



January 20, 2015

Ms. Heather Patterson
NMOCD District 2
811 S. 1st Street
Artesia, NM

RE: Soil Assessment and Remediation Work Plan
Devon Energy Corporation
Littlefield AB Tank Battery
Eddy County, NM

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 05 2015

RECEIVED

30-015-20300
(Nearest well)
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Dear Ms. Patterson:

Devon Energy Corporation (Devon) has contracted Enviro Clean Services (ECS) to perform soil assessment and remediation services at the Littlefield AB Tank Battery in Eddy County, NM. The results of the soil assessment and proposed remediation activities are presented below.

Site Information

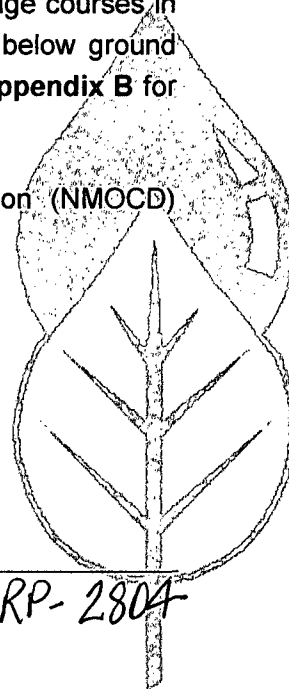
The Littlefield AB Tank Battery is located nine miles southeast of Loco Hills in Eddy County, New Mexico. The legal location is Section 22, Township 18S, Range 31E, with a latitude of N32.7336 and a longitude of W103.85727. It consists of approximately one half acre with three tanks, a heater treater, and a separator. The Site Plan is provided in **Appendix A**.

According to the US Department of Agriculture Natural Resource Conservation Service soil survey, the soil in this area is made up of Berino-Pajarito fine sands with 0 to 3% eroded slopes. Per the New Mexico Bureau of Geology and Mineral Resources, the local surface geology is Holocene to middle Pleistocene in age and is comprised of eolian sands. Drainage courses in the area are normally dry. Groundwater in this area is greater than 100 feet below ground surface (bgs), according to the New Mexico Office of the State Engineer. See **Appendix B** for the referenced groundwater data.

Ranking for this site, according to the New Mexico-Oil Conservation Division (NMOCD) Environmental Handbook, is **0** based on the following:

Depth to groundwater	>100'
Wellhead protection area	>1000'
Distance to surface water body	>1000'

2RP-2804



Incident Description

This incident occurred prior to Devon's acquisition of this facility in 2005; therefore, the origin of impact is not known. There is an asphaltene substance on the north and east side of the firewall. This area extends from the fence to approximately 110 feet to the north and to the east of the fence approximately 30 feet. At the north fence line, the impact is 200 feet wide and narrows to 20 feet wide on the north end of the impact. The asphaltenes are not continuous throughout this area, and some vegetation is scattered throughout this area.

Sample Collection

On January 5, 2015, ECS field staff collected ten samples at five locations within the impacted area. Grab samples were collected at the surface and at two feet bgs at each of the five locations using a hand auger. These samples were analyzed for Total Petroleum Hydrocarbons (TPH), per Method 8015M and Chlorides, per EPA Method 300. The results are provided in Table 1. The laboratory analytical report and chain of custody documentation are provided in Appendix C.

Table 1- Summary of Analytical Results

Sample ID	Depth	Chlorides (mg/Kg)	TPH C6-C12 (mg/Kg)	TPH C12-C28 (mg/Kg)	TPH C28-C35 (mg/Kg)	Total TPH C6-C38 (mg/Kg)
001	Surface	6.60	274	19,900	5,850	26,000
001B	2 ft. bgs	<1.06	<26.6	269	197	465
002	Surface	<1.01	<25.3	836	373	1,210
002B	2 ft. bgs	<1.03	<25.8	587	292	879
003	Surface	<1.01	<25.3	1,190	776	1,960
003B	2 ft. bgs	<1.10	<27.5	<27.5	<27.5	<27.5
004	Surface	<1.02	<25.5	1,800	1,050	2,840
004B	2 ft. bgs	<1.06	<26.6	<26.6	<26.6	<26.6
005	Surface	<1.11	<27.8	2,090	1,170	3,260
005B	2 ft. bgs	<1.03	<25.8	1,170	521	1,690

All of the TPH results from the samples collected on the surface are above the NMOCD action level of 1,000 mg/Kg; however, only one of the samples collected at 2 feet bgs is above the action level. Chloride levels are below the NMOCD action level for all samples.

Proposed Remedial Actions

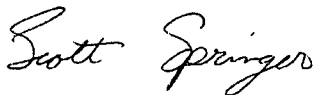
ECS proposes excavating the impacted area, excluding the area around sample location 005, to at a minimum of 2 ft. bgs. Sample 005 is located at the lowest elevation point of the impacted

area, where the release likely pooled. This area will be excavated until PID results indicate the TPH level is below 1,000 mg/Kg. The base of the excavation will be tilled using a mechanical tiller on a skid steer. Once the soil has been tilled, the area will be treated with an EnviroClean solution, a hydrocarbon degradation agent that will aid in breaking down the TPH. Confirmation samples will be collected approximately three months after the treatment and analyzed for TPH, Method 8015M.

A report detailing the remediation activities and sample results will be generated upon completion of the project and provided to the NMOCD, Artesia Office, along with a Final C-141 Form. If you have any questions about the information presented in this work plan, please don't hesitate to contact me at (432) 301-0209 or at sspringer@envirocleanps.com.

Sincerely,

Enviro Clean Services, LLC



Scott Springer
Permian Basin Operations Manager

Attachments: Appendix A: Site Plan
Appendix B: Groundwater Data
Appendix C: Laboratory Analytical Report and Chain of Custody Documentation

APPENDIX A

SITE PLAN

APPENDIX B
GROUNDWATER DATA

APPENDIX C

LABORATORY ANALYTICAL REPORT AND CHAIN OF CUSTODY DOCUMENTATION