*Highlander Environmental Corp.*

*Midland, Texas*

November 26, 2007

Mr. Mike Bratcher
Environmental Bureau
Oil Conservation Division- District 2
1301 W. Grand Avenue
Artesia, New Mexico 88210

**RE: Work Plan for Capping and Site Closure for the Pit Located at the North Hackberry Yates Unit No. 108 Pit, Unit Letter L, Section 24, Township 19 South, Range 30 East, Eddy County, New Mexico, Operated by Southwest Royalties, Inc.**

Dear Mr. Bratcher:

Southwest Royalties, Inc. (SWR) retained Highlander Environmental Corp. (Highlander) of Midland, Texas to assist in closure of the above mentioned pit. The closure was to be performed in accordance with an Agreed Compliance Order (ACO).

**Background & Previous Work**

Highlander submitted a "Workplan for the Site Closure or the Pit Located at the North Hackberry Yates Unit No. 108 Pit, Unit Letter L, Section 24, Township 19 South, Range 30 East, Eddy County, New Mexico, Operated by Southwest Royalties, Inc.", dated October 12, 2007 to the NMOCD. The workplan called for removal of the fluids, sludge and liner, visual inspection of the underlying soils and for collection of samples in a five-spot pattern beneath the liner. The site location is shown on Figures 1 and 2.

**Regulatory**

A review of the New Mexico State Engineer's Office database and the USGS database did not show any wells in Section 24, Township 19 South, Range 30 East. The closest wells listed in the New Mexico State Engineer's database are located in Section 36, T-19-S, R-31-E and Sections 30 and 31, T-19-S, R-30-E, with reported depths to water of 130', 90' and 115', respectively.

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined

to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based on the regional groundwater data, the proposed RRAL for TPH was 1,000 mg/kg.

**Pit Closure and Sampling Activities**

The pit was de-watered and allowed time to dry. In late October, the sludge and liner were removed and taken to CRI for disposal. On November 1, 2007, Highlander personnel were onsite to collect samples in a five spot pattern of test trenches. A backhoe was utilized to collect samples in 2' intervals stating at 2' below the pit bottom down to 10' below the pit bottom. Soil samples were analyzed for chloride by EPA method SM4500-Cl B. The five 2' samples collected below the pit bottom were analyzed for Total Petroleum Hydrocarbon (TPH) by method modified 8015 DRO/GRO. Based upon the results of the TPH analysis, no benzene, toluene, ethylbenzene, and xylene (BTEX) samples were deemed necessary. The results of the sampling are summarized in Table 1. Sample locations are shown on Figure 4.

Referring to Table 1, TPH concentrations were at or below reporting limits and as such, were well below the RRAL. The samples from the northeast, southeast and southwest test trenches showed significant decline in chloride concentrations to at or near 250 mg/kg. The samples from the center trench, while showing significant decline, was still well above 250 mg/kg. Chloride impact was found throughout the northwest sample trench.

Based upon the initial sampling, one soil boring was advanced to a depth of approximately 40' below the pit bottom, between the center and northwest corner of the pit. Samples were collected at 5' intervals and analyzed for chloride concentration. The soil boring was halted at 45' below the pit bottom due to dampness of the samples at that depth. The results of the sampling are summarized in Table 1. Referring to Table 1, the chloride concentrations declined with depth, however, the concentrations were still above 250 mg/kg.

**Pit Closure**

Highlander proposes the installation of either a one foot compacted clay barrier or a 40 mil impervious, synthetic liner to encapsulate the impacted subsurface soil. The cap area is shown on Figure 4. The pit area will be excavated out approximately 5' in all directions of the current excavation to provide adequate coverage. The soils will be excavated to a depth of 4.0' below ground surface. If a liner is utilized, it will be properly bedded to ensure no ruptures from underlying rock. If clay is used, a copy of the sieve analysis/permeability data is included in Appendix B. Upon completion of the liner/barrier placement, the soils removed from the expansion of the pit area will be evaluated for use as backfill to bring the site back to grade.

**Additional Investigation**

When capping activities have been concluded, one monitor well will be installed at the perimeter of the pit area to evaluate groundwater conditions.

Should you have any questions, or require any additional information, please contact me at (432) 682-4559. Thank you for your attention to this matter.

**Highlander Environmental Corp.**

Tim Reed

Timothy M. Reed, P.G.
Vice President

cc: Daniel Sanchez- NMOCD, Santa Fe
Sonny Swazo – NMOCD, Santa Fe
Matt Swierc – Southwest Royalties, Inc.

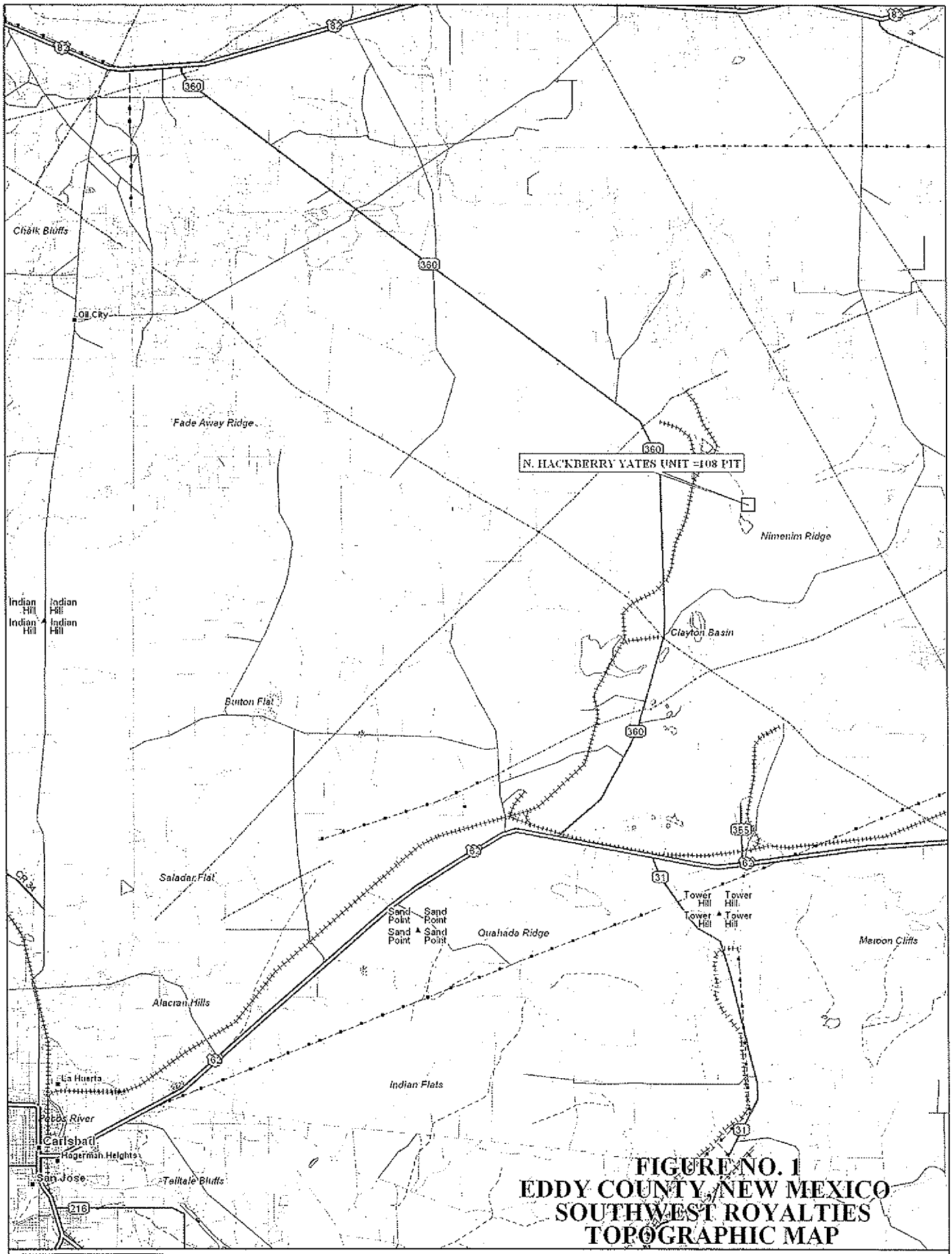
Southwest Royalties
North Hackberry Unit Tank Battery
Eddy County, NM

| Sample ID | Date Sampled | Depth (ft) | TPH (mg/kg) | | | Benzene (mg/kg) | Toluene (mg/kg) | Ethlybenzene (mg/kg) | Xylene (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRO | GRO | Total | | | | | |
| NE-2 | 11/1/2007 | 2' | <50.0 | 1.14 | 1.14 | - | - | - | - | 1,110 |
| NE-4 | 11/1/2007 | 4' | - | - | - | - | - | - | - | 112 |
| NE-6 | 11/1/2007 | 6' | - | - | - | - | - | - | - | 140 |
| NE-8 | 11/1/2007 | 8' | - | - | - | - | - | - | - | 266 |
| NE-10 | 11/1/2007 | 10' | - | - | - | - | - | - | - | 396 |
| | | | | | | | | | | |
| NW-2 | 11/1/2007 | 2' | <50.0 | <1.00 | <50.0 | - | - | - | - | 6,880 |
| NW-4 | 11/1/2007 | 4' | - | - | - | - | - | - | - | 5,420 |
| NW-6 | 11/1/2007 | 6' | - | - | - | - | - | - | - | 6,880 |
| NW-8 | 11/1/2007 | 8' | - | - | - | - | - | - | - | 7,030 |
| NW-10 | 11/1/2007 | 10' | - | - | - | - | - | - | - | 4,800 |
| | | | | | | | | | | |
| SE-2 | 11/1/2007 | 2' | <50.0 | <1.00 | <50.0 | - | - | - | - | 4,670 |
| SE-4 | 11/1/2007 | 4' | - | - | - | - | - | - | - | 3,320 |
| SE-6 | 11/1/2007 | 6' | - | - | - | - | - | - | - | 2,480 |
| SE-8 | 11/1/2007 | 8' | - | - | - | - | - | - | - | 621 |
| SE-10 | 11/1/2007 | 10' | - | - | - | - | - | - | - | 621 |
| | | | | | | | | | | |
| SW-2 | 11/1/2007 | 2' | <50.0 | <1.00 | <50.0 | - | - | - | - | 5,110 |
| SW-4 | 11/1/2007 | 4' | - | - | - | - | - | - | - | 3,970 |
| SW-6 | 11/1/2007 | 6' | - | - | - | - | - | - | - | 3,700 |
| SW-8 | 11/1/2007 | 8' | - | - | - | - | - | - | - | 1,690 |
| SW-10 | 11/1/2007 | 10' | - | - | - | - | - | - | - | 154 |
| | | | | | | | | | | |
| Center-2 | 11/1/2007 | 2' | <50.0 | <1.00 | <50.0 | - | - | - | - | 2,150 |
| Center-4 | 11/1/2007 | 4' | - | - | - | - | - | - | - | 3,090 |
| Center-6 | 11/1/2007 | 6' | - | - | - | - | - | - | - | 2,200 |
| Center-8 | 11/1/2007 | 8' | - | - | - | - | - | - | - | 1,410 |
| Center-10 | 11/1/2007 | 10' | - | - | - | - | - | - | - | 1,200 |
| | | | | | | | | | | |
| BH-1 | 11/15/2007 | (15-16) | - | - | - | - | - | - | - | 3,690 |
| BH-1 | 11/15/2007 | (20-21) | - | - | - | - | - | - | - | 4,300 |

Southwest Royalties
North Hackberry Unit Tank Battery
Eddy County, NM

| Sample ID | Date Sampled | Depth (ft) | TPH (mg/kg) | | | Benzene (mg/kg) | Toluene (mg/kg) | Ethlybenzene (mg/kg) | Xylene (mg/kg) | Chloride (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRO | GRO | Total | | | | | |
| BH-1 | 11/15/2007 | (25-26) | - | - | - | - | - | - | - | 2,900 |
| BH-1 | 11/15/2007 | (30-31) | - | - | - | - | - | - | - | 1,300 |
| BH-1 | 11/15/2007 | (35-36) | - | - | - | - | - | - | - | 2,060 |
| BH-1 | 11/15/2007 | (40-41) | - | - | - | - | - | - | - | 1,360 |
| | | | | | | | | | | |

(-) Not Analyzed




# FIGURE NO. 1
# EDDY COUNTY, NEW MEXICO
# SOUTHWEST ROYALTIES
# TOPOGRAPHIC MAP



Scale 1 : 200,000
1" = 3.16 mi

TN
MN
9.1°E

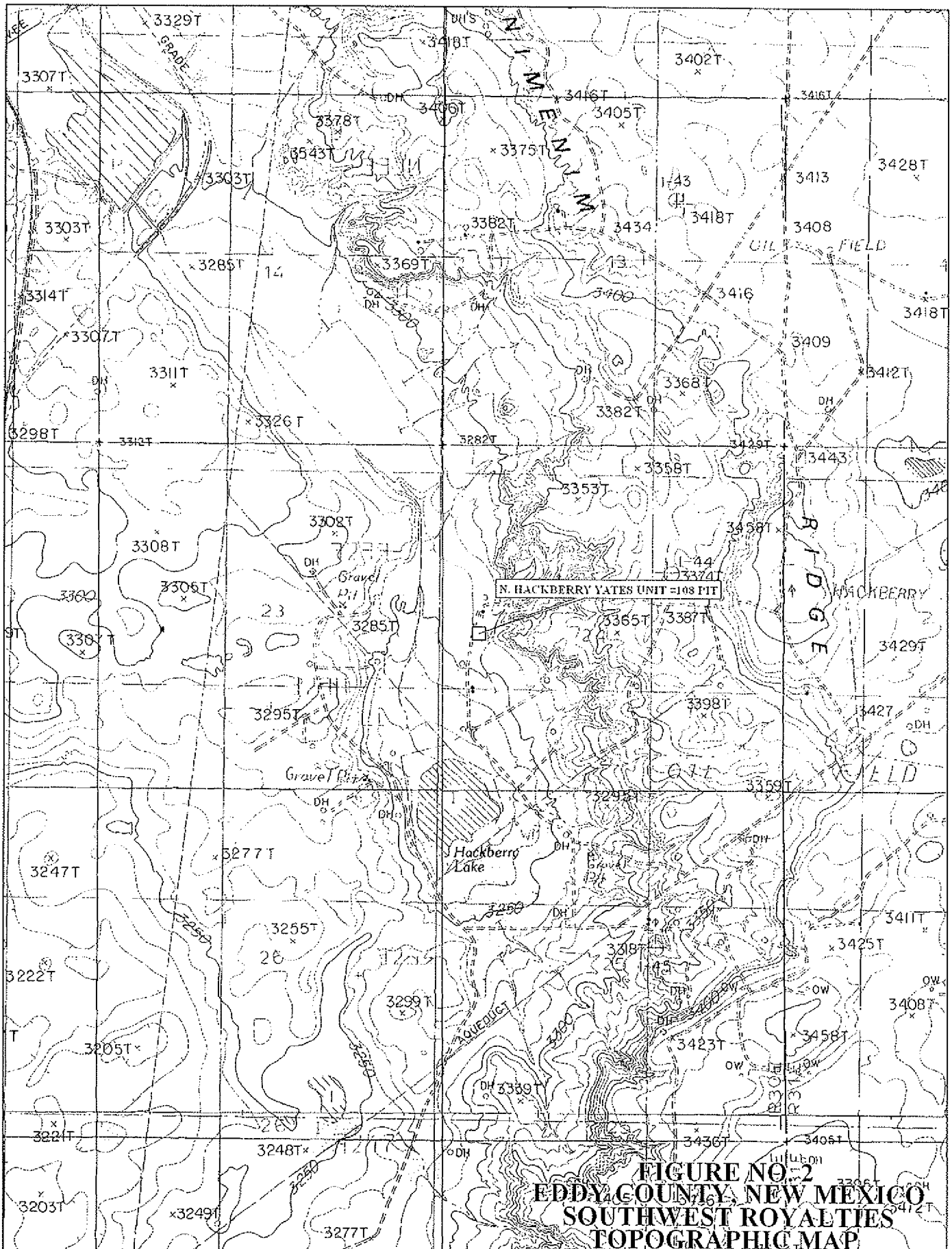



**FIGURE NO. 2**
**EDDY COUNTY, NEW MEXICO**
**SOUTHWEST ROYALTIES**
**TOPOGRAPHIC MAP**



Scale 1 : 24,000
1" = 2000 ft

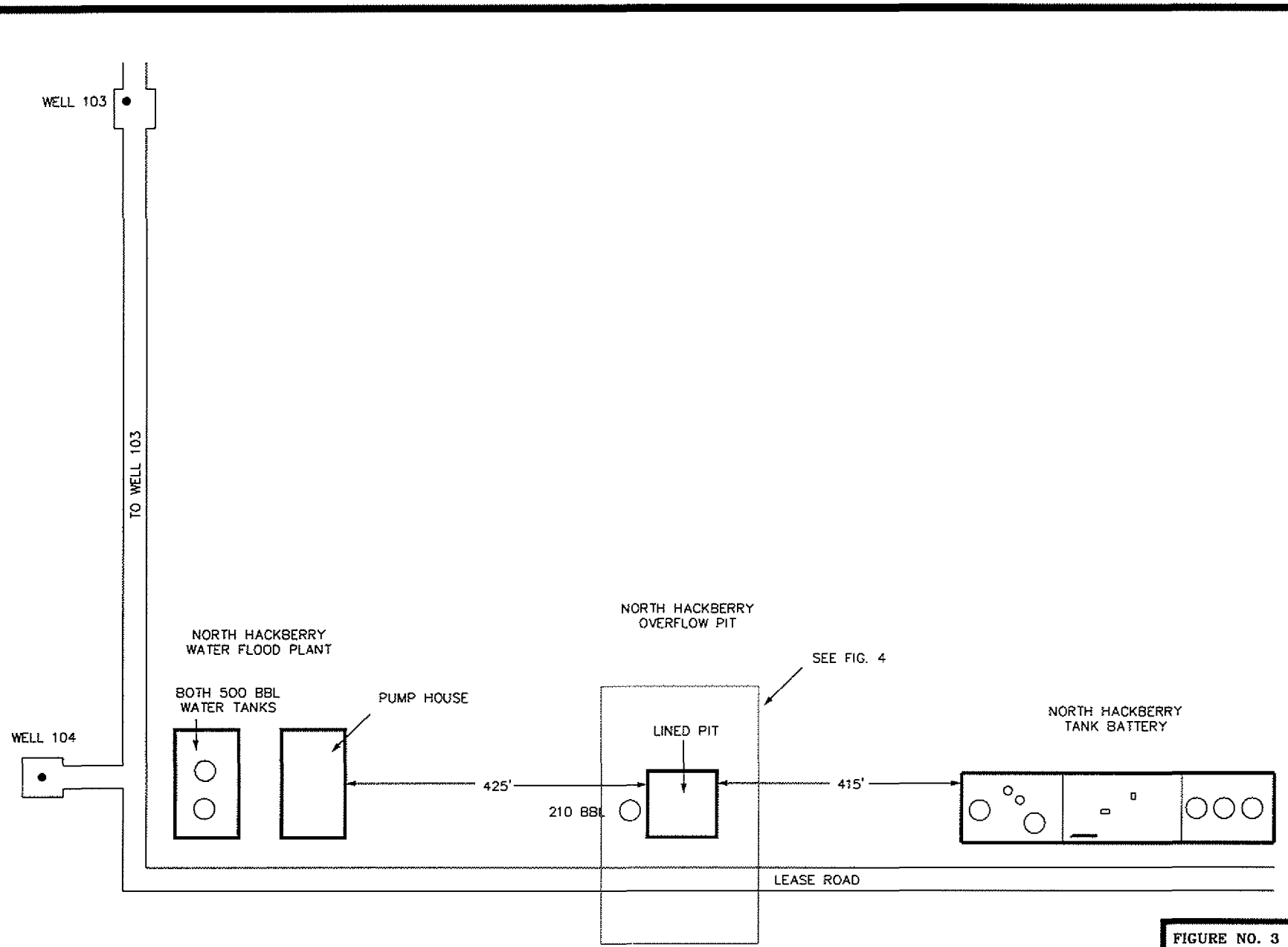



FIGURE NO. 3

EDDY COUNTY, NEW MEXICO

SOUTHWEST ROYALTIES
NORTH HACKBERRY YATES UNIT TB

DATE: 4/23/07
DWN. BY: RC
FILE: C:\S-WEST\2979 outer view

*HIGHLANDER ENVIRONMENTAL CORP.*
*MIDLAND, TEXAS*

*NOT TO SCALE*

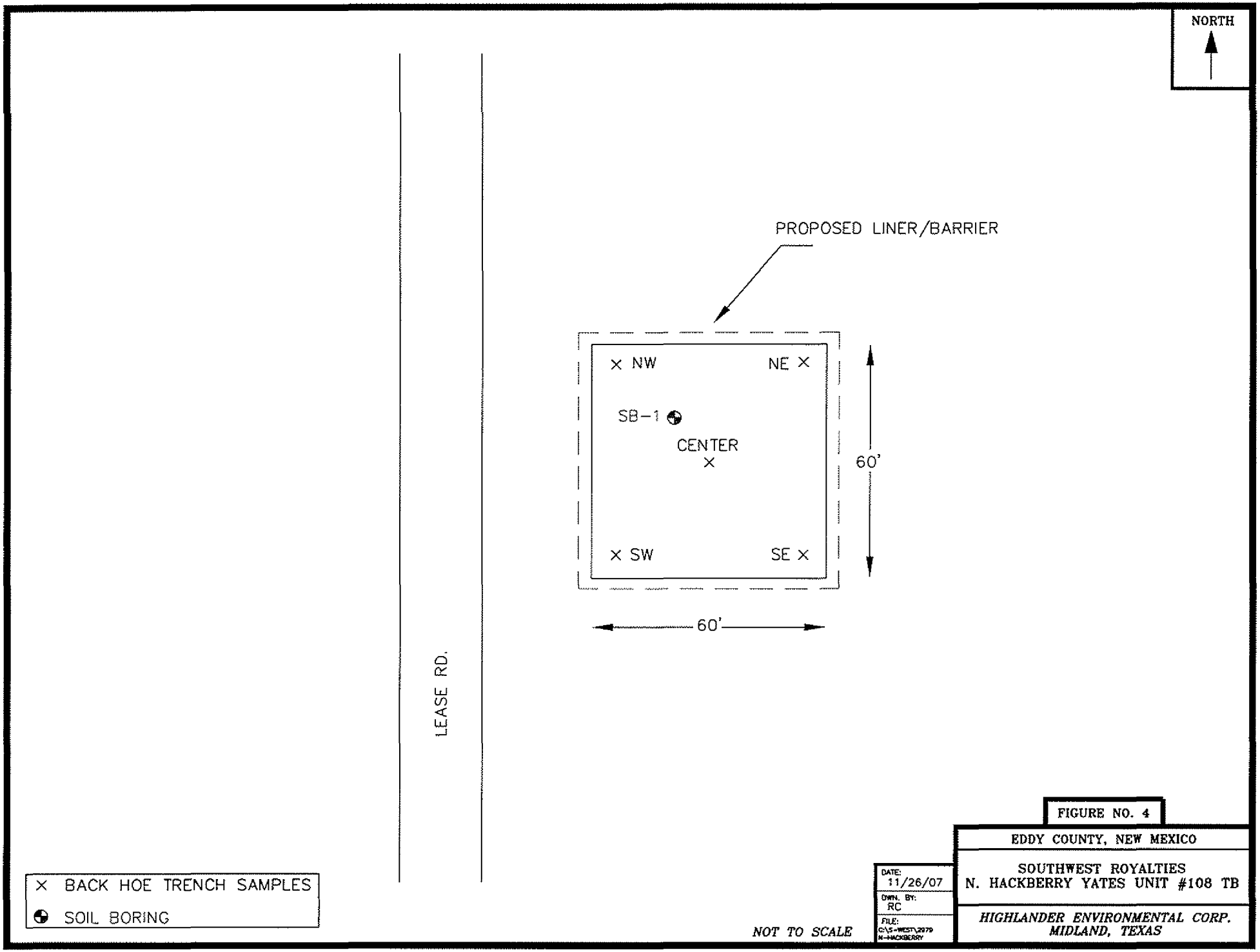



FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

SOUTHWEST ROYALTIES
N. HACKBERRY YATES UNIT #108 TB

*HIGHLANDER ENVIRONMENTAL CORP.*
*MIDLAND, TEXAS*

# Summary Report

Tim Reed
Highlander Environmental Services
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: November 6, 2007

Work Order: 7110229

Project Location: Eddy County, NM
Project Name: SWR/North Hackberry Yates Unit TB
Project Number: 2979

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 141711 | NE-2 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141712 | NE-4 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141713 | NE-6 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141714 | NE-8 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141715 | NE-10 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141716 | NW-2 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141717 | NW-4 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141718 | NW-6 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141719 | NW-8 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141720 | NW-10 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141721 | SE-2 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141722 | SE-4 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141723 | SE-6 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141724 | SE-8 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141725 | SE-10 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141726 | SW-2 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141727 | SW-4 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141728 | SW-6 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141729 | SW-8 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141730 | SW-10 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141731 | Center-2 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141732 | Center-4 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141733 | Center-6 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141734 | Center-8 | soil | 2007-11-01 | 00:00 | 2007-11-02 |
| 141735 | Center-10 | soil | 2007-11-01 | 00:00 | 2007-11-02 |

| Sample - Field Code | TPH DRO DRO (mg/Kg) | TPH GRO GRO (mg/Kg) |
|---|---|---|
| **141711 - NE-2** | <50.0 | **1.14** |
| **141716 - NW-2** | <50.0 | <1.00 |
| **141721 - SE-2** | <50.0 | <1.00 |
| **141726 - SW-2** | <50.0 | <1.00 |
| **141731 - Center-2** | <50.0 | <1.00 |

**Sample: 141711 - NE-2**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1110** | mg/Kg | 2.00 |

**Sample: 141712 - NE-4**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **112** | mg/Kg | 2.00 |

**Sample: 141713 - NE-6**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **140** | mg/Kg | 2.00 |

**Sample: 141714 - NE-8**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **266** | mg/Kg | 2.00 |

**Sample: 141715 - NE-10**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **396** | mg/Kg | 2.00 |

**Sample: 141716 - NW-2**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **6880** | mg/Kg | 2.00 |

**Sample: 141717 - NW-4**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **5420** | mg/Kg | 2.00 |

**Sample: 141718 - NW-6**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **6880** | mg/Kg | 2.00 |

**Sample: 141719 - NW-8**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **7030** | mg/Kg | 2.00 |

**Sample: 141720 - NW-10**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **4800** | mg/Kg | 2.00 |

**Sample: 141721 - SE-2**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **4670** | mg/Kg | 2.00 |

**Sample: 141722 - SE-4**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **3320** | mg/Kg | 2.00 |

**Sample: 141723 - SE-6**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **2480** | mg/Kg | 2.00 |

**Sample: 141724 - SE-8**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **621** | mg/Kg | 2.00 |

**Sample: 141725 - SE-10**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **621** | mg/Kg | 2.00 |

**Sample: 141726 - SW-2**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **5110** | mg/Kg | 2.00 |

**Sample: 141727 - SW-4**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **3970** | mg/Kg | 2.00 |

**Sample: 141728 - SW-6**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **3700** | mg/Kg | 2.00 |

**Sample: 141729 - SW-8**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1690** | mg/Kg | 2.00 |

**Sample: 141730 - SW-10**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **154** | mg/Kg | 2.00 |

**Sample: 141731 - Center-2**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **2150** | mg/Kg | 2.00 |

**Sample: 141732 - Center-4**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **3090** | mg/Kg | 2.00 |

**Sample: 141733 - Center-6**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **2200** | mg/Kg | 2.00 |

**Sample: 141734 - Center-8**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1410** | mg/Kg | 2.00 |

**Sample: 141735 - Center-10**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1200** | mg/Kg | 2.00 |

# Summary Report

Ike Tavarez
Highlander Environmental Services
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: November 19, 2007

Work Order: 7111641

Project Location: Tank Battery (Pct Area)
Project Name: SWR/North Hackberry Gates
Project Number: 2979

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 143130 | BH-1 (15-16) | soil | 2007-11-15 | 00:00 | 2007-11-16 |
| 143131 | BH-1 (20-21) | soil | 2007-11-15 | 00:00 | 2007-11-16 |
| 143132 | BH-1 (25-26) | soil | 2007-11-15 | 00:00 | 2007-11-16 |
| 143133 | BH-1 (30-31) | soil | 2007-11-15 | 00:00 | 2007-11-16 |
| 143134 | BH-1 (35-36) | soil | 2007-11-15 | 00:00 | 2007-11-16 |
| 143135 | BH-1 (40-41) | soil | 2007-11-15 | 00:00 | 2007-11-16 |

**Sample: 143130 - BH-1 (15-16)**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **3690** | mg/Kg | 2.00 |

**Sample: 143131 - BH-1 (20-21)**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **4300** | mg/Kg | 2.00 |

**Sample: 143132 - BH-1 (25-26)**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **2900** | mg/Kg | 2.00 |

**Sample: 143133 - BH-1 (30-31)**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1300** | mg/Kg | 2.00 |

**Sample: 143134 - BH-1 (35-36)**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **2060** | mg/Kg | 2.00 |

**Sample: 143135 - BH-1 (40-41)**

| Param | Flag | Result | Units | RL |
|---|---|---|---|---|
| Chloride | | **1360** | mg/Kg | 2.00 |

# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**
Governor
**Joanna Prukop**
Cabinet Secretary

**Mark E. Fesmire, P.E.**
Director
**Oil Conservation Division**

December 11, 2007

Mr. Matt Swierc
Southwest Royalties, Inc.
6 Desta Drive, Suite 2100
Midland, TX 79705

Hackberry Yates Unit 108 Pit L-24-19s-30e API: 30-015-04622

Dear Mr. Swierc,

The New Mexico Oil Conservation Division District 2 Office (OCD) is in receipt of a work plan outlining actions to be taken for capping and closing a production pit at the above referenced site. The work plan, dated November 26, 2007, was formulated and submitted by your agent, Highlander Environmental Corporation. The work plan was formulated based on analytical data obtained from the pit area at varying depths. A borehole was advanced in the pit area to approximately 45 feet below pit bottom where dampness was encountered in the soil samples. The sample obtained at the 40-41 foot interval showed chloride levels to be at 1,360 mg/kg.

New Mexico State Engineer ground water data does not provide specific depth to ground water at this site, however, a water trend map utilized by OCD indicates that ground water may be present at approximately 50 feet below ground surface (bgs).

The work plan proposes to excavate out 5 feet around the perimeter of the pit and to a depth of 4 feet bgs, then cap and backfill the pit area. A monitor well would then be installed at the perimeter of the pit to evaluate ground water conditions.

The proposal to cap and backfill the pit is approved. Be advised that a thorough investigation of possible ground water contamination will be required at this site. Pit closure may be subject to re-excavation should the ground water contamination investigation warrant that event.

Please be advised that this approval does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health, or the environment. In addition, this approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

If I can be of assistance in this matter please contact me.

Sincerely,

Mike Bratcher
NMOCD District 2
1301 W. Grand Ave.
Artesia, NM 88210
575-748-1283 Ext. 108
mike.bratcher@state.nm.us