Mack Energy Corporation Monsanto 30 State #4 Site Investigation Section 30, Township 16S, Range 37E Lea County, New Mexico

March 9, 2004



**Prepared for:** 

Mack Energy Corporation P.O. Box 960 Artesia, New Mexico 88211-0960

By:

Safety & Environmental Solutions, Inc. 703 E. Clinton Suite 102 Hobbs, New Mexico 88240 (505) 397-0510



AP1#30025357800000



### NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON Governor Joanna Prukop Cabinet Secretary Lori Wrotenbery Director Oil Conservation Division

March 10, 2004

Mack Energy Corporation jsherrill@mackenergycorp.com PO Box 960 Artesia, NM 88211-0960

Re: Site Investigation: Monsanto 30 State #4 Site Location: Sec 30 T16S R37E Lea County, NM Proposal Submittal Dated: March 9, 2004

Dear Mr. Sherrill,

The referenced Risk Based Work Plan submitted to New Mexico Oil Conservation Division (OCD) by Safety & Environmental Solutions, Inc. (SES) as agent for Mack Energy Corp. is **hereby approved with the following conditions:** 

- Initiate proposed operations as soon a possible
- Provide confirmation landowner is advised of operations as this is a risk-based plan
- Addition monitor wells be drilled as deemed necessary and appropriate by OCD
- GPS pit position, boreholes, monitor wells, and also all Lovington City water wells that could influence natural water gradient

This approval is for <u>temporary closure</u> of the pit to avoid possible additional vertical contaminant drivers to be introduced in the existing pit during the investigation and delineation of the project.

Please be advised that OCD approval of this plan does not relieve Mack Energy Corp. of liability should their operations fail to adequately investigate and remediate contaminants that threaten ground water, surface water, human health or the environment. Additionally, OCD approval does not relieve Mack Energy Corp. of responsibility for compliance with any other federal, state, or local laws and/or regulations.

If you have any questions call: (505) 393-6161, ext. 111, or email: lwjohnson@state.nm.us 2930.

Sincerely,

Johnson

Larry Johnson – OCD Environmental Engineer Cc:

Chris Williams - District I Supervisor Ed Martin – Environmental Dept. Paul Sheeley – Environmental Engineer Bob Allen – Safety & Environmental Solutions, Inc. ballen@sesi-nm.com

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Ι.	BACKGROUND
II.	SURFACE AND GROUND WATER1
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IV.	WORK PERFORMED
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#### I. Background

SESI was contracted to perform a site investigation to determine the vertical and horizontal extent of contamination inside a drilling pit for the Monsanto 30 State #4) This pit was used for drilling fluids storage during the drilling of the well. The subject area is located in Section 30, Township 16S; Range 37E in Lea County, New Mexico

#### II. Surface and Ground Water

The nearest groundwater water of record with the New Mexico State Engineer's Office is in the same section, township, and range. This well was drilled in 1965 and shows the depth of water to be <u>46 feet</u>.) Information from Pat Wise of the City of Lovington states the static level in their wells in the area to be 75'. However, Boreholes #1 was drilled to a depth of 70 feet, which would be in excess of 80 feet below ground surface and no water was encountered.

#### III. Soils

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

#### IV. Work Performed

#### Drilling of Boreholes

On February 11 2004 SESI drilled Borehole #1 to a depth of 60 feet. Grab samples were retrieved every five (5) feet. 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 Chlorides (EPA Method 4500-CI<sup>-</sup>B) and top sample was analyzed for TPH (EPA Method 418.1) and BTEX (EPA Method SW-846-8260).

On February 16, 2004 SESI drilled Borehole #1 an additional 10 feet to a depth of 70 feet. Grab samples were retrieved at 65 and 70 feet. The samples were properly packaged and preserved and sent under Chain of custody to Cardinal Laboratories for analysis. Both samples were analyzed for Chlorides (EPA Method 4500-CIB) and the bottom sample was analyzed for TPH (EPA Method 418.1) and BTEX (EPA Method SW-846-8260).

All boreholes were backfilled to surface the bentonite. (See Figure 2)

Date	ID	CI	TPH	Benzene	Toluene	Ethyl Benzene	Total Xylenes
2/11/04	BH #1 5'	5838	<10	< 0.005	<0.005	<0.005	<0.015
2/11/04	BH #1 10'	4319					
2/11/04	BH #1 15'	3439					
2/11/04	BH #1 20'	3039					
2/11/04	BH #1 25'	1823					
2/11/04	BH #1 30'	2815					
2/11/04	BH #1 35'	3439					

1

The results of the analysis are as follows:

2/11/04	BH #1 40'	3999					
2/11/04	BH #1 45'	4159					
2/11/04	BH #1 50'	3199					
2/11/04	BH #1 55'	3599					
2/11/04	BH #1 60'	4958					
2/16/04	BH #1 65'	3199		·			
2/16/04	BH #1 70'	160	<10	<0.005	<0.005	<0.005	<0.015

#### V. Conclusions

The results of the soil samples indicate that the chloride contamination has migrated to a depth of at least 65 feet below the bottom of the excavation. The depth of the excavation is approximately 10' to 12'.

It is recommended that a 40 mil plastic liner be installed in the bottom of this pit. The excavation should be squared and domed in the center with soil that will make an acceptable pad for the liner. After the liner in installed another lift of soil should be placed on the top of the plastic to insure the liner is not compromised during backfill of the pit. The pit should be backfilled with clean material and returned to natural grade.

A groundwater monitor well should be installed in a position that is close to and on the down-gradient side of the pit.

#### VI. Figures & Appendices

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

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# Figure 1 Vicinity Map



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### Figure 2 Site Plan



## Appendix A Analytical Results



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ANALYTICAL RESULTS FOR SAFETY & ENVIRONMENTAL SOLUTIONS, INC. ATTN: BOB ALLEN 703 E. CLINTON, #103 HOBBS, NM 88240 FAX TO: (505) 393-4388

Receiving Date: 02/13/04 Reporting Date: 02/16/04 Project Number: MAC 04 003 Project Name: MONSANTO #4 Project Location: LOVINGTON, NM Analysis Date: 02/16/04 Sampling Date: 02/11/04 Sample Type: SOIL Sample Condition: COOL & INTACT Sample Received By: GP Analyzed By: AH

LAB	NUMBER	
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SAMPLE ID

CI (mg/Kg)

H8460-1	BH 1 5'	5838
H8460-2	BH 1 10'	4319
H8460-3	BH 1 15'	3439
H8460-4	BH 1 20'	3039
H8460-5	BH 1 25'	1823
H8460-6	BH 1 30'	2815
H8460-7	BH 1 35'	3439
H8460-8	BH 1 40'	3999
H8460-9	BH 1 45'	4159
H8460-10	BH 1 50'	3199
H8460-11	BH 1 55'	3599
H8460-12	BH 1 60'	4958
Quality Control		1010
True Value QC		1000
% Recovery		101
<b>Relative Perce</b>	nt Difference	2.0

METHOD: Standard Methods

d Methods 4500-CIB

Note: Analyses performed on 1:4 w:v aqueous extracts.

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					ETHYL	TOTAL
LAB NUMBER	SAMPLE ID	TPH	BENZENE	TOLUENE	BENZENE	XYLENES
		(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
ANALYSIS DAT	E:	02/13/04	02/13/04	02/13/04	02/13/04	02/13/04
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Quality Control		245	0.092	0.101	0.101	0.305
True Value QC		240	0.100	0.100	0.100	0.300
% Recovery		102	92.4	101	101	102
<b>Relative Percen</b>	t Difference	4.5	3.6	2.8	1.5	1.9

METHODS: TRPHC-EPA 600/4-79-020 418.1; BTEX -EPA SW-846 8260

Date

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LAB NUMBER	SAMPLE ID	TPH	BENZENE	TOLUENE	BENZENE	XYLENES
		(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
ANALYSIS DAT	E:	02/18/04	02/18/04	02/18/04	02/18/04	02/18/04
H8463-2	BH #1-70'	<10	<0.005	<0.005	<0.005	<0.015
Quality Control		245	0.094	0.096	0.099	0.304
True Value QC		240	0.100	0.100	0.100	0.300
% Recovery		102	94.1	96.0	99.0	101
Relative Percer	nt Difference	4.5	1.9	5.1	2.5	0.4

METHODS: TRPHC-EPA 600/4-79-020 418.1; BTEX -EPA SW-846 8260

John

Date

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LAB NUMBER

ER SAMPLE ID

CI<sup>-</sup> (mg/Kg)

H8463-1 B	H #1-65'	3199
H8463-2 B	H #1-70'	160
·····		
Quality Control		1010
True Value QC		1000
% Recovery	·····	101
<b>Relative Percent Differ</b>	rence	2.0

METHOD: Standard Methods 4500-CI'B

Note: Analyses performed on 1:4 w:v aqueous extracts.

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