# Mack Energy Corporation State DS #2 Site Investigation Section 24, Township 17S, Range 36E Lea County, New Mexico

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**Prepared for:** 

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#### I. Background

Safety & Environmental Solutions, Inc. (SESI) was contracted to perform a site investigation to determine the vertical and horizontal extent of contamination at a battery area identified as the State DS #2. The subject area is located in Section 24, Township 17S, Range 36E in Lea County, New Mexico. (See Figure 1)

#### II. Surface and Ground Water

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According to the database provided by the New Mexico Office of the State Engineer the depth to water in the same section range and township is approximately 52 feet. This measurement was taken from a well completed on October 31, 1963.

#### III. Soils

The soils in the area are predominantly sand and sandy loam.

#### IV. Work Performed

#### **Drilling of Boreholes**

On February 16, 2004 SESI drilled 3 boreholes to a depth of 10 feet. (Figure 2).

Field-testing for Total Petroleum Hydrocarbons (TPH) (EPA Method 418.1) was performed using a GAC Mega Total Petroleum Hydrocarbon analyzer. Field measurements for soil chlorides' were performed by adding a weighed sample (25 grams) of soil to 100Ml. of water. The resultant mixture is shaken and filtered. The chloride concentration in the filtrate is measured using a Hach Quantab and the concentration in the soil is determined by calculation.

The results of the analysis are as follows:

Date	ID	TPH	CI.
2/16/04	BH #1 5'	25	100
2/16/04	BH #1 10'		100
2/16/04	BH #2 5'	204	104
2/16/04	BH #2 10'	25	124
2/16/04	BH #3 5'	25	100

Grab samples were retrieved every five (5) feet on all three boreholes. The samples were properly packaged and preserved and sent under Chain of Custody to Cardinal Laboratories of Hobbs, New Mexico for analysis. All samples were analyzed for TPH (EPA Method 418.1) and BTEX (EPA Method SW-846-8260). (See Appendix A)

The results of the analysis are as follows:

Date	ID	TPH	Benzene	Toluene	Ethyl Benzene	Total Xylenes
2/46/04		-10		-0.005		
2/16/04	BH #1 5'	<10	<0.005	<0.005	<0.005	<0.015
2/16/04	BH #1 10'	184	<0.005	<0.005	<0.005	<0.015
2/16/04	BH #2 5'	<10	< 0.005	< 0.005	<0.005	<0.015
2/16/04	BH #2 10'	<10	0.012	0.021	< 0.005	<0.015
2/16/04	BH #3 5'	<10	0.009	0.017	<0.005	<0.015
2/16/04	BH #3 10'	<10	0.010	0.018	<0.005	<0.015

After samples were retrieved all boreholes were backfilled to surface with cuttings.

#### V. Conclusions

The results of the borehole samples indicated no TPH contamination at either the 5 or 10 feet depths with the exception of borehole #1 at 10 feet, which indicated TPH levels of 184 ppm. Borehole # 2 exhibits a minimal amount of Benzene and Toluene as does borehole # 3 at the 5 and 10-foot depths.

The results of the analysis indicate only small amounts of contamination in the boreholes and therefore no further action should be taken at this site.

### VI. Figures & Appendices

Figure 1 - Vicinity Map Figure 2 - Site Plan Appendix A - Analytical Results Figure 1 Vicinity Map

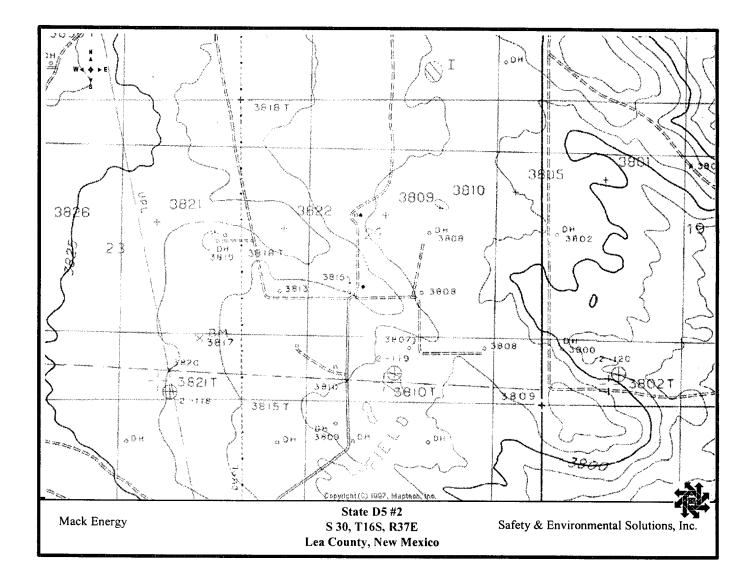
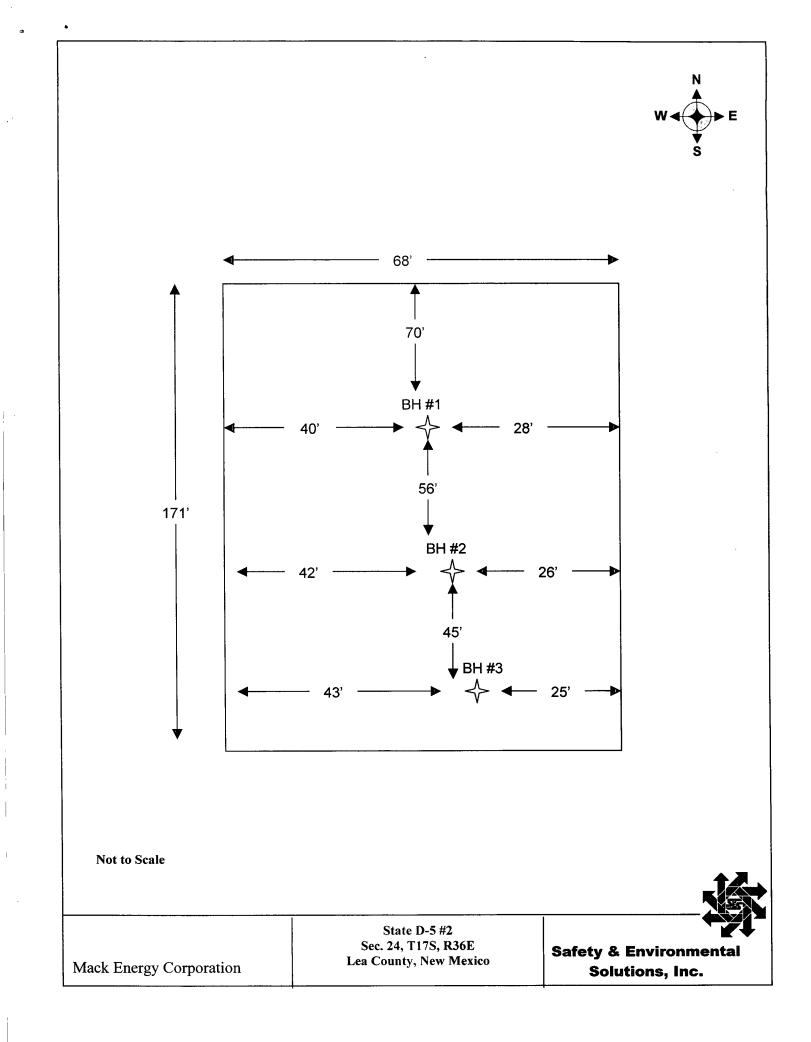


Figure 2 Site Plan

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Appendix A Analytical Results