**APPROVED**
**By Olivia Yu at 12:42 pm, Sep 21, 2017**

# SAMPLING AND ANALYSIS PLAN
# SFPRR #015
# Lea County, New Mexico

NMOCD approves of the proposed delineation for 1RP-4809. Conditions of approval are in the email correspondence.

## Rover Operating, LLC
## Dallas, Texas

OCD Incident Number 1RP-4809

September 2017

Prepared by:

CK ASSOCIATES
Environmental Consultants
17170 Perkins Road
Baton Rouge, LA 70810

CK Project Number: 15429

## TABLE OF CONTENTS



## LIST OF FIGURES

## 1.0 INTRODUCTION

CK Associates (CK) was retained by Rover Operating, LLC (Rover) to prepare this Sampling and Analysis Plan (SAP) to evaluate soil conditions associated with a release that occurred from an out-of-service 500-barrel tank on oil lease SFPRR #015 in Lea County, New Mexico (**Figure 1**). This SAP was prepared in general accordance with the *Guidelines for Remediation of Leaks, Spills, and Releases* (New Mexico Oil Conservation Division [OCD] 1993). It includes a summary of the release and response activities, the proposed scope of work, and the project schedule. The objective of this SAP is to provide methodology for 1) soil sample collection; and 2) evaluation of site soil analytical data with respect to OCD (1993) soil remediation action levels.

## 2.0 SUMMARY OF RELEASE and RESPONSE ACTIVITIES

On September 5, 2017 at approximately 11:00 am, Rover discovered a release from an out-of-service 500-barrel tank. The tank contained slop oil bottoms (BS&W) that were released within the SFPRR #015 pad area. The estimated volume released and recovered was approximately 30 barrels. Approximately 20 barrels remained within the earthen berm around the tank and approximately 10 barrels flowed within low lying areas immediately outside of the earthen berm. The geographical location of the pad and the general spread of the release is depicted in **Figure 2**. Rover personnel were at the site on September 4, 2017 and did not note evidence of a release. Based on this information, the release occurred within 24 hours of its discovery on September 5, 2017.

Upon discovery of the release, Rover deployed a vacuum truck to recover pooled fluids and then initiated backhoe operations to remove impacted soils until visually clean. Approximately 4-6 inches of soil were removed from the flow path and piled on a plastic liner in preparation for transport to Gandy Marley for disposal (OCD permitted land farm). In total, approximately 44 yards of contaminated soils and 30 barrels of fluids were collected for disposal.

## 3.0 REMEDIATION ACTION LEVELS

To determine the appropriate soil remediation action levels, CK applied the OCD (1993) ranking criteria to the site as follows:

| | Ranking Score |
|---|---|
| (1) depth to ground water > 100 feet | 0 |
| (2) wellhead protection area > 2-miles | 0 |
| (3) distance to surface water > 5-miles | 0 |

Based on the above, the total ranking score is “0”. The remediation action levels appropriate for this site, based on a total ranking score of “0” are (OCD, 1993):

| | |
|---|---|
| Benzene | 10 ppm |
| BTEX | 50 ppm |
| TPH | 5000 ppm |
| Chlorides | 600 ppm (based on verbal communication with OCD) |

Currently, no further actions are being taken on the site soils until the confirmatory sampling and analyses proposed below are conducted on the in-situ soil remaining after response activities.

## 4.0 PROPOSED SCOPE OF WORK

### 4.1 Scope of Work

The purpose of this proposed scope of the work is to vertically and laterally delineate impacts in soil associated with the release of the slop oil tank bottoms (**Figure 2**). The proposed scope of work includes 1) collection of soil samples; 2) sample submission to an analytical laboratory for analysis, and 3) preparation of an investigation report for the OCD which includes an evaluation of results with respect to appropriate remediation goals and proposed path forward.

### 4.2 Soil Sample Collection

As shown in Figure 2, a total of 13 soil samples will be collected from the impacted area. In addition, two background samples will be collected from unimpacted areas. Soil samples will be collected at each location at approximately 3 inches below ground surface (bgs) and 24 inches bgs. To facilitate soil sampling, a back hoe, excavator, and/or shovel, may be utilized at each sampling location to reach the desired depth. Soil samples from the borings will be visually observed and screened using a photoionization detector (PID). If the PID indicates headspace gas concentrations above 100 parts per million (ppm), CK will continue to vertically delineate impacts in 6 inch increments. Once concentrations of headspace gases are below 100 ppm, soil samples will be collected for laboratory analysis in manner to minimize the possibility of cross-contamination. Soil samples to be analyzed for volatile constituents will be collected in accordance with Method 5035.

Additionally, soil electrical conductivity (EC) will be measured in the field and compared to background field measurements. Chloride soil sampling locations may be moved or added based on the results of the EC field screening results.

### 4.3 Sample Handling

The procedures outlined in this section apply to each sample, including field quality assurance/quality control (QA/QC) samples, collected as part of the scope of work.

The environmental sampling personnel will utilize new, clean sampling gloves prior to handling samples or sampling equipment. Sampling equipment will be decontaminated prior to arriving at the site and between sample locations.

Soil samples will be placed in new, laboratory-supplied sample containers, labeled with a unique identification number, and placed on ice in an ice chest. Samples will be kept under secure conditions with chain of custody forms and shipped to the laboratory.

### 4.4 Chemical Analysis

Chemical analyses, documentation, and reporting will follow the guidelines of OCD (1993) and the United States Environmental Protection Agency (USEPA). Soil samples will be analyzed for the following constituents of concern (COCs): Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX; EPA Method 8260B), Total Petroleum Hydrocarbons (TPH; EPA Method 8015B), and Chlorides (EPA Method SW-846 300).

### 4.5 Field Quality Assurance/Quality Control Measures

The following field QA/QC samples that will be collected and submitted to the laboratory:

- Field Blank – one field blank per day for BTEX and gasoline range TPHs;
- Field Duplicate – one soil field duplicate per 20 samples for all parameters; and
- Trip Blank – one trip blank for BTEX and gasoline range TPHs

Rinsate blanks will not be collected, as equipment will not come in direct contact with the soil being collected for laboratory analysis. In the event that soil does contact equipment, a rinsate blank will be collected.

### 4.6 Equipment Decontamination and Investigation-Derived Waste Management

Decontamination of non-disposable sample collection equipment will be performed utilizing an Alconox® detergent wash and a potable water rinse between each soil sample location. Water from decontamination activities in United States Department of Transportation (USDOT) approved containers and will be stored on-site for waste characterization and proper disposal. Excavated soil will be piled on a plastic liner in preparation for transport to Gandy Marley for disposal (OCD permitted land farm). If analytical results indicate concentrations are below remediation action levels, soil will be left on site and graded.

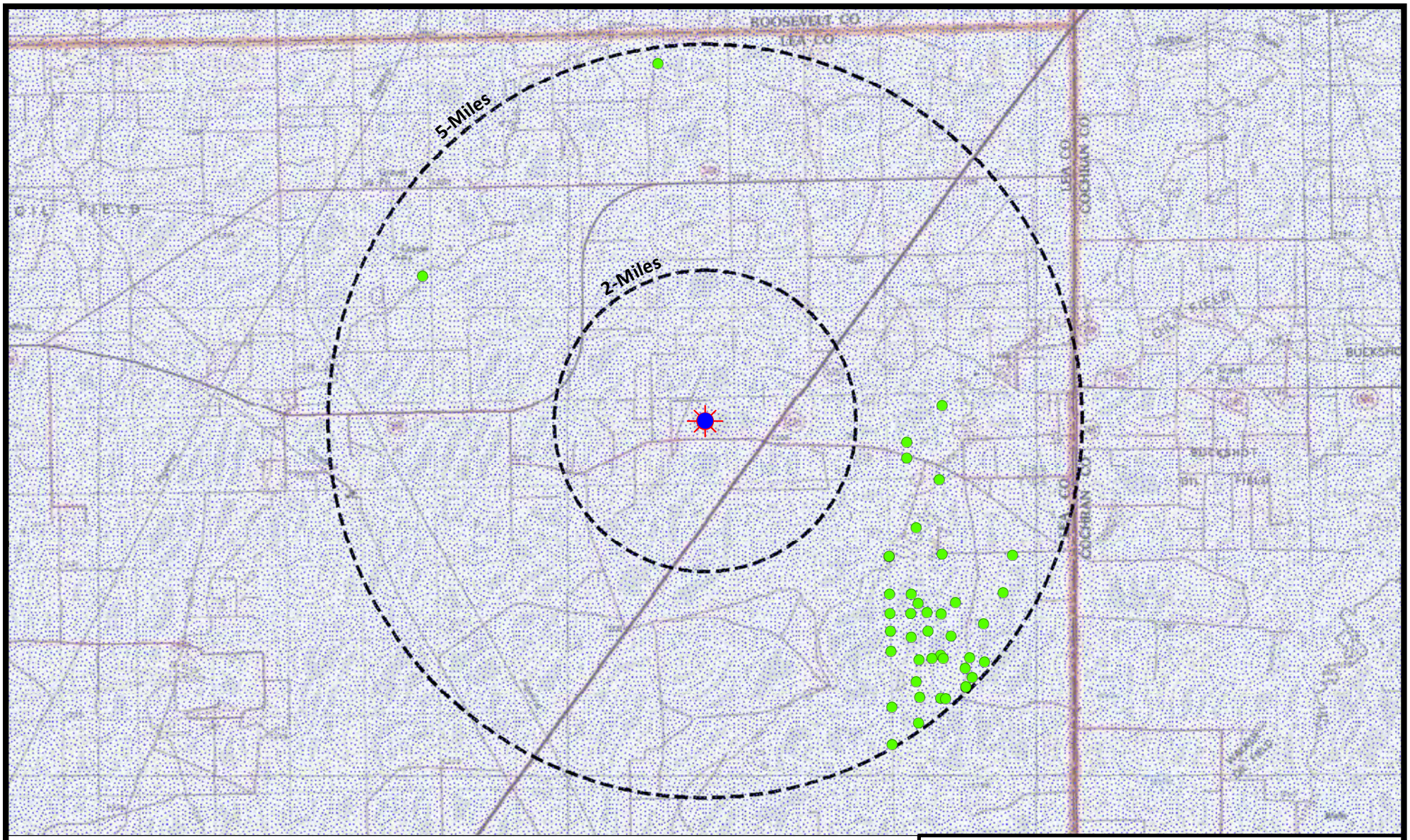
## 5.0 REPORTING

CK will prepare a site investigation report summarizing the activities conducted to date. The report will provide a summary of the release and response activities, field investigation activities, analytical results summary tables, discussion of data quality, comparison of the site results to the remediation standards, evaluation of results, and conclusions. The report will include recommendations for further evaluation and delineation or closure, as appropriate.

## 6.0 SCHEDULE

Field activities are tentatively scheduled for the week of October 2. Prior to commencement of field activities, a seven-day notice to the OCD will be provided. Field activities are projected to be completed within one day. A site investigation report will be submitted to OCD within 60 days of receipt of analytical data.

# FIGURES




**SFPRR #015**

**Lat: 33.495683**
**Lon: -103.138998**

**Lat: 33° 29' 44.4594" N**
**Lon: 103° 8' 20.3926" W**

0 2
Miles

*Legend*

Water Well

High Plains Aquifer - Unconsolidated sand and gravel aquifers

N
S

Water Wells 2016 - NMOSE - The NM Office of the State Engineer (OSE)
"Point of Diversions" (POD) layer includes well locations,surface declarations, or surface permits.
These data were extracted from the OSE W.A.T.E.R.S.
(Water Administration Technical Engineering Resource System) database and geo-located (mapped).

esri Partner Network Silver

**Rover Petroleum, LLC**
Dallas, Texas

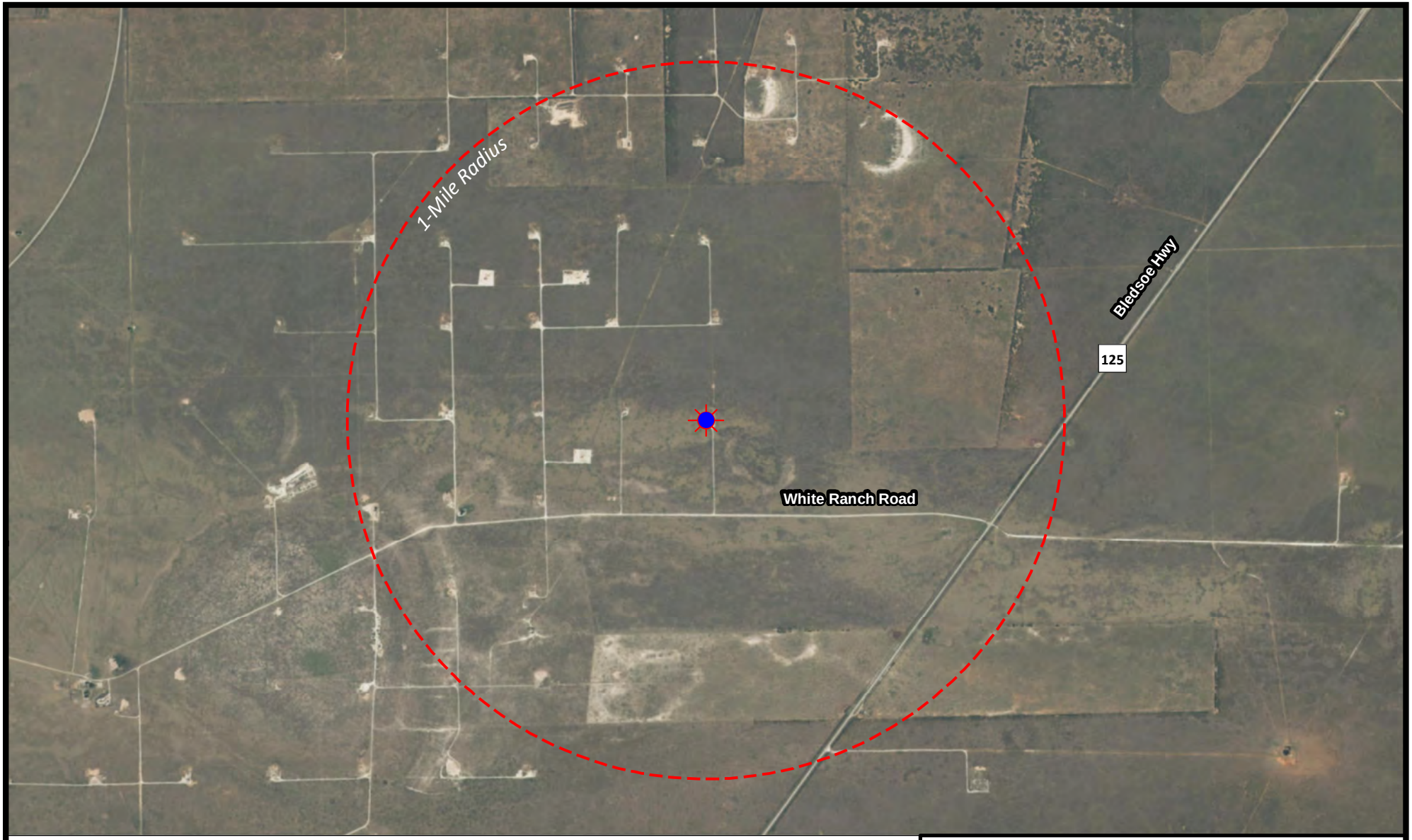
Sampling and Analysis Plan

# Site Location Map

Lea County

CK Associates Environmental Consultants

| | | | |
|---|---|---|---|
| Drawn: | CPL | Checked: | RTK |
| Date: | 09/06/17 | Approved: | KEN |
| Dwg. No.: | A15429-01 | **Figure 1** | |




**SFPRR #015**

**Lat: 33.495683**
**Lon: -103.138998**

**Lat: 33° 29' 44.4594" N**
**Lon: 103° 8' 20.3926" W**

0 2,000
Feet

Imagery: 2016 NAIP, USDA FSA, 6/17/2016.

N
S

esri Partner Network Silver

**Rover Petroleum, LLC**
Dallas, Texas

Sampling and Analysis Plan

# Vicinity Map

Lea County

CK Associates Environmental Consultants

| | | | |
|---|---|---|---|
| Drawn: | CAL | Checked: | RTK |
| Date: | 09/13/17 | Approved: | KEN |
| Dwg. No.: | A15429-03 | **Figure 2** | |


**SFPRR #015**
**Unit B, SEC.34-T9S-R37E**

**Lat: 33.495683**
**Lon: -103.138998**

**Lat: 33° 29' 44.4594" N**
**Lon: 103° 8' 20.3926" W**

0 80
Feet

*Legend*

- Background Sample
- Confirmation Sample
- Tank Release (0.07 acres)

Imagery: 2016 NAIP, USDA FSA, 6/17/2016.

N
S

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**Rover Operating, LLC**
Dallas, Texas

Sampling and Analysis Plan

# SFPRR #015 Tank Release

Lea County

CK Associates Environmental Consultants

| | | | |
|---|---|---|---|
| Drawn: | CAL | Checked: | RTK |
| Date: | 09/13/17 | Approved: | KEN |
| Dwg. No.: | B15429-02 | **Figure 3** | |