

OCT 23 2013

October 18, 2013

**NMED  
Hazardous Waste Bureau****Via Email and Certified Mail 7011 2970 0003 9281 8428, Return Receipt Requested**

Mr. Carl Chavez  
New Mexico Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

**RE: HYDROCARBON RELEASE NOTIFICATION REPORT UPDATE  
WESTERN REFINING COMPANY, SOUTHWEST, INC., GALLUP REFINERY  
EPA ID # NMD000333211  
AP-111**

Dear Mr. Chavez:

Western Refining Southwest., Gallup Refinery ("Western") submits an update to our initial Hydrocarbon Release Notification Report (dated August 20, 2013). The following spill response actions have been taken to address a discovery of hydrocarbons found on the land surface to the west of crude tank T-102 and northwest of the marketing tanks (T1-T8), which was reported in Form C-141 on July 11, 2013. We are providing a copy of this report to the New Mexico Environment Department, Hazardous Waste Bureau (the "Bureau"), in satisfaction of the Bureau's requests in letters dated July 31, 2013 and August 14, 2013 for a written notification report describing all investigation and clean-up actions.

#### Actions Completed To-Date

As reported in the first Hydrocarbon Release Notification Report, a series of 14 excavations were completed in the area of the seep to the west Tank T-102. Six of the excavations were completed as temporary recovery sumps. The groundwater and any hydrocarbons that enter the sumps are removed with a vacuum truck and placed into the wastewater treatment system up-steam of the API Separator. The volume of total liquids (groundwater and hydrocarbons) recovered from June 26, 2013 through October 8, 2013 is estimated to be 85,000 gallons (Table 1). The initial material recovered was estimated to be 50% water and 50% hydrocarbon; however, the percentage of hydrocarbon reduced significantly over the first couple of weeks.

Efforts to identify the source of the hydrocarbons completed through August 20, 2013 were reported in the initial Hydrocarbon Release Notification Report. As discussed in the initial Hydrocarbon Release Notification Report, Western had planned to conduct additional leak detection surveys using methods such as *Tracer Tight*® or *HeliTek*®, but due to safety concerns these techniques could not be used within the subject area of the refinery. Since the August 20<sup>th</sup> report, additional actions as described below have been conducted to identify the source(s) of the hydrocarbons:

1. Additional dye tracer tests were conducted on the process sewer system;

2. Physical inspections of the process sewer system, including a completion of a camera survey identified a hole in the sewer line on the west side of the bundle cleaning pad;
3. Additional site inspections of aboveground equipment were conducted to identify any evidence of possible sources of the hydrocarbon;
4. Elevations of the ground level and top of casing were measured at the temporary well completions and sump locations; and
5. A potentiometric map and cross-sections of the shallow subsurface in the area of the temporary wells were prepared.

Two additional dye tests were conducted in the process sewer system. A yellow/green dye was introduced into the sewer at the transmix unloading area (a short distance northwest of the main product loading racks) on September 23, 2013 and a red dye was introduced at the lab sinks on September 24, 2013. A subsequent fluid level gauging event was conducted at the temporary monitoring wells on September 26, 2013 (Table 2). The red dye has been identified in five of the temporary wells (SB01, SB02, SB16, SB17, and SB22), all of which are located just south of the road that runs east-west along the north side of the marketing tanks. The green/yellow dye appears to be present in nine wells (SB04, SB05, SB06, SB08, SB10, SB11, SB19, SB20, and SB21), which are all located toward the southern portion of the area that has been investigated to-date. Although the dye tests are not conclusive, the separate patterns of the two dyes suggest the possibility of two separate release areas from the sewer lines. The red dye appears to have exited the sewer line from a hole identified near the bundle cleaning pad (see discussion below). The source of the yellow/green dye is not currently known, but appears to be south of the hole recently identified in the sewer line.

A camera survey was conducted on multiple segments of the sewer line in the western portion of the refinery on August 27 and 28. Based on this visual inspection, a hole in the sewer line was identified approximately 20 feet south of the sewer box on the west side of the bundle cleaning pad. The location of the identified release point in the sewer line is shown on the enclosed potentiometric surface map (Figure 1).

On August 19 an operator inspecting aboveground equipment to identify any evidence of possible sources of the hydrocarbon seep, observed hydrocarbon on the land surface in the secondary containment east of tank T-3. The location of the leak, which is just west of the above ground pipeline rack that runs north to south along the east side of the marketing tank farm, is shown on Figure 1. Once the release was discovered, a small earthen containment berm was built approximately 10 ft to the west of the release. A sandpiper pump was then set up to transfer the hydrocarbon (approximately 1.5 barrels) to the process sewer. Operations were then able to isolate the underground pipeline that was leaking. The transmix/slop 6 to 8 inch pipeline is only used during the unloading of transmix trucks at the truck rack, thus it would only have been an intermittent source. Trucks are unloaded at the rack and this line transports the transmix/slop to T-231. The line was taken out of service, cleaned and blanked off. The line is being replaced with an aboveground pipeline.

The impacted soil was removed by Envirotech using hand shovels and placed into a roll-off box. Approximately 15 cubic yards were removed. Soil confirmation samples were collected from the bottom of the excavation and waste characterization samples were also collected during the

week of October 7, 2013. The soils remain on-site pending receipt of the waste characterization analyses.

As reported in our earlier August 20<sup>th</sup> report, waste characterization samples were collected from the soils generated during excavation for the sumps and the drill cuttings from the temporary well installations. The analyses demonstrated the soils were not characteristically hazardous, but did contain petroleum hydrocarbons. The soils from the initial excavations for the sumps and drill cuttings have been disposed off-site as hydrocarbon impacted soils.

Using the new survey data for the temporary monitoring wells, a potentiometric surface map (Figure 1) and cross-sections (Figures 3 and 4) were prepared for the subject investigation area. The potentiometric surface mirrors the land surface topography and slopes to the northwest. Cross-section A-A' runs north-south and extends from the southernmost temporary well SB06 to hand auger location HA4, which is located near the discharge area to the northwest. Two west to east cross-sections B-B' and C-C' are included on Figure 4. All temporary wells appear to be completed in the same hydrogeologic unit, which varies from silty, clayey sand to sandy clay, with the exception of SB10. Temporary well SB10 is completed in a perched zone consisting of silty sand, which may be part of the fill material that is found to overlie native soils over much of the area. A saturated interval of fill composed of clay, sand, and gravel appears at a similar stratigraphic position in SB07 (boring logs provided in August 20<sup>th</sup> report); however, SB07 was completed in the deeper clayey sand interval that does appear to be in direct hydraulic communication with the other temporary wells. The perched zone appears to be of limited aerial extent and does not affect contaminant transport to the northwest as it terminates well short of the currently defined hydrocarbon plume.

In summary, two potential sources have been identified that could have resulted in the discharge of petroleum hydrocarbons at the land surface, as discovered on June 26, 2013. The hole in the sewer line on the west side of the bundle cleaning pad and the leak in the transmix/slop oil transfer line are within approximately 70 feet of each other and are hydraulically up-gradient of the seep area. Dye tests confirm the potential for materials released from the hole in the sewer line near the bundle cleaning pad to migrate to the area of the seep. Separate dye tests suggest the potential for another release point further south.

#### Future Actions

Western will continue efforts to further characterize potential source areas, to recover phase-separated hydrocarbons (PSH) and to delineate the lateral extent of impacts to groundwater. These efforts will be accomplished by the following tasks.

- Sewer line repairs are currently underway. This will provide an opportunity to better examine the nature of the release identified west of the bundle cleaning pad. As possible, some overexcavation during the sewer line repair may be conducted to remove impacted soils. Upon completion of the repairs, potentially additional dye tracer tests will be conducted.
- A total of 26 temporary monitoring wells (22 soil borings and 4 hand-auger locations) were previously completed over a relatively small area west of the marketing tanks. A number of the temporary wells are in locations making them subject to damage due to normal refinery operations in this area. The temporary wells were reviewed based on thickness of higher transmissive sediments (e.g., sand vs. silty clay), measured thickness of phase-separated hydrocarbons, and position of surrounding wells to select wells to be plugged vs. recompleted as permanent monitoring wells. Ten of the 22 soil

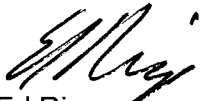
boring temporary wells will be plugged and two of the four hand-auger borings will be plugged. The remaining 12 temporary wells will be recompleted as permanent monitoring wells and two of the hand-auger locations will be completed as permanent monitoring wells.

Approximately 12 additional temporary wells are planned in an effort to further define the lateral extent of groundwater impacts and to assess other potential sources to the southeast of the marketing tanks.

- Recovery operations at the six sumps will continue to remove any PSH and impacted groundwater that accumulates in the sumps.

If there are any questions regarding the actions taken to-date or planned further actions, then please contact me at 505-722-0217. Please note Western makes no admissions and reserves all applicable rights and defenses relevant to this matter.

Sincerely,



Ed Riege  
Environmental Manager  
Western Refining Southwest, Inc. – Gallup Refinery

Enclosures

- cc G. von Gonten, OCD without enclosure  
J. Kieling, NMED HWB with enclosure  
N. Dhawan, NMED HWB without enclosure  
T. Blaine, NMED without enclosure  
D. Cobrain, NMED HWB without enclosure  
K. Van Horn, NMED HWB with enclosure  
A. Allen, Western El Paso

Table 1  
 Temporary Sump Recovery Volumes  
 September 2013 Hydrocarbon Release  
 Western Refining Southwest, Inc., Gallup Refinery

DATE	Hydrocarbon Recovered (gallons)	Water Recovered (gallons)	Total Fluids Recovered (gallons)
6/26/2013 - 8/13/2013	?	?	27,000
9/3/2013 <sup>1</sup>	682	3,818	4,500
9/3/2013 <sup>1</sup>	367	4,133	4,500
9/4/2013	62	3,938	4,000
9/6/2013	62	3,938	4,000
9/9/2013	30	4,470	4,500
9/11/2013	30	4,470	4,500
9/13/2013	62	3,938	4,000
9/16/2013	135	5,140	5,275
9/18/2013	125	4,111	4,236
9/24/2013	58	4742	4800
9/26/2013	16	4220	4236
10/2/2013	29	4918	4947
10/8/2013	30	4569	4599
total <sup>2</sup>	1,688	56,405	85,093

1 - two loads were removed on this date

2 - separate totals for hydrocarbon and water not available for full time period

Table 2  
Fluid Level Measurements  
Western Refining Southwest, Inc., Gallup Refinery

Loc.	Date	Top of Casing (ft msl)	Specific Gravity	Depth to HC (ft btoc)	Depth to GW (ft btoc)	Apparent Hydrocarbon Thickness (feet)	Corrected Groundwater Elevation (feet MSL)	Comments
HA1	07/11/13	215.38	0.7970	ND	6.60	0.00	208.78	
	07/12/13	215.38	0.7970	ND	6.60	0.00	208.78	
	07/17/13	215.38	0.7970	ND	6.80	0.00	208.58	
	08/14/13	215.38	0.7970	ND	9.19	0.00	206.19	
	09/25/13	215.38	0.7970	5.44	6.36	0.92	209.75	
HA2	07/12/13	212.86	0.7970	ND	5.51	0.00	207.35	
	07/17/13	212.86	0.7970	ND	5.82	0.00	207.04	
	08/14/13	212.86	0.7970	ND	5.31	0.00	207.55	
	09/25/13	212.86	0.7970	ND	4.80	0.00	208.06	Clear - slight odor detected
HA3	07/12/13	210.84	0.7970	ND	6.40	0.00	204.44	
	07/17/13	210.84	0.7970	ND	6.68	0.00	204.16	
	08/14/13	210.84	0.7970	ND	4.28	0.00	206.56	
	09/25/13	210.84	0.7970	ND	4.01	0.00	206.83	Clear - slight odor detected
HA4	07/12/13	211.26	0.7970	ND	6.41	0.00	204.85	
	07/17/13	211.26	0.7970	ND	6.78	0.00	204.48	
	08/14/13	211.26	0.7970	ND	4.94	0.00	206.32	
	09/26/13	211.26	0.7970	ND	4.50	0.00	206.76	Clear - slight odor detected
HA5	07/12/13	NM	0.7970	ND	5.50	0.00	NA	
	07/17/13	NM	0.7970	NM	NM	NA	NA	well destroyed
SB01	07/17/13	229.84	0.7970	11.50	16.74	5.24	217.28	
	07/25/13	229.84	0.7970	10.85	16.55	5.70	217.83	
	08/14/13	229.84	0.7970	9.88	9.91	0.03	219.95	Has reddish tint - trace of dye?
	09/26/13	229.84	0.7970	9.51	15.19	5.68	219.18	Red - dye - odor
SB02	07/17/13	227.85	0.7970	10.26	10.58	0.32	217.53	
	07/25/13	227.85	0.7970	9.68	9.97	0.29	218.11	
	08/14/13	227.85	0.7970	8.74	9.12	0.38	219.03	
	09/26/13	227.85	0.7970	8.25	8.45	0.20	219.56	red/orange tint - traces of dye
SB03	07/17/13	231.43	0.7970	ND	11.40	0.00	220.03	
	07/25/13	231.43	0.7970	ND	12.84	0.00	218.59	
	08/14/13	231.43	0.7970	ND	12.01	0.00	219.42	
	09/26/13	231.43	0.7970	ND	11.49	0.00	219.94	Clear - slight odor
SB04	07/17/13	232.24	0.7970	ND	13.62	0.00	218.62	
	07/25/13	232.24	0.7970	ND	12.98	0.00	219.26	
	08/14/13	232.24	0.7970	ND	12.19	0.00	220.05	
	09/26/13	232.24	0.7970	11.72	11.79	0.07	220.51	Dark w/traces of yw-grn dye
SB05	07/17/13	234.52	0.7970	14.92	15.95	1.03	219.39	
	07/25/13	234.52	0.7970	14.48	15.40	0.92	219.85	
	08/14/13	234.52	0.7970	13.66	13.75	0.09	220.84	
	09/26/13	234.52	0.7970	13.2	14.25	1.05	221.11	Dark w/traces of yw-grn dye
SB06	07/22/13	235.65	0.7970	14.10	14.11	0.01	221.55	
	07/25/13	235.65	0.7970	14	14.01	0.01	221.65	
	08/14/13	235.65	0.7970	ND	13.07	0.00	222.58	
	09/26/13	235.65	0.7970	12.19	12.4	0.21	223.42	Dark w/traces of yw-grn dye



Table 2  
Fluid Level Measurements  
Western Refining Southwest, Inc., Gallup Refinery

Loc.	Date	Top of Casing (ft msl)	Specific Gravity	Depth to HC (ft btoc)	Depth to GW (ft btoc)	Apparent Hydrocarbon Thickness (feet)	Corrected Groundwater Elevation (feet MSL)	Comments
SB07	07/22/13	239.73	0.7970	14.84	14.85	0.01	224.89	
	07/25/13	239.73	0.7970	14.78	14.79	0.01	224.95	
	08/14/13	239.73	0.7970	ND	13.49	0.00	226.24	
	09/26/13	239.73	0.7970	ND	12.64	0.00	227.09	
SB08	07/22/13	241.29	0.7970	17.88	19.74	1.86	223.03	
	07/25/13	241.29	0.7970	17.80	19.68	1.88	223.11	
	08/14/13	241.29	0.7970	16.65	18.80	2.15	224.20	
	09/26/13	241.29	0.7970	15.96	18.25	2.29	224.87	Dark w/traces of yw-grn dye
SB09	07/22/13	240.69	0.7970	16.64	16.65	0.01	224.05	
	07/25/13	240.69	0.7970	ND	16.65	0.00	224.04	
	08/14/13	240.69	0.7970	ND	14.83	0.00	225.86	
	09/26/13	240.69	0.7970	NM	NM	NA	NA	Bermed area full of water
SB10	07/22/13	241.30	0.7970	ND	8.29	0.00	233.01	
	07/25/13	241.30	0.7970	ND	7.74	0.00	233.56	
	08/14/13	241.30	0.7970	7.57	9.14	1.57	233.41	
	09/26/13	241.30	0.7970	7.35	7.85	0.50	233.85	Dark w/traces of yw-grn dye
SB11	07/22/13	242.26	0.7970	ND	ND	0.00	NA	
	07/25/13	242.26	0.7970	NM	NM	NA	NA	
	08/14/13	242.26	0.7970	14.06	14.08	0.02	228.20	
	09/26/13	242.26	0.7970	13.23	13.45	0.22	228.99	Dark w/traces of yw-grn dye
SB12	07/22/13	241.25	0.7970	14.13	14.14	0.01	227.12	
	07/25/13	241.25	0.7970	ND	14.18	0.00	227.07	
	08/14/13	241.25	0.7970	ND	14.72	0.00	226.53	
	09/26/13	241.25	0.7970	ND	13.15	0.00	228.10	
SB13	07/22/13	241.85	0.7970	ND	15.21	0.00	226.64	
	07/25/13	241.85	0.7970	ND	15.03	0.00	226.82	
	08/14/13	241.85	0.7970	ND	14.75	0.00	227.10	
	09/26/13	241.85	0.7970	ND	13.65	0.00	228.20	
SB14	07/25/13	240.79	0.7970	ND	16.09	0.00	224.70	
	08/14/13	240.79	0.7970	ND	15.70	0.00	225.09	
	09/26/13	240.79	0.7970	ND	15.25	0.00	225.54	
SB15	07/25/13	239.04	0.7970	ND	19.46	0.00	219.58	
	08/14/13	239.04	0.7970	ND	18.54	0.00	220.50	
	09/26/13	239.04	0.7970	ND	17.83	0.00	221.21	
SB16	07/25/13	234.64	0.7970	11.04	14.20	3.16	222.96	
	08/14/13	234.64	0.7970	10.76	11.36	0.60	223.76	Has reddish tint - trace of dye?
	09/26/13	234.64	0.7970	10.34	10.69	0.35	224.23	orange w/red tint - traces of dye
SB17	07/25/13	229.88	0.7970	12.00	12.13	0.13	217.85	
	08/14/13	229.88	0.7970	11.09	11.25	0.16	218.76	
	09/26/13	229.88	0.7970	9.79	13.02	3.23	219.43	orange w/red tint - traces of dye

Table 2  
Fluid Level Measurements  
Western Refining Southwest, Inc., Gallup Refinery

Loc.	Date	Top of Casing (ft msl)	Specific Gravity	Depth to HC (ft btoc)	Depth to GW (ft btoc)	Apparent Hydrocarbon Thickness (feet)	Corrected Groundwater Elevation (feet MSL)	Comments
SB18	07/25/13	238.53	0.7970	ND	18.58	0.00	219.95	
	08/14/13	238.53	0.7970	ND	17.54	0.00	220.99	
	09/26/13	238.53	0.7970	ND	14.6	0.00	223.93	
SB19	07/25/13	237.74	0.7970	ND	19.45	0.00	218.29	
	08/14/13	237.74	0.7970	18.30	18.80	0.50	219.34	
	09/26/13	237.74	0.7970	17.3	21.3	4.00	219.63	Dark w/traces of yw-grn dye
SB20	07/25/13	232.05	0.7970	13.62	16.24	2.62	217.90	
	08/14/13	232.05	0.7970	12.88	16.3	3.42	218.48	
	09/26/13	232.05	0.7970	12.37	15.4	3.03	219.06	Dark w/traces of yw-grn dye
SB21	07/25/13	227.33	0.7970	9.93	12.15	2.22	216.95	
	08/14/13	227.33	0.7970	9.20	9.98	0.78	217.97	
	09/26/13	227.33	0.7970	8.49	9.57	1.08	218.62	Dark w/traces of yw-grn dye
SB22	07/25/13	223.96	0.7970	7.89	10.99	3.10	215.44	
	08/14/13	223.96	0.7970	6.77	7.91	1.14	216.96	
	09/26/13	223.96	0.7970	6.35	9.45	3.10	216.98	red/orange tint - traces of dye
S-1	08/14/13	214.41	0.7970	3.76	3.89	0.13	210.62	
	9/25/2013	214.41	0.7970	2.97	4	1.03	211.23	
S-2	08/14/13	215.55	0.7970	5.90	6.01	0.11	209.63	
	9/25/2013	215.55	0.7970	5.28	5.66	0.38	210.19	
S-3	08/14/13	213.08	0.7970	5.02	5.19	0.17	208.03	
	9/25/2013	213.08	0.7970	4.44	4.69	0.25	208.59	
S-4	08/14/13	211.42	0.7970	3.70	ND	3.70	NA	
	9/25/2013	211.42	0.7970	3.04	3.11	0.07	208.37	
S-5	08/14/13	213.19	0.7970	3.71	3.96	0.25	209.43	
	9/25/2013	213.19	0.7970	3.02	3.48	0.46	210.08	
S-6	08/14/13	214.28	0.7970	3.96	4.37	0.41	210.24	
	9/25/2013	214.28	0.7970	3.3	3.85	0.55	210.87	

ND - no product detected

NM - not measured

NA - not available

Specific gravity calculated using an API Gravity of 45.7.





QUADRANGLE LOCATION

LEGEND

- SB01 SOIL BORING / TEMPORARY WELL LOCATION
- HA1 HAND AUGER LOCATION
- EXCAVATION LOCATION
- S01 TEMPORARY SUMP
- 219.00 POTENTIOMETRIC CONTOUR (FT)
- 219.95 GROUNDWATER ELEVATION (FT) MEASURED ON AUGUST 14, 2013
- DATA POINT NOT USED FOR CONTOURS
- RELEASE POINT

NOTE:  
ELEVATIONS BASED ON PLANT DATUM,  
WHICH IS 6,707.54 FT ABOVE MEAN SEA LEVEL



PROJ. NO.: Western Refining DATE: 09/16/13 FILE: WestRef-B174

FIGURE 1  
AREA WIDE POTENTIOMETRIC MAP  
AUGUST 2013

**RPS** Cielo Center  
1250 S. Capital of Texas Highway  
Building 3, Suite 200  
Austin, Texas 78746  
TBPE No. 1298







QUADRANGLE LOCATION

LEGEND

- SB01 SOIL BORING / TEMPORARY WELL LOCATION
- HA1 HAND AUGER LOCATION
- EXCAVATION LOCATION
- S01 TEMPORARY SUMP
- A ——— A' LINE OF CROSS-SECTION



PROJ. NO.: Western Refining | DATE: 10/09/13 | FILE: WestRef-B175

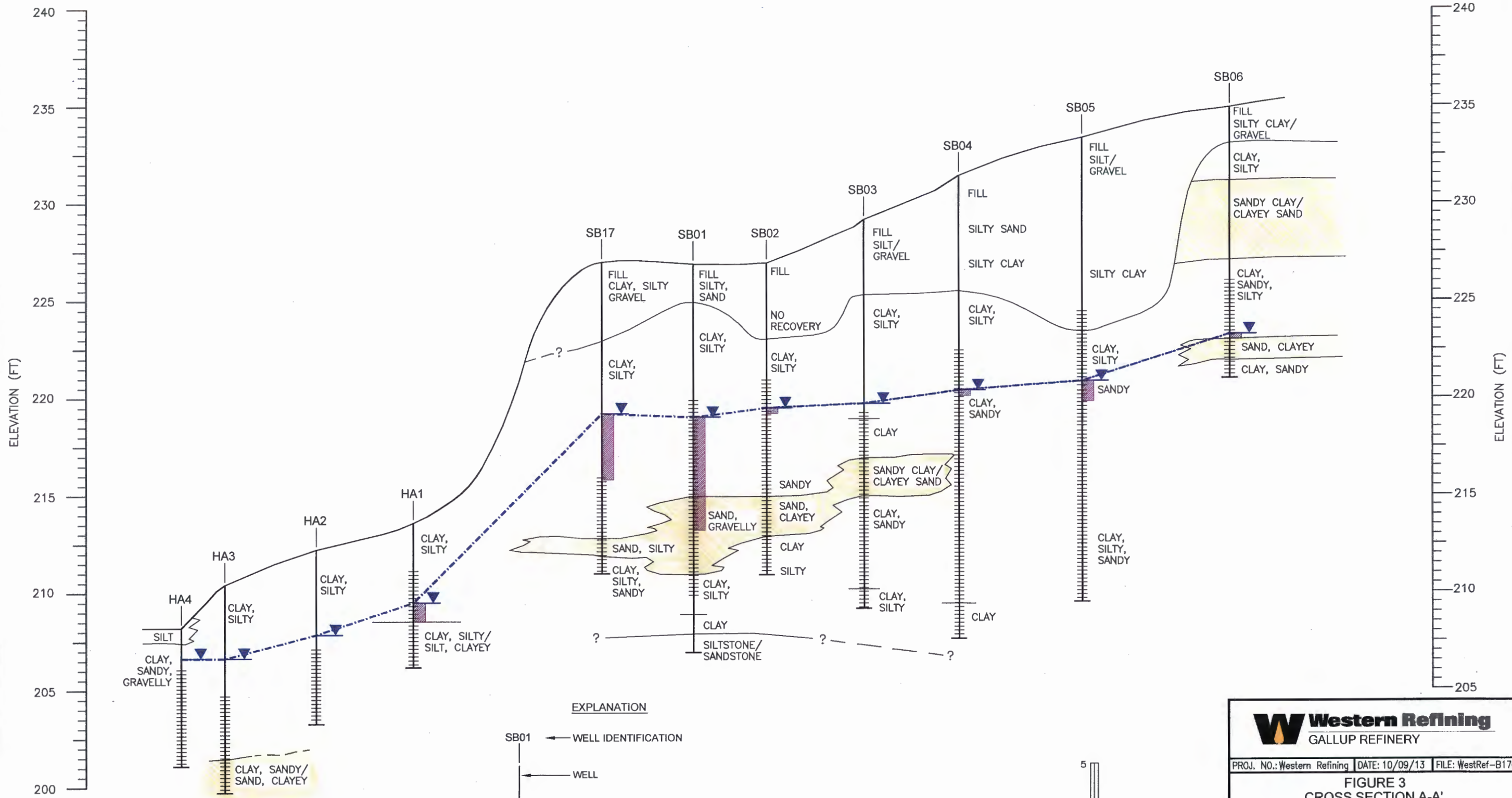
FIGURE 2  
CROSS-SECTION LOCATION MAP

**RPS** Cielo Center  
 1250 S. Capital of Texas Highway  
 Building 3, Suite 200  
 Austin, Texas 78746  
 TBPE No. 1298



NORTH  
A

SOUTH  
A'



NOTE:  
ELEVATIONS BASED ON PLANT DATUM,  
WHICH IS 6,707.54 FT ABOVE MEAN SEA LEVEL

**EXPLANATION**

- SB01 ← WELL IDENTIFICATION
- ← WELL
- ← TEMPORARY WELL SCREEN INTERVAL
- LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)

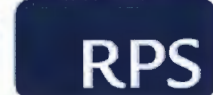
- ▼ POTENTIOMETRIC SURFACE MEASURED 09/26/2013
- █ PHASE-SEPARATED HYDROCARBON THICKNESS, MEASURED 09/26/2013

5  
0 50  
SCALE IN FEET  
VERTICAL EXAGGERATION = 10X

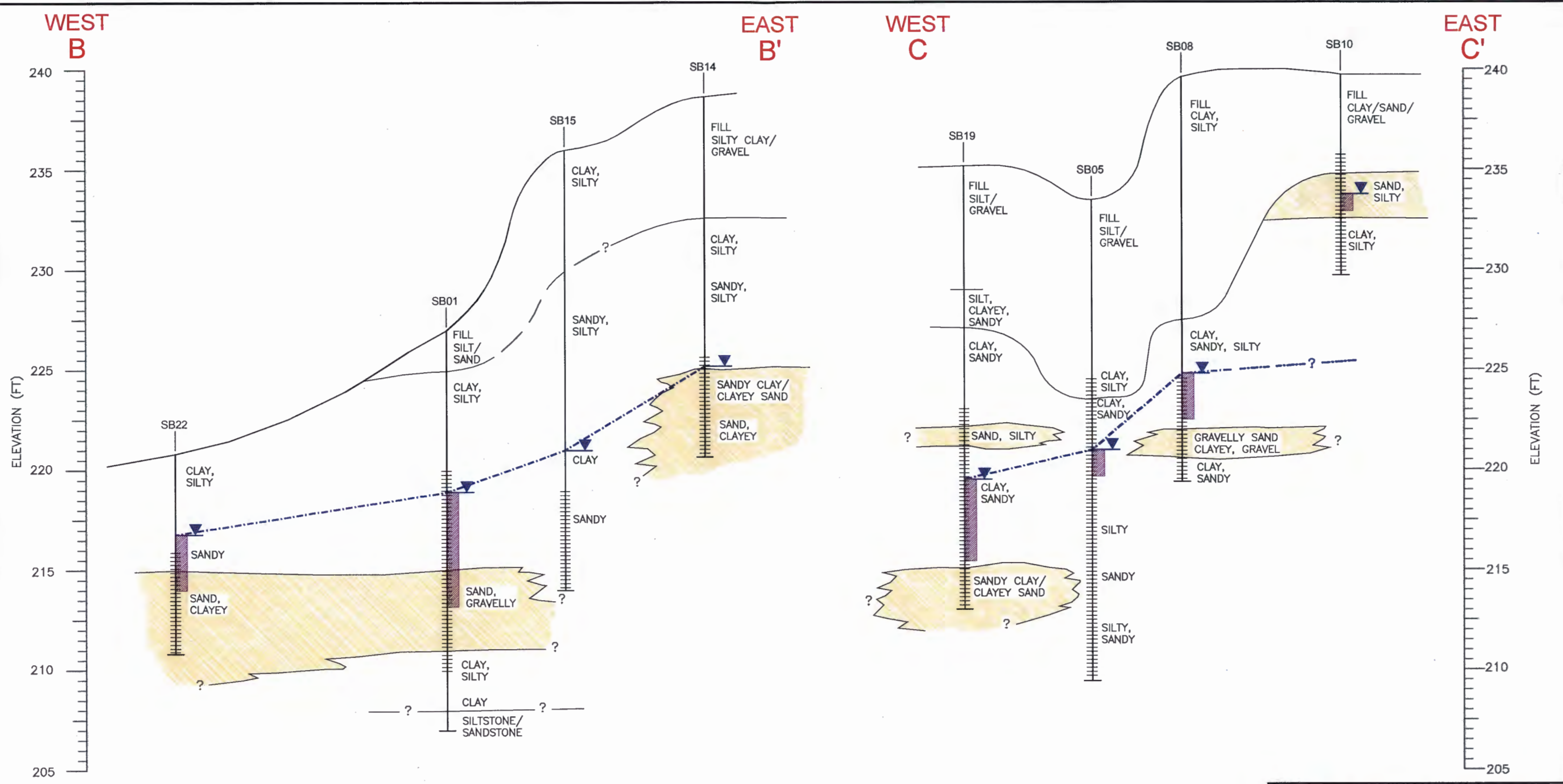


PROJ. NO.: Western Refining | DATE: 10/09/13 | FILE: WestRef-B176

FIGURE 3  
CROSS SECTION A-A'  
NORTH TO SOUTH  
GALLUP REFINERY



Cielo Center  
1250 S. Capital of Texas Highway  
Building 3, Suite 200  
Austin, Texas 78746  
TBPE No. 1298



**EXPLANATION**

SB01 ← WELL IDENTIFICATION

← WELL

← TEMPORARY WELL SCREEN INTERVAL

← LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)

▼ POTENTIOMETRIC SURFACE MEASURED 09/26/2013

■ PHASE-SEPARATED HYDROCARBON THICKNESS, MEASURED 09/26/2013

NOTE: ELEVATIONS BASED ON PLANT DATUM, WHICH IS 6,707.54 FT ABOVE MEAN SEA LEVEL

SCALE IN FEET VERTICAL EXAGGERATION = 10X

**Western Refining**  
GALLUP REFINERY

PROJ. NO.: Western Refining | DATE: 10/09/13 | FILE: WestRef-B177

**FIGURE 4**  
CROSS SECTION B-B' AND C-C'  
WEST TO EAST  
GALLUP REFINERY

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