

Imagine the result

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**APPROVED**

**Apache Corporation**

**REDTAG #3  
Remediation  
Plan Proposal**

Eunice, New Mexico

March 14, 2016

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Sharon Hall  
Associate Vice President

**REDTAG #3**

Remediation  
Plan Proposal

Prepared for:  
Apache  
Corporation  
Eunice, New Mexico

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Figure 1 Soil Sample Concentrations

Figure 2 Proposed Excavation Area Map

## Appendices

Initial Form C-141

Map with depths to local water wells

Area Map with well location

## 1. INTRODUCTION

The subject site is a well pad site located south of Hobbs, New Mexico. The site is operated by Apache Corporation.

Four vertical samples were taken within the release area at the subject site. Elevated chloride concentrations with low level hydrocarbon compounds, at one site, were detected in soil samples collected from verticals. Elevated chlorides were detected down gradient from release point with the stained area encompassing 9,674 sq. ft. or 0.22 acres.

## 2. SUMMARY OF SITE INVESTIGATION ACTIVITIES

New Mexico Oil Conservation Division (NMOCD) was notified of release at the site via phone on January 16, 2015 at 9:50 am to Dr. Tomas Oberding. The form C-141 was submitted on January 22, 2015 by Bruce Baker with Apache Corporation.

It was reported that livestock on location had rubbed against flow line pressure valve. The well was shut in and repairs were made. A vacuum truck was dispatched to pick-up standing fluid.

Initial site investigation activities were conducted in January of 2015. Soil Sampling activities were conducted in March 2015, which included soil sampling of four verticals to a varied depth to reach the NMOCD delineation guidelines for chlorides.

## 3. REMEDIATION PLAN PROPOSAL

After review of various remedial options, we propose the following Remediation Plan for this site due to this being an active producing oil well.

### 3.1 Soil Remediation

The selected remedial option will be the excavation of near-surface soils and installation of reinforced liner around wellhead area. The anticipated extent and depth of excavation is based on assessment activities (laboratory analysis (Fig. 1) and visual observation). Near surface soils (to a depth of up to 3 feet below ground surface) with chloride concentrations in excess of 1000 milligrams per kilogram (mg/kg) will be excavated and disposed of at Sundance Disposal Facility.

The excavation will be backfilled and surfaced with compacted caliche. No seeding will be necessary as this remediation area is located at an active well site.

#### **4. REMEDIATION WORK SCHEDULE**

Soil remediation activities are expected to be completed in 5 working days (Monday through Friday) with work commencing after receiving approval of this Remediation Plan.

#### **5. FOLLOW-UP SCHEDULE**

A Closure Report with Form C-141 will be completed and mailed within 30 days of remediation work being completed. This report will have map of actual excavation and photos of excavation, liner in place, and final product. No further follow-up should be required due to this site being an active well pad and areas off well pad have not been impacted.



## **Appendix A**

Initial Form C-141

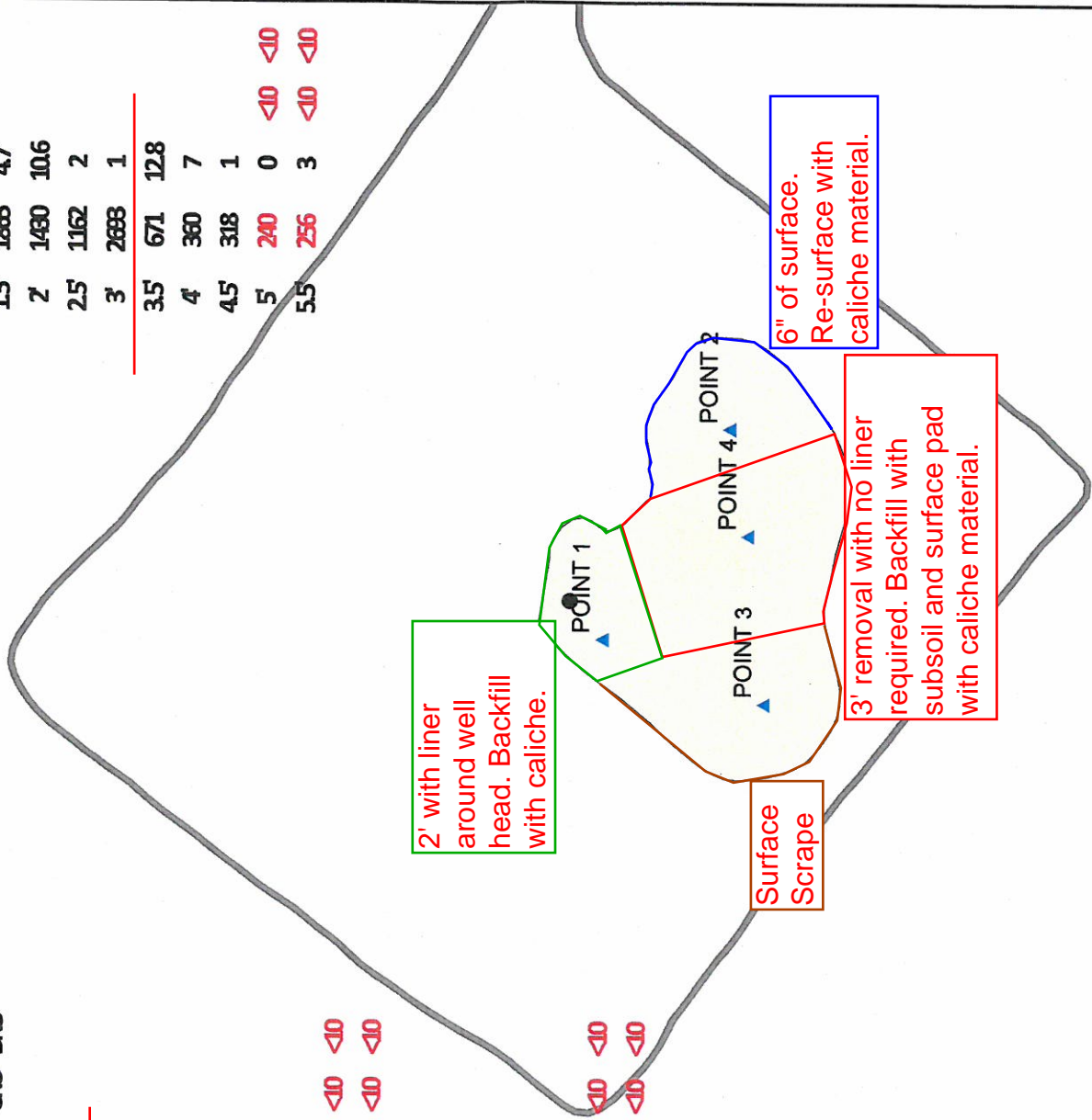
Initial Sampling Data

Vertical 1			
SS	Q-	PID	GRO DRO
6"	13904	156	
1'	6845	56	
1.5'	2423	43	
2'	1026	17	
2.5'	607	39	
3'	813	2	
3.5'	465	15	
4'	308	23	
4.5'	160	19	<10 <10
	208	2	<10 <10

Vertical 2			
SS	Q-	PID	GRO DRO
6"	7530	872	
1'	428	236	
1.5'	563	538	
2'	427	109	
2.5'	472	149	
3'	412	72	
3.5'	287	13	
4'	496	2	<10 <10
4.5'	304	98	<10 <10
5'	1265	39	
5.5'	687	2.1	
6'	334	0.9	
6.5'	380	0.8	
7'	405	0.8	
7.5'	304	0.5	<10 <10
8'	240	0.5	<10 <10

Vertical 3			
SS	Q-	PID	GRO DRO
6"	3050	132	
1'	124	45.8	
1.5'	1510	72.6	
6"	260	21.3	
1'	416	7.6	<10 89.3
1.5'	160	7.1	<10 24.4

Vertical 4			
SS	Q-	PID	GRO DRO
6"	3985	102	
1'	1175	34	
1.5'	1689	57.9	
2'	1865	4.7	
2.5'	1430	10.6	
3'	1162	2	
3.5'	2683	1	
4'	671	12.8	
4.5'	360	7	
5'	318	1	
5.5'	240	0	<10 <10
	256	3	<10 <10



GPS WELLHEAD: 32°35'58.096"N 103°7'5.628"W ( 32.599471 -103.118230 ) NAD 83

Landowner: City of Hobbs  
DGW: 40 ft

**Legend**

▲ SAMPLE POINTS  
● WELLHEAD  
— PAD/ROAD EDGE  
□ STAIN - 9,674 SQ FT

CI- FIELD DATA  
CI- LAB DATA

**RECS**  
RICE ENVIRONMENTAL  
CONSULTING & SAFETY

**APACHE**  
**RED TAG #003**

UL J SECTION 2  
T-20-S R-38-E  
LEA COUNTY, NM

Underground facilities are spatially projected and need to be field verified.

0 25 50 Feet

GPS date: 1/16/15 KH  
Drawing date: 3/26/15  
Drafted by: T. Ghenco, L. Weinheimer

N  
W  
E  
S