1R - 187

REPORTS

DATE:
3/9/1999

OCEAN ENERGY, INC.
1670 BROADWAY
SUITE 2800
DENVER, COLORADO 80202

"Request for Information" Matrix in response to the W. Price, NMOCD, letter dated 11-24-98

Assessments of the

LANDFARM/SOIL STORAGE AREAS
&
PERIPHERAL OVER SPRAY AREA

for the

CARLISLE STATE COM #1 WELL

Legal Description
Unit K-Sec10 T16S R35E
1650fsl 1980 fwl
Lea County, New Mexico

March 9, 1999

CALLAWAY SAFETY EQUIPMENT CO., INC.
3311 NORTH GRIMES •• HOBBS, NEW MEXICO 88240
TELEPHONE 505•392•0659 •• FAX 505•392•4547

March 9, 1999

Mr. Scott Webb
Ocean Energy
1670 Broadway
Suite 2800
Denver, Colorado 80202

Subject: NMOCD Request for Information letter dated 11-24-98

Mr. Webb,

Attached is the response to the "Request for Information" submitted by Mr. Wayne Price of the New Mexico Oil Conservation Division in his letter dated 11-24-98.

Reference	NMOCD Request for Information	Response or Explanation
B.1.	Provide Unit Letter	Unit K
B.2.	Specific location of the reference point, i.e., wellhead	Legal description: Carlisle State Com #1 "Unit K-Sec10 T16S R35E 1650FSL 1980FWL Lea County, New Mexico"
B.3.	The pit closure reports show bottom hole results but do not include sidewall information. Please provide to demonstrate horizontal extent or provide rationale.	The pits were very shallow, i.e.; <24" and sampling the sidewalls of the pits would not be at a significant interval from the bottom hole samples. Moreover, the pits were excavated in the existing drilling pad of a PA well that was, in all likelihood, already contaminated.
B.4.	Attachment C in each report is titled, "Ground Water Data Original Laboratory Reports," but the analysis included is for soils, please explain.	The attachment C title page should read, "Soil Data: Original Laboratory Reports." This was an administrative oversight on the part of the preparer.
B.5. Part 1	Please demonstrate what the background levels of chlorides would be outside of the impact areas.	The North and South Halliburton pits were excavated at a PA well location which, in all likelihood, was contaminated during the drilling activities prior to being permanently abandoned. Determining the background chloride concentration "outside of the impact area" would not provide viable requisite data by which an environmental management decision could be made. Rationale: The area "outside of the impact area" would be on the existing, previously contaminated, drilling pad of the PA well and would be biased.
B.5. Part 2	Please investigate the vertical extent of chlorides.	The response to B.5. Part 1 would, likewise, apply to this request.

Reference	NMOCD Request for Information	Response or Explanation
B.6.	Please explain the results for the chlorides, 11,300 mg/Kg, found in the North Pit Report Lab results sampling date 04/29/98 lab # H3615-1 S42998HSP	The analytical report submitted by Cardinal Laboratories on 5-2-98 provides chloride results for two samples, i.e., S42998HNP (2800 mg/Kg) and S42998HSP (11,300 mg/Kg). S42998HNP (2800 mg/Kg) is the Halliburton North Pit Bottom hole sample. S42998HSP (11,300 mg/Kg) was an investigative sample of the Halliburton South Pit which indicated that further excavation would be required. The final bottom hole result for the Halliburton South Pit was reported as 1778 mg/Kg on 5/11/98. The original analytical report is attached.
B.7.	Please provide a Table of Site Chronology of significant events.	3-31-98: Sample area water wells 4-20-98: Non-drilling pit liquids disposed of. 4-20-98: Sampled baseline locations for Landfarm. 4-27-98: Begin excavating contaminated pit soil and placing in the landfarm area. 5-1-98: Sample peripheral location 600' north of wellbore for VOC using the PID. (4-6 ppm) 6-8-98: Pit boulders blasted to allow continued removal of contaminated soil media. 6-9-98: Cease excavation 7-18-98: Submit Final Remediation Reports for the Halliburton North Pit, Halliburton South pit, and the East Flare Pit.
Pg. 3 p1-1.	4-18-98 NMOCD Approval Letter Item 2: Please provide information concerning the large over spray area.	The Assessment is enclosed.
Pg. 4 p1-3.	4-18-98 NMOCD Approval Letter Item 4: All areas where soils were stockpiled or temporarily landfarmed shall be tested, please provide.	The Assessment is enclosed.

If you have any questions please call me at 505□392□0659.

Sincerely,

Pat McCasland
Callaway Safety & Environmental Director

cc: Sam Callaway

OCEAN ENERGY, INC.

Assessment of the

LANDFARM/SOIL STORAGE AREAS

&

PERIPHERAL OVER SPRAY AREA

for the

CARLISLE STATE COM #1 WELL

Legal Description
Unit K-Sec10 T16S R35E
1650fsl 1980 fwl
Lea County, New Mexico

March 9, 1999

TABLE OF CONTENTS

1. LANDFARM / SOIL STORAGE AREA ASSESSMENT

The "Site Assessment Work Plan, April 1998," commits to assessing the impact on the soil from the effects of temporary storage or landfarming of contaminated soil excavated from the pits. A liner was not used because the soil being stored was not saturated and did not pose a risk to ground water. The excavations were subsequently lined and the contaminated soil used as backfill.

1.1 Sampling and Analysis Plan

Baseline samples at the 24-36" interval were obtained in April and May 1998, sampling succeeding areas as the excavation progressed and the soil storage area grew in size. Post Remediation samples were taken at the original Baseline sample locations in January 1999. The data is presented in Table 1 followed by the original third party laboratory analytical reports.

1.2 Discussion of Results

For the Post Remediation samples:

- BTEX at all four locations were below detection limits.
- TPH and, coincidentally, the Chloride concentration, increased at the East and Northwest locations but decreased at the Northeast and West sample sites.
- The General Chemistry parameters show some variability but nothing significant.

1.3 Conclusion

Chloride concentrations are not high enough to impact re-vegetation activity and will dissipate with time due to infiltration of periodic rain. The TPH concentrations at the East and Northwest locations are elevated but not above the 1000 ppm threshold and should enhance the natural reclamation processes. It is concluded that the surface will recover rapidly and there is not a threat to ground water.

Table 1

Ocean Energy Carlisle State Com #1

		Landfarm Sample Locations							
		East Landfarm 600 feet due east of the #1 well bore		Northeast Landfarm 400 feet due northeast of the #1 well bore		Northwest Landfarm 300 feet northwest of the #1 well bore		West Landfarm 600 feet west northwest of the #1 well bore	
Parameter	**Units**	**Baseline 4/28/98**	**Post Remediation 1/13/99**	**Baseline 5/5/98**	**Post Remediation 1/13/99**	**Baseline 5/5/98**	**Post Remediation 1/13/99**	**Baseline 5/29/98**	**Post Remediation 1/13/99**
Benzene	mg/Kg	0.057	<0.002	<.001	<0.002	<.001	<0.002	<.002	<0.002
Bicarbonates	mg/Kg	234.000	429.000	176.000	273.000	254.000	332.000	1132.000	234.000
Carbonates	mg/Kg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Chloride	mg/Kg	36.000	107.000	107.000	96.000	47.000	184.000	166.000	80.000
Chloride	mg/Kg		160.000						
Conductivity	umhos/cm	88.000	361.000	117.000	262.000	139.000	341.000	5390.000	185.000
Ethyl Benzene	mg/Kg	0.207	<0.002	<.001	<0.002	<.001	<0.002	0.005	<0.002
Hardness	mg/Kg	128.000	400.000	176.000	368.000	208.000	464.000	4240.000	256.000
Hydroxides	mg/Kg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
P-Alkalinity	mg/Kg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
pH	s.u.	7.820	7.470	7.680	7.360	8.190	7.530	7.230	7.300
Sulfates	mg/Kg	56.000	44.900	12.000	6.430	40.000	5.950	122.000	1.740
T-Alkalinity	mg/Kg	191.000	351.000	144.000	224.000	208.000	272.000	928.000	192.000
Toluene	mg/Kg	0.577	<0.002	<.001	<0.002	<.001	<0.002	0.004	<0.002
TPH	mg/Kg	<10.0	802.000	747.000	<10	<10	266.000	15.900	<10
Xylenes - Total	mg/Kg	2.380	<0.006	<.003	<0.006	<.003	<0.006	0.070	<0.006

Original Laboratory Analytical Reports

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CALLAWAY SAFETY/UMC
ATTN: PAT McCASLAND
3229 INDUSTRIAL DRIVE
HOBBS, NM 88240
FAX TO: 505-392-4990

Receiving Date: 04/28/98
Reporting Date: 04/30/98
Project Owner: UMC
Project Name: CARLISLE STATE COM #1
Project Location: 4 MI WEST OF LOVINGTON, NM

Sampling Date: 04/28/98
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	TPH (mg/Kg)	Cl (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		04/29/98	04/30/98	04/28/98	04/28/98	04/28/98	04/28/98
H3612-1	S42898DRP	28200	38800	21.3	396	95	990
H3612-2	S42898LFBL	<10	107	0.057	0.577	0.207	2.38
Quality Control		211	476	0.106	0.104	0.103	0.313
True Value QC		200	500	0.100	0.100	0.100	0.300
% Accuracy		106	95	104	104	103	104
Relative Percent Difference		1.7	0.8	4.0	0.1	0.7	0.3

METHODS: TRPHC-EPA 600/4-79-020, 418.1;Cl-EPA 600/4-79-020 325.3 BTEX-EPA SW-846-8260

Burgess J. A. Cooke, Ph. D.

4/30/98
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CALLAWAY SAFETY/UMC
ATTN:PAT McCASLAND
3229 INDUSTRIAL DRIVE
HOBBS, NM 88240
FAX TO: (505) 392-4990

Receiving Date: 05/05/98
Reporting Date: 05/07/98
Project Number: NOT GIVEN
Project Name: UMC CARLISLE STATE COM #1
Project Location: 4 MILES WEST OF LOVINGTON, NM

Sampling Date: 05/05/98
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: JS
Analyzed By: BC

LAB NO.	SAMPLE ID	TPH (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)
ANALYSIS DATE:		05/06/98	05/05/98	05/05/98	05/05/98	05/05/98
H3626-1	S5598CLFNEBL	747	<0.001	<0.001	<0.001	<0.003
H3626-2	S5598CLFNWBL	<10	<0.001	<0.001	<0.001	<0.003
Quality Control		212	0.096	0.092	0.091	0.275
True Value QC		200	0.100	0.100	0.100	0.300
% Recovery		106	96.4	91.6	91.0	91.7
Relative Percent Difference		1.3	9.4	8.4	3.7	3.1

METHODS: TRPHC - EPA 600/7-79-020, 418.1; BTEX - EPA SW846-8020, 8260

Burgess J. A. Cooke, Ph.D.

5/7/98
Date

H3626-1.XLS

CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
CALLAWAY SAFETY /UMC
ATTN: PAT McCASLAND
3229 INDUSTRIAL DRIVE
HOBBS, NM 88240
FAX TO: (505) 392-4990

Receiving Date: 05/05/98
Reporting Date: 05/07/98
Project Number: NOT GIVEN
Project Name: UMC CARLISLE STATE COM #1
Project Location: 4 MILES WEST OF LOVINGTON ,NM

Sampling Date: 05/05/98
Sample Type: SOIL*
Sample Condition: COOL AND INTACT
Sample Received By: JS
Analyzed By:

LAB NUMBER	SAMPLE ID	P-Alkalinity (mg/L)	T-Alkalinity (mg/L)	Hardness (mg/L)	Chloride (mg/L)	Sulfates (mg/L)
ANALYSIS DATE		05/06/98	05/06/98	05/06/98	05/06/98	05/06/98
H3626-1	S5598CLFNEBL	0	144	176	107	12
H3626-2	S5598CLFNWBL	0	208	208	47	40
H3626-3**	S42498LFBL	0	191	128	36	56
Quality Control		NR	NR	NR	1334	48.9
True Value QC		NR	NR	NR	1355	50.0
% Accuracy		NR	NR	NR	98.4	97.8
Relative Percent Difference		NR	NR	NR	1.6	2.7
METHODS:	EPA 600/4-79-020	-	-	130.2	325.3	375.4
	Standard Method	2320 B	2320 B	-	-	-

LAB NUMBER	SAMPLE ID	Hydroxides (mg/L)	Carbonates (mg/L)	Bicarbonates (mg/L)	Conductivity (umhos/cm)	pH (s.u.)
ANALYSIS DATE		05/06/98	05/06/98	05/06/98	05/06/98	05/06/98
H3626-1	S5598CLFNEBL	0	0	176	117	7.68
H3626-2	S5598CLFNWBL	0	0	254	139	8.19
H3626-3**	S42498LFBL	0	0	234	88	7.82
Quality Control		NR	124	221	1445	7.01
True Value QC		NR	112	259	1413	7.00
% Accuracy		NR	110	85.4	102	100
Relative Percent Difference		NR	-	-	0.3	0.1
METHODS:	EPA 600/4-79-020	-	-	-	120.1	150.1
	Standard Method	2320 B	2320 B	2320 B	-	-

*Analyses performed on 1:4 w:v aqueous extracts.
**Sampled on 04/24/98.

Gayle Potter, Chemist

05/11/98
Date

H3626-3.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CALLAWAY SAFETY/UMC
ATTN: PAT McCASLAND
3229 INDUSTRIAL DRIVE
HOBBS, NM 88240
FAX TO: 505-392-4990

Receiving Date: 05/29/98
Reporting Date: 06/02/98
Project Number: NOT GIVEN
Project Name: UMC CARLISLE STATE COM #1
Project Location: 4 MILES WEST OF LOVINGTON, NM

Sampling Date: 05/29/98
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: AH

LAB NUMBER	SAMPLE ID	P-Alkalinity (mg/Kg)	T-Alkalinity (mg/Kg)	Hardness (mg/Kg)	Chloride (mg/Kg)	Sulfates (mg/Kg)
ANALYSIS DATE		06/01/98	06/01/98	06/01/98	06/01/98	06/01/98
H3667-2	S52998CLFW1BL	0	928	4240	166	122
Quality Control		NR	NR	NR	1334	48.9
True Value QC		NR	NR	NR	1355	50.0
% Accuracy		NR	NR	NR	98.4	97.8
Relative Percent Difference		NR	NR	NR	1.6	2.2
METHODS:	EPA 600/4-79-020,	-	-	130.2	325.3	375.4
	Standard Method	2320 B	2320 B	-	-	-

LAB NUMBER	SAMPLE ID	Hydroxides (mg/Kg)	Carbonates (mg/Kg)	Bicarbonates (mg/Kg)	Conductivity (umhos/cm)	pH (s.u.)
ANALYSIS DATE		06/01/98	06/01/98	06/01/98	06/02/98	06/02/98
H3667-2	S52998CLFW1BL	0	0	1132	5390	7.23
Quality Control		NR	124	221	1445	7.05
True Value QC		NR	112	259	1413	7.00
% Accuracy		NR	110	85	102	101
Relative Percent Difference		NR	-	-	0.3	0.7
METHODS:	EPA 600/4-79-020,	-	-	-	120.1	150.1
	Standard Method	2320 B	2320 B	2320 B	-	-

Chemist

6/2/98
Date

H3667GAL8

CARDINAL LABORATORIES

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CALLAWAY SAFETY/UMC
ATTN: PAT McCASLAND
3229 INDUSTRIAL DRIVE
HOBBS, NM 88240
FAX TO: 505-392-4990

Receiving Date: 05/29/98
Reporting Date: 06/01/98
Project Number: NOT GIVEN
Project Name: UMC CARLISLE STATE COM #1
Project Location: 4 MILES WEST OF LOVINGTON, NM

Sampling Date: 05/29/98
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC

LAB NUMBER	SAMPLE ID	TPH (mg/Kg)	ALKANE RANGE	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		05/29/98	05/29/98	05/29/98	05/29/98	05/29/98	05/29/98
H3667-1	S52998HSP	282	C12-C28	<0.002	0.003	<0.002	<0.006
H3667-2	S52998CLFW1BL	15.9	C14-C26	<0.002	0.004	0.005	0.070
Quality Control		2862	-	0.102	0.102	0.101	0.306
True Value QC		3000	-	0.100	0.100	0.100	0.300
% Accuracy		95.4	-	102	102	101	102
Relative Percent Difference		3.5	-	2.1	7.4	9.2	4.9

METHODS: TPH - EPA SW-846 8015M; BTEX - EPA SW-846-8020

Burgess J. A. Cooke, Ph. D.

6/1/98
Date

CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
CALLAWAY SAFETY
ATTN: PAT MCCASLAND
3311 N. GRIMES
HOBBS,NM 88240
FAX TO: (505) 392-4547

Receiving Date: 01/14/99
Reporting Date: 01/18/99
Project Owner: OCEAN ENERGY
Project Name: UMC CARLISLE ST. COM. #1
Project Location: 4 MI. WEST OF LOVINGTON, NM

Sampling Date: 01/13/99
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NO.	SAMPLE ID	TPH (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)
ANALYSIS DATE:		01/14/99	01/14/99	01/14/99	01/14/99	01/14/99
H3992-1	S11399LFE	802	<0.002	<0.002	<0.002	<0.006
H3992-2	S11399LFNE	<10	<0.002	<0.002	<0.002	<0.006
H3992-3	S11399LFNW	266	<0.002	<0.002	<0.002	<0.006
H3992-4	S11399LFW	<10	<0.002	<0.002	<0.002	<0.006
Quality Control		244	0.088	0.094	0.099	0.296
True Value QC		240	0.100	0.100	0.100	0.300
% Recovery		102	88	94	99	99
Relative Percent Difference		0.8	1.6	6.3	1.5	1.4

METHODS: TRPHC - EPA 600/7-79-020, 418.1; BTEX - EPA SW846-8020, 8260

Chemist

Date 1/18/99

H3992-1.XLS

CARDINAL LABORATORIES

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CALLAWAY SAFETY
ATTN: PAT MCCASLAND
3311 N. GRIMES
HOBBS,NM 88240
FAX TO: (505) 392-4547

Receiving Date: 01/14/99
Reporting Date: 01/18/99
Project Owner: OCEAN ENERGY
Project Name: UMC CARLISLE ST. COM. #1
Project Location: 4 MI. WEST OF LOVINGTON, NM

Sampling Date: 01/13/99
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	P-Alkalinity (mg/L)	T-Alkalinity (mg/L)	Hardness (mg/L)	Chloride (mg/L)	Sulfates (mg/L)	pH (s.u.)
ANALYSIS DATE		01/15/99	01/15/99	01/15/99	01/15/99	01/18/99	01/15/99
H3992-1	S11399LFE	0	351	400	160	44.9	7.47
H3992-2	S11399LFNE	0	224	368	96	6.43	7.36
H3992-3	S11399LFNW	0	272	464	184	5.95	7.53
H3992-4	S11399LFW	0	192	256	80	1.74	7.30
Quality Control		NR	NR	46	1257	49.66	7.07
True Value QC		NR	NR	50	1319	50	7.00
% Recovery		NR	NR	92	95	99	101
Relative Percent Difference		NR	NR	12	3.5	2.1	7.1
METHODS:	EPA 600/4-79-02	-	-	130.2	325.3	375.4	150.1
	Standard Method	2320 B	2320 B	-	-	-	-

LAB NUMBER	SAMPLE ID	Hydroxides (mg/L)	Carbonates (mg/L)	Bicarbonates (mg/L)	Conductivity (umhos/cm)
ANALYSIS DATE		01/15/99	01/15/99	01/15/99	01/15/99
H3992-1	S11399LFE	0	0	429	361
H3992-2	S11399LFNE	0	0	273	262
H3992-3	S11399LFNW	0	0	332	341
H3992-4	S11399LFW	0	0	234	185
Quality Control		NR	112	221	1402
True Value QC		NR	124	259	1413
% Recovery		NR	90	85	99
Relative Percent Difference		NR	-	-	0.1
METHODS:	EPA 600/4-79-02	-	-	-	120.1
	Standard Method	2320 B	2320 B	2320 B	-

Chemist

Date 1/18/99

H3992-2.XLS

2. OVER SPRAY AREA PERIPHERAL SURVEY

In accordance with the "Site Assessment Work Plan, April 1998," surface samples along the Cardinal Radians were analyzed for headspace VOC using a Rae Systems handheld PID. None was detected. Peripheral samples were taken at the surface and 18-36" interval from undisturbed areas beyond the usage area. Refer to attached map.

2.1 DISCUSSION OF RESULTS

Chloride concentrations are at background levels, i.e., 32-47 mg/Kg with the exception of the East location which is only nominally higher. The surface samples show there to be moderate TPH contamination at the East and North sample sites considerably higher at the South location. Refer to Data Table 2

2.2 CONCLUSION

There will not be an off-site impact due to Chloride. The South TPH surface sample result is 2030 mg/Kg but rapidly diminishes to 377 mg/Kg at the 36" interval. The initial and most likely heaviest flow from the well bore was carried south and explains the elevated concentrations. Based on these data, there will not be a long-term impact to the area soil and vegetation and no credible threat to ground water.

Table 2

Ocean Energy Carlisle State Com #1

Overspray Area Peripheral Survey Locations

		East		**North**		**West**		**South**	
		800 feet due east of the #1 well bore		*600 feet due North of the #1 well bore*		*600 feet due west of the #1 well bore*		*600 feet due south of the #1 well bore*	
		Surface	18" Interval	Surface	24" Interval	Surface	18" Interval	Surface	36" Interval
Parameter	Units	2/15/99	2/15/99	2/15/99	2/15/99	2/15/99	2/15/99	2/15/99	2/15/99
Chloride	ppm	111.000	47.000	47.000	79.000	32.000	47.000	47.000	63.000
TPH	ppm	108.000	<50	316.000	<50	<50	<50	2030.000	377.000
VOC*	ppm	ND*	ND	ND	ND	ND	ND	ND	ND

*VOC - These data were obtained using the Rae Systems Portable Handheld PID. Field data obtained during May 1998 indicated concentrations between 3 and 8 ppm VOC at the Surface and at 14" interval.

ND* - None detected

Original Laboratory Analytical Reports

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CALLAWAY SAFETY
ATTN: PAT McCASLAND
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HOBBS, NM 88240
FAX TO: (505) 392-4547

Receiving Date: 02/16/99
Reporting Date: 02/17/99
Project Owner: OCEAN ENERGY
Project Name: CARLISLE #1
Project Location: 4 MILES W. OF LOVINGTON, NM

Sampling Date: 02/15/99
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	TPH (ppm)	Cl (ppm)
ANALYSIS DATE:		02/16/99	02/17/99
H4028-1	S99215N600S	316	47
H4028-2	S99215N60024	<50	79
H4028-3	S99215S600S	2030	47
H4028-4	S99215S60036	377	63
H4028-5	S99215W600S	<50	32
H4028-6	S99215W60018	<50	47
H4028-7	S99215E800S	108	111
H4028-8	S99215E80018	<50	47
Quality Control		2316	1335
True Value QC		3000	1319
% Recovery		77.2	101
Relative Percent Difference		1.3	1.5

METHODS: EPA SW-846	8015 M	4500-Cl B*

*Std. Methods

Chemist

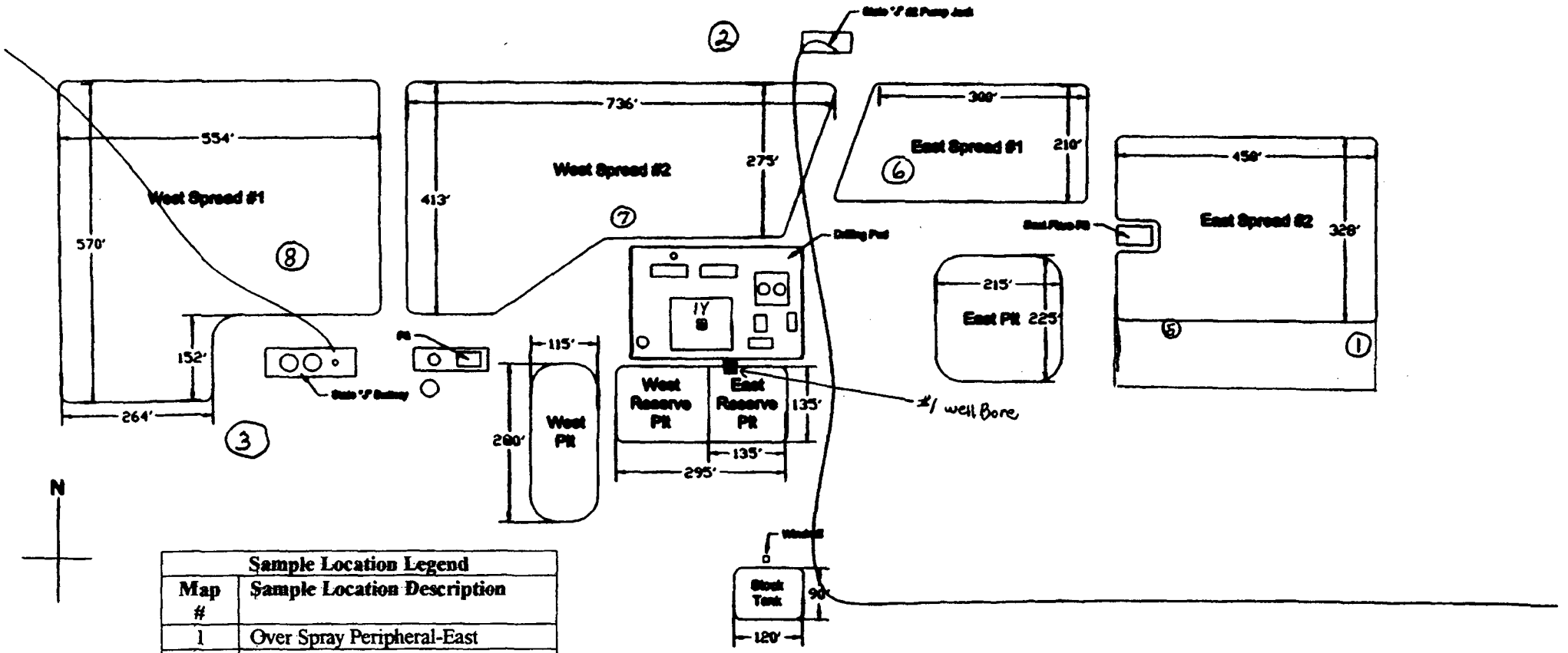
2/17/99
Date

H4028.XLS

SITE MAP

UMC CARLISLE STATE COM #1

Plat Map



Sample Location Legend	
Map #	**Sample Location Description**
1	Over Spray Peripheral-East
2	Over Spray Peripheral-North
3	Over Spray Peripheral-West
4	Over Spray Peripheral-South
5	Soil Storage/Landfarm-East
6	Soil Storage/Landfarm-Northeast
7	Soil Storage/Landfarm-Northwest
8	Soil Storage/Landfarm-West