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| 01 W Grand Avenue, Artesia, NM 88210 strict III | - Oil C | onse | rvation Div | vision | | | Submit 2 C | opies to appro Office in accor |
| 00 Rio Brazos Road, Aztec, NM 87410 s <u>trict IV</u> | | | h St. Franc | | | | District (wi | th Rule 116 on |
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| NB 1009647272 | | | OPERA | | | 🛛 Initia | l Report | 🗌 Final I |
| Jame of Company BP America Prod Address PO Box 129 Artesia, NM 8 | | 78 | Contact Ste | ve Pacheco No. 575-677-30 | 647 | | | |
| acility Name Empire Abo Unit N-13 | | | Facility Typ | | 042 | | | |
| urface Owner BLM | Mineral O | wner | BLM | | | Lease N | 0. | |
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SOILS REMEDATION WORK PLAN **EMPIRE ABO UNIT N-13** EDDY COUNTY, NEW MEXICO LEGALS: SEC 11-T18S-R27E

Prepared for:

BP AMERICA PRODUCTION CO. PO Box 3092 Houston, Texas 77253

Prepared by:

Talon/LPE Eb Taylor 318 East Taylor Hobbs, New Mexico 88240

November 13, 2008



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OCD-ARTESIA

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Soils Remediation Workplan

Introduction

The site is located in a rural area of the Empire Abo Oil Field in Eddy County New Mexico, Sec 11-T18S-R27E. The release of produced water occurred approximately five hundred feet to the east of the plugged well marker for the Empire Abo Unit N-13 and ran approximately one hundred feet to the west of the marker. The path of the spill is approximately six hundred eighty feet (east/ west) by one hundred twenty feet (north / south).

In October 2008 Talon/LPE was notified by BP America that they had received written orders from Jim Amos with the Bureau of Land Management (BLM) to remediate the impacted areas. On October 29, 2008 Talon/LPE conducted a site investigation.

Regulatory Framework

The New Mexico Oil Conservation Division (NMOCD) has developed guidance for all federal, state, and fee lands in New Mexico for remediating contaminates resulting from leaks, spills, and releases of oil field wastes or products. This guidance assigns ranking scores to sites based on depth to groundwater, distance to water supply sources, and distance to surface water bodies, and provides remediation/clean-up levels for Benzene, BTEX (benzene, toluene, ethyl benzene, and xylenes), and TPH (total petroleum hydrocarbons). Based on site visits the Empire Abo Unit N-13 is located in a rural area with no permanent residences with in a thousand foot radius of the spill area. According to information available from the New Mexico Office of State Engineer, there is no domestic water wells located in Sec 11-T18S-R27E. According to information available from the NMOCD, the water depth is approximately one hundred to one hundred fifty feet below ground surface (BGS).

According to NMOCD guidance, and based on depth to groundwater, distance from water supply sources, and distance to surface water bodies, the site ranking for this site is twenty (20).

Based on the calculated rating, the applicable remediation guidelines for this site are as follows:

| Benzene | 10ppm |
|-----------|---------|
| BTEX | 50 ppm |
| ТРН | 100 ppm |
| Chlorides | 250 ppm |

Site Investigation Activities

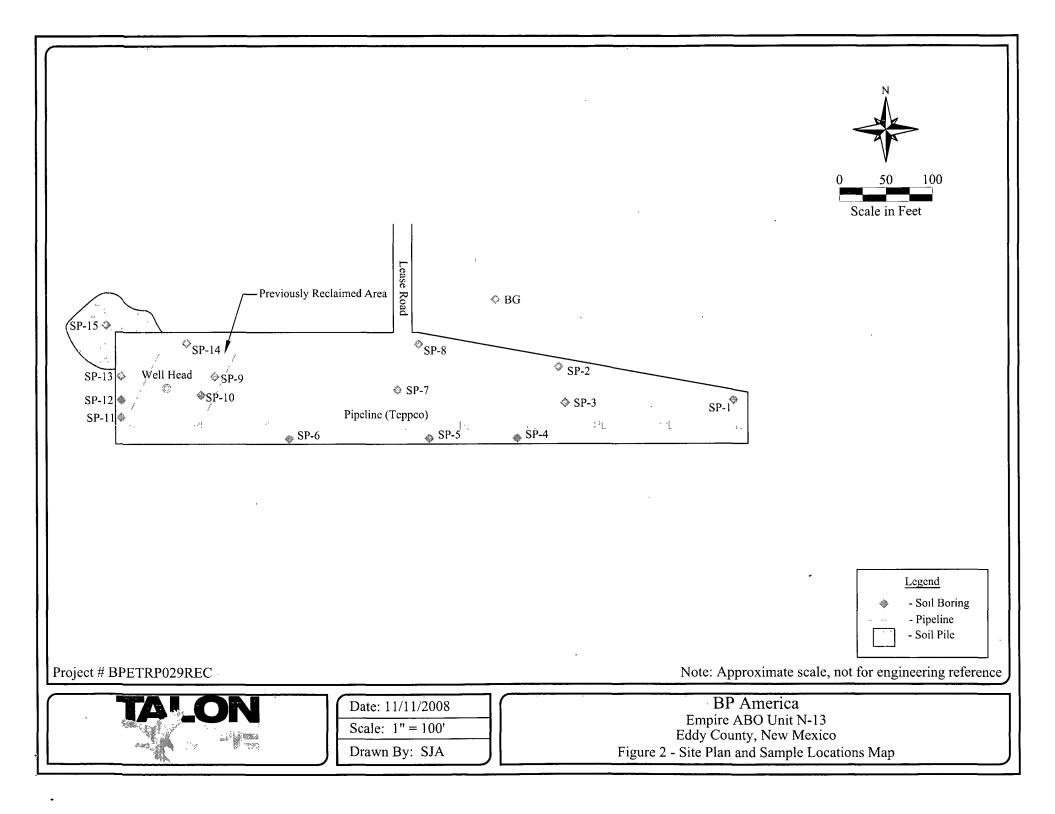
In an effort to delineate the extent of the impacted soils at the site Talon/LPE excavated fifteen pilot holes, using a back hoe, to depths from two foot to seven foot BGS on October 29, 2008. Sample points were selected based on overall surface inspection, to investigate subsurface conditions (see attached map for sample point locations fig. 1). Samples were collected at one foot intervals and select samples were sent to Trace Analysis Laboratories in Lubbock, Texas for chloride analysis (see attached analytical fig. 2). Field analysis for chlorides was used to determine which select samples were sent for analysis. During field inspection evidence of petroleum hydrocarbons were evident in only a couple of small areas, so analysis for BTEX and TPH was not conducted during the investigation of the site. The areas impacted with hydrocarbons will be excavated during remediation activities. Due to physical constraints presented by massive gypsum at the site, sample points were limited in depth.

Site Remediation Plan

The site investigation results indicated the presence of chloride impacted soils above the applicable NMOCD guidelines.

Talon/LPE proposes to excavate the impacted soils and transport them to Lea Land Disposal Facility in Lea County, New Mexico, a NMOCD approved disposal facility (permit number WM 01-35). Once the impacted soils are removed Talon/LPE will collect confirmation samples for chlorides, BTEX, and TPH from the excavation floor and sidewalls. The excavation floor will be divided into sections and a five point composite sample will be collected from each section, the sidewalls will also be divided into sections and a five point composite sample will be collected from each of these sections. All samples collected will be tested at Trace Analysis Laboratories in Lubbock, Texas. Once approved for closure the excavation will be backfilled with calachie purchased from an approved BLM calachie pit with the top one foot of the excavation being backfilled with top soil to sustain vegetation.

ATTACHMENT 1



ATTACHMENT 2

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Summary Report

Eb Taylor Talon LPE-Hobbs 318 E Taylor Hobbs, NM 88240

Report Date: November 7, 2008

Work Order: 8103005

| Project Location: | Eddy County, NM |
|-------------------|----------------------|
| Project Name: | Empire ABD Unit N-13 |

| | | | Date | Time | Date |
|--------|-------------|--------|------------|-------|------------|
| Sample | Description | Matrix | Taken | Taken | Received |
| 177579 | BG-1 | soil | 2008-10-29 | 12:30 | 2008-10-30 |
| 177580 | SP-1 4' | soil | 2008-10-29 | 10:28 | 2008-10-30 |
| 177581 | SP-2 2.5' | soil | 2008-10-29 | 10:35 | 2008-10-30 |
| 177582 | SP-3 2.5' | soil | 2008-10-29 | 10:47 | 2008-10-30 |
| 177583 | SP-4 2' | soil | 2008-10-29 | 10:55 | 2008-10-30 |
| 177584 | SP-5 1' | ' soil | 2008-10-29 | 11:01 | 2008-10-30 |
| 177585 | SP-5 4' | soil | 2008-10-29 | 11:09 | 2008-10-30 |
| 177586 | SP-6 1' | soil | 2008-10-29 | 11:12 | 2008-10-30 |
| 177587 | SP-6 3' | soil | 2008-10-29 | 11:16 | 2008-10-30 |
| 177588 | SP-7 5' | soil | 2008-10-29 | 11:49 | 2008-10-30 |
| 177589 | SP-7 7' | soil | 2008-10-29 | 13:05 | 2008-10-30 |

| | BTEX | | | | TPH DRO | TPH GRO |
|---------------------|----------|----------|--------------|---------|---------|---------|
| | Benzene | Toluene | Ethylbenzene | Xylene | DRO | GRO |
| Sample - Field Code | (mg/Kg) | (mg/Kg) | (mg/Kg) | (mg/Kg) | (mg/Kg) | (mg/Kg) |
| 177580 - SP-1 4' | < 0.0100 | < 0.0100 | 0.0326 | 0.135 | 75.1 | 4.26 |

Sample: 177579 - BG-1

| Param | Flag | Result | Units | RL |
|----------|------|--------|-------|---------------------|
| Chloride | | <100 | mg/Kg | 2.00 |

Sample: 177580 - SP-1 4'

| Param | \mathbf{Flag} | Result | Units | RL |
|----------|-----------------|--------|-------|---------------------|
| Chloride | | 5710 | mg/Kg | 2.00 |

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

| Report Date: November 7, 2008 | | Work Order: 8103005 Empire ABD Unit N-13 | | Page Number: 2 of 3 Eddy County, NM |
|-------------------------------|-----------------------|---|---------|--|
| Sample: 177581 - | SP-2 2.5' | | | |
| Param | Flag | Result | Units | RL |
| Chloride | S | 3020 | mg/Kg | 2.00 |
| | | | | |
| Sample: 177582 - | · SP-3 2.5' | | | |
| Param | Flag | Result | Units | RL |
| Chloride | | 5000 | mg/Kg | 2.00 |
| Sample: 177583 - | · SP-4 2' | | | |
| Param | Flag | Result | Units | RL |
| Chloride | | 3470 | mg/Kg | 2.00 |
| Sample: 177584 - | - SP-5 1' | | | |
| Param | Flag | Result | Units | RL |
| Chloride | | 1070 | mg/Kg | 2.00 |
| Sample: 177585 - | · SP-5 4' | | | |
| Param | Flag | Result | Units | RL |
| Chloride | | 1230 | mg/Kg | 2.00 |
| Sample: 177586 - | · SP-6 1' | | | |
| Param | Flag | Result | Units | RL |
| Chloride | | 1270 | mg/Kg | 2.00 |
| Sample: 177587 - | SP-6 3' | | | |
| Param | Flag | Result | Units | RL |
| Chloride | | 1090 | m mg/Kg | 2.00 |
| Sample: 177588 - | · SP-7 5' | | | |
| Param | Flag | Result | Units | RL |
| | 8 | 6050 | mg/Kg | 2.00 |

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| Report Date: Nove | mber 7, 2008 | Work Order: 8103005 Empire ABD Unit N-13 | | | |
|-------------------|--------------|---|-------|--|---------------|
| Sample: 177589 | - SP-7 7' | | | | |
| Param | Flag | Result | Units | | \mathbf{RL} |
| Chloride | | 1850 | mg/Kg | | 2.00 |

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Summary Report

Eb Taylor Talon LPE-Hobbs 318 E Taylor Hobbs, NM 88240

Report Date: November 7, 2008

Work Order: 8103007

Project Location:Eddy County, NMProject Name:Empire ABD Unit N-13

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| | | | Date | Time · | Date |
|--------|-------------|--------|------------|--------|------------|
| Sample | Description | Matrix | Taken | Taken | Received |
| 177605 | SP-8 1' | soil | 2008-10-29 | 11:36 | 2008-10-30 |
| 177606 | SP-8 4' | soil | 2008-10-29 | 11:44 | 2008-10-30 |
| 177607 | SP-9 2' | soil | 2008-10-29 | 11:57 | 2008-10-30 |
| 177608 | SP-11 2' | soil | 2008-10-29 | 12:28 | 2008-10-30 |
| 177609 | SP-12 1' | soil | 2008-10-29 | 12:31 | 2008-10-30 |
| 177610 | SP-13 1' | soil | 2008-10-29 | 12:38 | 2008-10-30 |
| 177611 | SP-14 2' | soil | 2008-10-29 | 12:45 | 2008-10-30 |
| 177612 | SP-15 2' | soil | 2008-10-29 | 12:51 | 2008-10-30 |

Sample: 177605 - SP-8 1'

| Param | Flag | Result | Units | RL |
|----------|------|--------|-------|------|
| Chloride | | 385 | mg/Kg | 2.00 |

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Sample: 177606 - SP-8 4'

| Param | Flag | Result | Units | RL |
|----------|------|--------|-------|---------------------|
| Chloride | | 248 | mg/Kg | 2.00 |

Sample: 177607 - SP-9 2'

| Param | Flag | Result | Units | \mathbf{RL} |
|----------|------|--------|-------|---------------|
| Chloride | | 2320 | mg/Kg | 2.00 |

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

| Report Date: November 7, 2008 | | Work Order: 8103007 Empire ABD Unit N-13 | | Page Number: 2 of 2 Eddy County, NM | | | | |
|-------------------------------|------------|---|----------------|--|--|--|--|--|
| Sample: 177608 - SP-11 2' | | | | | | | | |
| Param | Flag | Result | Units | RL | | | | |
| Chloride | | 3290 | mg/Kg | 2.00 | | | | |
| Sample: 177609 | - SP-12 1' | | | | | | | |
| Param | Flag | Result | Units | RL | | | | |
| Chloride | | 9420 | mg/Kg | 2.00 | | | | |
| Param Chloride | Flag | Result 2440 | Units mg/Kg | RL 2.00 | | | | |
| Chioride | | 2440 | mg/Kg | 2.00 | | | | |
| Sample: 177611 | - SP-14 2' | | | | | | | |
| Param | Flag | Result | Units | RL | | | | |
| Chloride | | 1890 | mg/Kg | 2.00 | | | | |
| Sample: 177612 | - SP-15 2' | | | | | | | |
| Param | Flag | \mathbf{Result} | Units | \mathbf{RL} | | | | |

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| Param | \mathbf{Flag} | Result | Units | RL |
|----------|-----------------|--------|-------|------|
| Chloride | | 2480 | mg/Kg | 2.00 |