AP - 111

LANDFARMS

2017

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, February 2, 2017 10:57 AM
To: 'Ed.Riege@wnr.com'
Cc: Griswold, Jim, EMNRD; Smith, Cory, EMNRD; VanHorn, Kristen, NMENV
Subject: Gallup Refinery (AP-111) "September and October 2016 Chloride Exceedance Excavation Report" dated January 25, 2017

Mr. Riege:

Re: OCD Central Landfarm

The New Mexico Oil Conservation Division (OCD) and New Mexico Environment Department (NMED) (Agencies) have completed review of the above subject report (report).

On page 3, "Proposed Path Forward", paragraph 1: The OCD Central Landfarm was built within Evaporation Pond 10 which is part of SWMU 2 (Evaporation Ponds) under Western's RCRA Permit. The updated schedule in the RCRA Permit lists corrective action at SWMU 2 as deferred since the SWMU is still in use. However, since Evaporation Pond 10 is not in use as an evaporation pond, Western can access soils for chloride remediation to address OCD's concerns. Additionally, the landfarm is permitted by OCD under Part 36 (i.e., 19.15.36 NMAC), so the continued operation of the landfarm also falls under OCD Regulations. OCD agrees with Western's proposed hot spot corrective actions in the report. Documentation (i.e., photos of excavation, C-138 manifest, etc. is required within 30-days of completion of corrective actions to verify the remediation was completed.

If Western plans to close the OCD Central Landfarm, NMED recommends in addition to OCD Regulations that NMED RCRA requirements also be addressed at the same time to avoid re-investigation of the area during SWMU 2 corrective action. OCD cannot guarantee that alternate remedial limits would be required based on the proposed source of contamination; however, OCD would consider recommended closure limits with the scientific basis if proposed in a landfarm closure plan by Western to the agencies.

Please contact me if you have questions, to request a telephone conference call, or wish to discuss this matter further. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
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")**

Chavez, Carl J, EMNRD

From: Riege, Ed <Ed.Riege@wnr.com>
Sent: Thursday, January 26, 2017 10:19 AM
To: Chavez, Carl J, EMNRD
Cc: Griswold, Jim, EMNRD; VanHorn, Kristen, NMENV; Hains, Allen
Subject: September and October 2016 Chloride Exceedance Excavation Report
Attachments: 201701250903.pdf

Carl,
Please see attached correspondence chloride excavation report. The email does not include attachments due to size. A hard copy is being sent certified mail to you and Kristen.

Thanks,
Ed

Ed Riege
Remediation Manager

Western Refining
Gallup Refinery
92 Giant Crossing Road
Gallup, NM 87301
(505) 722-0217
ed.riege@wnr.com

January 25, 2017

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

RE: September and October 2016 Chloride Exceedance Excavation Report
Central Oil Conservation Division Landfarm
Western Refining Company Southwest, Inc., Gallup Refinery, Gallup, New Mexico

Dear Mr. Chavez:

Western Refining Company Southwest, Inc. (Western) is submitting this correspondence 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 correspondence is also intended to inform the Oil Conservation Division (OCD) of a recently discovered non-landfarm chloride potential alternate 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 had been divided into 6 foot (ft) by 6 ft grids to assist with random sample location selection. As required by the Response Action Plan, Western 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. Western 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. Western 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 Western and OCD. In light of the information presented in this correspondence, Western 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, Western 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, Western believes that it would be appropriate to address the chloride contaminated soil as part of SWMU 2 remedies.

Western 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, Western will begin soil disposal and excavation backfilling.

Western is also still considering closure of the Central OCD landfarm. When closure is sought, Western believes that closure should still be conducted in general accordance with NMAC Rule 36. However, Central OCD Landfarm-specific agreements reached between Western 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, Western 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.

Sincerely,
Western Refining Company Southwest, Inc.

Ed Riege
Remediation Manager

697-052-003

Attachments

cc: G. Price, Trihydro Corporation
K. Van Horn, NMED

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

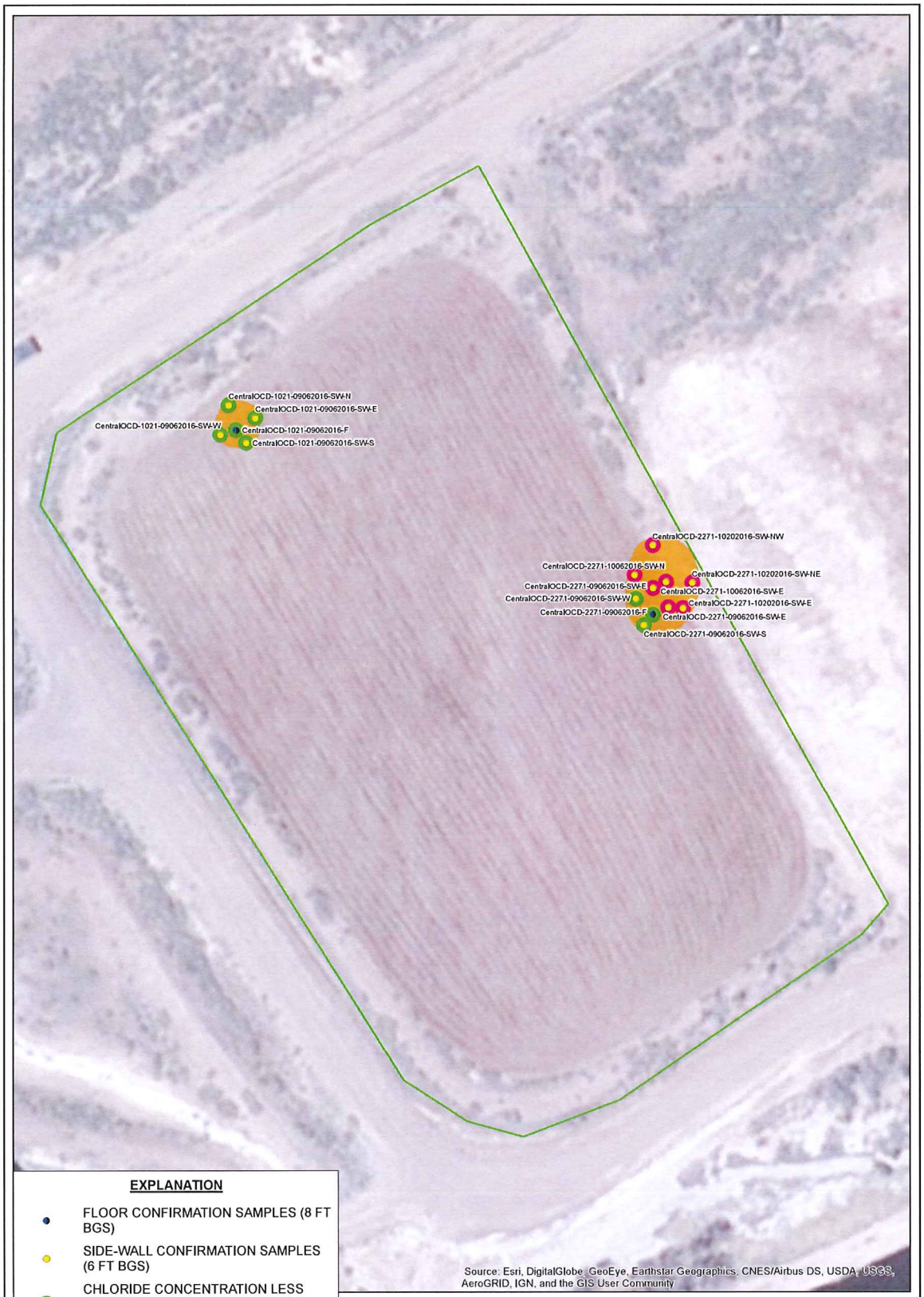
Notes:
Action Level/Alternate Beneficial Reuse Soil Screening Level (ABRSC) exceedances are shown in bold font.

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
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(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