

1R - 441

REPORTS

DATE:

7/20/2005



P.O. Box 1613
703 E. Clinton Suite 102
Hobbs, New Mexico 88240
505/397-0510
Fax 505/393-4388
www.sesi-nm.com

Safety & Environmental Solutions, Inc.

July 20, 2005

Mr. Larry Johnson
New Mexico Oil Conservation Division
1625 French Drive
Hobbs, New Mexico 88240

IR-441

#4 30-025-35780

#5 30-025-35781

Dear Larry:

Please consider this letter as a request on behalf of Mack Energy Corporation to partially close the Monsanto State # 4 and 5 sites by properly installing a 40 mil plastic liner in the bottom of the existing excavations and backfilling the excavations with clean soils from off-site.

As we discussed in our conversation regarding these sites yesterday, allowing the closure of the pits in the manner described in the Site Investigation Reports enclosed will protect any chlorides left in place and prevent any additional migration to the groundwater.

In addition to the closure of the pits, monitor wells will be installed at each location to determine the extent of contamination, if any, in the groundwater. The placement of these wells is very important due to the proximity to the City of Lovington water wells. There are two water wells in the area and each is in excess of 1300' from the sites. Calculations are being made to determine the radius of influence of these wells.

Thank you for your consideration in this matter. If I may answer any questions or be of further service, please call me.

Sincerely,

Bob Allen ASP, CHMM, REM, CET, CES
President

BA/jra

Cc: Wayne Price



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor

Joanna Prukop
Cabinet Secretary
Acting Director
Oil Conservation Division

April 14, 2004

Mr. Bob Allen ballen@sesi-nm.com
Safety & Environmental Solutions, Inc.

Re: Site Investigation: Mack Energy Corporation State D-5 #2
 Site Reference: Sec-24 T-17S R-36E
 Request Plan Dated: April 13, 2004

Dear Mr. Allen,

The Site Investigation submitted to the New Mexico Oil Conservation Division (OCD) by, Safety & Environmental Solutions, Inc. for Mack Energy Corporation is hereby approved for **no further action required at this time** based on delineation information submitted.

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

If you have any questions or need assistance please call (505) 393-6161, x111 or e-mail lwjohnson@state.nm.us

Sincerely,

Larry Johnson - Environmental Engineer

Cc:

Chris Williams - District I Supervisor
Ed Martin – Environmental Bureau
Paul Sheeley - Environmental Engineer

From: Price, Wayne
Sent: Tuesday, March 16, 2004 4:32 PM
To: Martin, Ed
Subject: FW: Mack Energy Site

-----Original Message-----

From: Price, Wayne
Sent: Monday, March 15, 2004 9:35 AM
To: 'Pat Wise'; Bob Allen (E-mail)
Subject: RE: Mack Energy Site

Thanks Pat for the info. Sorry I didn't get back with you sooner I was at the blowout in Carlsbad! Pat I am going to call Bob Allen today and see if we can have them collect a sample from those wells. It might be you could still use them particularly in an emergency.

Dear Bob: Would please get a sample for TDS and chlorides on the wells Pat is concerned about and get a fast turn around or use field equipment as soon as possible.

-----Original Message-----

From: Pat Wise [mailto:pwise@lovington-nm.org]
Sent: Friday, March 12, 2004 10:49 AM
To: Price, Wayne
Subject: Mack Energy Site

Wayne:

Per your email reporting chloride levels at this site, I have instructed City personnel to take three wells down gradient from this site out of our gathering system until further notice. Let me know when you get Mack's plan. Thanks for your help.

Pat Wise, Manager
City of Lovington

This email has been scanned by the MessageLabs Email Security System.
For more information please visit <http://www.messagelabs.com/email>

Mack/Monsanto Site Update
March 12, 2004
Prepared by Ed Martin
NMOCD Environmental Bureau

This is a site in southeast New Mexico where Mack Energy has drilled ONE well (#4) and prepared a location for the second well (#5). There was one lined pit associated with the drilling activity for one well (#4) and the second drill pit was prepared in anticipation of drilling of the second well (#5). The lease consists of two existing older wells, an existing production battery, the one newly drilled well with a used drill pit and the one prepared location with the pits dug, but not lined. These pits were constructed according to NMOCD guidelines. A line existed from one of the produced water tanks at the battery to the unlined pit. Mack Energy claims that no water was ever supposed to flow from the tank to the pit. However, produced water was present in the pit at some time.

Mack Energy took steps to close the #4 drill pit. When this step was approximately 80% to 90% complete, the City of Lovington questioned the actions being taken in this remediation effort. The initial closure was implemented by simply covering the pit with stockpiled surface soil from the initial excavation, which is normal operating procedure. OCD requested the operation be suspended due to the sensitivity of the city water supply. OCD suggested the drill pit be handled in a manner to reduce or eliminate potential environmental damage. These steps included excavation and hauling of contaminated soils to an NMOCD-approved disposal facility. The well sites are not within the Lovington city limits. They are located on land owned by the Dairy Farmers of America. However, the sites are up gradient from and fairly close to the City of Lovington fresh water well field. Hence, the city is concerned that the contamination at the site may adversely affect its fresh water supply.

Larry Johnson and Paul Sheeley of the NMOCD Hobbs District Office oversaw the activities at the site. When the city became involved, Larry Johnson ordered that work be stopped temporarily so that all parties could engage in a discussion of the plan for remediation. After discussions, Larry Johnson ordered that work continue and that samples be taken at the bottom of the excavation (approximately 80 feet). Groundwater at the site is at approximately 100 feet. Sample results indicated that contamination had spread, vertically, past the depth of the excavation. The concentrations at 80 feet indicate a good possibility that groundwater may be effected.

The environmental company contracted to complete the remediation is Safety Environmental Solutions, Inc. Our (NMOCD's) experience with this company has been very good in the past. They are reliable and very aware of NMOCD's rules and regulations concerning soil and water remediation. Their next steps, with NMOCD oversight and approval, will be to drill two groundwater monitor wells and to install a synthetic barrier at the bottom of the excavation. The purpose of this barrier is to mitigate further migration of contaminants in the 80 feet to 100 feet range. Samples taken from the monitor wells will determine whether groundwater has been contaminated. As of this date, these steps are in process with NMOCD approval and with the understanding that the barrier referred to above is temporary in nature.

NMOCD will take all steps necessary to ensure that the water used by the City of Lovington is protected. NMOCD will also make every effort to keep all interested parties, including the City of Lovington, informed as to progress at the site. NMOCD foresees that Mack Energy will pose no problems, as they have been very cooperative with us up to this point in time. They have acquiesced to our strategies in all cases at this site.



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 as possible
- Provide confirmation landowner is advised of operations as this is a risk-based plan
- Additional 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 temporary closure 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

Sincerely,

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



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

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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 #5
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 as 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 temporary closure 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

Sincerely,

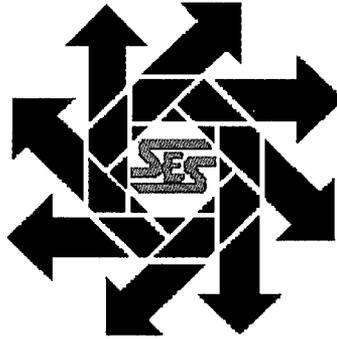
Larry Johnson – OCD Environmental Engineer

Cc:

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

**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***

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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 46 feet. 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-Cl⁻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-Cl⁻B) 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)

The results of the analysis are as follows:

Date	ID	Cl ⁻	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					

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'.

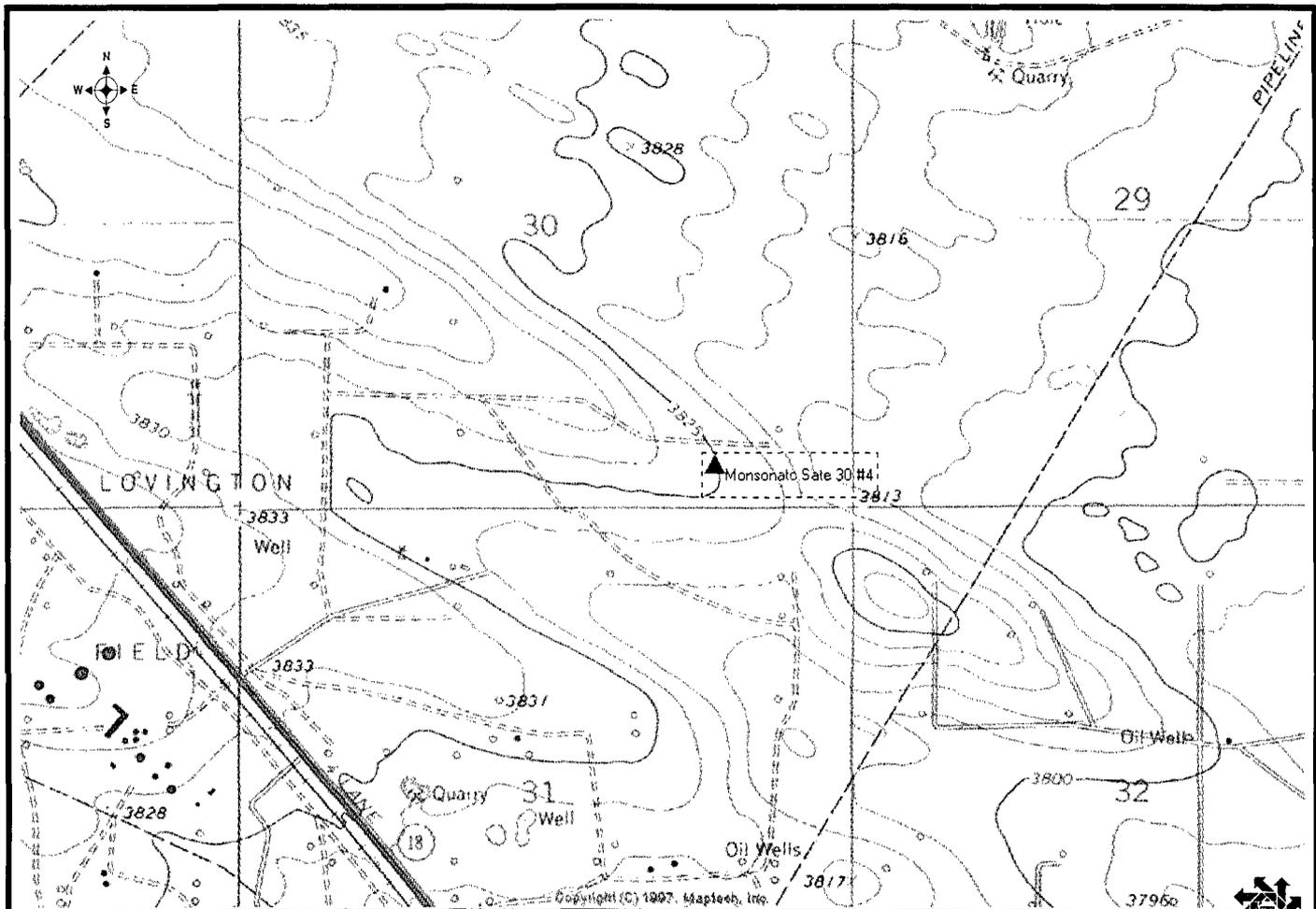
It is recommended that a 40 mil plastic liner be installed in the bottom of this pit. The excavation should be squared and domed in the center with soil that will make an acceptable pad for the liner. After the liner is installed another lift of soil should be placed on the top of the plastic to insure 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

Figure 1
Vicinity Map

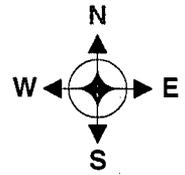


Mack Energy

Monsanto 30 State #4
 S 30, T16S, R37E
 Lea County, New Mexico

Safety & Environmental Solutions, Inc.

**Figure 2
Site Plan**



← 23' →

↑
200'
↓

Borehole #1



← 68' →

Not to Scale



Mack Energy Corporation

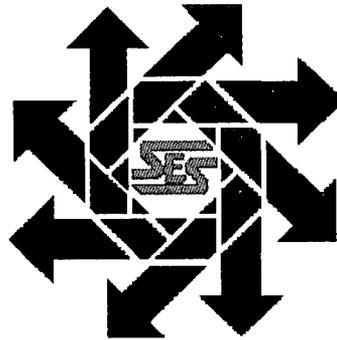
Monsanto 30 State #5
Sec. 30, T16S, R37E
Lea County, New Mexico

**Safety & Environmental
Solutions, Inc.**

Appendix A
Analytical Results

**Mack Energy Corporation
Monsanto 30 State #5
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***

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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 # 5. 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 46 feet. Information from Mr. Pat Wise of the City of Lovington states the static level in their wells in the area to be 75'. However, Borehole #1 was drilled to a depth of 70 feet in the center of the pit, which would be in excess 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 6, 2004 SESI drilled Borehole #1 to a depth of 70 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-Cl⁻B) and the bottom and top samples were analyzed for TPH (EPA Method 418.1) and BTEX (EPA Method SW-846-8260).

On February 9, 2004 SESI drilled Borehole #2 and #3. Borehole # 2 was drilled to a depth of 20 feet and Borehole #3 was drilled to a depth of 70 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 for analysis. All samples were analyzed for Chlorides (EPA Method 4500-Cl⁻B) and the bottom and top samples were analyzed for TPH (EPA Method 418.1) and BTEX (EPA Method SW-846-8260).

On February 10, 2004 SESI drilled Borehole # 4 was drilled to a depth of 40 feet. Grab samples were retrieved every ten (10) feet. The samples were properly packaged and preserved and sent under Chain of custody to Cardinal Laboratories for analysis. All samples were analyzed for Chlorides (EPA Method 4500-Cl⁻B).

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

The results of the analysis are as follows:

Date	ID	Cl ⁻	TPH	Benzene	Toluene	Ethyl Benzene	Total Xylenes
2/6/04	BH #1 5'	1744	<10	<0.005	<0.005	<0.005	<0.015
2/6/04	BH #1 10'	4878					

2/6/04	BH #1 15'	8477					
2/6/04	BH #1 20'	7598					
2/6/04	BH #1 25'	2879					
2/6/04	BH #1 30'	4159					
2/6/04	BH #1 35'	5758					
2/6/04	BH #1 40'	5918					
2/6/04	BH #1 45'	4559					
2/6/04	BH #1 50'	2959					
2/6/04	BH #1 55'	1679					
2/6/04	BH #1 60'	1264					
2/6/04	BH #1 65'	560					
2/6/04	BH #1 70'	176	<10	<0.005	<0.005	<0.005	<0.015
2/09/04	BH #2 5'	1390	<10	<0.005	<0.005	<0.005	<0.015
2/09/04	BH #2 10'	288					
2/09/04	BH #2 15'	80					
2/09/04	BH #2 20'	64	<10	<0.005	<0.005	<0.005	<0.015
2/09/04	BH #3 5'	5000	<10	<0.005	<0.005	<0.005	<0.015
2/09/04	BH #3 10'	6000					
2/09/04	BH #3 15'	8600					
2/09/04	BH #3 20'	8600					
2/09/04	BH #3 25'	4800					
2/09/04	BH #3 30'	3600					
2/09/04	BH #3 35'	9200					
2/09/04	BH #3 40'	9200					
2/09/04	BH #3 45'	9200					
2/09/04	BH #3 50'	10400					
2/09/04	BH #3 55'	8800					
2/09/04	BH #3 60'	9600					
2/09/04	BH #3 65'	11200					
2/09/04	BH #3 70'	7200	<10	<0.005	<0.005	<0.005	<0.015
2/10/04	BH #4 10'	144					
2/10/04	BH #4 20'	112					
2/10/04	BH #4 30'	80					
2/10/04	BH #4 40'	96					

V. Conclusions

The results of the borehole samples indicate that the contamination has migrated to a depth of at least 70 feet below the bottom of the excavated pit and in excess of 80 feet below ground surface. The results of borehole # 4, drilled outside the pit to the west indicate no horizontal migration to the west.

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 is 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 the pit on the down-gradient side.

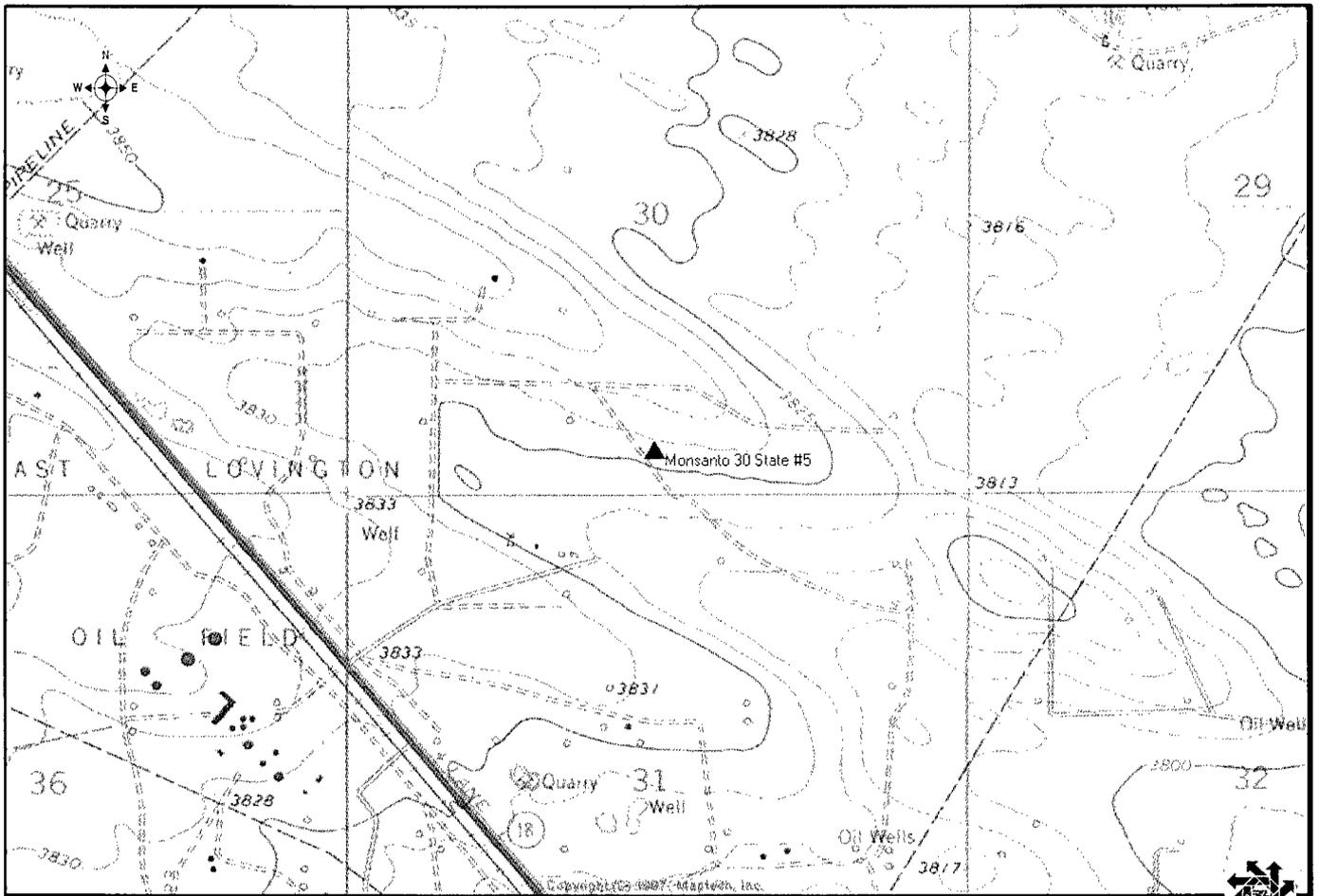
VI. Figures & Appendices

Figure 1 - Vicinity Map

Figure 2 - Site Plan

Appendix A - Analytical Results

Figure 1
Vicinity Map



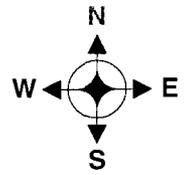
Mack Energy

Mack energy Corporation
 S 30, T16S, R37E
 Lea County, New Mexico

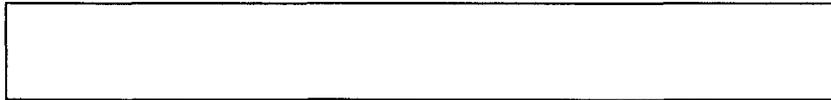
Safety & Environmental Solutions, Inc.



**Figure 2
Site Plan**



Well Stake → ⊕



BH #4
✦

BH #1
✦

BH #2
✦

BH #3
✦

Lease Road

Not to Scale



Proposed location of soil borings



Mack Energy Corporation

Monsanto 30 State #5
Sec. 30, T16S, R37E
Lea County, New Mexico

**Safety & Environmental
Solutions, Inc.**

Appendix A
Analytical Results