

February 9, 2017



Via Email and Certified Mail, Return Receipt Requested

Mr. John E. Kieling
Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 2
Santa Fe, NM 87505-6303

**Re: Response to Notice of Violation
Western Refining Company Southwest, Inc., Gallup Refinery
EPA ID #NMD000333211**

Dear Mr. Kieling:

Western Refining Southwest, Gallup Refinery (“Western”) submits this letter in response to the New Mexico Environment Department Hazardous Waste Bureau’s (the “Bureau”) October 11, 2016 letter responding to Western’s July 7, 2016 letter relating to the Bureau’s April 20, 2016 Notice of Violation (“NOV”). The NOV relates to a soils excavation described in the July 2015 *Western Refining Hydrocarbon Seep Interim Measures Report* (the “Report”). The Bureau’s October 11th letter requests additional information in order to support withdrawal of the NOV. Western provides that information below.

I. Additional Requested Information

In particular, the Bureau’s October 11th letter noted that Western should provide figures, diagrams, or other information that would allow the Bureau to verify that no F037 or K049 listed wastes were present in the excavated soils. That letter also contained three bullet-point comments and invited additional response from Western.

A. Bullet Points

1. The Bureau’s letter provided two figures (designated Figure 1 and Figure 2) that it believed showed (along with a Plant Map in the Bureau’s files) a storm water drain pipe from the Process Area that connects to the Truck Rack Line south of the Heat Exchanger Bundle Cleaning Pad; and (ii) a wastewater line from the Marketing Tanks, Transmix Loading Rack), and the Truck Loading Racks that connects to the Truck Rack Line. However, in fact, the storm drain pipe from the Process Area does not connect to the Truck Rack Line south of the Heat Exchanger Bundle Cleaning Pad. We believe there is confusion

in interpreting these figures that likely arises from the scale of the lines depicted on the figures, as explained below. We have attached Figure 2 as Exhibit 1 to this letter and refer to it below.

We first direct your attention to Exhibit 1. That figure shows that the storm drain pipe and the process drain pipe run parallel to each other heading north, and remain separate. This is better shown on the color-coded map attached as Exhibit 2 and entitled “Process Area, Process Storm Drainage Study Plan.” That map shows the storm water drain pipe crossing the Truck Rack Line and then running parallel to the north. Also attached as Exhibit 3 is a photograph from the 2015 Interim Measures Report – Hydrocarbon Seep Area. The two pipe lines have been labeled and are on completely different planes. These lines do not connect until they are heading west toward T-35, north of T-101.

2. The Bureau’s letter expressed the concern that the Truck Rack Line contained wastewater that carried slop oil. This appears to arise from our use of the term “transmix.” Western uses the term “transmix” to describe a mixture of hydrocarbons (products such as diesel, gasoline and potentially crude oil) recovered from various sources including pipelines, product tanks, and marketing terminals – not slop oil. The transmix at the Gallup refinery does not consist of recovered hydrocarbons from the refinery process sewer system and/or other sources in the refinery process areas.

We also note that even if the transmix at Gallup were slop oil, it could not form listed waste slop oil emulsion solids (K049) in the Truck Rack Line. A December 7, 1984 U.S. Environmental Protection Agency (EPA) memorandum¹ describes K049 as follows:

Slop oil emulsion solids **are generated in the first vessel** where the oil/water emulsion is allowed to stratify. The emulsion layer that forms is the listed hazardous waste (K049-Slop oil emulsion solids from petroleum refineries) independent of the subsequent treatment, storage, reclamation or disposal steps to be applied to the waste.²

There is no “vessel” upstream of the line that allows formation of an oil-solids-water emulsion layer in transmix that may enter the sewer from the Truck Rack Line during loading and unloading operations. Also, because of the high velocity of the water flowing in the storm sewer, as shown in the calculations in I.B. below, there is no possibility that a stratified emulsion layer could form and/or accumulate in the sewer, even if slop oil is present in the water entering the sewer.

3. The Bureau’s third bullet expresses the concern that the contact wastewater and process sewer lines are connected based on Figure 2. As noted in paragraph 1 above,

¹ RCRA Online No. 12347, <https://yosemite.epa.gov/osw/rcra.nsf/>

² See EPA Guidance at RCRA Online No. 12347, <https://yosemite.epa.gov/osw/rcra.nsf/>.

Exhibit 1, Exhibit 2, Exhibit 3, and the color coded map entitled “Sewerage & Drainage System” attached as Exhibit 4 show that the storm water drain pipe crosses the Truck Rack Line without intersecting it, and then both lines run parallel to the north. These lines do not connect until well downstream of the excavated portion of the Truck Rack Line. The Truck Rack Line at issue does not meet the definition of a storm water unit receiving dry weather flow.

B. F037 Issues

The third bullet point in the Bureau’s letter also commented on Western’s information concerning why F037 listed wastes are not at issue. The preceding discussion and attached maps fully show that F037 waste is not at issue in the excavated soils. However, we would like to take this opportunity to provide additional support explaining why the excavated soils could not, by legal definition, be F037 wastes.

We must first note that there were no sludges in evidence during the excavation of the pipe and we are unsure why any assumption is made concerning the presence of sludges. Nevertheless, as to F037 waste formation, the Bureau’s letter focuses on a portion of the regulatory description in the F037 listing: “any sludge generated from the gravitational separation of oil/water/solids during storage or treatment of process wastewaters from petroleum refineries.” EPA has explained, though, that F037 **only** forms when the sludge settles by gravity in a treatment or storage unit, and F037 (or any other listed petroleum refinery wastewater sludge) is **not** transported in a wastewater stream unless it is “scoured” from a unit in which it has settled. *See* RCRA Online No. 11626, <https://yosemite.epa.gov/osw/rcra.nsf/>. These are significant and applicable distinctions from a legal standpoint that exclude any sludges in the portion of the Truck Rack Line at issue from the F037 definition.

Even if it were theoretically possible for listed sludges to form in the Truck Rack Line (which legally it is not), the design of that line simply will not allow gravitational separation of any oil/water/solids because of the high velocity of water in the sewer. Because there can be no gravitational separation of oil/water/solids in the sewer, F037 cannot be generated nor accumulated.

As shown on Exhibit 4 (the “Sewerage & Draining System” map), the sewer line is an 8-inch diameter pipe installed at a 2.7% slope. These design data allow calculations, using Mannings Equation, of the velocity of water in the sewer when it is flowing full or partially full.

Mannings Equation for velocity in pipes is:

$$v = \frac{1.486}{n} r^{2/3} s^{1/2}$$

where: n is the pipe roughness, 0.01 for welded steel pipe

r = hydraulic radius (ft) = 0.167 for an 8-inch pipe flowing full

s = slope (ft/ft) = 0.0027 (2.7% slope)

v = velocity, ft/sec

The calculated velocity if the 8-inch sewer line is flowing full is 7.39 ft/sec. The velocity of the flowing water when the line is partially full is calculated using the hydraulic radius (cross-sectional area/wetted perimeter) at different water depths in the sewer. If the sewer line is only flowing at a water depth of 0.8 inch (0.1 of the total depth which equates to a low flow of 0.5 gallons/minute), the velocity is 2.97 ft/sec.

It is physically impossible for any amount of oil or solids to separate in the sewer by gravity at a water horizontal velocity of 2.97 ft/sec or greater. The API oil/water separator design maximum horizontal velocity is 0.05 ft/second for comparison. Therefore, it is impossible for F037 sludge to form or accumulate in the storm sewer and, by definition, F037 sludge cannot form outside a vessel/treatment unit.

We hope that the preceding discussion will provide the support necessary for the Bureau to conclude that no listed wastes were at issue in the Truck Rack Line excavation, and to withdraw the NOV. Accordingly, Western requests a meeting at your offices to further discuss details in this letter and withdrawal of the NOV. We appreciate the opportunity to provide this information and would be glad to meet with you in Santa Fe if it would facilitate the Bureau's review of these issues. Please note that nothing herein should be construed as an admission of any kind. Western reserves all applicable rights and defenses in this matter.

Sincerely,



Bill Bailey
Environmental Supervisor

cc: Kathryn Roberts, NMED (via email)
C. Chavez, EMNRD OCD (via email)
Ann Allen (via email)
Allen Hains (via email)

Exhibit 1

Mr. Riege
Gallup Refinery
October 11, 2016
Page 7

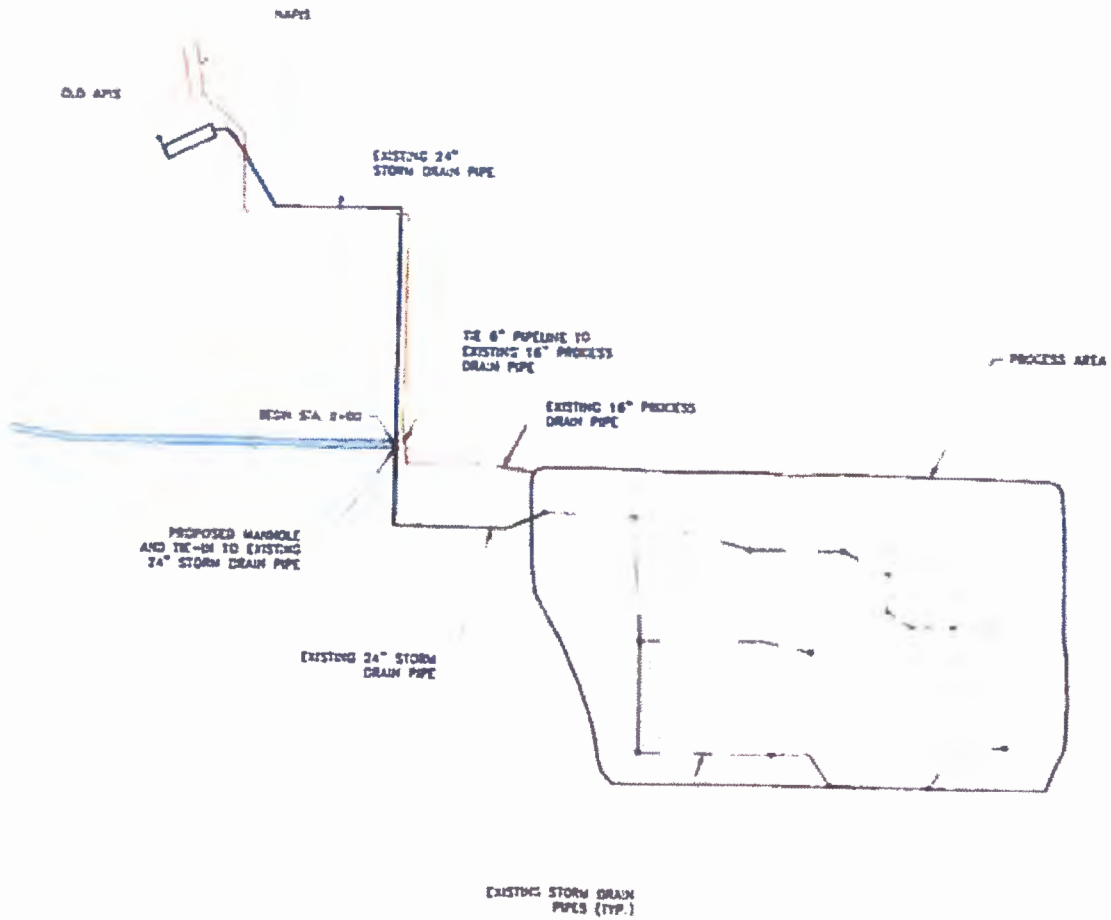


Figure 2. From "Stormwater Extension Project" document, 2007

Exhibit 2



█ Stormwater
█ Marketing tanks
█ Transmix Loading
█ Truck Loading
█ Line replacement
█ Process

ISSUED FOR BID
 NOT FOR CONSTRUCTION
 THIS DRAWING HAS BEEN ISSUED FOR BID
 AS OF 05/16/97
 RAPLEY ENGINEERING SERVICES, INC.

- LEGEND**
- EDGE OF CONCRETE
 - EXIST CONCRETE CURB
 - - - APPROX RIDGE LINE (HP)
 - - - EXIST TRENCH DRAINS
 - - - EXIST PROCESS DRAINS
 - - - PROPOSED CONCRETE AREA
 - - - PROPOSED NEW PROCESS DRAIN
 - (C-5) DRAINAGE AREA
 - (K) STUDY POINT

- NOTES**
- UNLESS NOTED ALL EXISTING PROCESS DRAINS ARE 4". PIPE DIAMETER BASED ON INFORMATION PROVIDED BY GIANT REFINERY.
 - REFER TO DWG'S E280-09-531 THRU 539 FOR PROCESS DRAINAGE CONSTRUCTION DRAWINGS.

MARK	DATE	DESCRIPTION	BY	APRVD
D	05/16/97	ISSUED FOR BID	DPB	
C	06/20/96	ISSUED FOR BID	DPB	
B	07/12/96	ADD PROP SWR & NEW STUDY PIS	DPB	
A	11/03/95	CLIENT REVIEW	DPB	

CINIZA REFINERY **GIANT** GALLUP NEW MEXICO
 REFINING, CO.
 A DIVISION OF GIANT INDUSTRIES

**PROCESS AREA
 PROCESS STORM DRAINAGE
 STUDY PLAN**

SCALE	1" = 40'	APRVD.	
DATE	10-25-95	APRVD.	
DRN.	DPB	40	REV.
CHK'D.	JHW	IDWG NO. E280-09-530	D

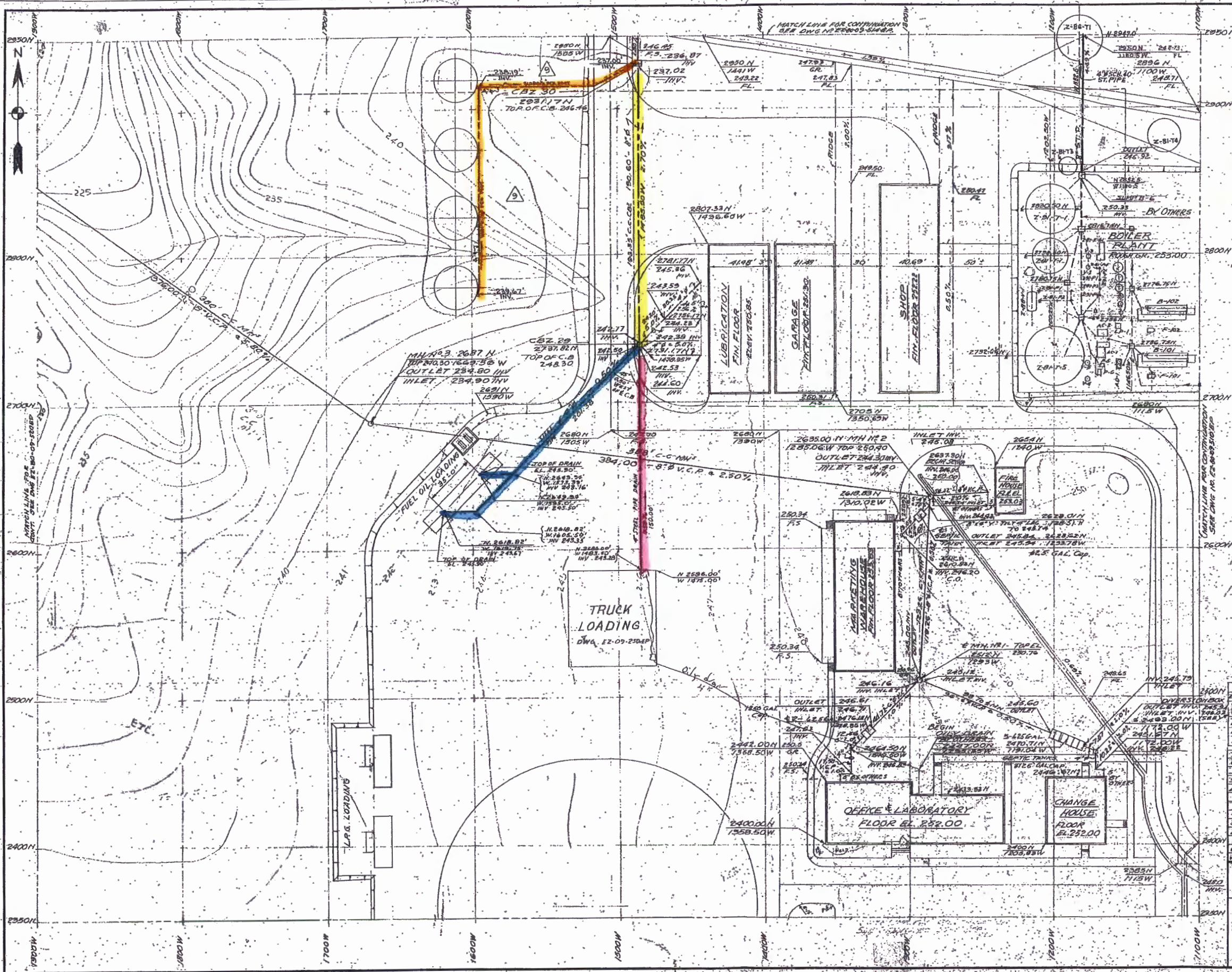
Exhibit 3

Photos of Sewer Pipeline Repair near Bundle Cleaning Pad



Photo of replaced sewer line near south end of excavation looking to the west.

Exhibit 4



REVISIONS			
1	12-24-51	ADDED 2" DIA. 110' TO 250' DIA. 110'	DFE
2	12-27-51	ADDED 2" DIA. 110' TO 250' DIA. 110'	DFE

- Marketing Tanks
- Transmix
- Truck Loading
- Line Replacement

NOTE: SEPTIC TANKS 3' WIDE x 8' LONG x 4' DEEP. FIELD PROVIDE LEVEL BOTTOM 1/4" BELOW INVERT OF PIPE. BATTERY OF SEPTIC TANKS TO BE USED GAL. TANKS IN SERIES.

- LEGEND:
- SEWAGE
 - DIRT/OIL DRAINAGE
 - DIRT/OIL DRAINAGE IN BOILER PLANT

NOTE: SEPTIC TANKS SHALL BE NOTIFICATION OR EQUAL BATTERY OR SINGLE.

APPROVED FOR CONSTRUCTION
 W. R. RYAN
 ENGR. 1-1-51
 E. J. BROWN
 1-1-51

DWG. NO.	DESCRIPTION	
2500-01-10	BOILER PLANT UNDERGROUND PIPING PLAN	
2500-01-11	STABLE GAS AIR OVERHEAD/2500	
2500-01-12	SEWERAGE & DRAINAGE SYSTEM	
2500-01-13	CATCH BASIN/STREETS CONTROL BOX	
2500-01-14	KEY PLAN	
2500-01-15	SITE GRADING PLAN	
2500-01-16	REFERENCE DRAWINGS	
1	12-24-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
2	12-27-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
3	1-1-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
4	1-1-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
5	1-1-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
6	1-1-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
7	1-1-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
8	1-1-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
9	1-1-51	ADDED 2" DIA. 110' TO 250' DIA. 110'
10	1-1-51	ADDED 2" DIA. 110' TO 250' DIA. 110'

THIS PRINT IS THE PROPERTY OF
SOUTHWESTERN ENGINEERING COMPANY
 4800 SANTA FE AVE., LOS ANGELES, CALIF.
 AND IN ACCORDANCE WITH THE PROVISIONS OF THE CONTRACT THAT IT IS TO BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTERESTS OF THIS COMPANY.

SEWERAGE & DRAINAGE SYSTEM

2500N TO 2950N
 1100W TO 1900W

EL PASO NATURAL GAS PRODUCTS COMPANY
 CHEMICAL REFINERY - NEW MEXICO

DRAWING SIZE: 11" x 17"