AP - 83

STAGE 2 REPORTS

DATE: July 10, 2009

Texerra

505 N Big Spring, Suite 404 Midland, Texas 79701
Tel: 432-634-9257 E-mail: lpg@texerra.com

July 10th, 2009

Mr. Edward Hansen
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

RE: **Remediation Termination Request**
Rice Operating Company –EME SWD System
C-16(1) and C-16(2) Leaks – OCD Case No. 1R0476 and 1R0477
UL-C, Sec 16 T20S, R37E AP-83

Sent via E-mail and U.S. Certified Mail Return Receipt No. 7006 0100 0001 2438 3982

Dear Mr. Hansen:

Rice Operating Company (ROC) discovered an accidental discharge of an estimated 35 bbls of produced water at the EME C-16 (1) location on October 12th, 2005 and a discharge of an estimated 60 bbls of produced water at the EME C-16 (2) location on January 23rd, 2006 (Figure 1). Approximately 180 cubic yards of chloride impacted soils were subsequently removed from these locations and transported to the Sundance disposal facility in Eunice, New Mexico. During these remedial actions, the pipeline was then replaced with a new polypropylene line.

These releases have occurred in an area with known regional impacts to groundwater quality, as evidenced by high relative upgradient groundwater chloride concentrations at each location. Nevertheless, in an effort to compensate for the potential leaching of residual soil chlorides from these two releases, ROC has been removing chloride-affected groundwater from these locations since July of last year. The goal of groundwater extraction was to remove 3,000 lbs of chloride mass from the C-16 (1) site and 633 lbs of chloride mass from the C-16 (2) site per NMOCD "e-mail" approval of July 2nd, 2008 and Texerra's subsequent Technical Summary of July 16th, 2008 (Figures 2&3 and 4&5).

ROC has removed nearly 3,221 bbls of groundwater from both locations since July of 2008, where it is estimated that each site contributed equally to this total. Based upon time averaged groundwater chloride concentrations of 8,315 and 2,403 ppm for the EME C-16 (1) and EME C-16 (2) sites, respectively, we have met our objectives for groundwater chloride mass reduction (Table 1). The at-source groundwater chloride concentrations have declined slightly but steadily at EME C-16 (1) and have held relatively steady at EME C-16 (2) (Figure 6). It should further be noted that natural vegetation is recovering well at both locations (Figures 7&8). We therefore respectfully request that NMOCD grant termination or similar closure status for these projects.

ROC is the service provider (agent) for the EME Salt Water Disposal System and has no ownership of any portion of pipeline, well, or facility. The EME SWD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

We appreciate your consideration of this request.

Sincerely,

L. Peter Galusky, Jr. Ph.D.
Principal

Attachments: As noted below

Cc: Brad Jones, NMOCD; Rice Operating Company

Figures and Tables

Figure 1 – Site location map
Figure 2 – Recent groundwater chloride concentrations
Figure 3 – Groundwater chloride mass removal objectives for EME C-16 (1)
Figure 4 – Groundwater chloride mass removal objectives for EME C-16 (2)
Figure 5 – Residual soil chloride levels for EME C-16 (1)
Figure 6 – Residual soil chloride levels for EME C-16 (2)
Figure 7 – Vegetation recovery at EME C-16 (1).
Figure 8 – Vegetation recovery at EME C-16 (2).

Table 1 – Groundwater chloride mass reduction progress summary

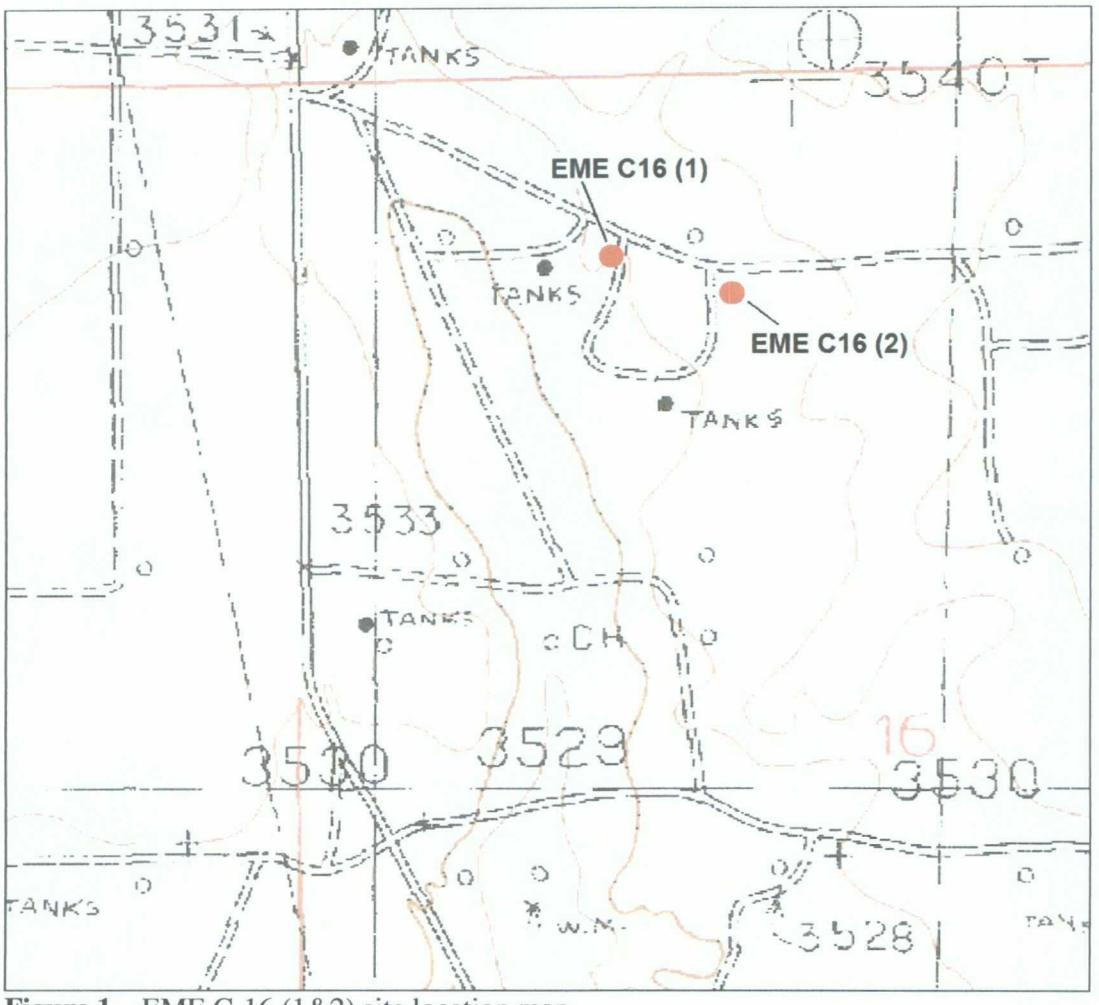

Figure 1 – EME C-16 (1&2) site location map.

EME C16 (1)

APPENDIX: Estimation of Residual Soil Chloride Mass

Knowing the area and depth (and thus the volume) of affected soils (soils with residual chlorides) and multiplying this by (a reasonable estimate of) the soil density, we can estimate the total mass of affected soils. We multiply this times the estimated average soil chloride concentration to then give us the mass of residual chlorides. In more detail:

2,000 sq ft (estimated, approximate affected area) * 18 ft (water table depth) = ~~3,600~~ 36,000 cu ft (volume of affected soil)

~~3,600~~ 36,000 cu ft * 1 cu yd/27 cu ft = 1,333 cu yds (volume of affected soils)

1,333 cu ft * 3,000 lbs/cu ft (assumed soil density) = 4,000,000 lbs (mass of affected soil)

4,000,000 lbs * 750 ppm (estimated average chloride concentration of affected soil) * 1/1,000,000 (converts "ppm" to an absolute decimal fraction) = **3,000 lbs** (mass of residual chlorides)

Figure 2 – Computation of compensatory groundwater chloride mass removal for EME C16 (1). Corrections from the original Technical Summary are indicated in red font. *These typographical errors did not enter into or affect the numerical result.*

EME C16 (2)

APPENDIX: Estimation of Residual Soil Chloride Mass

Knowing the area and depth (and thus the volume) of affected soils (soils with residual chlorides) and multiplying this by (a reasonable estimate of) the soil density, we can estimate the total mass of affected soils. We multiply this times the estimated average soil chloride concentration to then give us the mass of residual chlorides.

In more detail:

2,000 sq ft (estimated, approximate affected area) * 19 ft (water table depth) = 38,000 cu ft (volume of affected soil)

38,000 cu ft * 1 cu yd/27 cu ft = 1,407 cu yds (volume of affected soils)

1,407 cu ft * 3,000 lbs/cu ft (assumed soil density) = 4,222,222 lbs (mass of affected soil)

4,222,222 lbs * ~~750~~ 150 ppm (estimated average chloride concentration of affected soil) * 1/1,000,000 (converts "ppm" to an absolute decimal fraction) = **633 lbs** (mass of residual chlorides)

Figure 3 – Computation of compensatory groundwater chloride mass removal for EME C-16 (2). A correction from the original Technical Summary is indicated in red font. *This typographical error did not enter into or affect the numerical result.*

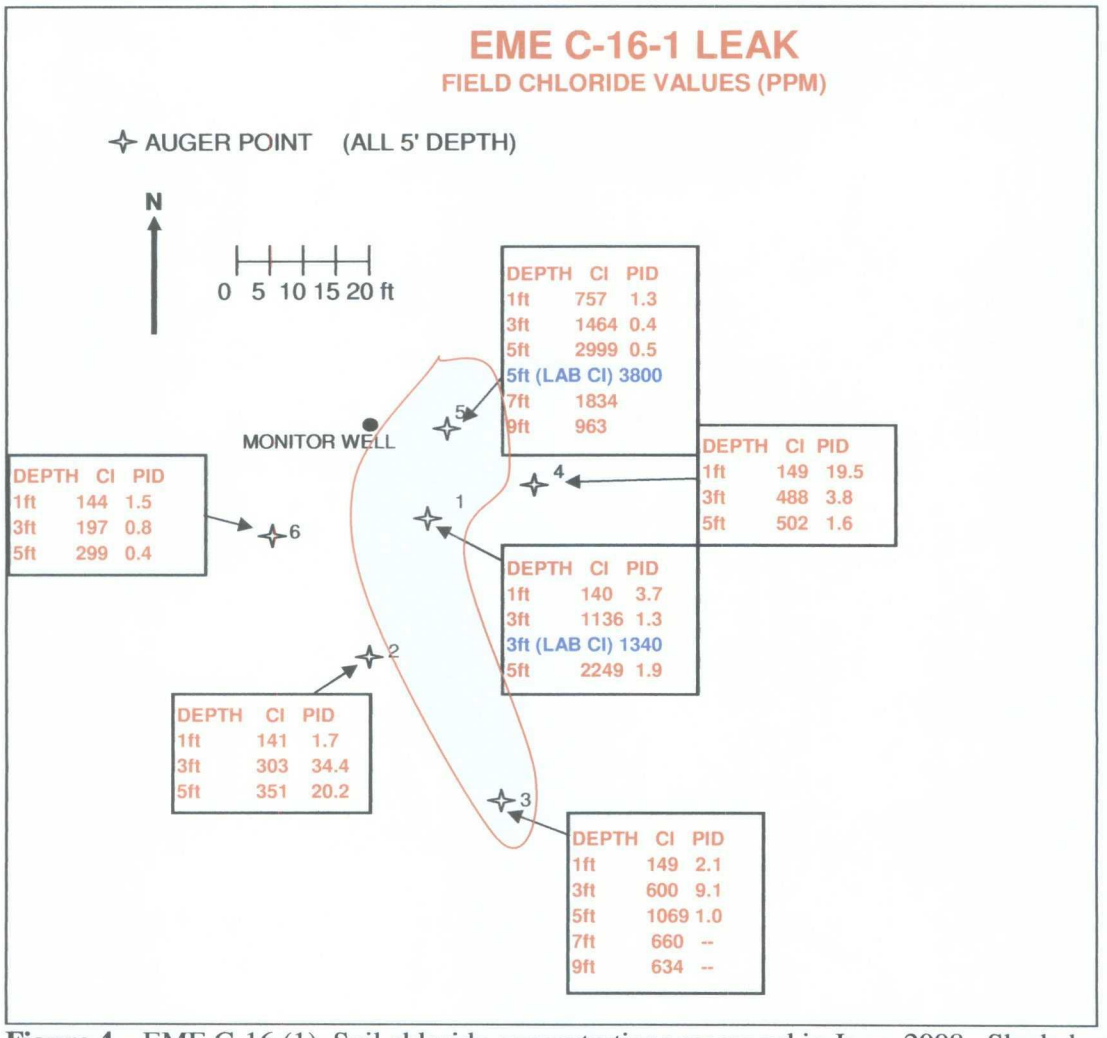

Figure 4 – EME C-16 (1). Soil chloride concentrations measured in June, 2008. Shaded area (covering approximately 1,150 sq ft) encompasses soils having a chloride concentration in excess of 1,000 ppm. The total area of affected soils is estimated to be approximately 2,000 sq ft and has an average estimated residual chloride concentration of 750 ppm over a thickness of 20 +/- ft. The depth to groundwater is approximately 18 ft.

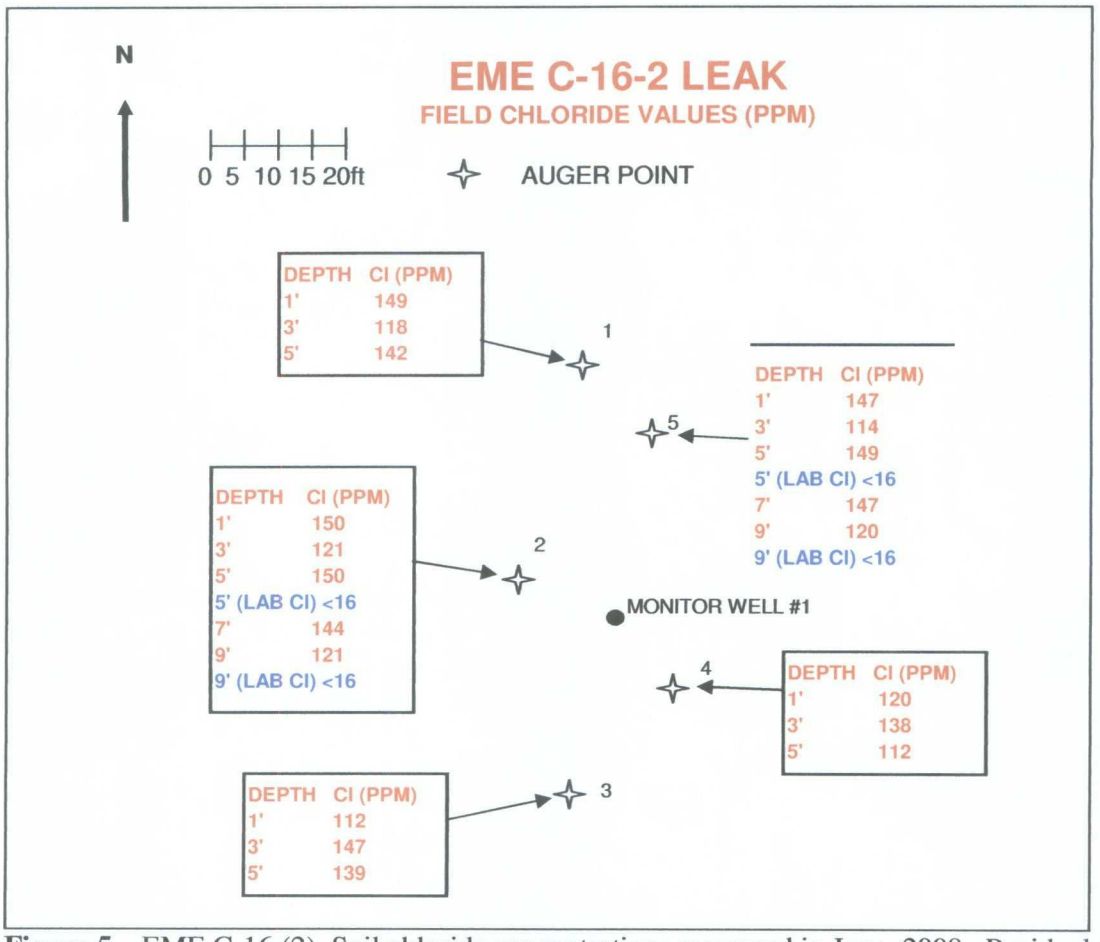

Figure 5 – EME C-16 (2). Soil chloride concentrations measured in June, 2008. Residual soil chloride impacts are negligible. The total area of affected soils is estimated to be approximately 2,000 sq ft and has an average estimated residual chloride concentration of 150 ppm (at most) over a thickness of 19 +/- ft, which is the depth to groundwater.

EME C16 (1&2)
Groundwater Chloride Recovery Calculations
Prepared 07.10.09 lpg

	EME C16 (1)	EME C16 (2)
Chloride Mass to be Removed (lbs)	3,000	633
Avg Groundwater Chloride Concentration (ppm)	8,315	2,403
Avg Groundwater Chloride Concentration (lbs/bbl)	2.95	0.85
Groundwater Volume to be Removed (bbls)	1,018	747
Groundwater Removed to Date (bbls)	1,611	1,611
Chloride Mass Removed to Date (lbs)	4,747	1,365
Groundwater Remaining to be Removed (bbls)	**0**	**0**

Calculation Notes:

Chloride Mass to be Removed was defined previously base on soils evaluation.
Avg Groundwater Chloride Concentration was based on field sampling and laboratory analysis.
Conversion of the above to lb/bbl is based on an TDS dependent water density
(see: http://www.csgnetwork.com/h2odenscalc.html)
Groundwater Volume to be Removed = Chloride Mass to be Removed/Avg Groundwater Chloride Conc.
Groundwater Removed to Date ... is based on measurements.
Chloride Mass Removed to Date = Groundwater Removed to Date * Avg Groundwater Chloride Conc.

Table 1 – Summary of groundwater chloride removal progress at EME C-16 (1) and C-16 (2).

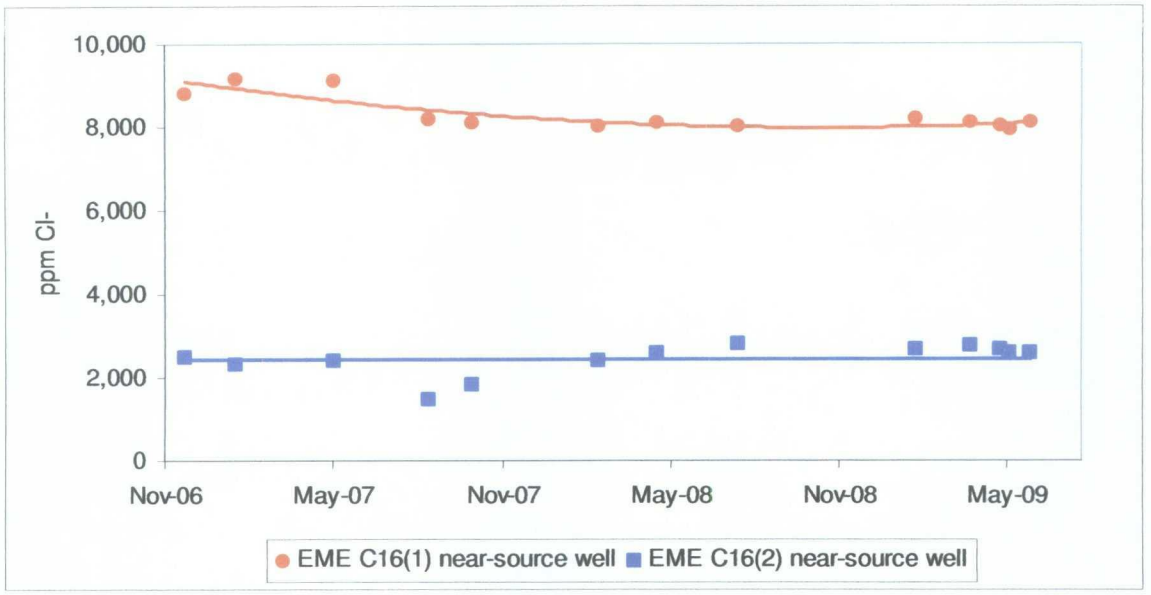

Figure 6 – Groundwater chloride concentrations at the at/near source monitor wells for EME C-16 (1&2).

Figure 7 – EME C-16 (1) release location taken 06.30.09.

Figure 8 – EME C-16 (2) release location taken 06.30.09.