Andeavor
92 Giant Crossing Road
Gallup, NM 87301

505 722 3833
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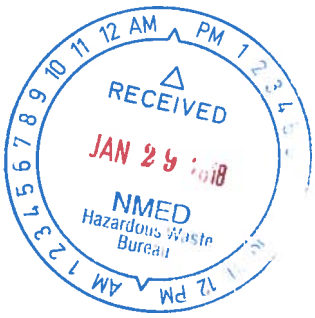
Certified Return Receipt: #7016 2710 0000 5955 3766

January 25, 2018



Mr. John E. Kieling, Chief
New Mexico Environmental Department
2905 Rodeo Park Drive East, Bldg 1
Santa Fe, NM 87505-6303

RE: RESPONSE TO APPROVAL WITH MODIFICATIONS
ANNUAL GROUNDWATER MONITORING REPORT: GALLUP REFINERY-2014, REVISION 2
WESTERN REFINING SOUTHWEST INC, GALLUP REFINERY
EPA ID# NMD000333211
HWB-WRG-15-004

Dear Mr. Keiling:

You will find our response below to Comment No. 2 of your referenced letter of September 29, 2017.

NMED Comment 2

In the Permittee's response to NMED's Disapproval Comment 3, the Permittee states, "[i]t is apparent that the New API Separator is a likely source of these elevated [chloride and nitrate] concentrations, "and "Old API Separator was a likely source of elevated chlorides to groundwater in the area." NMED concurs that releases from NAPIS and OAPIS may be sources of chloride in the groundwater sample collected from well STP1-NW; however, the potential source(s) may not be limited to the releases from NAPIS and OAPIS. Well STP1-NW is located on the perimeter of Sanitary Treatment Pond 1 (STP1); STP1 may be a source of chloride in well STP1-NW. The chloride concentration in the sample collected from outfall STP1 is recorded as 4,100 mg/L in the November 2014 sampling event, which is comparable to the chloride concentration in well STP1-NW. Evaluate whether STP1 liner remains intact. Submit a work plan to evaluate whether STP1 is leaking. In addition, the chloride concentration in the sample collected from Pond EP-2 is recorded as 2,400 mg/L during the November 2014 sampling event. Leaking from the eastern perimeter or bottom of Pond EP-2 may cause wastewater to overcome the natural gradient and affect the chloride concentrations in upgradient wells (STP1-NW and GMW-1). The chloride concentrations in the samples from wells STP1-NW and GMW-1 are recorded as 1,800 and 1,000 mg/L, respectively. Evaluate whether water in Pond EP-2 is infiltrating to the water table beneath the eastern portion of Pond EP-2. Propose a work plan to investigate leakage from Pond EP-2 for NMED review.

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Western Response

The focus of comment No. 2 appears to be identifying the source(s) of elevated chloride concentrations detected in the shallow groundwater that occurs above the Chinle Formation. As noted in NMED's most recent comment and earlier comments on this same matter, there are numerous wells in the vicinity of the subject areas with elevated chloride concentrations. In addition, there are multiple potential sources as the same wastewater has been handled in several nearby Solid Waste Management Units and Areas of Concern.

NMED previously requested a work plan (Disapproval Annual Groundwater Monitoring Report: Gallup Refinery – 2014, dated June 20, 2016) for the investigation of elevated chlorides observed in monitoring well SMW-2, which is located down-gradient of the aforementioned wells and potential sources. This work plan was approved by NMED on March 17, 2017 and subsequently implemented with the installation of new monitoring wells OW-59 and OW-60, as shown on the enclosed map. Chloride was reported at concentrations of 2,000 mg/l and 1,600 mg/l in OW-59 and OW-60, respectively. The well completion logs for OW-59 and OW-60 are also enclosed. As shown in the 2014 Annual Groundwater Monitoring Report, the elevated chloride concentrations reported in SMW-2 date back to at least 2008, well before construction of STP1. With the installation of wells OW-59 and OW-60, it appears the area of elevated chloride concentrations extends from at least the Old API Separator to SMW-2.

Western proposes to discuss this matter with NMED in the upcoming meeting that both parties recently agreed to with the goal of developing a holistic approach to investigating chlorides over this area. As opposed to multiple work plans, we believe a single work plan, as necessary, will be more effective in identifying any active releases of chloride.

NMED Comment 4

In the Permittee's response to NMED's Disapproval Comment 9, the Permittee states, "[a] separate shallow well would be necessary to appropriately screen across the upper saturated interval present above the confining layer and allow hydrocarbons to enter the well from this upper interval." Evaluate the construction of each monitoring well to determine whether the installation of separate shallow well is necessary to screen across the upper saturated interval. Submit a work plan to install separate shallow wells to monitor the aquifer above the confining layer for applicable wells. Well MKTF-18 may require a separate shallow well as stated by the Permittee; however, other wells (e.g., MKTF-1) with submerged screened intervals may need to be replaced because the screens are inappropriately installed without crossing the confining layer. Evaluate the construction of each monitoring well to determine whether the well screen is appropriately installed across the upper saturated intervals. Propose a work plan to evaluate and replace wells having inappropriate screened intervals that are pertinent to delineating SPH plume as necessary.

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Western Response

Western requests an extension to respond to Comment No. 4. The issue of well screen placement has been previously discussed in earlier correspondence; however, it appears that questions remain regarding proper well screen placement. We propose to evaluate the construction of the monitoring wells as requested by NMED and intend to discuss this information with NMED during the up-coming meeting. Based on the results of the meeting, Western will submit any required work plans per an agreed upon new schedule.

If you have any questions regarding Western's responses, please do not hesitate to contact me at (505) 722-0287.

Sincerely,

Jessica O'Brien

Ms. Jessica O'Brien
Environmental Supervisor

Enclosure

cc: K. Van Horn, NMED HWB (*via e-mail*)
C. Chavez, OCD (*via e-mail)*
A. Hains, Andeavor (*via e-mail)*
D. Pruner, Andeavor (*via e-mail)*

DiSorbo
Environmental Consulting Firm

Western Refining SW, Inc
Gallup Refinery
Job No. WEST17020

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc/Cohagan
Drilling Rig	: CME75
Drilling Method	: Hollow Stem Auger 7 1/4"
Sampling Method	: 2' Split Spoon
Comments	: Hand Auger to 5 BGL
Total Depth	: 40'
Ground Water	: 26'
Start Date	: 06/12/2017
Finish Date	: 06/12/2017

WELL NO. OW-59

(Sheet 1 of 3)

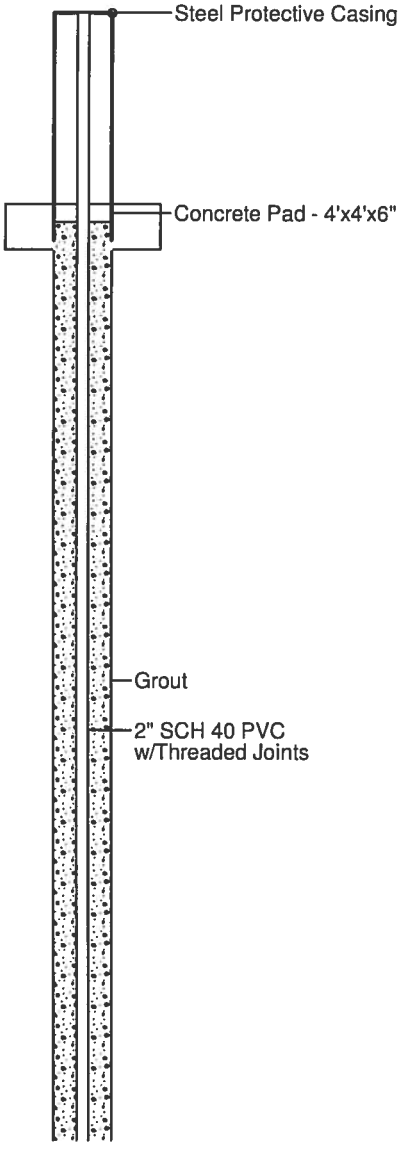
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N35° 29.622'
E	: W108° 25.971'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
1	0.0			CL	100		SILTY CLAY, low, firm, damp, brown, no odor,
3	0.0			CL	100		SILTY CLAY, SIMILAR TO ABOVE (STA),
5	0.0			CL	100		SILTY CLAY, STA,
7	2.0			CH	70		CLAY, high, stiff, damp, brown, no odor,
9	1.0			CL	80		SILTY CLAY, low, stiff, damp, light brown, no odor, sandy at base,
11	0.3			ML	70		SILT, low, compact, damp, brown, no odor,
12	0.5			CL			SILTY CLAY, low, very stiff, damp, brown, no odor, trace sand,

Saturation
▼ Saturation

Completion Results

Well No. OW-59



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Environmental Consulting Firm

Western Refining SW, Inc
Gallup Refinery
Job No. WEST17020

Geologist	: Tracy Payne
Driller	: Enviro-Drill Inc/Cohagan
Drilling Rig	: CME75
Drilling Method	: Hollow Stem Auger 7 1/4"
Sampling Method	: 2' Split Spoon
Comments	: Hand Auger to 5 BGL
Total Depth	: 40'
Ground Water	: 26'
Start Date	: 06/12/2017
Finish Date	: 06/12/2017

WELL NO. OW-59

(Sheet 2 of 3)

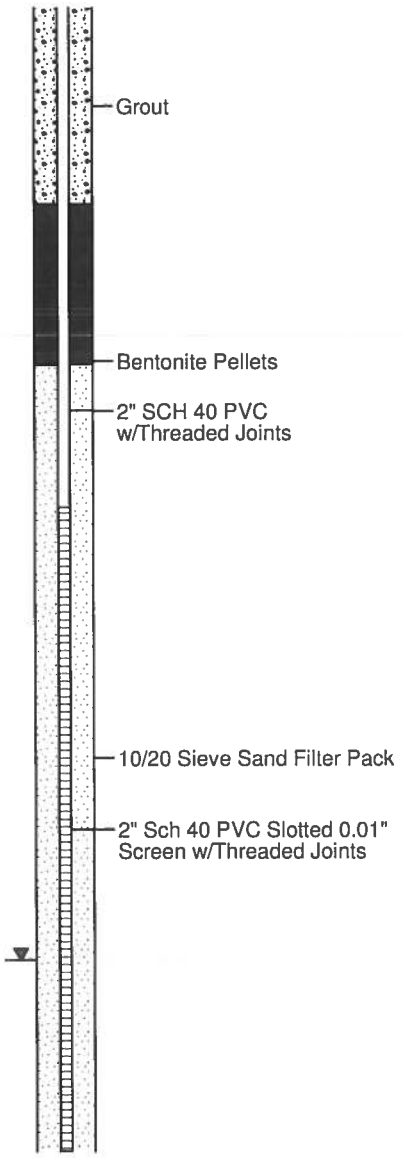
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N35° 29.622'
E	: W108° 25.971'

Saturation
▼ Saturation

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
13	0.5			CL	50		
14							SILTY CLAY, high, very stiff, damp, brown, no odor,
15	1.3			CH	50		
16							SILTY CLAY, STA, no odor,
17	1.7			CH	60		
18							SILTY CLAY, low to moderate, stiff, damp, brown, no odor,
19	1.1			CL	50		
20							SANDY SILTY CLAY, low, firm to soft, damp, brown, no odor,
21	1.2			CL	50		
22							SANDY CLAY, low, soft, damp, brown, no odor,
23	0.2			CL	60		
24							SILTY CLAY, low, soft, damp, brown, no odor,
25	3.3			CL	70		
26		▼					SANDY SILT, very fine, very moist, brown, no odor,
27	10.9			ML	80		
28							SANDY SILT, STA, very moist, no odor,
29	11.6			ML			

Completion Results

Well No. OW-59



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WELL NO. OW-59

(Sheet 3 of 3)

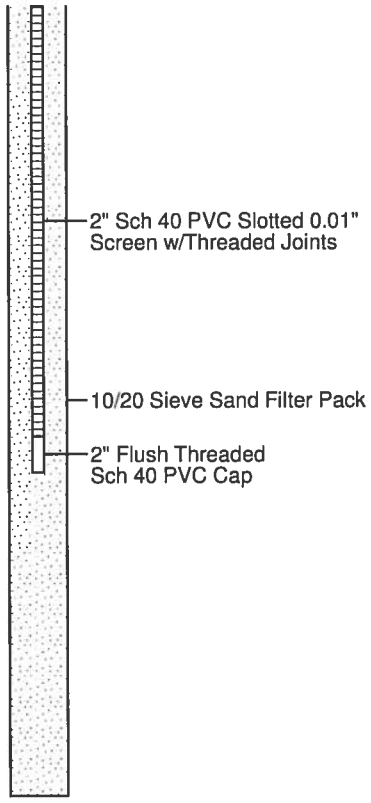
Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N35° 29.622'
E	: W108° 25.971'

Saturation
▼ Saturation

Depth (ft.)	PID (ppm)	USCS	Recovery (%)	DESCRIPTION
29	11.6	ML	80	
30		CL	90	SILTY CLAY, low, firm, damp, brown, no odor,
31	11.4			
32	14.9	CL	90	SILTY CLAY, STA, no odor,
33	16.3	SM	90	SILTY SAND, very fine, compact, saturated, brown, no odor,
34		CL	60	SILTY CLAY, low, firm, damp, brown, no odor,
35	10.5			
36		CL	70	SILTY CLAY, STA, no odor,
37	7.3			
38		CH	70	CLAY, high, firm, damp, brown, no odor,
39	10.0	CL	70	SILTY CLAY, low, firm to soft, grey and white, no odor, trace sand and white nodules.
40				
41				
42				
43				
44				
45				

Completion Results

Well No. OW-59



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Drilling Rig	: CME75
Drilling Method	: Hollow Stem Auger 7 1/4"
Sampling Method	: 2' Split Spoon
Comments	: Hand Auger to 5' BGL
Total Depth	: 48'
Ground Water	: Not Encountered
Start Date	: 6/13/2017
Finish Date	: 6/13/2017

WELL NO. OW-60

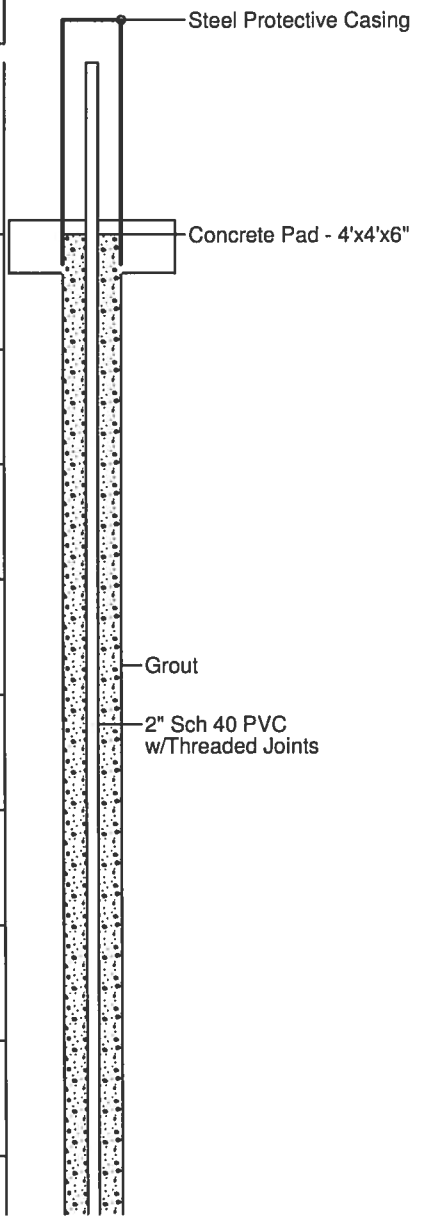
(Sheet 1 of 3)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N35° 29.588'
E	: W108° 25.984'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	6.5			CL	100		SILTY CLAY, low, firm, damp, brown, no odor,
2	5.8			CH	100		CLAY, high, firm to stiff, damp, brown, no odor,
4	6.3			CH	100		CLAY, SIMILAR TO ABOVE (STA), no odor,
6	8.1			CH	90		CLAY, STA, no odor,
8	9.6			CH	100		CLAY, STA, no odor,
10	9.1			CL	50		SILTY CLAY, moderate, firm, damp, brown, no odor,
12	8.2			CL	50		SILTY CLAY, STA, soft, no odor,
14	7.9			CL	70		SILTY CLAY, STA, firm, no odor,
16	8.3			CL			SILTY CLAY, STA, no odor,

Completion Results

Well No. OW-60



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WELL NO. OW-60

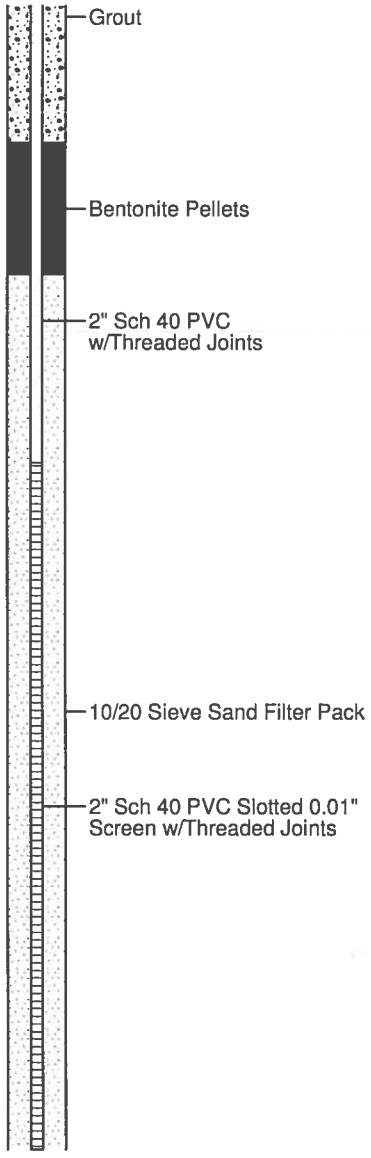
(Sheet 2 of 3)

Elev., TOC (ft.msl)	:
Elev., PAD (ft. msl)	:
Elev., GL (ft. msl)	:
Site Coordinates	:
N	: N35° 29.588'
E	: W108° 25.984'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
17	8.3			CL	70		
18							SILTY CLAY, STA, no odor,
19	10.1			CL	50		
20							SILTY CLAY, moderate, soft, damp, brown, no odor,
21	15.3			CL	60		
22							SILTY CLAY, STA, firm, no odor,
23	12.1			CL	70		
24							SILTY CLAY, STA,calcareous nodules (white) present, trace gravel, no odor,
25	11.6			CL	80		
26							SILTY CLAY, STA, tan-silt pockets throughout, no odor,
27	10.9			CL	80		
28							CLAYEY SILT, low, soft/crumbly, damp, light brown and grey, no odor,
29	10.5			ML	80		
30							SILTY CLAY, low, firm to crumbly, damp, light reddish brown with trace grey, no odor,
31	11.1			CL	70		
32							SILTY CLAY, STA, no odor,
33	15.0			CL	70		
34							SILTY CLAY, STA, no odor,
35	12.8			CL	80		
36	12.7			CL			SILTY CLAY, low, very stiff, crumbly, damp, light reddish brown, grey, no odor,
37							

Completion Results

Well No. OW-60



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Site Coordinates	:
N	: N35° 29.588'
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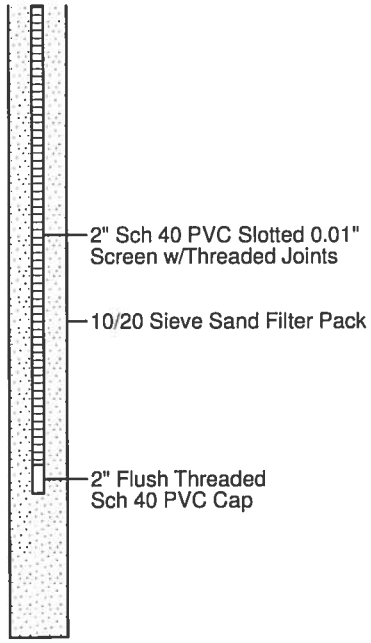
Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
37	12.7			CL	70		
38				ML	50		SILT, low, compact to dense/stiff crumbly, damp, light grey, no odor,
39	10.4						
40				ML	60		SILT, STA, no odor,
41	9.9						
42				ML	60		SILT, STA, trace very fine sand, no odor,
43	10.7						
44				ML	50		SILT, STA, no odor,
45	10.1						
46				ML	50		SILT, STA, trace reddish brown clay with grey, no odor.
47	9.6						
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							

Completion Results

Well No. OW-60



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

0 300
SCALE IN FEET

LEGEND

- NEW MONITORING WELL LOCATION
- MKTF-43 ● MONITORING WELL LOCATION (CHINLE / ALLUVIAL) AND IDENTIFICATION NUMBER
- OW-01 ● MONITORING WELL LOCATION (SONSELA) AND IDENTIFICATION NUMBER

NEW MEXICO

SITE LOCATION

Western Refining
GALLUP REFINERY

PROJ. NO.:Western Refining	DATE: 10/4/16	FILE:WestRef-dA76

SMW-2 AREA
NEW
MONITORING WELL LOCATIONS

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