8	164			
Trichloroethene (TCE)	0.97	0.050	1.000	0	96.8	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		105	70	130			
Surr: 1,2-Dichloroethane-d4	0.53		0.5000		105	70	130			
Surr: Toluene-d8	0.46		0.5000		92.6	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.9	70	130			

Sample ID: **1906g37-002ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **CENTRAL OCD LF V** Batch ID: **45983** RunNo: **61138**
Prep Date: **7/2/2019** Analysis Date: **7/3/2019** SeqNo: **2072393** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	0.9960	0	124	68.9	131			
Toluene	1.0	0.050	0.9960	0	104	64.3	137			
Chlorobenzene	0.97	0.050	0.9960	0	97.1	65.9	143			
1,1-Dichloroethene	1.2	0.050	0.9960	0	124	53.4	150			
Trichloroethene (TCE)	0.99	0.050	0.9960	0	99.8	70	130			
Surr: Dibromofluoromethane	0.52		0.4980		103	70	130			
Surr: 1,2-Dichloroethane-d4	0.53		0.4980		105	70	130			
Surr: Toluene-d8	0.49		0.4980		98.3	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.4980		91.6	70	130			

Sample ID: **1906g37-002amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **CENTRAL OCD LF V** Batch ID: **45983** RunNo: **61138**
Prep Date: **7/2/2019** Analysis Date: **7/3/2019** SeqNo: **2072394** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	0.9843	0	125	68.9	131	0.768	20	
Toluene	1.0	0.049	0.9843	0	102	64.3	137	3.49	20	
Chlorobenzene	1.0	0.049	0.9843	0	102	65.9	143	3.63	20	
1,1-Dichloroethene	1.2	0.049	0.9843	0	120	53.4	150	3.96	20	
Trichloroethene (TCE)	1.0	0.049	0.9843	0	104	70	130	3.21	20	
Surr: Dibromofluoromethane	0.51		0.4921		103	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.51		0.4921		104	70	130	0	0	
Surr: Toluene-d8	0.46		0.4921		93.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.45		0.4921		90.8	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL61220**	RunNo: **61220**
Prep Date:	Analysis Date: **7/8/2019**	SeqNo: **2075444** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.7		10.00		96.9	70	130			

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL61220**	RunNo: **61220**
Prep Date:	Analysis Date: **7/8/2019**	SeqNo: **2075445** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.7		10.00		96.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **lcs-45929**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **45929**	RunNo: **61183**
Prep Date: **7/1/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073789** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.0	0.20	1.670	0	61.1	41.3	106			
4-Chloro-3-methylphenol	2.4	0.50	3.330	0	71.9	39.7	113			
2-Chlorophenol	2.2	0.20	3.330	0	67.5	30.1	99.9			
1,4-Dichlorobenzene	1.0	0.20	1.670	0	60.0	27.5	98.1			
2,4-Dinitrotoluene	0.89	0.50	1.670	0	53.2	36	98.3			
N-Nitrosodi-n-propylamine	1.1	0.20	1.670	0	66.3	34.6	115			
4-Nitrophenol	1.8	0.25	3.330	0	54.9	39.7	114			
Pentachlorophenol	1.2	0.40	3.330	0	37.3	37	94.7			
Phenol	2.2	0.20	3.330	0	66.2	35	96.7			
Pyrene	1.1	0.20	1.670	0	67.8	44.8	108			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	69.1	31.2	114			
Surr: 2-Fluorophenol	2.0		3.330		59.6	24.8	95.2			
Surr: Phenol-d5	2.3		3.330		69.5	29.9	97.8			
Surr: 2,4,6-Tribromophenol	2.1		3.330		62.9	35.7	108			
Surr: Nitrobenzene-d5	1.2		1.670		69.5	32.5	106			
Surr: 2-Fluorobiphenyl	1.1		1.670		66.2	27.7	114			
Surr: 4-Terphenyl-d14	1.1		1.670		65.7	15	148			

Sample ID: **mb-45929**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **45929**	RunNo: **61183**
Prep Date: **7/1/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073790** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **mb-45929**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **45929**	RunNo: **61183**
Prep Date: **7/1/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073790** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **mb-45929**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **45929**	RunNo: **61183**
Prep Date: **7/1/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073790** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.3		3.330		67.6	24.8	95.2			
Surr: Phenol-d5	2.4		3.330		72.6	29.9	97.8			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.4	35.7	108			
Surr: Nitrobenzene-d5	1.3		1.670		75.4	32.5	106			
Surr: 2-Fluorobiphenyl	1.1		1.670		64.0	27.7	114			
Surr: 4-Terphenyl-d14	1.2		1.670		71.1	15	148			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **MB-46081**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**							
Client ID: **PBS**	Batch ID: **46081**	RunNo: **61284**							
Prep Date: **7/9/2019**	Analysis Date: **7/10/2019**	SeqNo: **2077571**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-46081**	SampType: **LCSLL**	TestCode: **EPA Method 7471: Mercury**							
Client ID: **BatchQC**	Batch ID: **46081**	RunNo: **61284**							
Prep Date: **7/9/2019**	Analysis Date: **7/10/2019**	SeqNo: **2077572**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033	0.006660	0	89.8	70	130			

Sample ID: **LCS-46081**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**							
Client ID: **LCSS**	Batch ID: **46081**	RunNo: **61284**							
Prep Date: **7/9/2019**	Analysis Date: **7/10/2019**	SeqNo: **2077573**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	100	80	120			

Sample ID: **1906G37-002BMS**	SampType: **MS**	TestCode: **EPA Method 7471: Mercury**							
Client ID: **CENTRAL OCD LF V**	Batch ID: **46081**	RunNo: **61284**							
Prep Date: **7/9/2019**	Analysis Date: **7/10/2019**	SeqNo: **2077576**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.18	0.033	0.1663	0.01771	94.8	80	120			

Sample ID: **1906G37-002BMSD**	SampType: **MSD**	TestCode: **EPA Method 7471: Mercury**							
Client ID: **CENTRAL OCD LF V**	Batch ID: **46081**	RunNo: **61284**							
Prep Date: **7/9/2019**	Analysis Date: **7/10/2019**	SeqNo: **2077577**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.032	0.1595	0.01771	94.7	80	120	3.81	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **LCS-45944**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **45944**	RunNo: **61102**
Prep Date: **7/1/2019**	Analysis Date: **7/2/2019**	SeqNo: **2070362** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	102	80	120			
Barium	25	0.10	25.00	0	99.0	80	120			
Cadmium	26	0.10	25.00	0	102	80	120			
Chromium	26	0.30	25.00	0	102	80	120			
Copper	27	0.30	25.00	0	107	80	120			
Iron	27	2.5	25.00	0	109	80	120			
Lead	25	0.25	25.00	0	99.6	80	120			
Manganese	25	0.10	25.00	0	102	80	120			
Selenium	25	2.5	25.00	0	99.7	80	120			
Silver	5.2	0.25	5.000	0	103	80	120			
Uranium	25	5.0	25.00	0	98.3	80	120			
Zinc	26	2.5	25.00	0	102	80	120			

Sample ID: **MB-45944**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **45944**	RunNo: **61102**
Prep Date: **7/1/2019**	Analysis Date: **7/2/2019**	SeqNo: **2070364** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Copper	ND	0.30								
Iron	ND	2.5								
Lead	ND	0.25								
Manganese	ND	0.10								
Selenium	ND	2.5								
Silver	ND	0.25								
Uranium	ND	5.0								
Zinc	ND	2.5								

Sample ID: **1906G37-002BMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V**	Batch ID: **45944**	RunNo: **61102**
Prep Date: **7/1/2019**	Analysis Date: **7/2/2019**	SeqNo: **2070395** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	5.0	25.11	2.944	83.0	75	125			
Barium	260	0.20	25.11	184.7	286	75	125			S
Cadmium	23	0.20	25.11	0	90.1	75	125			
Chromium	39	0.60	25.11	15.08	95.6	75	125			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **1906G37-002BMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V** Batch ID: **45944** RunNo: **61102**
Prep Date: **7/1/2019** Analysis Date: **7/2/2019** SeqNo: **2070395** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	29	0.60	25.11	4.131	99.6	75	125			
Lead	22	0.50	25.11	0	85.8	75	125			
Manganese	430	0.20	25.11	343.9	357	75	125			S
Selenium	26	5.0	25.11	0	105	75	125			
Silver	3.6	0.50	5.022	0	71.4	75	125			S
Uranium	ND	10	25.11	0	33.8	75	125			S
Zinc	45	5.0	25.11	21.02	95.9	75	125			

Sample ID: **1906G37-002BMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V** Batch ID: **45944** RunNo: **61102**
Prep Date: **7/1/2019** Analysis Date: **7/2/2019** SeqNo: **2070396** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	5.0	25.14	2.944	85.4	75	125	2.53	20	
Barium	320	0.20	25.14	184.7	554	75	125	23.2	20	RS
Cadmium	23	0.20	25.14	0	91.9	75	125	2.16	20	
Chromium	41	0.60	25.14	15.08	104	75	125	5.56	20	
Copper	30	0.60	25.14	4.131	105	75	125	4.53	20	
Lead	24	0.50	25.14	0	95.6	75	125	11.0	20	
Manganese	390	0.20	25.14	343.9	202	75	125	9.39	20	S
Selenium	27	5.0	25.14	0	108	75	125	2.88	20	
Silver	3.5	0.50	5.028	0	70.6	75	125	1.08	20	S
Uranium	ND	10	25.14	0	31.9	75	125	0	20	S
Zinc	48	5.0	25.14	21.02	109	75	125	6.86	20	

Sample ID: **1906G37-002B** SampType: **PS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V** Batch ID: **45944** RunNo: **61102**
Prep Date: **7/1/2019** Analysis Date: **7/2/2019** SeqNo: **2070397** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	230	0.20	49.78	184.7	88.6	80	120			
Manganese	390	0.20	49.78	343.9	85.5	80	120			
Silver	8.0	0.50	9.955	0	80.6	80	120			
Uranium	29	10	49.78	0	59.2	80	120			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906G37**
31-Jul-19

Client: Marathon
Project: OCD Central Landfarm Semiannual Sampling

Sample ID: **mb-45983**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **45983**	RunNo: **61138**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072414** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	440		500.0		88.2	70	130			

Sample ID: **lcs-45983**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **45983**	RunNo: **61138**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072415** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	80.2	70	130			
Surr: BFB	440		500.0		87.4	70	130			

Sample ID: **1906g37-002amsg**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **CENTRAL OCD LF V**	Batch ID: **45983**	RunNo: **61138**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072418** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.68	0	91.1	68.2	135			
Surr: BFB	500		493.6		101	70	130			

Sample ID: **1906g37-002amsdg**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **CENTRAL OCD LF V**	Batch ID: **45983**	RunNo: **61138**
Prep Date: **7/2/2019**	Analysis Date: **7/3/2019**	SeqNo: **2072419** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.75	0	93.8	68.2	135	3.15	20	
Surr: BFB	450		495.0		91.3	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	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

Sample Log-In Check List

Client Name: MARATHON GALLUP Work Order Number: 1906G37 RcptNo: 1

Received By: Andy Freeman 6/27/2019 4:20:00 PM

Completed By: Anne Thorne 6/28/2019 4:26:34 PM

Reviewed By: 7/1/19

Chain of Custody

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

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 ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
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 ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

6/29/19

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:

CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 6/28/19

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			
2	4.9	Good	Yes			
3	5.1	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-3745**

email or Fax#: BMoore1@Marathonpetroleum.com

QA/QC Package:
☒ Standard
☐ Other _____
X EDD (Type) **EXCEL**

Standard QC per TP
~~X Level 4~~ (Full Validation) per 06/29/19

Turn-Around Time:
X Standard ☐ Rush _____

Project Name: **CENTRAL OCD LANDFARM SEMIANNUAL SAMPLING**

Project #:

Project Manager: **Brian Moore**

Sampler:

On Ice: ~~☒~~ Yes ☐ No

Sample Temperature: 4.6, 4.9, 5.1 °C

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. 1906637	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015 (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 8011)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B	8270 (Semi-VOA)	VADOSE ZONE LIST	NMAC LIST	BTEX		Air Bubbles (Y or N)
6/27/19	0930	SOIL	CENTRAL OCD LF TZ01	8oz jar - 3 4oz jar - 1	None	-001			X									X	X			
	1000		CENTRAL OCD LF VZ01	8oz jar - 3 4oz jar - 1	None	-002												X	X			
	1000		CENTRAL OCD LF VZ01MS	8oz jar - 3 4oz jar - 1	None	-002												X	X			
	1000		CENTRAL OCD LF VZ01MSD	8oz jar - 3 4oz jar - 1	None	-002												X	X			
	1050		CENTRAL OCD LF TZ02	8oz jar - 3 4oz jar - 1	None	-003			X									X	X			
	1110		CENTRAL OCD LF VZ02	8oz jar - 3 4oz jar - 1	None	-004												X	X			
	---	WATER	TRIP BLANK	40ml voa-~~X~~ 2	HCl	-005														X		

Date: 6/27/19 Time: 1400 Relinquished by: _____ Received by: _____ Date Time 6/27/19 1409

Date: 6/27/19 Time: 1619 Relinquished by: _____ Received by: _____ Date Time 6/27/19 1620

Remarks: 3 coolers @

Chain-of-Custody Record

Client: **Marathon Petroleum Company**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-3745**

email or Fax#: BMoore1@Marathonpetroleum.com

QA/QC Package: Standard QC ReTP

☒ Standard ~~X Level 4~~ (Full Validation) AT 06/29/19

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush_____

Project Name: **CENTRAL OCD LANDFARM SEMIANNUAL SAMPLING**

Project #:

Project Manager: **Brian Moore**

Sampler:

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. 1906G37	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015 (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 8011)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B	8270 (Semi-VOA)	VADOSE ZONE LIST	NMAC LIST	BTEX		Air Bubbles (Y or N)
6/27/19	1150	SOIL	CENTRAL OCD LF TZ03	8oz jar - 3 4oz jar - 1	None	006			X									X	X			
	1210		CENTRAL OCD LF VZ03	8oz jar - 3 4oz jar - 1	None	007												X	X			
	1245		CENTRAL OCD LF TZ04	8oz jar - 3 4oz jar - 1	None	008			X									X	X			
	1300		CENTRAL OCD LF VZ04	8oz jar - 3 4oz jar - 1	None	009												X	X			
	---		CENTRAL OCD LF DUP01	8oz jar - 3 4oz jar - 1	None	010												X	X			
	1315	WATER	CENTRAL OCD LF FB01	40ml voa-3	HCl	011														X		
	1325	WATER	CENTRAL OCD LF EB01	40ml voa-3	HCl	012														X		
	---	WATER	TRIP BLANK	40ml voa-~~X~~ 2nd	HCl	013														X		

Date	Time	Relinquished by:	Received by:	Date	Time
6/27/19	1400			6/27/19	1402
6/27/19	1619			6/27/19	1620

Remarks:

NMAC LIST ANALYTES AND REPORTING LIMITS, CONSTITUENTS LISTED IN SUBSECTIONS A AND B OF 20.6.2.3103 NMAC, CENTRAL OIL CONSERVATION DIVISION LANDFARM
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Fluoride	E300	mg/kg	0.3000
Nitrogen, Nitrate (As N)	E300	mg/kg	2.2000
Sulfate	E300	mg/kg	21.5000
*Radium-226	E901.1	pCi/g	1.3950
*Radium-228	E901.1	pCi/g	1.2500
*Radium-226+Radium-228	E901.1	pCi/g	2.6450
Arsenic	SW6010A	mg/kg	2.5000
Barium	SW6010A	mg/kg	1.0000
Cadmium	SW6010A	mg/kg	0.1000
Chromium	SW6010A	mg/kg	0.3000
Copper	SW6010A	mg/kg	0.6000
Iron	SW6010A	mg/kg	500.0000
Lead	SW6010A	mg/kg	0.2500
Manganese	SW6010A	mg/kg	1.0000
Selenium	SW6010A	mg/kg	2.5000
Silver	SW6010A	mg/kg	0.2500
Uranium	SW6010A	mg/kg	5.0000
Zinc	SW6010A	mg/kg	2.5000
Mercury	SW7471	mg/kg	0.0330
Aroclor 1016	SW8082	mg/kg	0.0200
Aroclor 1221	SW8082	mg/kg	0.0200
Aroclor 1232	SW8082	mg/kg	0.0200
Aroclor 1242	SW8082	mg/kg	0.0200
Aroclor 1248	SW8082	mg/kg	0.0200
Aroclor 1254	SW8082	mg/kg	0.0200
Aroclor 1260	SW8082	mg/kg	0.0200
1,1,1-Trichloroethane	SW8260B	mg/kg	0.0480
1,1,2-Trichloroethane	SW8260B	mg/kg	0.0480
1,1-Dichloroethane	SW8260B	mg/kg	0.0970
1,1-Dichloroethene	SW8260B	mg/kg	0.0480
1,2-Dichloroethane	SW8260B	mg/kg	0.0480
Carbon tetrachloride	SW8260B	mg/kg	0.0970
Chloroform	SW8260B	mg/kg	0.0480
Dibromomethane	SW8260B	mg/kg	0.1000
Methylene chloride	SW8260B	mg/kg	0.1500
Tetrachloroethene	SW8260B	mg/kg	0.0480
Trichloroethene	SW8260B	mg/kg	0.0480
Vinyl chloride	SW8260B	mg/kg	0.0480
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4-Dichlorophenol	SW8270C	mg/kg	0.4000
2,4-Dimethylphenol	SW8270C	mg/kg	0.3000
2,4-Dinitrophenol	SW8270C	mg/kg	0.4000
2-Chlorophenol	SW8270C	mg/kg	0.2000
2-Methylphenol	SW8270C	mg/kg	0.1000
2-Nitrophenol	SW8270C	mg/kg	0.1000
3+4-Methylphenol	SW8270C	mg/kg	0.1000
4,6-Dinitro-2-methylphenol	SW8270C	mg/kg	0.5000
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.1000
4-Nitrophenol	SW8270C	mg/kg	0.1000
Pentachlorophenol	SW8270C	mg/kg	0.4000
Phenol	SW8270C	mg/kg	0.2000
1-Methylnaphthalene	SW8260B	mg/kg	0.2000
2-Methylnaphthalene	SW8260B	mg/kg	0.2000
Acenaphthene	SW8270C	mg/kg	0.2000
Acenaphthylene	SW8270C	mg/kg	0.2000
Anthracene	SW8270C	mg/kg	0.2000
Benzo(a)anthracene	SW8270C	mg/kg	0.2000
Benzo(a)pyrene	SW8270C	mg/kg	0.2000
Benzo(b)fluoranthene	SW8270C	mg/kg	0.2000
Benzo(g,h,i)perylene	SW8270C	mg/kg	0.2000
Benzo(k)fluoranthene	SW8270C	mg/kg	0.2000
Chrysene	SW8270C	mg/kg	0.2000
Dibenz(a,h)anthracene	SW8270C	mg/kg	0.2000
Fluoranthene	SW8270C	mg/kg	0.2000
Fluorene	SW8270C	mg/kg	0.2000
Indeno(1,2,3-c,d)pyrene	SW8270C	mg/kg	0.2000
Naphthalene	SW8270C	mg/kg	0.2000
Phenanthrene	SW8270C	mg/kg	0.2000
Pyrene	SW8270C	mg/kg	0.2000
Cyanide	EPA 335.4	mg/kg	0.3000
Diesel Range Organics (DRO)	SW8015	mg/kg	12
Gasoline Range Organics (GRO)	SW8015	mg/kg	1.0

VADOSE ZONE ANALYTES AND REPORTING LIMITS, CENTRAL OIL CONSERVATION DIVISION LANDFARM
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Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Chloride	E300	mg/kg	30
Benzene	SW8260B	mg/kg	0.050
Ethylbenzene	SW8260B	mg/kg	0.050
Toluene	SW8260B	mg/kg	0.050
Xylenes, Total	SW8260B	mg/kg	0.100
Petroleum Hydrocarbons, TR	E418.1	mg/kg	20

Appendix C

Tier II Data Validation Report Summary

Client: Marathon Oil	Laboratory: Hall Environmental Analysis Laboratory
Project Name: DiSorbo Sampling, Western Refining Southwest	Sample Matrix: Soil
Project Number: 697-064-001 Task: 0002	Sample Start Date: 06/27/2019
Date Validated: 12/19/2019	Sample End Date: 06/27/2019
Parameters Included: ▪ Volatile Organic Compounds (VOC) by Test Methods for Evaluating Solid Waste (SW-846) Method 8260B ▪ Semivolatile Organic Compounds (SVOC) by SW-846 Method 8270C ▪ Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO), TPH Diesel Range Organics (DRO), and TPH Motor Oil Range Organics (MRO) by SW-846 Method 8015D ▪ Polychlorinated Biphenyls (PCB) by SW-846 Method 8082 ▪ Cyanide by SW-846 Method 9012 ▪ Metals by SW-846 Method 6010B ▪ Mercury by SW-846 Method 7471 ▪ Anions by Methods for Chemical Analysis of Water and Wastes (MCAWW) Method 300.0 ▪ Total Recoverable Petroleum Hydrocarbons (TRPH) by Environmental Protection Agency (EPA) Method 418.1 ▪ Radium 226 and Radium 228 by EPA Method 901.1	
Laboratory Project ID: 1906G37	
Data Validator: Daran O'Hollearn, Lead Project Scientist	
Reviewer: Mike Phillips, Senior Chemist	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services Group on the analytical data report package generated by Hall Environmental Analysis Laboratory of Albuquerque, New Mexico with additional data from Pace Analytical, evaluating samples from the Marathon Oil site, located in Gallup, New Mexico.

Precision, accuracy, method compliance, and completeness of these data package were assessed during this data review. Precision was determined by evaluating the calculated relative percent difference (RPD) values from:

- Field duplicate pairs
- Laboratory duplicate pairs
- Matrix spike (MS) and matrix spike duplicate (MSD) pairs

Laboratory accuracy was established by reviewing the demonstrated percent recoveries (%R) of the following items to verify that data are not biased.

- MS/MSD samples
- Laboratory control samples (LCS)
- Organic system monitoring compounds (surrogates)

Tier II Data Validation Report Summary

Field accuracy was established by collecting and analyzing the following samples to monitor for possible ambient or cross contamination during sampling and transportation.

- Trip blanks
- Field blanks
- Equipment blanks

Method compliance was established by reviewing sample integrity, holding times, detection limits, surrogate recoveries, laboratory blanks, initial and continuing calibrations (where applicable), and the LCS percent recoveries against method-specific requirements.

Completeness was evaluated by determining the overall ratio of the number of samples and analyses planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody (CoC), laboratory analytical methods, and other laboratory and field documents associated with these analytical data sets.

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
CENTRAL OCD LF TZ01	1906g37-001
CENTRAL OCD LF VZ01	1906g37-002
CENTRAL OCD LF TZ02	1906g37-003
CENTRAL OCD LF VZ02	1906g37-004
Trip Blank	1906g37-005
CENTRAL OCD LF TZ03	1906g37-006
CENTRAL OCD LF VZ03	1906g37-007
CENTRAL OCD LF TZ04	1906g37-008
CENTRAL OCD LF VZ04	1906g37-009
CENTRAL OCD LF DUP01	1906g37-010
CENTRAL OCD LF FB01	1906g37-011
CENTRAL OCD LF EB01	1906g37-012

Tier II Data Validation Report Summary

The laboratory data were reviewed to evaluate compliance with the methods and the quality of the reported data. Assessment of CoC completeness is included in Item 3 of the Data Validation Checklist. A check mark (✓) indicates that the referenced validation criteria were deemed acceptable, whereas a crossed circle (⊗) indicates validation criteria for which the data have been qualified by the data validator. An empty circle (○) indicates that the specified criterion does not apply to the reviewed data. Details are noted in the tables below.

Validation Criteria

- ✓ Data Completeness
- ✓ CoC Documentation (Item 3)
- ⊗ Holding Times and Preservation (Items 6 and 7)
- ○ Initial and Continuing Calibrations (Items 9 and 10)
- ✓ Laboratory Blanks (Items 11 and 12)
- ⊗ MS/MSD (Items 13 and 14)
- ✓ LCS (Items 15 and 16)
- ✓ System Monitoring Compounds (i.e., Surrogates) (Item 17)
- ✓ Field, Equipment, and Trip Blanks (Items 18 and 19)
- ⊗ Field Duplicates (Items 20 and 21)
- ✓ Laboratory Duplicates (Item 22)
- ✓ Data Relationships (Item 23)

Guidance References

Chemical data validation was conducted in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines for the analyses listed below, or by the appropriate method if not covered in the National Functional Guidelines.

- Data for organic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review, document number EPA-540-R-2017-002, January 2017 with additional reference to the USEPA CLP National Functional Guidelines for Organic Data Review, document number EPA 540/R-99/008, October 1999
- Data for inorganic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, document number EPA-540-R-2017-001, January 2017 with additional reference to the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540-R-04-004, October 2004.
- Review of field duplicates was conducted according to the USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement1, June 2018.
- Trihydro Data Validation Variance Documentation, February 2019.
- Project-specific Quality Assurance Project Plans (QAPP) data validation requirements, as applicable.

Tier II Data Validation Report Summary

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Item 2 of the Validation Criteria Checklist.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data that are not qualified meet the site data quality objectives. If values are assigned qualifiers other than an R (rejected, data not usable), the data may be used for site evaluation; however, consideration should be given to the reasons for qualification when interpreting sample concentrations. Data points that are assigned an R qualifier should not be used for site evaluation purposes.

If applicable, text was identified in **bold font** in the Validation Criteria Checklist to indicate that further action and/or qualification of the data were required. Data may have been qualified with J data flags by the laboratory if the result was greater than or equal to the method detection limit (MDL) but less than the reporting limit (RL). These laboratory-applied J flags were preserved, if present, and included in the Data Qualification Summary table at the end of this report. If applicable, data validation qualifiers were added for the items noted with crossed circles in the Validation Criteria section above. Please see the Data Qualification Summary table at the end of this report for a complete list of samples and analytes qualified.

If data would be qualified with more than one flag, one qualifier was assigned based on the severity; however, all reasons for qualification were retained. Data that would be qualified with both J+ and J- flags were evaluated based on validation criteria and assigned the appropriate flag. The hierarchy of qualifiers from the most to least severe is as follows:

- R > JB/U > NJ > J+/J- > J/UJ

Data qualifiers used during this validation are included in the following table.

Qualifier	Definition
J	Estimated concentration
J-	The result is an estimated concentration, but may be biased low
UJ	Estimated reporting limit

Data Completeness

The analyses were performed as requested on the CoC records. The associated samples were received by the laboratory and analyzed properly unless otherwise noted in the Criteria Checklist below. The complete data package consisted of 1,494 data points. No data points were rejected. The data completeness measure for this data package is calculated to be 100% and is acceptable.

VALIDATION CRITERIA CHECKLIST

1. Was the report free of non-conformances identified by the laboratory? Yes

Comments: The laboratory did not identify non-conformances regarding the analytical data.

2. Were the data free of data qualification flags and/or notes used by the laboratory? No
If no, define.

Comments: The laboratory applied the following data qualification flags to data in this report.

J – Analyte detected below quantitation limits.

D – Sample diluted due to matrix.

P1 – RPD value not applicable for sample concentrations less than 5 times the reporting limits.

R – %RPD outside of range.

Ra – The reported Ra-226 results were determined by hermetically sealing the dried, processed sample in an appropriate sized can. Each sample was stored for a minimum of 21 days to ensure the equilibrium between Ra-226 and daughters Bi-214 and Pb-214 was achieved. Reported Ra-226 results were inferred from gamma peaks attributable to Bi-224 and Pb-214.

S – % Recovery outside of range due to dilution or matrix.

3. Were sample CoC forms and custody procedures complete? Yes

Comments: The CoC records from field to laboratory were complete and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. The laboratory also noted that the shipping containers were sealed and custody seals were present.

4. Were detection limits in accordance with the quality assurance project plan (QAPP), permit, or method, or indicated as acceptable? Yes

Comments: The reporting limits for the data set were reviewed and appeared to be acceptable. The following dilutions were applied to the project samples.

Method	Sample(s)	Analyte(s)	Dilution Factor
6010B	Submitted Samples	Select Metals	2
300.0	Submitted Samples	Fluoride and Nitrate	5
300.0	Multiple Samples	Chloride	5
300.0	CENTRAL OCD LF TZ02, CENTRAL OCD LF VZ04	Sulfate	5
300.0	CENTRAL OCD LF TZ03, CENTRAL OCD LF TZ04, CENTRAL OCD LF VZ04	Chloride	20
300.0	Multiple Samples	Sulfate	20
6010B	Submitted Samples	Iron	100

5. Were the reported analytical methods and constituents in compliance with the QAPP, permit, or CoC? Yes

Comments: The reported analytical methods were in compliance with the CoC and the laboratory reported the requested constituents in accordance with the CoC.

6. Were samples received in good condition within method-specified requirements? Yes

Comments: Samples were received on ice, with the cooler temperatures within the recommended temperature range of 4°C ± 2°C at 4.6°C, 4.9°C, and 5.1°C as noted in the *Sample Log-in Check List*.

VALIDATION CRITERIA CHECKLIST	
7. Were samples extracted/digested and analyzed within method-specified or technical holding times?	No
Comments: The samples were extracted/digested and analyzed within method-specific holding times, with the following exception. Method 300.0: **Nitrate as Nitrogen was analyzed outside the holding time of 7 days for the submitted samples by approximately 6 to 7 days. The nitrate as N results in the submitted samples were detections and were qualified as J- to indicate estimated concentrations with a potential low bias.** Method 9012: **Cyanide was analyzed outside the holding time of 14 days for the submitted samples by approximately 1 day. Detected results in the submitted samples were qualified as J- to indicate estimated concentrations. Non-detected results were qualified as UJ to indicate estimated detection limits.**	
8. Were reported units appropriate for the sample matrix/matrices and analytical method(s)? Specify if wet or dry units were used for soil.	Yes
Comments: The results were reported in concentration units of micrograms per liter (µg/L), milligrams per kilogram (mg/kg), and picoCuries per gram (pCi/g), which were acceptable for the sample matrices and the analyses requested. Radium 226 and radium 228 soil results were reported on a dry weight basis for this sample set, and the remaining soil parameters were reported on a wet weight basis.	
9. Did the laboratory provide any specific initial and/or continuing calibration results?	No
Comments: Initial and continuing calibration data were not included as part of this data set.	
10. If initial and/or continuing calibration results were provided, were the results within acceptable limits?	N/A
Comments: Initial and continuing calibration data were not included as part of this data set.	
11. Was the total number of laboratory blank samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method?	Yes
Comments: The total number of laboratory blank samples prepared was equal to at least 5% of the total number of samples.	
12. Were target analytes reported as not detected in the laboratory blanks?	No
Comments: Target analytes were reported as not detected in the laboratory blanks, with the following exceptions. Radium-226 was detected in the laboratory blank for Method 901.1 batch 352550 at a concentration of 0.046 pCi/g. The associated sample results were concentrations greater than 10 times the blank detection; therefore, qualification was not required. The analyte 2-butanone was detected in the laboratory blank for Method 8260B batch 45983 at a concentration of 0.068 mg/kg. The associated sample results for 2-butanone were non-detections and qualification was not required. Copper, iron, and zinc were detected in the laboratory blank for Method 6010B batch 45944 at concentrations of 0.22 mg/kg, 0.96 mg/kg, and 0.42 mg/kg . The associated sample results were concentrations greater than 10 times the blank detection; therefore, qualification was not required.	

VALIDATION CRITERIA CHECKLIST

13. Was the total number of MS samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method? Yes

Comments: The total number of matrix spike samples prepared was equal to at least 5% of the total number of samples, although MS samples were not prepared for all analyses. The matrix spike sample source for each analytical batch in this sample set has been indicated below.

Method	Analytes	Analysis Batch	MS Sample Source
300.0	Anions	46094	CENTRAL OCD LF VZ01
300.0	Anions	46126	Not Prepared
418.1	TRPH	45999	CENTRAL OCD LF VZ01
901.1	Radium-226 and Radium-228	352550	Not Prepared
6010B	Metals	45944	CENTRAL OCD LF VZ01
7471	Mercury	46081	CENTRAL OCD LF VZ01
8015D	DRO and MRO	45994	CENTRAL OCD LF VZ01
8015D	GRO	45983	CENTRAL OCD LF VZ01
8082	PCB 1016 and PCB 1260	45963	CENTRAL OCD LF VZ01
8260B	VOCs	45983	CENTRAL OCD LF VZ01
8260B	VOCs	SL61220	Not Prepared
8270C	SVOCs	45929	Not Prepared
9012B	Cyanide	WG1308753	CENTRAL OCD LF VZ01 and Not Associated

Not Prepared – Matrix spikes were not prepared or reported for this batch.

Not Associated – The MS sample source was not associated with this project.

A post-digestion spike (PDS) was prepared for Method 6010B batch 45944 from sample CENTRAL OCD LF VZ01 for the analyses of metals. The PDS recovery result for uranium was 59.2% which was below the laboratory QC acceptance limits of 80-120% and the data validation QC limits of 75-125%.

14. For MS/MSDs prepared from project samples, were percent recoveries and RPDs within data validation or laboratory QC limits? No

Comments: The percent recoveries and RPDs for MS/MSDs prepared from project samples were within data validation and laboratory QC limits or were not applicable because the unspiked amount was more than four times the spike added, with the following exceptions.

Method	Analyte	Batch	MS Recovery	MSD Recovery	MS/MSD QC Limits
300.0	**Fluoride**	**46094**	**Acceptable**	**1.33%**	**15-138%**
300.0	**Nitrate**	**46094**	**49.8%**	**47.1%**	**54.8-141%**
6010B	**Silver**	**45944**	**71.4%**	**70.6%**	**75-125%**
6010B	**Uranium**	**45944**	**33.8%**	**31.9%**	**75-125%**

The MSD recovery for fluoride in Method 300.0 batch 46094 was outside the QC limits of 15-138% at 1.33%. Fluoride results were detections in the associated samples and were qualified as J- due to evidence of potential low bias. The MS and MSD recoveries for nitrate in Method 300.0 batch 46094 were outside the QC limits of 54.8-141% at 49.8% and 47.1%, respectively. Nitrate was detected in the associated samples and the results were qualified as J- due to evidence of potential low bias.

The MS and MSD recoveries for silver and uranium in Method 6010B batch 45944 were less than the lower laboratory QC limit. The silver and uranium results for the associated samples in batch 45944 were non-detections and were qualified as UJ due to evidence of potential low bias.

VALIDATION CRITERIA CHECKLIST	
The percent recoveries and RPD values for MS/MSDs prepared from non-project samples were evaluated and considered but data were not qualified based on those results since matrix similarity to project samples could not be guaranteed.	
15. Was the total number of LCSs analyzed equal to at least 5% of the total number of samples or analyzed as required by the method?	Yes
Comments: The total number of LCS samples analyzed was equal to at least 5% of the total number of samples.	
16. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within data validation or laboratory QC limits?	Yes
The LCS percent recoveries were within laboratory QC limits. LCSDs were not analyzed as part of this sample set.	
17. Were surrogate recoveries within laboratory QC limits?	No
Comments: The surrogate recoveries were within laboratory QC limits with the following exceptions. As explained in external communications with laboratory personnel, the SVOC results for samples CENTRAL OCD LF VZ01, CENTRAL OCD LF TZ03, and CENTRAL OCD LF TZ04 were not qualified based on the surrogate non-conformances in the Method 8270C analyses since the applied dilutions of 10, 10, and 10 times, respectively, resulted in surrogate concentrations below routinely calibrated levels and those results were deemed unreliable and possibly inaccurate.	
18. Were the number of trip blank, field blank, and/or equipment blank samples collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	Yes
Comments: The number of trip, field, and equipment blanks collected was equal to at least 10% of the total number of samples. One trip blank sample, Trip Blank, one field blank sample, CENTRAL OCD LF FB01, and one equipment blank sample, CENTRAL OCD LF EB01, were collected as part of this sample set.	
19. Were target analytes reported as not detected in the trip blank, field blank, and/or equipment blank samples?	Yes
Comments: Target analytes were reported as not detected in the trip blank sample, field blank sample, and equipment blank sample.	
20. Was the number of field duplicates collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	Yes
Comments: The number of field duplicates collected was equal to at least 10% of the number of samples. Sample CENTRAL OCD LF DUP01 was collected as a field duplicate of sample CENTRAL OCD LF TZ01.	
21. Were field duplicate RPD values within data validation QC limits (soil 0-50%, water 0-30%, or air 0-25%)?	No
Comment: As indicated in the Field Duplicate Summary Table at the end of this report, field duplicate RPD values were within data validation QC limits of 0-50% for soil samples, with the following exceptions. **The RPD value for copper exceeded the data validation limit of 50% at 100.0%, which was evidence of poor precision. The copper results were qualified as J for samples CENTRAL OCD LF TZ01 and CENTRAL OCD LF DUP** **An RPD value could not be calculated for TPH DRO for the field duplicate pair CENTRAL OCD LF TZ01 and CENTRAL OCD LF DUP 01 since the analyte was detected in the duplicate sample and was undetected in the parent sample. As the detection in the duplicate sample was greater than two times the reporting limit, TPH DRO was qualified as J and UJ for the duplicate and parent samples, respectively.** **An RPD value could not be calculated for total cyanide for the field duplicate pair CENTRAL OCD LF TZ01 and CENTRAL OCD LF DUP 01 since the analyte was detected in the duplicate sample and was undetected in the parent sample. As the detection in the duplicate sample was greater than two times the reporting limit, total cyanide was qualified as J and UJ for the duplicate and parent samples, respectively.**	

VALIDATION CRITERIA CHECKLIST	
22. For laboratory duplicates prepared from project samples, were RPDs within laboratory QC limits?	Yes
Comments: Laboratory duplicates were prepared for the analysis of cyanide in batch WG1308753 from sample CENTRAL OCD LF VZ04 and from a sample not related to this project. The RPD for the laboratory duplicate pair prepared from the project sample was not applicable since the cyanide concentrations in both the original sample and the laboratory duplicate were less than 5 times the reporting limit. The RPD value for the laboratory duplicate pair prepared from the non-project sample was evaluated and considered, but data were not qualified based on that result since matrix similarity to project samples could not be guaranteed.	
23. Were the following data relationships realistic and acceptable?	
• Target analytes were reported by more than one method (e.g., 8260/8270, EPH/8270) and the results were in agreement?	Yes
Comments: Target analytes were not reported by more than one method in this data set, with the following exceptions. Target analytes 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, hexachlorobutadiene, and naphthalene were reported by both Method 8260B and Method 8270C. These analytes were reported as not detected by both methods.	
• Both total and dissolved metals analyses were performed and the total metals results were greater than or equal to the dissolved metals results?	N/A
Comments: Dissolved metals analyses were not performed for the samples in this data set.	

FIELD DUPLICATE SUMMARY

Client Sample ID: CENTRAL OCD LF TZ01 Field Duplicate Sample ID: CENTRAL OCD LF DUP 01				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Chloride	E300	160 mg/kg	140 mg/kg	13.3%
Fluoride, Total	E300	5.4 mg/kg	7.3 mg/kg	29.9%
Nitrogen, Nitrate	E300	4.9 mg/kg	4.5 mg/kg	8.5%
Sulfate	E300	920 mg/kg	990 mg/kg	7.3%
Radium 226 Total	E901.1	1.372 pCi/g	1.354 pCi/g	1.3%
Radium 228 Total	E901.1	1.359 pCi/g	1.480 pCi/g	8.5%
Barium, Total	SW6010B	300 mg/kg	350 mg/kg	15.4%
Chromium, Total	SW6010B	14 mg/kg	13 mg/kg	7.4%
Copper, Total	**SW6010B**	**12 mg/kg**	**4 mg/kg**	**100.0%**
Iron, Total	SW6010B	18,000 mg/kg	17,000 mg/kg	5.7%
Lead, Total	SW6010B	3.4 mg/kg	2.9 mg/kg	15.9%
Manganese, Total	SW6010B	380 mg/kg	450 mg/kg	16.9%
Zinc, Total	SW6010B	33 mg/kg	24 mg/kg	31.6%
Mercury, Total	SW7471	0.043 mg/kg	ND (0.032 mg/kg)	DL
TPH DRO	**SW8015**	**ND (8.5 mg/kg)**	**24 mg/kg**	**DL**
Cyanide, Total	**SW9012**	**ND (0.25 mg/kg)**	**0.89 mg/kg**	**DL**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.

DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

Method 6010B: **The RPD value for copper exceeded the data validation limit of 50% at 100.0%, which was evidence of poor precision. The copper results were qualified as J for samples CENTRAL OCD LF TZ01 and CENTRAL OCD LF DUP 01.**

Method 8015: **An RPD value could not be calculated for TPH DRO for the field duplicate pair CENTRAL OCD LF TZ01 and CENTRAL OCD LF DUP 01 since the analyte was detected in the duplicate sample and was undetected in the parent sample. As the detection in the duplicate sample was greater than two times the reporting limit, TPH DRO was qualified as J and UJ for the duplicate and parent samples, respectively.**

Method 9012: **An RPD value could not be calculated for total cyanide for the field duplicate pair CENTRAL OCD LF TZ01 and CENTRAL OCD LF DUP 01 since the analyte was detected in the duplicate sample and was undetected in the parent sample. As the detection in the duplicate sample was greater than two times the reporting limit, total cyanide was qualified as J and UJ for the duplicate and parent samples, respectively.**

DATA QUALIFICATION SUMMARY

Abbreviation	Reason
HT-AN	Sample was analyzed outside of the method holding time.
LR-MS	The MS and/or MSD percent recovery was less than the lower acceptable limit indicating possible matrix interference.
ERPD-FD	High field duplicate RPD.
MDLRL	Flagged by the laboratory: The result was greater than the MDL but less than the RL.

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
2-Butanone	SW8260B	CENTRAL OCD LF TZ01	1906g37-001a	0.069	0.50	mg/kg	J	MDLRL
2-Butanone	SW8260B	CENTRAL OCD LF VZ01	1906g37-002a	0.073	0.48	mg/kg	J	MDLRL
2-Butanone	SW8260B	CENTRAL OCD LF TZ02	1906g37-003a	0.084	0.49	mg/kg	J	MDLRL
2-Butanone	SW8260B	CENTRAL OCD LF VZ02	1906g37-004a	0.078	0.48	mg/kg	J	MDLRL
2-Butanone	SW8260B	CENTRAL OCD LF TZ03	1906g37-006a	0.10	0.50	mg/kg	J	MDLRL
2-Butanone	SW8260B	CENTRAL OCD LF TZ04	1906g37-008a	0.081	0.50	mg/kg	J	MDLRL
2-Butanone	SW8260B	CENTRAL OCD LF VZ04	1906g37-009a	0.096	0.49	mg/kg	J	MDLRL
2-Butanone	SW8260B	CENTRAL OCD LF DUP01	1906g37-010a	0.10	0.48	mg/kg	J	MDLRL
Arsenic, Total	SW6010B	CENTRAL OCD LF VZ01	1906G37-002B	2.9	5	mg/kg	J	MDLRL
Arsenic, Total	SW6010B	CENTRAL OCD LF TZ02	1906G37-003B	3.4	5	mg/kg	J	MDLRL
Benzo(a)anthracene	SW8270C	CENTRAL OCD LF TZ04	1906g37-008a	1.1	2	mg/kg	J	MDLRL
Benzoic Acid	SW8270C	CENTRAL OCD LF TZ02	1906g37-003a	0.096	0.46	mg/kg	J	MDLRL
Benzoic Acid	SW8270C	CENTRAL OCD LF VZ02	1906g37-004a	0.11	0.52	mg/kg	J	MDLRL
Benzoic Acid	SW8270C	CENTRAL OCD LF TZ04	1906g37-008a	1.1	5.1	mg/kg	J	MDLRL
Benzoic Acid	SW8270C	CENTRAL OCD LF VZ04	1906g37-009a	0.24	1.2	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Benzoic Acid	SW8270C	CENTRAL OCD LF DUP01	1906g37-010a	0.12	0.59	mg/kg	J	MDLRL
Bis(2-ethylhexyl)phthalate	SW8270C	CENTRAL OCD LF TZ02	1906g37-003a	0.14	0.46	mg/kg	J	MDLRL
Bis(2-ethylhexyl)phthalate	SW8270C	CENTRAL OCD LF VZ02	1906g37-004a	0.28	0.52	mg/kg	J	MDLRL
Copper, Total	SW6010B	CENTRAL OCD LF TZ01	1906G37-001B	12	0.60	mg/kg	J	ERPD-FD
Copper, Total	SW6010B	CENTRAL OCD LF DUP01	1906G37-010B	4	0.59	mg/kg	J	ERPD-FD
Cyanide, Total	SW9012	CENTRAL OCD LF VZ04	1906G37-009C	0.27	0.25	mg/kg	J-	HT-AN
Cyanide, Total	SW9012	CENTRAL OCD LF VZ01	1906G37-002C	ND	0.25	mg/kg	UJ	HT-AN
Cyanide, Total	SW9012	CENTRAL OCD LF TZ02	1906G37-003C	ND	0.25	mg/kg	UJ	HT-AN
Cyanide, Total	SW9012	CENTRAL OCD LF VZ02	1906G37-004C	ND	0.25	mg/kg	UJ	HT-AN
Cyanide, Total	SW9012	CENTRAL OCD LF TZ03	1906G37-006C	ND	0.25	mg/kg	UJ	HT-AN
Cyanide, Total	SW9012	CENTRAL OCD LF VZ03	1906G37-007C	ND	0.25	mg/kg	UJ	HT-AN
Cyanide, Total	SW9012	CENTRAL OCD LF TZ04	1906G37-008C	ND	0.25	mg/kg	UJ	HT-AN
Cyanide, Total	SW9012	CENTRAL OCD LF DUP01	1906G37-010C	0.89	0.25	mg/kg	J-	ERPD-FD, HT-AN
Cyanide, Total	SW9012	CENTRAL OCD LF TZ01	1906G37-001C	ND	0.25	mg/kg	UJ	ERPD-FD, HT-AN
Di-n-butylphthalate	SW8270C	CENTRAL OCD LF VZ02	1906g37-004a	0.23	0.42	mg/kg	J	MDLRL
Fluoride, Total	E300	CENTRAL OCD LF TZ01	1906G37-001A	5.4	1.5	mg/kg	J-	LR-MS
Fluoride, Total	E300	CENTRAL OCD LF VZ01	1906G37-002A	3.7	1.5	mg/kg	J-	LR-MS
Fluoride, Total	E300	CENTRAL OCD LF TZ02	1906G37-003A	10	1.5	mg/kg	J-	LR-MS
Fluoride, Total	E300	CENTRAL OCD LF VZ02	1906G37-004A	3.1	1.5	mg/kg	J-	LR-MS
Mercury, Total	SW7471	CENTRAL OCD LF VZ01	1906G37-002B	0.018	0.032	mg/kg	J	MDLRL
Mercury, Total	SW7471	CENTRAL OCD LF VZ02	1906G37-004B	0.0051	0.031	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Mercury, Total	SW7471	CENTRAL OCD LF VZ03	1906G37-007B	0.0053	0.032	mg/kg	J	MDLRL
Mercury, Total	SW7471	CENTRAL OCD LF VZ04	1906G37-009B	0.0043	0.032	mg/kg	J	MDLRL
Mercury, Total	SW7471	CENTRAL OCD LF DUP01	1906G37-010B	0.0068	0.032	mg/kg	J	MDLRL
Nitrogen, Nitrate	E300	CENTRAL OCD LF TZ03	1906G37-006A	13	1.5	mg/kg	J-	HT-AN
Nitrogen, Nitrate	E300	CENTRAL OCD LF VZ03	1906G37-007A	6.7	1.5	mg/kg	J-	HT-AN
Nitrogen, Nitrate	E300	CENTRAL OCD LF TZ04	1906G37-008A	4	1.5	mg/kg	J-	HT-AN
Nitrogen, Nitrate	E300	CENTRAL OCD LF VZ04	1906G37-009A	3.1	1.5	mg/kg	J-	HT-AN
Nitrogen, Nitrate	E300	CENTRAL OCD LF DUP01	1906G37-010A	4.5	1.5	mg/kg	J-	HT-AN
Nitrogen, Nitrate	E300	CENTRAL OCD LF TZ01	1906G37-001A	4.9	1.5	mg/kg	J-	HT-AN, LR-MS
Nitrogen, Nitrate	E300	CENTRAL OCD LF VZ01	1906G37-002A	2.4	1.5	mg/kg	J-	HT-AN, LR-MS
Nitrogen, Nitrate	E300	CENTRAL OCD LF TZ02	1906G37-003A	4.2	1.5	mg/kg	J-	HT-AN, LR-MS
Nitrogen, Nitrate	E300	CENTRAL OCD LF VZ02	1906G37-004A	2	1.5	mg/kg	J-	HT-AN, LR-MS
Selenium, Total	SW6010B	CENTRAL OCD LF VZ02	1906G37-004B	3	5.1	mg/kg	J	MDLRL
Selenium, Total	SW6010B	CENTRAL OCD LF VZ04	1906G37-009B	3.5	4.9	mg/kg	J	MDLRL
Selenium, Total	SW6010B	CENTRAL OCD LF DUP01	1906G37-010B	3.3	4.9	mg/kg	J	MDLRL
Silver, Total	SW6010B	CENTRAL OCD LF TZ01	1906G37-001B	ND	0.50	mg/kg	UJ	LR-MS
Silver, Total	SW6010B	CENTRAL OCD LF VZ01	1906G37-002B	ND	0.50	mg/kg	UJ	LR-MS
Silver, Total	SW6010B	CENTRAL OCD LF TZ02	1906G37-003B	ND	0.50	mg/kg	UJ	LR-MS
Silver, Total	SW6010B	CENTRAL OCD LF VZ02	1906G37-004B	ND	0.51	mg/kg	UJ	LR-MS
Silver, Total	SW6010B	CENTRAL OCD LF TZ03	1906G37-006B	ND	0.51	mg/kg	UJ	LR-MS
Silver, Total	SW6010B	CENTRAL OCD LF VZ03	1906G37-007B	ND	0.5	mg/kg	UJ	LR-MS

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Silver, Total	SW6010B	CENTRAL OCD LF TZ04	1906G37-008B	ND	0.5	mg/kg	UJ	LR-MS
Silver, Total	SW6010B	CENTRAL OCD LF VZ04	1906G37-009B	ND	0.49	mg/kg	UJ	LR-MS
Silver, Total	SW6010B	CENTRAL OCD LF DUP01	1906G37-010B	ND	0.49	mg/kg	UJ	LR-MS
Total Petroleum Hydrocarbons	E418.1	CENTRAL OCD LF DUP01	1906G37-010A	5.6	20	mg/kg	J	MDLRL
TPH DRO	SW8015	CENTRAL OCD LF DUP01	1906G37-010A	24	9.9	mg/kg	J	ERPD-FD
TPH DRO	SW8015	CENTRAL OCD LF TZ01	1906G37-001A	ND	8.5	mg/kg	UJ	ERPD-FD
Uranium, Total	SW6010B	CENTRAL OCD LF TZ01	1906G37-001B	ND	10	mg/kg	UJ	LR-MS
Uranium, Total	SW6010B	CENTRAL OCD LF VZ01	1906G37-002B	ND	10	mg/kg	UJ	LR-MS
Uranium, Total	SW6010B	CENTRAL OCD LF TZ02	1906G37-003B	ND	9.9	mg/kg	UJ	LR-MS
Uranium, Total	SW6010B	CENTRAL OCD LF VZ02	1906G37-004B	ND	10	mg/kg	UJ	LR-MS
Uranium, Total	SW6010B	CENTRAL OCD LF TZ03	1906G37-006B	ND	10	mg/kg	UJ	LR-MS
Uranium, Total	SW6010B	CENTRAL OCD LF VZ03	1906G37-007B	ND	10	mg/kg	UJ	LR-MS
Uranium, Total	SW6010B	CENTRAL OCD LF TZ04	1906G37-008B	ND	10	mg/kg	UJ	LR-MS
Uranium, Total	SW6010B	CENTRAL OCD LF VZ04	1906G37-009B	ND	9.8	mg/kg	UJ	LR-MS
Uranium, Total	SW6010B	CENTRAL OCD LF DUP01	1906G37-010B	ND	9.8	mg/kg	UJ	LR-MS

NEW MEXICO
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Jennifer J. Pruett
Deputy Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

May 16, 2019

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

RE: APPROVAL
RESPONSE TO COMMENTS NMED APPROVAL WITH MODIFICATIONS LETTER DATED MARCH 17, 2017 [CHLORIDE EXCEEDANCE EXCAVATION REPORT]
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-WRG-17-003

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has reviewed the *Response to Comments NMED Approval with Modifications Letter dated March 17, 2017[Chloride Exceedance Excavation Report]* (Response), dated April 11, 2019, submitted on behalf of Marathon Petroleum Company dba Western Refining Southwest Inc., Gallup Refinery (the Permittee). NMED hereby issues this Approval. The Permittee must address the following comments provided by both NMED and the New Mexico Energy Minerals and Natural Resources Department Oil Conservation Division (OCD).

Comment 1

NMED's Approval with Modifications Comment 1 states, "[t]he OCD regulates the Central OCD Landfarm under 19.15.36 NMAC (also known as Part 36) and required the Permittee to address chloride exceedances discovered in the landfarm." With the exception of sample identified as CentralOCD-03-6/16/2016, the chloride concentrations did not exceed the screening level of 500 mg/kg in the rest of samples collected from the landfarm. Although the chloride

concentrations in the excavation confirmation samples collected from depths of approximately six feet below ground surface exceed the screening level in multiple locations, these soil samples were likely collected within the footprint of former Evaporation Pond (EP)-10 or native soils below the pond, rather than shallow soils within the OCD Landfarm. Therefore, the landfarm is likely not the source of chloride in groundwater. Since the landfarm is not closed, current and future use of the landfarm must be clarified in a response letter to OCD.

Comment 2

The response to NMED's Approval with Modifications Comment 2 states, "[w]hile Marathon Petroleum Company (MPC) is unaware of any design drawings for Pond 10, the surface expression of the pond currently appears to be approximately 325 feet by 200 feet." Since the OCD Landfarm overlies former pond EP-10 and pond EP-10 may be the source of the chloride contamination in groundwater, the depth of pond EP-10 must be identified and the soils below the landfarm must be investigated. Submit a work plan to install soil borings to collect soil samples of the underlying native soils, pond sediments, and the upper zone waste treated within the landfarm. If the interface between the native soils, pond sediments, and landfarm waste can be distinguished, collect the samples within six inches of each interface.

This approval is based on the information presented in the document as it relates to the objectives of the work identified by NMED at the time of review. Approval of this document does not constitute agreement with all information or every statement presented in the document.

If you have questions regarding this letter, please contact Michiya Suzuki of my staff at 505-476-6059.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: K. Van Horn, NMED HWB
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 2019 File
HWB-WRG-17-003

Chavez, Carl J, EMNRD

From: Martinez, Cynthia, NMENV
Sent: Monday, April 8, 2019 10:47 AM
To: John.Moore@andeavor.com
Cc: Kieling, John, NMENV; Cobrain, Dave, NMENV; VanHorn, Kristen, NMENV; Suzuki, Michiya, NMENV; Chavez, Carl J, EMNRD; 'king.laurie@epa.gov'; Brian.Moore@andeavor.com
Subject: Letter to Mr. Moore
Attachments: Western Refining- HWB-WRG-18-016.pdf

Good Morning,
Please open attachment.

Cynthia Martinez
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg.1
Santa Fe, New Mexico 87505
Phone 505-476-6000

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Cabinet Secretary

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Deputy Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

April 5, 2019

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

RE: DISAPPROVAL
INVESTIGATION WORK PLAN SWMU NO. 9 – DRAINAGE DITCH AND INACTIVE LANDFARM
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-WRG-18-016

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has reviewed the *Investigation Work Plan SWMU No. 9 – Drainage Ditch and Inactive Landfarm* (Work Plan), dated December 2018, submitted on behalf of Marathon Petroleum Company dba Western Refining Southwest Inc., Gallup Refinery (the Permittee). NMED hereby issues this Disapproval. The Permittee must address the following comments.

Comment 1
In Section 2, *Background,* page 2-2, the Permittee states, "[o]nly chromium was detected at a concentration above the residential soil screening level. This occurred in one soil sample collected at boring RFI 0907 in the surface interval collected from 0 – 0.5 feet with a concentration of 102 mg/kg vs. the screening level of 96.6 mg/kg." Discuss historic use of chromium at the site in the revised Work Plan.

Comment 2
In Section 2, *Background,* page 2-3, the Permittee states, "[i]n the 2001 No Further Action Request, the drainage ditch was described as being on the west side of the Inactive Landfarm; however, further review of the survey plat and other early RFI documents and field reconnaissance confirms the drainage ditch is actually on the east side of the Inactive Landfarm and is a much smaller feature. The ditch is two to three feet wide and up to two feet deep, running north to south along the east side of the Inactive Landfarm (Figures 2 and 5)." According to Figure 5, *Proposed Sample Locations,* the ditch is depicted along the east side of the Inactive Landfarm; however, the figure titled as *Inactive Land Treatment and Associated Drainage Ditch,* included in Appendix B, *Historical Documentation,* indicates that the ditch is located along the west side of the Inactive Landfarm. Clarify if the north arrow on the figure included in Appendix B is correct and whether previous samples were collected along the correct ditch. In addition, the topographic survey map included in Appendix B shows that the surface elevation is higher at the south side of the Inactive Landfarm; however, the statement describes the ditch runs north to south. Resolve the discrepancy in the revised Work Plan and provide clarification in a response letter.

Comment 3
In Section 2, *Background,* page 2-4, the Permittee states, "[t]he eastern most soil borings/temporary wells (NDD-4, NDD-5 and NDD-6) are shown on Figure 2. The analytical results for soil samples collected at NDD-4, NDD-5 and NDD-6 are summarized in Table 2 and the groundwater analyses from samples collected at NDD-4, NDD-6, OW-14, OW-54, OW-55, and OW-56 are provided in Tables 3-1 and 3-2. Both the soil and groundwater analyses from these locations along the Drainage Ditch show increasing concentrations of constituents to the west, away from the up-gradient direction of surface water flow along the Drainage Ditch and the location of the Inactive Landfarm." The statement is not clear regarding the reference to the "Drainage Ditch". The ditch next to the Inactive Landfarm does not extend west; however, the North Drainage Ditch does. According to Table 2, *NDD-4, NDD-5, and NDD-6 Soil Analytical Results Summary,* the organic constituents concentrations in the soil samples collected from borings NDD-5 and NDD-6, located at the west side of the North Drainage Ditch are generally higher compared to those from boring NDD-4, located at the east side of the North Drainage Ditch, closer to the Inactive Landfarm. However, the discussion does not appear to be relevant to the Drainage Ditch (the ditch next to the Inactive Landfarm) and the Inactive Landfarm. Similarly, according to Table 3-1, *2016 Groundwater Analytical Results Summary,* the benzene concentrations in the groundwater samples collected from wells OW-14 and OW-55, located on the south and north sides of the Inactive Landfarm, are recorded as 8,100 ug/L and 18,000 ug/L (average of two values), respectively. The benzene concentrations increase to the north along the Drainage Ditch, rather than to the west. However, the benzene concentrations in the groundwater samples collected from wells NDD-4, NDD-6 and OW-56, located west of the Inactive Landfarm along the North Drainage Ditch, downgradient of the Inactive Landfarm, are recorded as < 0.195 ug/L, 5,300 ug/L and 1.5 ug/L (average of two values), respectively. The benzene concentrations do increase to the west of the North Drainage Ditch; however, the discussion does not appear to be relevant to the Drainage Ditch and the Inactive Landfarm. Clarify the statement regarding the reference to the Drainage Ditch and revise the Work Plan, as needed.

Comment 4
In Section 3.1, *Surface Conditions,* page 3-1, the Permittee states, "[a] topographic map of the area near SWMU 9 is included as Figure 3." Well OW-14 is the only well identified in Figure 3, *Topographic Map*. Since other wells (e.g., RW-5, OW-55) are also present in the area covered by Figure 3, these wells must also be included on the figure; otherwise, remove well OW-14 from the revised figure. In addition, Figure 3 does not provide detailed elevation data in the vicinity of SWMU 9. Provide another topographic map with larger image of SWMU 9, similar to that included in Appendix B. Provide the revised figures in the revised Work Plan.

Comment 5
In Section 3.1, *Surface Conditions,* page 3-1, the Permittee states, "[t]he area of the site near SWMU 11 is at an approximate elevation of 6,896 feet above mean sea level (msl)." SWMU 11 is not pertinent to the discussion in the Work Plan. Revise the statement to include information pertaining to SWMU 9.

Comment 6
In Section 4.1, *Investigation,* page 4-1, the Permittee states, "[a]ll soil borings will be drilled to a minimum depth of 6 feet, five feet below the reported depth of tilling. If there is field evidence of impacts at depths greater than 6 feet, then soil borings will be drilled deeper to achieve full vertical delineation." Provide a more specific explanation for what field evidence will prompt advancement of deeper borings in the revised Work Plan (e.g., criteria for the PID readings). Similarly, the Permittee states, "[i]f there are indications of lateral migration of constituents, then additional borings will be completed within approximately 30 feet of the original boring location." Provide a more specific explanation for what indications of lateral migration of constituents will prompt advancement of additional borings in the revised Work Plan (e.g., laboratory analytical and/or field screening results). Additionally, the location of additional borings 30 feet from the original boring location will not likely delineate the contamination associated with the ditch and the Inactive Landfarm since the distribution of the contaminated soils may be limited to the areas where refinery waste was previously placed. Propose to advance additional borings ten feet from the original boring location in the revised Work Plan. Furthermore, clarify whether additional borings will be advanced in all directions (e.g., north, south, east and west) from the original boring location; otherwise, include a provision for the Permittee to consult the NMED to determine the location of additional borings when the advancement of additional borings is warranted.

Comment 7
In Section 4.1.1, *Soil Sample Field Screening and Logging,* page 4-2, the Permittee states, "[d]iscrete soil samples will be retained for laboratory analysis from within the following intervals: [f]rom the upper 0.5-foot interval of the ground surface..." The proposed sampling method may not capture potential contamination from the upper one-foot interval. The constituents in the soils from the upper 0.5-foot interval may not be representative of the site conditions. Propose to collect soil samples from depths of 0.5 to 1.5 foot to capture the upper one-foot interval of potential contamination in the revised Work Plan.

Comment 8
In Section 4.1.1, *Soil Sample Field Screening and Logging,* page 4-2, the Permittee states, "[d]iscrete soil samples will be retained for laboratory analysis from within the following intervals: [f]rom the upper 0.5 foot interval of native soils (i.e., below any fill material)." Explain whether a part of SWMU 9 was previously excavated and backfilled with fill material and how the fill material and native soils are distinguished in the revised Work Plan. The Permittee also states that additional intervals will be sampled as determined based on field screening results. Provide a more specific explanation for what field screening results will prompt collection of samples from additional intervals in the revised Work Plan (e.g., criteria for the PID readings).

Comment 9
In Section 4.1.2, *Drilling Activities,* page 4-3, the Permittee states, "[a]fter groundwater samples are collected from the temporary well completion, the well screen will be pulled and all borings will be grouted to the ground surface." If separate-phase hydrocarbon (SPH) is present in any temporary wells after purging, the wells must be converted to permanent groundwater monitoring or recovery wells or the Permittee must contact NMED to discuss the circumstances. While most likely not related to the SWMU, the opportunity to delineate SPH plumes during an investigation may save time in the future.

Comment 10
In Section 4.1.7, *Chemical Analyses,* page 4-7, the Permittee states, "[g]roundwater and soil samples will also be analyzed for the following Skinner List metals and iron and manganese using the indicated analytical methods shown." Elevated total chromium concentrations were previously detected at the site (see Comment 1). Hexavalent chromium may potentially be present at the site. Include hexavalent and total chromium analyses for soil and groundwater samples collected at the site. Add the analysis to the revised Work Plan.

The Permittee must address all comments in this Disapproval and submit a revised Work Plan. Two bound hard copies and two electronic versions must be submitted to NMED. In addition, include a red-line strikeout version in electronic format showing where all revisions to the Work Plan have been made. The revised Work Plan must be accompanied with a response letter that details where revisions have been made, cross-referencing NMED's numbered comments. The revised Work Plan must be submitted to NMED no later than **August 30, 2019.**

If you have questions regarding this Disapproval, please contact Michiya Suzuki of my staff at 505-476-6059.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: K. Van Horn, NMED HWB
D. Cobrain, NMED HWB
M. Suzuki, NMED HWB
C. Chavez, OCD
L. King, EPA Region 6
B. Moore, WRG

File: Reading File and WRG 2019 File
HWB-WRG-18-016