1R - 187

REPORTS

DATE:
11/8/1999

Ocean Energy

November 8, 1999

Mr. Wayne Price
New Mexico, Energy, Minerals &
Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505

RECEIVED
NOV 10 1999
Environmental Bureau
Oil Conservation Division

RE: Closure Report Addendums
UMC Carlisle State Com #1

Mr. Price;

As per your letter dated August 2, 1999, I have enclosed the requested addendums for the subject well.

If you have any questions I can be reached at (303) 308-8863.

Sincerely,

Scott M. Webb
Regulatory Coordinator

Ocean Energy Resources, Inc. Amoco Building 1670 Broadway, Suite 2800 Denver, Colorado 80202 (303) 308-8500 Fax: (303) 308-8510

Ocean Energy

Ocean Energy Corporation
UMC Carlisle State Com # 1
Closure Report
Volume III

Whole Earth Environmental
19606 San Gabriel
Houston, Tx. 77084

Request # 1

Please provide dimensional side profile drawings for the West Emergency Pit, West Reserve Pit, East Emergency Pit, and East Reserve Pit. Each Drawing shall contain the following information:

a. Final soil isoconcentration values for BTEX, TPH, chloride and any other analytical results (i.e. EC, CEC, SAR, ESP, etc) of the bottom, side walls and compacted soils below the liners, each successive fill lift of the remediated soils, any un-remediated or remaining contaminated soils, i.e. drilling muds, etc.) and top soils. Please include dimensions and any significant features such as monitor wells, groundwater, liners, etc.

b. Each analytical concentration value shown on the drawing shall be identified and listed in a separate summary table (i.e. Laboratory Testing Confirmation Index) and cross-referenced to laboratory or field reports. If these values are averaged then list the high and low values obtained. Please include all field or laboratory reports, Chain of Custody forms, etc. in an appendix to support values shown on the drawings.

Response

Enclosed are copies of side profile views of the East and West Emergency Pits, all related laboratory reports, associated chain of custody forms and summary spreadsheets.

The Reserve Pits were constructed on grade. The materials used for the berm walls were obtained from a shallow (approximately 3') excavation of the soils from within the center of the impoundment. Enclosed are top and side views of the pit construction.

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 07/23/98
Sample Type: Soil
Project Name: Pit Closure
Project #: Ocean Energy
Project Location: Lovington, New Mexico

Analysis Date: 07/24/98
Sampling Date: 07/22/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
14892	E. Pit East	<0.100	0.543	0.212	1.795	0.907
14893	E. Pit South	0.239	7.497	4.070	40.841	18.775
14894	E. Pit West	<0.100	<0.100	<0.100	0.101	<0.100
14895	E. Pit North	<0.100	<0.100	<0.100	<0.100	<0.100
14896	E. Pit Bottom	0.858	7.275	4.098	36.838	17.176
14897	W. Pit East	<0.100	<0.100	<0.100	0.106	<0.100
14898	W. Pit South	<0.100	<0.100	<0.100	<0.100	<0.100
14899	W. Pit West	<0.100	<0.100	<0.100	<0.100	<0.100
14900	W. Pit North	<0.100	<0.100	<0.100	<0.100	<0.100
14901	W. Pit Bottom	<0.100	0.121	<0.100	1.004	0.614
	% IA	104	104	105	106	104
	% EA	110	112	106	109	109
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Raland K. Tuttle

7-27-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-464-8996

Receiving Date: 07/23/98
Sample Type: Soil
Project #: Ocean Energy
Project Name: Pit Closure
Project Location: Lovington, New Mexico

Analysis Date: 07/24/98
Sampling Date: 07/22/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	(GRO) C6-C10 mg/kg	(DRO) C10-C28 mg/kg	Total TPH C6-C28 mg/kg
14892	E. Pit East	44	1,990	2,034
14893	E. Pit South	3,096	26,800	29,896
14894	E. Pit West	<25	25	<50
14895	E. Pit North	<25	453	454
14896	E. Pit Bottom	4,257	38,261	42,518
14897	W. Pit East	<25	152	155
14898	W. Pit South	<25	493	500
14899	W. Pit West	<25	<25	<50
14900	W. Pit North	<25	86	86
14901	W. Pit Bottom	151	962	1,113
	QUALITY CONTROL	480	446	926
	TRUE VALUE	542	558	1,100
	% PRECISION	89	80	84
	BLANK	<25	<25	<50

METHODS: SW 846-8015M / GRO,DRO

Raland K. Tuttle

7-27-98
Date

Environmental Lab of Texas, Inc. 12600 West I-20 East, Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: M. Griffin	**Phone #:** / **FAX #:**
Company Name & Address: Whole Earth Environ	
Project #: Ocean Energy	**Project Name:** P.t Closure
Project Location: Lovington, NM	**Sampler Signature:** M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH ~~418.1~~ 8015 DRO, GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
4892	E. Pit East	1			✓									7-22		✓	✓						
4893	" " South	1			✓									✓		✓	✓						
4894	" " West	1			✓									✓		✓	✓						
4895	" " North	1			✓									✓		✓	✓						
4896	" " Bottom	1			✓									✓		✓	✓						
4897	Ck. Pit East	1			✓									✓		✓	✓						
4898	" " South	1			✓									✓		✓	✓						
4899	" " West	1			✓									✓		✓	✓						
4900	" " North	1			✓									✓		✓	✓						
4901	" " Bottom	1			✓									✓		✓	✓						

Relinquished by: M. Griffin	**Date:** 7-23	**Times:** 5:23	**Received by:** Rachel K Jones
Relinquished by:	**Date:**	**Times:**	**Received by:**
Relinquished by:	**Date:**	**Times:**	**Received by Laboratory:**

REMARKS

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 07/28/98
Sample Type: Soil
Project Name: None Given
Project #: Ocean Energy
Project Location: None Given

Analysis Date: 07/28/98
Sampling Date: 07/28/98
Sample Condition: Intact/Iced
*sample 14937 in plastic bag

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
14927	5'	<0.100	<0.100	<0.100	0.110	<0.100
14928	10'	0.210	0.317	0.225	0.420	0.250
14929	15'	0.469	0.837	0.359	1.149	0.732
14930	20'	<0.100	<0.100	<0.100	<0.100	<0.100
14931	25'	0.111	<0.100	<0.100	<0.100	<0.100
14932	30'	<0.100	<0.100	<0.100	<0.100	<0.100
14933	35'	<0.100	<0.100	<0.100	<0.100	<0.100
14937	Mixing Zone	<0.100	0.935	0.523	9.881	6.698
% IA		105	104	102	102	104
% EA		89	89	87	86	89
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Raland K. Tuttle

7-29-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-464-8996

Receiving Date: 07/28/98
Sample Type: Soil
Project #: Ocean Energy
Project Name: None Given
Project Location: None Given

Analysis Date: 07/29/98
Sampling Date: 07/28/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	(GRO) C6-C10 mg/kg	(DRO) C10-C28 mg/kg	Total TPH C6-C28 mg/kg
14927	5'	<25	<25	<50
14928	10'	<25	<25	<50
14929	15'	<25	<25	<50
14930	20'	<25	<25	<50
14931	25'	<25	<25	<50
14932	30'	<25	<25	<50
14933	35'	<25	<25	<50
14937	Mixing Zone	430	1,923	2,353
	QUALITY CONTROL	554	524	1,078
	TRUE VALUE	542	558	1,100
	% PRECISION	102	94	98
	BLANK	<25	<25	<50

METHODS: SW 846-8015M / GRO,DRO

Raland K. Tuttle

7-29-98
Date

ENVIRONMENTAL
LAB OF TEXAS, INC.
"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-464-8996

Receiving Date: 08/19/98
Sample Type: Soil
Project #: Ocean Energy
Project Name: Carlysle #1
Project Location: Lovington, New Mexico

Analysis Date: 08/20/98
Sampling Date: 8-8 / 8-18-98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	(GRO) C6-C10 mg/kg	(DRO) C10-C28 mg/kg	Total TPH C6-C28 mg/kg
15243	1st Lift West Pit	90	568	658
15244	2nd Lift West Pit	353	2,544	2,897
15245	3rd Lift West Pit	440	2,711	3,151
15246	4th Lift West Pit	519	3,575	4,094
15247	5th Lift West Pit	954	7,490	8,444
15248	Spread Composite	542	3,187	3,729
15249	W. Res. Pit Bottom	<10	<10	<10
	QUALITY CONTROL	633	485	1,118
	TRUE VALUE	584	503	1,087
	% PRECISION	108	94	101
	BLANK	<10	<10	<10

METHODS: SW 846-8015M / GRO,DRO

Raland K. Tuttle

Raland K. Tuttle

8-21-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 08/19/98
Sample Type: Soil
Project Name: Carlysle #1
Project #: Ocean Energy
Project Location: Lovington, New Mexico

Analysis Date: 08/20/98
Sampling Date: 8/8 thru 8/18/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
15243	1st Lift - West Pit	<0.100	0.229	0.208	1.292	0.872
15244	2nd Lift - West Pit	0.237	0.270	0.284	2.22	1.38
15245	3rd Lift - West Pit	<0.100	0.138	0.149	2.56	2.18
15246	4th Lift - West Pit	<0.100	0.128	0.132	2.14	1.70
15247	5th Lift - West Pit	0.102	0.425	0.250	3.87	2.52
15248	Spread Composite	0.137	<0.100	<0.100	1.64	1.44
15249	W. Res. Pit Bottom	<0.100	<0.100	<0.100	<0.100	<0.100
	% IA	93	102	108	108	106
	% EA	94	105	110	111	110
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Raland K. Tuttle

8-21-98
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Mike Griffin
Phone #: (281) 492-7077
FAX #: (281) 646-8996

Company Name & Address: 19606 San Gabriel Houston, Tx. 77084

Project #:
Project Name: Ocean Energy Carlyle #1

Project Location: Lovington
Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020M/5030	TPH ~~418.1~~ 8015 Gro Dro	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
15243	1st lift - west pit	1			1						1			8-8		1	1						
15244	2nd lift - " "	1			1						1			8-8		1	1						
15245	3rd lift - " "	1			1						1			8-9		1	1						
15246	4th lift - " "	1			1						1			8-9		1	1						
15247	5th lift - " "	1			1						1			8-10		1	1						
15248	Spread Composite	1			1						1			8-8		1	1						
15249	W. Res. Pit Bottom	1			1						1			8-18		1	1						

Relinquished by:	Date:	Times:	Received by:
M. Griffin	8-19	1730	Relinquished
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS
Bill to Ocean Energy
Attn: Scott Webb

Environmental Lab of Texas, Inc.

12600 West I-20 East [illegible]sa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: MIKE GRIFFIN
Phone #:
FAX #:
Company Name & Address: WHOLE EARTH ENVIRONMENTAL
Project #: OCEAN
Project Name :
Project Location:
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	CHLORIDES
927	5'	1			✓						X			7/28/98		✓	✓							✓
928	10'	1			✓						X			7/28		✓	✓							✓
929	15'	1			✓						X			7/28		✓	✓							✓
930	20'	1			✓						X			7/28		✓	✓							✓
931	25'	1			✓						X			7/28		✓	✓							✓
932	30'	1			✓						X			7/28		✓	✓							✓
933	35'	1			✓						X			7/28		✓	✓							✓
934	E. RES	1			✓						X			7/28		[illegible]	[illegible]							✓
935	W. RES	1			✓						X			7/28		[illegible]	[illegible]							✓
936	E. PIT	1		✓							X			7/28		✓	✓							✓
937	* MIXING ZONE	1			✓						X			7/28		✓	✓							✓

Relinquished by:	Date: 7/28/98	Times: 1530	Received by:
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

* 14937 in plastic bag

1 Bailer

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Receiving Date: 08/27/98
Sample Type: Soil
Project #: Lifts From E. Pit Blowout
Project Name: Carlysle #1
Project Location: Lovington, New Mexico

Analysis Date: 08/28/98
Sampling Date: see below
Sample Condition: Intact

ELT#	FIELD CODE	(GRO) C6-C10 mg/kg	(DRO) C10-C28 mg/kg	Total TPH C6-C28 mg/kg	Sampling Date
15326	E. Pit 1st 3' Lift	288	2,649	2,937	8/25/98
15327	E. Pit 2nd 3' Lift	437	2,889	3,326	8/25/98
15328	3rd 3' Lift	142	1,477	1,619	8/26/98
15329	6th 3' Lift	490	3,952	4,442	8/8/98
	QUALITY CONTROL	645	511	1,156	
	TRUE VALUE	583	584	1,167	
	% PRECISION	111	88	99	
	BLANK	<10	<10	<10	

METHODS: SW 846-8015M / GRO,DRO

Raland K Tuttle

Raland K. Tuttle

8-31-98

Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

RECEIVING DATE: 08/27/98
SAMPLE TYPE: Soil
PROJECT # : Lifts From E. Pit Blowout
PROJECT NAME: Carlisle #1
PROJECT LOCATION: Lovington, New Mexico

ANALYSIS DATE: 08/28/98
SAMPLING DATE: see below
SAMPLE CONDITION: Intact

ELT#	FIELD CODE	Specific Conductance (uS/cm)	Sampling Date	Chloride mg/kg
15326	E. Pit 1st 3' Lift	4,850	08/25/98	1,276
15327	E. Pit 2nd 3' Lift	5,620	08/25/98	1,595
15328	3rd 3' Lift	2,720	08/26/98	691
15329	6th 3' Lift	2,230	08/08/98	691
	QUALITY CONTROL	1,418		5211
	TRUE VALUE	1,413		5000
	% PRECISION	100		104

Methods: EPA SW 846-9050, 9252

Raland K. Tuttle — 8-31-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 08/27/98
Sample Type: Soil
Project Name: Carlysle #1
Project #: Lifts From E. Pit Blowout
Project Location: Lovington, New Mexico

Analysis Date: 08/28/98
Sampling Date: see below
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	Sampling Date
15326	E. Pit 1st 3' Lift	<0.100	0.268	<0.100	0.969	0.790	8/25/98
15327	E. Pit 2nd 3' Lift	0.153	0.395	0.283	3.984	2.806	8/25/98
15328	3rd 3' Lift	0.344	0.355	<0.100	0.599	0.490	8/26/98
15329	4th 3' Lift	<0.100	0.566	0.188	1.963	1.486	8/28/98
	% IA	88	98	103	102	107	
	% EA	80	87	88	88	92	
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	

METHODS: SW 846-8020,5030

Raland K Tuttle

Raland K. Tuttle

8-31-98

Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: M. Griffin
Phone #: (281) 492-7077
FAX #: (281) 646-8996

Company Name & Address: Whole Earth Environmental

Project #: Blowout Lifts From E. Pit
Project Name: Carlisle #1

Project Location: Lovington, NM
Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH 418.1 DRO GRO 8015	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	Chlorides E.C.
~~15326~~	~~Lifts From E. pit~~	~~4~~			~~X~~						~~X~~					X	X							X
15326	E.P. 1st 3' Lift	1			X							X		8/25/98		X	X							X
15327	E. Pit 2nd 3' Lift	1			X							X		8/25/98		X	X							X
15328	3rd 3' Lift	1			X							X		8/26/98		X	X							X
15329	6th 3' Lift	1			X							X		8/8/98		X	X							X

Relinquished by:	Date:	Times:	Received by:
M. Griffin	8-27-98	1700	J McMurrey
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

B.H. to ~~Exxon~~ Ocean Energy

Also Fax: 505-396-5346
Lovington Inn
1600 W. Ave D
Lovington, NM 88260

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Receiving Date: 09/10/98
Sample Type: Soil
Project #: Carlysle #1
Project Name: Ocean Energy (Blowout Lifts)
Project Location: Lovington, New Mexico

Analysis Date: 09/10/98
Sampling Date: see below
Sample Condition: Intact

ELT#	FIELD CODE	(GRO) C6-C10 mg/kg	(DRO) C10-C28 mg/kg	Total TPH C6-C28 mg/kg	Sampling Date
15406	5th Lift 3'	313	4,272	4,585	09/07/98
15407	6th Lift 3'	95	4,079	4,175	09/07/98
15408	7th Lift 3'	230	3,884	4,114	09/07/98
15409	8th Lift 3'	<10	342	343	09/10/98
QUALITY CONTROL		569	531	1,100	
TRUE VALUE		584	831	1,115	
% PRECISION		97	100	101	
BLANK		<10	<10	<10	

METHODS: SW 846-8015M / GRO,DRO

Raland K Tuttle
Raland K. Tuttle

9-11-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Receiving Date: 09/10/98
Sample Type: Soil
Project #: Carlysle #1
Project Name: Ocean Energy (Blowout Lifts)
Project Location: Lovington, New Mexico

Analysis Date: 09/11/98
Sampling Date: see below
Sample Condition: Intact

ELT#	FIELD CODE	Chlorides mg/kg	Sampling Date
15406	5th Lift 3'	2,871	09/07/98
15407	6th Lift 3'	1,702	09/07/98
15408	7th Lift 3'	1,489	09/07/98
15409	8th Lift 3'	186	09/10/98

QUALITY CONTROL	4679
TRUE VALUE	5000
% PRECISION	94

METHODS: SW 846-9252

Raland K Tuttle
Raland K. Tuttle

9-11-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/10/98
Sample Type: Soil
Project Name: Carlysle #1
Project #: Ocean Energy Blowout Lifts
Project Location: Lovington, New Mexico

Analysis Date: 09/10/98
Sampling Date: see below
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	Sample Date
15406	5th Lift 3'	<0.100	<0.100	<0.100	0.889	0.990	09/07/98
15407	6th Lift 3'	<0.100	<0.100	<0.100	0.121	<0.100	09/07/98
15408	7th Lift 3'	<0.100	<0.100	<0.100	0.489	0.476	09/07/98
15409	8th Lift 3'	<0.100	0.184	<0.100	<0.100	<0.100	09/10/98
	% IA	90	88	86	85	86	
	% EA	109	105	100	101	99	
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	

METHODS: SW 846-8020,5030

Raland K. Tuttle

9-11-98
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

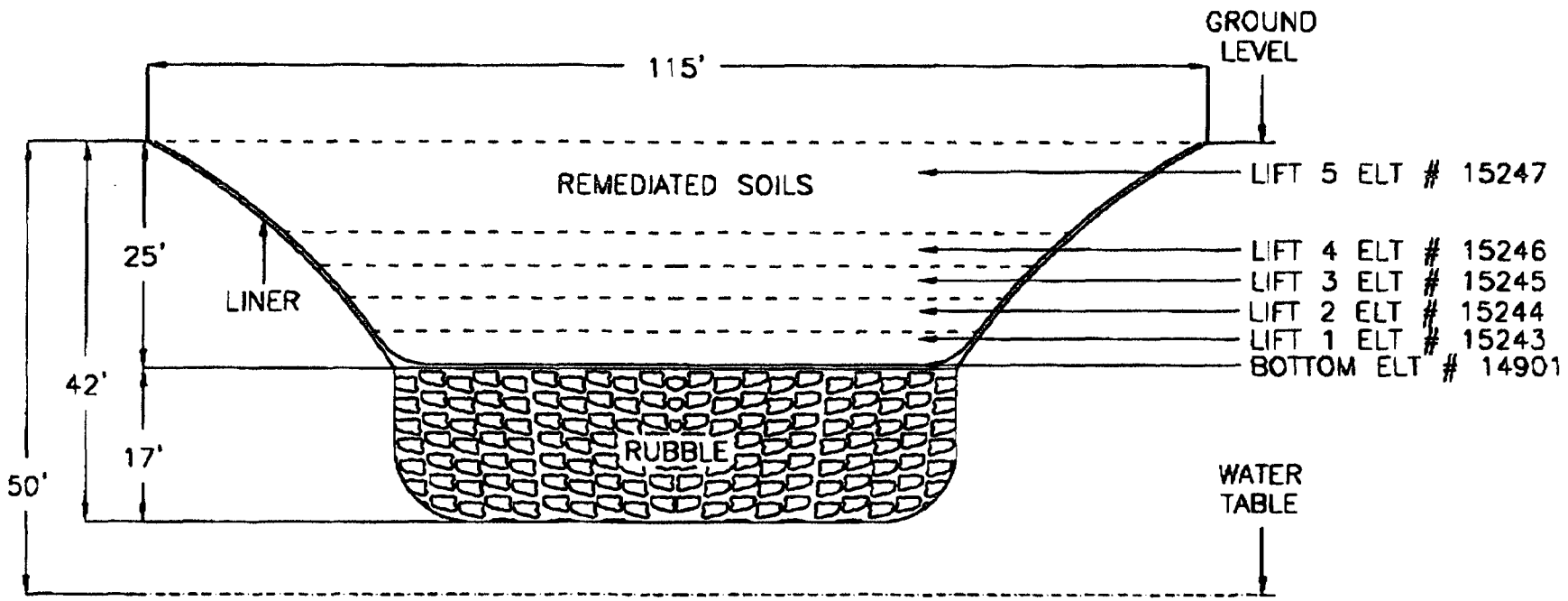
Project Manager: Mike Griffin
Phone #:
FAX #:
Company Name & Address: Whole Earth Environmental
Project #: Carlysle #1
Project Name: Ocean Energy Blowout
Project Location: Lovington, NM
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH ~~418.1~~ DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	Chlorides
5406	5th Liff 3'	1	402		✓									9-7		✓	✓							✓
5407	6th Liff 3'				✓									9-7		✓	✓							✓
5408	7th Liff 3'				✓									9-7		✓	✓							✓
5409	8th Liff 3'				✓									9-10		✓	✓							✓

Relinquished by:	Date:	Times:	Received by:
	9/10/98	1330	
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

Ocean Energy
West Emergency Pit
Side Profile
View to North



NORTH WALL ELT # 14900
EAST WALL ELT # 14897
SOUTH WALL ELT # 14898
WEST WALL ELT # 14899

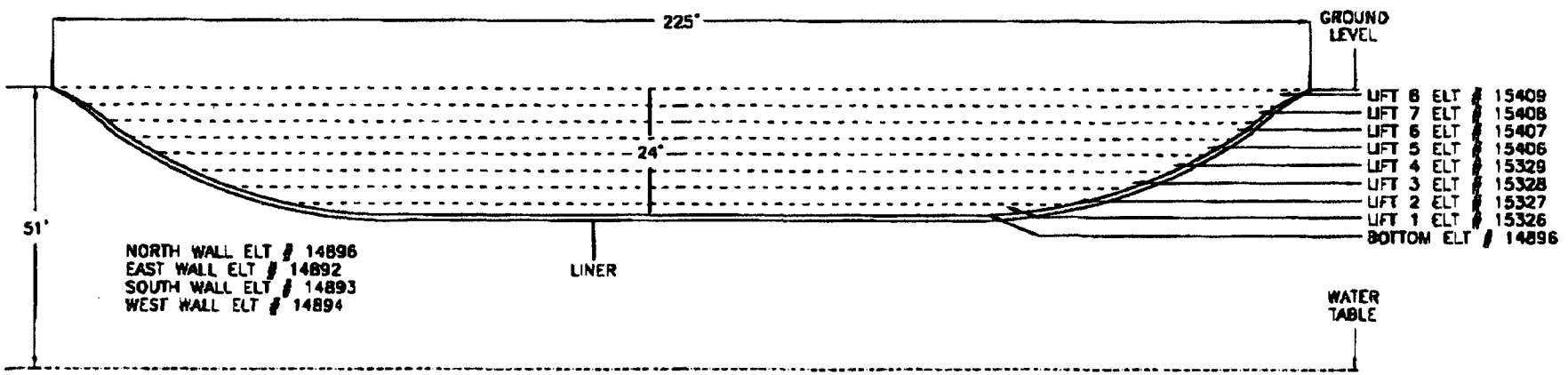
Whole Earth Environmental, Inc.

WE0002.DWG
SCALE 1-200
10/27/99
J.L.DEMNY

Ocean Energy Corporation
UMC Carlisle State Com # 1
West Emergency Pit Laboratory Confirmation Table

Sample Description	Trace No.	Date Sampled	Date Analyzed	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Ttl. Xylene	TPH
East Wall	14897	7/22/98	7/24/98	0.100	0.100	0.100	0.106	0.100	0.206	155
South Wall	14898	7/22/98	7/24/98	0.100	0.100	0.100	0.100	0.100	0.200	500
West Wall	14899	7/22/98	7/24/98	0.100	0.100	0.100	0.100	0.100	0.200	50
North Wall	14900	7/22/98	7/24/98	0.100	0.100	0.100	0.100	0.100	0.200	86
Bottom	14901	7/22/98	7/24/98	0.100	0.121	0.100	1.004	0.614	1.618	1,113
Lift 1	15243	8/8/98	8/18/98	0.100	0.229	0.208	1.292	0.872	2.164	658
Lift 2	15244	8/8/98	8/18/98	0.237	0.270	0.284	2.220	1.380	3.600	2,897
Lift 3	15245	8/9/98	8/18/98	0.100	0.138	0.149	2.560	2.180	4.740	3,151
Lift 4	15246	8/9/98	8/18/98	0.100	0.128	0.132	2.140	1.700	3.840	4,094
Lift 5	15247	8/10/98	8/18/98	0.102	0.425	0.250	3.870	2.520	6.390	8,444

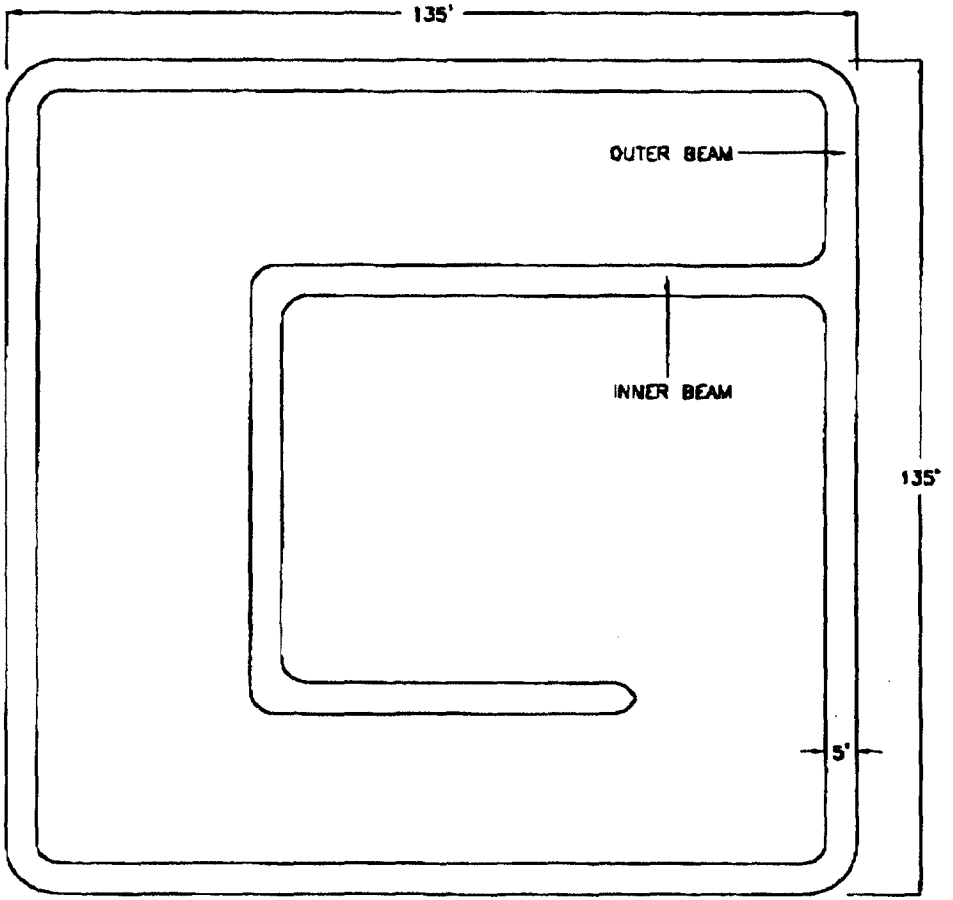
Ocean Energy
East Emergency Pit
Side Profile
View to North



Whole Earth Environmental, Inc.

WE0001.DWG
SCALE 1-325
10/27/99
J.L.DEMNY

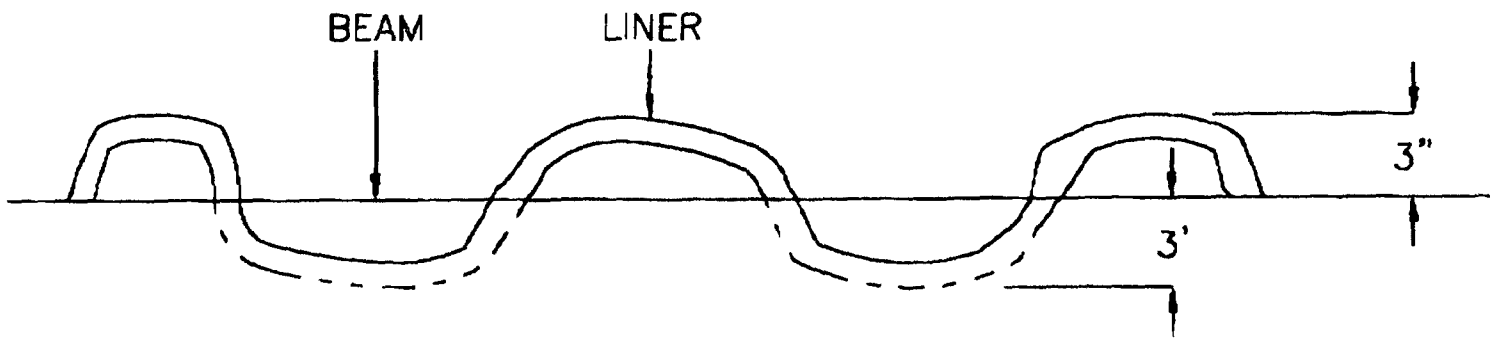
Ocean Energy
UMC Carlisle State Com #1
Reserve Pit Construction Detail
Top View



Whole Earth Environmental, Inc.

WE0003.DWG
SCALE 1-325
10/27/99
J.L.DEMNY

Ocean Energy
UMC Carlisle State Com #1
Reserve Pit Construction Detail
Side View



WE0004.DWG

10/27/99
J.L.DEMNY

Whole Earth Environmental, Inc.

** TOTAL PAGE.05 **

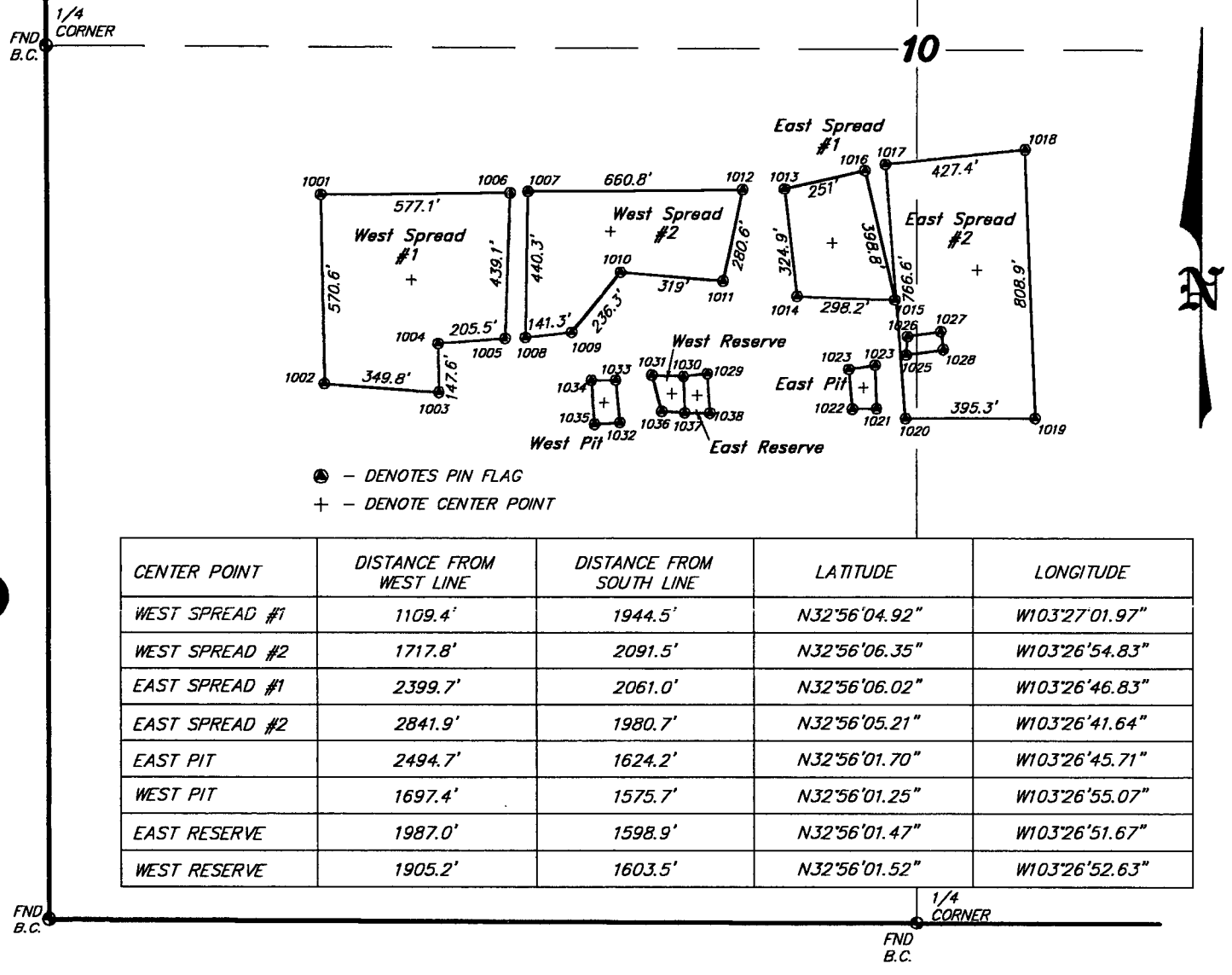
Request # 2

OE shall identify and locate the approximate center of each pit by a licensed surveyor and include this on a site plot plan(s).

Response

Enclosed within this section is the result of a survey performed on September 27, 1999 by Basin Surveys under the instruction of Whole Earth Environmental. The individual point coordinates and pit center designations are described in detail.

SECTION 10, TOWNSHIP 16 SOUTH, RANGE 35 EAST, N.M.P.M.,
LEA COUNTY, **NEW MEXICO.**



CENTER POINT	DISTANCE FROM WEST LINE	DISTANCE FROM SOUTH LINE	LATITUDE	LONGITUDE
WEST SPREAD #1	1109.4'	1944.5'	N32°56'04.92"	W103°27'01.97"
WEST SPREAD #2	1717.8'	2091.5'	N32°56'06.35"	W103°26'54.83"
EAST SPREAD #1	2399.7'	2061.0'	N32°56'06.02"	W103°26'46.83"
EAST SPREAD #2	2841.9'	1980.7'	N32°56'05.21"	W103°26'41.64"
EAST PIT	2494.7'	1624.2'	N32°56'01.70"	W103°26'45.71"
WEST PIT	1697.4'	1575.7'	N32°56'01.25"	W103°26'55.07"
EAST RESERVE	1987.0'	1598.9'	N32°56'01.47"	W103°26'51.67"
WEST RESERVE	1905.2'	1603.5'	N32°56'01.52"	W103°26'52.63"

FND B.C. 1/4 CORNER FND B.C.

NOTE – SEE PAGE 2 FOR LATITUDES AND LONGITUDES

500 0 500 1000 FEET

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND DOES MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES N.M. P.S. No. 7977
TEXAS P.L.S. 5074

REGISTERED PROFESSIONAL LAND SURVEYOR — GARY L. JONES — NEW MEXICO — 7977

BASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

WHOLE EARTH ENVIROMENTAL, INC.

REF: UMC CARLISLE STATE COM #1

A TRACT OF LAND LOCATED IN SECTION 10, TOWNSHIP 16 SOUTH, RANGE 35 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.

W.O. Number: 9352	Drawn By: K. GOAD		
Date: 09-27-99	Disk: KJG #122 – WHOLEEARTH2.DWG	Survey Date: VARIES	Sheet 1 of 2 Sheets

PNT #	LATITUDE	LONGITUDE
1001	N32°56'07.44"	W103°27'05.21"
1002	N32°56'01.79"	W103°27'05.08"
1003	N32°56'01.55"	W103°27'00.99"
1004	N32°56'03.01"	W103°27'01.02"
1005	N32°56'03.16"	W103°26'58.62"
1006	N32°56'07.50"	W103°26'58.44"
1007	N32°56'07.54"	W103°26'57.80"
1008	N32°56'03.19"	W103°26'57.89"
1009	N32°56'03.34"	W103°26'56.24"
1010	N32°56'05.15"	W103°26'54.47"
1011	N32°56'04.88"	W103°26'50.74"
1012	N32°56'07.60"	W103°26'50.04"
1013	N32°56'07.62"	W103°26'48.53"
1014	N32°56'04.43"	W103°26'48.08"
1015	N32°56'04.32"	W103°26'44.58"
1016	N32°56'08.16"	W103°26'45.66"
1017	N32°56'08.34"	W103°26'44.93"
1018	N32°56'08.78"	W103°26'39.94"
1019	N32°56'00.79"	W103°26'39.56"
1020	N32°56'00.78"	W103°26'44.20"

PNT #	LATITUDE	LONGITUDE
1021	N32°56'01.08"	W103°26'45.24"
1022	N32°56'01.06"	W103°26'46.11"
1023	N32°56'02.24"	W103°26'46.24"
1024	N32°56'02.37"	W103°26'45.29"
1025	N32°56'02.68"	W103°26'44.18"
1026	N32°56'03.23"	W103°26'44.14"
1027	N32°56'03.37"	W103°26'42.94"
1028	N32°56'02.83"	W103°26'42.86"
1029	N32°56'02.11"	W103°26'51.31"
1030	N32°56'02.02"	W103°26'52.19"
1031	N32°56'02.07"	W103°26'53.34"
1032	N32°56'01.98"	W103°26'54.17"
1033	N32°56'01.91"	W103°26'54.65"
1034	N32°56'01.91"	W103°26'55.55"
1035	N32°56'00.61"	W103°26'55.43"
1036	N32°56'00.99"	W103°26'52.99"
1037	N32°56'00.94"	W103°26'52.14"
1038	N32°56'00.94"	W103°26'51.21"
1039	N32°56'00.66"	W103°26'54.50"

WHOLE EARTH ENVIROMENTAL, INC.

REF: UMC CARLISLE STATE COM #1

A TRACT OF LAND LOCATED IN

SECTION 10, TOWNSHIP 16 SOUTH, RANGE 35 EAST,

N.M.P.M., LEA COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

W.O. Number: 9352 | Drawn By: **K. GOAD**

Date: 09-27-99 | Disk: KJG #122 – WHOLEEARTH2.DWG | Survey Date: VARIES | Sheet 2 of 2 Sheets

Request # 3

Please identify and provide dimensional profile drawings for all general areas that were used as treatment zones for mixing and blending. Each drawing shall contain the following information:

a. Final soil isoconcentration values for BTEX, TPH Chloride and other analytical results (i.e. EC, CEC, SAR, ESP, etc.) for all areas that were used for treatment zones.

b. Each analytical concentration value shown on the drawing shall be identified and listed in a summary table (i.e. Laboratory Confirmation Testing Index) and cross referenced to laboratory or field reports. If these values are averaged then list the high and low values obtained. Please include all field or laboratory reports, Chain of Custody forms, etc. in an appendix to support values shown on the drawings.

c. All treatment zone areas shall have at least one sample taken three feet below the center of the treatment zone for background purposes. These analyses shall include BTEX (8020) TPH (418.1 or GRO & DRO) and EPA general chemistry.

d. The center of each pit shall be surveyed to a known surveyed point.

Response

a. Enclosed are copies of laboratory analytical results and associated chain of custody forms for composite surface soil samples obtained from each of the four original spread zones created by Callaway Safety along with an additional surface soil sample composite obtained from the primary mixing area immediately south of the Reserve Pits.

b. Included within response 3a.

c. Soil samples from each of the four spread zones were obtained on September 10th, 1999 and submitted for analysis of BTEX, TPH (418.1), Chlorides, Carbonates, Bicarbonates and Sulfates. The test results and chain of custody are enclosed within this section. (ELT Nos. 19912 – 19915). The areas below the treatment zones were additionally analyzed for the presence and concentration of calcium, magnesium sodium and potassium ions. This information was used to prepare Sodium Adsorption Ratios and

Exchangeable Sodium Percentages for each site. The results of these calculations are included within this section. The soil samples were obtained by means of excavation with a backhoe to a minimum depth of 3' below ground level.

d. The plat map contained within section WE # 2 references the distance from the center of each spread zone to the West and South lines of the quarter section.

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-846-8996

SampleType: Soil
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: BTEX 9/13/99
Analysis Date: TPH 9/14/99

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH mg/kg
19911	West Reserve Pit	<0.100	0.387	0.791	20.31	10.15	6080
19912	Far West Spread	<0.100	0.248	<0.100	0.244	0.187	20
19913	Near West Spread	<0.100	<0.100	<0.100	<0.100	<0.100	10
19914	Near East Spread	<0.100	<0.100	<0.100	<0.100	<0.100	100
19915	Far East Spread	<0.100	<0.100	<0.100	<0.100	<0.100	40
	% IA	90	85	86	86	87	101
	% EA	102	98	96	98	97	114
	BLANK	<0.100	<0.100	<0.100	<0.100	<0.100	<10

METHODS: SW 846-8020,5030, EPA 418.1

Raland K. Tuttle

10-25-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19608 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Sample Type: Soil
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: See Below

ELT#	FIELD CODE	Sulfate mg/kg	Chloride mg/kg	Carbonate mg/kg	Bicarbonate mg/kg
19911	West Reserve Pit	*	7976	*	*
19912	Far West Spread	113	71	0	250
19913	Near West Spread	184	160	0	100
19914	Near East Spread	69	195	0	200
19915	Far East Spread	49	71	0	150
	QUALITY CONTROL	55.1	5052	*	*
	TRUE VALUE	50.0	5000	*	*
	% PRECISION	110	101	*	*
	ANALYSIS DATE	9/21/99	9/17/99	9/21/99	9/21/99

METHODS: SW-846-9036, 9252,EPA 310

Raland K. Tuttle

10-25-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Sample Type: Soil
Sample Condition: Intact/Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: 09/23/99

ELT#	FIELD CODE	Ca (mg/kg)	Mg (mg/kg)	Na (mg/kg)	K (mg/kg)
19912	Far West Spread	159000	478	485	46.0
19913	Near West Spread	158500	930	625	104.5
19914	Near East Spread	92000	493	695	106.5
19915	Far East Spread	46250	703	465	246.5
	QUALITY CONTROL	53.0	16.26	55.4	4.97
	TRUE VALUE	50.0	15.00	50.0	5.00
	% PRECISION	106	108	111	99

Methods: SW 7000 Series

Raland K. Tuttle

9-27-99
Date

Environmental Lab of Texas, Inc. 12600 West I-20 E Odessa, Texas 79765
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: M. Griffin
Phone #: (800) 854-4358
FAX #: (281) 646-8996
Company Name & Address: Ocean Energy
Project #:
Project Name :
Project Location: Lovington
Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	State Metals, Ions, PAH Chlorides Major Cat & Ions Cl, SO4, CO3/HCO3 Ca, Na, Mg, K
19908	W. Water Well	3		X							X					X							X	
19909	E. Water Well	3		X							X					X							X	
19910	S. Water Well	3		X							X					X							X	
19911	W. Reserve				X						X					X	X							X
19912	Far West Spread				X						X					X	X							X
19913	Near West Spread				X						X					X	X							X
19914	Near East Spread				X						X					X	X							X
19915	Far East Spread				X						X					X	X							X

Relinquished by:	Date:	Times:	Received by:
M. Griffin	9/10/99	1630	Richard Jude
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

Ocean Energy Corporation
UMC Carlisle State Com # 1
Loading Calculations
3' Depth
Far West Spread Zone

Conversion Tables ppm to meq.		
Element	mg / liter[1]	meq / liter
Sodium	**485**	21
Calcium	**159,000**	7950
Magnesium	**478**	40
	SAR[2]=	**0.33**
	ESP from SAR[3]=	**-1.70**

[1] Based on 1:1 Laboratory Extraction
[2] *U.S.D.A. Handbook*
[3] Drs. Deuel & Holliday: *Soil Remediation for the Petroleum Extraction Industry*

Red Color Indicates Data Entry Point
Blue Color Indicates Calculated Results

Ocean Energy Corporation
UMC Carlisle State Com # 1
Loading Calculations
3' Depth
Near West Spread Zone

Conversion Tables ppm to meq.		
Element	**mg / liter[1]**	**meq / liter**
Sodium	**625**	27
Calcium	**158,500**	7925
Magnesium	**930**	78
	SAR[2]=	**0.43**
	ESP from SAR[3]=	**-1.55**

[1] Based on 1:1 Laboratory Extraction
[2] *U.S.D.A. Handbook*
[3] Drs. Deuel & Holliday: *Soil Remediation for the Petroleum Extraction Industry*

Red Color Indicates Data Entry Point
Blue Color Indicates Calculated Results

Ocean Energy Corporation
UMC Carlisle State Com # 1
Loading Calculations
3' Depth
Near East Spread Zone

Conversion Tables ppm to meq.		
Element	**mg / liter[1]**	**meq / liter**
Sodium	**695**	30
Calcium	**92,000**	4600
Magnesium	**493**	41
	SAR[2]=	**0.63**
	ESP from SAR[3]=	**-1.25**

[1] Based on 1:1 Laboratory Extraction
[2] *U.S.D.A. Handbook*
[3] Drs. Deuel & Holliday: *Soil Remediation for the Petroleum Extraction Industry*

Red Color Indicates Data Entry Point
Blue Color Indicates Calculated Results

Ocean Energy Corporation
UMC Carlisle State Com # 1
Loading Calculations
3' Depth
Far East Spread Zone

Conversion Tables ppm to meq.		
Element	**mg / liter[1]**	**meq / liter**
Sodium	**465**	20
Calcium	**46,250**	2313
Magnesium	**703**	59
	SAR[2]=	***0.59***
	ESP from SAR[3]=	**-1.31**

[1] Based on 1:1 Laboratory Extraction
[2] *U.S.D.A. Handbook*
[3] Drs. Deuel & Holliday: *Soil Remediation for the Petroleum Extraction Industry*

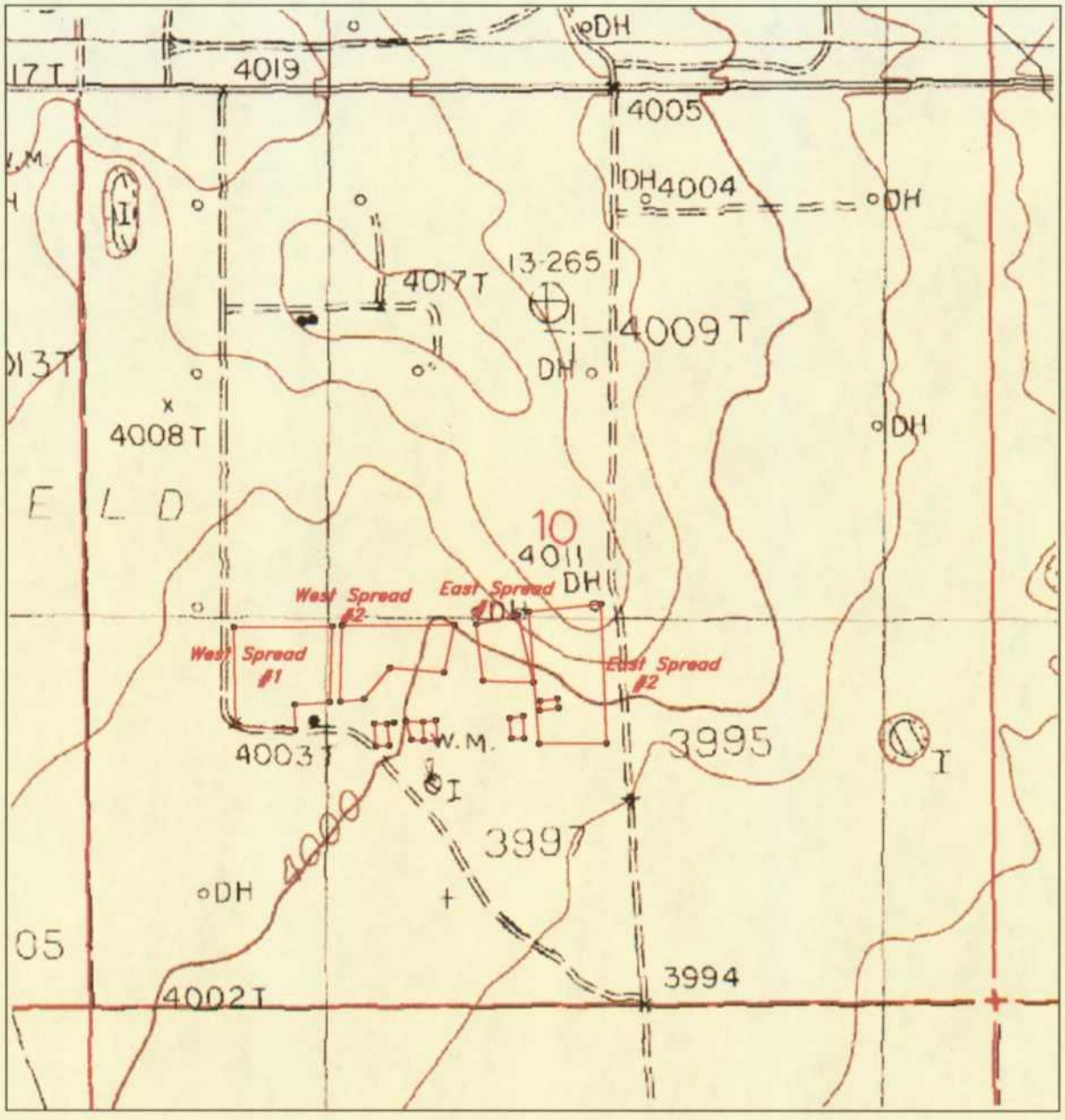
Red Color Indicates Data Entry Point
Blue Color Indicates Calculated Results

Request # 4

Please provide a groundwater potientiometric surface map (i.e. contours) showing the groundwater flow direction and hydraulic gradient in ft/ft to the nearest .001 ft., a table of elevations for the monitor wells and groundwater depths to the nearest .01 ft.

Response

Enclosed, are the requested potentiometric map, surveyed elevations and summary gradient spreadsheet.



UMC CARLISLE STATE COM #1

Section 10, Township 16 South, Range 35 East, N.M.P.M., Lea County, New Mexico.

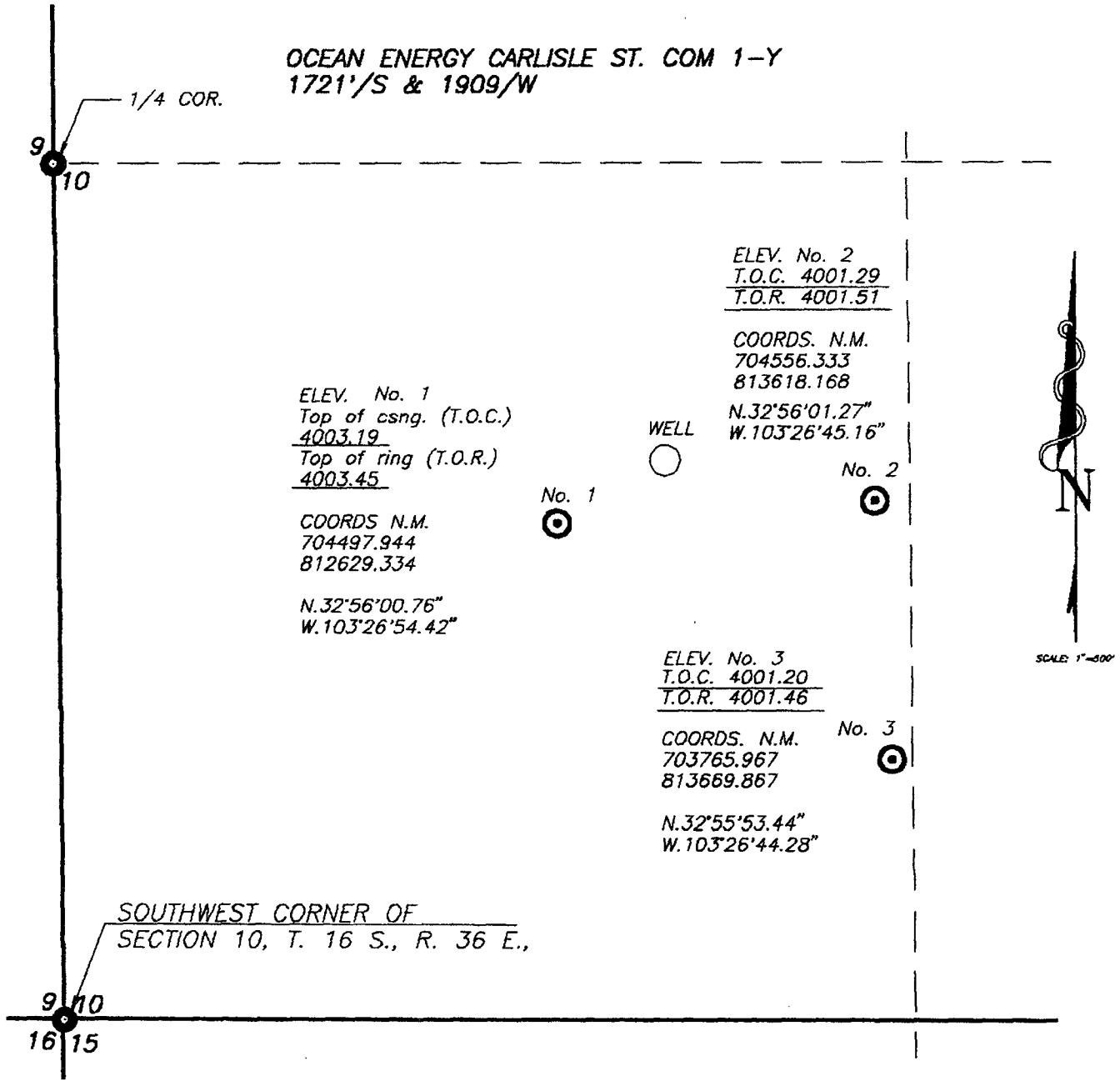
basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(505) 393-7316 – Office
(505) 392-3074 – Fax
basinsurveys.com

W.O. Number:	WHOLEEARTH3-KJG #122
Survey Date:	VARIES
Scale:	1" = 1000'
Date:	10-21-99

WHOLE EARTH ENVIROMENTAL, INC.

SECTION 10, TOWNSHIP 16 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, **NEW MEXICO.**

NOTE: T.O.C. MARK ON NORTH SIDE OF 2" PVC CASING.
T.O.R. SHOT ON TOP ON IRON RING AROUND WELL COVER LID.



I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

NEW MEXICO 3340 REGISTERED PROFESSIONAL LAND SURVEYOR

HERSCHEL L. JONES N.M. P.S. NO. 3340

GENERAL SURVEYING COMPANY P.O. BOX 996 LOVINGTON, NEW MEXICO

N.O. Number: 2006

0 500 1000 1500

WHOLE WORLD ENVIRONMENTAL

REF: ELEVATION

THREE MONITOR WELLS IN SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 16 SOUTH, RANGE 36 EAST. N.M.P.M., LEA COUNTY, NEW MEXICO.

Ocean Energy Corporation
UMC Carlisle State Com # 1
Monitor Well Elevations & Gradients

Well Name	Surface Elevation	Water Elevation	Gradient
East Well	4,001.29	3,939.29	.159:100
West Well	4,003.19	5,942.19	.159:100
South Well	4,001.46	3,938.46	.159:100

Request # 5

Photos submitted in the October 22, 1998 report were not dated. Please provide and/or re-submit photos which include dates.

Response
Enclosed within this section is a revised Index providing the requested information.

INDEX

Section C West Emergency Pit

C-1 View from "J" Battery overlooking West Emergency Pit (June 22, 1998)

C-2 West Emergency Pit prior to remediation (June 22, 1998)

C-3 West Emergency Pit prior to remediation (June 22, 1998)

C-4 Detail of drilling West Emergency Pit monitoring well (July, 23, 1998)

C-5 West Emergency Pit liner installation detail (July 29, 1998)

C-6 West Emergency Pit liner installation detail (July 29, 1998)

C-7 West Emergency Pit liner installation detail (July 29, 1998)

C-8 West Emergency Pit liner installation detail (July 29, 1998)

C-9 West Emergency Pit liner installation detail (July 29, 1998)

C-10 Detail of boulders placed into pit after 10'backfill (July 24, 1998)

C-11 West Emergency Pit backfill detail (August 9, 1998)

Section D West Reserve Pit

D-1 West Reserve Pit prior to remediation (June 22, 1998)

D-2 West Reserve Pit prior to remediation (June 22, 1998)

D-3 West Reserve Pit prior to remediation (June 22, 1998)

D-4 West Reserve Pit prior to remediation (June 22, 1998)

D-5 Boulder pile at West Reserve Pit prior to remediation (see C-10) (June 22, 1998)

D-6 Detail of mixing West Reserve Pit (August 19, 1998)

Section E East Reserve Pit

E-1 East Reserve Pit prior to closure (June 22, 1998)

E-2 East Reserve Pit prior to closure (June 22, 1998)

E-3 East Reserve Pit prior to closure (June 22, 1998)

E-4 Detail of East Reserve Pit excavation (September 31, 1998)

E-5 Detail of East Reserve Pit excavation (September 31, 1998)

Section F East Emergency Pit

F-1 Detail of East Emergency Pit prior to remediation (June 22, 1998)

F-2 Detail of East Emergency Pit prior to remediation (June 22, 1998)

F-3 Detail of the drilling of the teat pit monitor well (July 23, 1998)

F-4 Detail of coring the pit center to determine vertical extent (July 28, 1998)

F-5 Detail of boulder pile at northern edge of the pit (June 22, 1998)

F-6 View of back-filling (September 7, 1998)

E-7 View of back-filling (September 8, 1998)

Section G Aerial Views After Remediation (September 10, 1999)

G-1 Detail of East Emergency and East Reserve Pits after final closure

G-2 Detail of East Emergency and West Reserve Pits after final closure

G-3 Detail of north and west spread zones after final pit closure

G-4 View of overall site after final pit closure

G-5 View of overall site after final pit closure

G-6 View of overall site after final pit closure

G-7 View of overall site after final pit closure

Request # 6

The NMOCD approved QP-47A "Remediation Protocol" with conditions on July 30, 1998. This Remediation Protocol has been revised three different times with the current revision being QP-47D. These revisions have made significant changes without NMOCD approval.

a. It appears that QP-47D item 9.0 "West Emergency Pit Preliminary Compaction" allows contaminated material to be placed under the liner of the West Emergency Pit that exceeds the values of the NMOCD approval letter conditions dated July 30, 1999.

b. It appears there were changes in the modeling criteria, i.e. salt is modeled at 500 ppm in the closure report but was modeled at 3000 ppm in the QP-47A, it also appears there were changes in the final clean-up standards, how certain pits were closed, and the final site restoration.

c. The Closure Report Volume I Executive Summary Plat Map is nicely prepared but the overlay indicates that the East Reserve Pit contents were placed in the East mix area which is in conflict with the QP-47D item 11 Protocol (Reserve Pit Remediation) which indicates that the pit was closed pursuant to NMOCD Rule 105 A.

Please provide a detailed description and reasons for all changes made from QP-47A to D and update all associated drawings to reflect the final changes.

Response

a. The materials placed into the West Emergency Pit below the liner consisted of very large boulders collected from the two emergency pit excavations and clean topsoils trucked into the site. The purpose of the boulders was to fill approximately 17 feet of space at the bottom of the excavation. The clean sand and topsoils (approx. 1,400 cubic yards) placed atop the boulders allowed a smooth bottom for the liner. Copies of the haul tickets are enclosed within this section.

b. VADSAT does not allow the user to print out the modeling parameters. The data was mistyped into an Excel spreadsheet. However, the modeled information included within the final closure report was based on a 3,000 ppm concentration. A new model was run on October 24, 1999 using a 3,000 concentration with results identical to those submitted

within the closure report. An additional model using a 500 ppm chloride loading indicated the initial salt load within the pit area would be 15.263 kilograms vs. the 91.589 kilograms shown on the final report. The results of the two modeling sets and a corrected Modeling Data Entry worksheet are included within this section.

c. Nothing from the East Reserve Pit left the immediate area of the pad at any time. The east and south walls of the pit were pushed into an area immediately south of the pit for an approximate distance of 30' in order to get the center of the pit accessible to excavation equipment. Once the center berms of the pit were removed, the spread materials were placed back atop the pit area and compacted. Enclosed within this section is a new Summary Plat Map reflecting the actual movement of the Reserve Pit materials.

Protocol Revisions
Revision "B" to the protocol included the following changes:

6.2 Added language describing the approved construction design for monitor wells.

7.2 Added language to the modeling section that the sites will be modeled on a 100 year basis.

8.0 Added liners to the Emergency Pits.

9.0 Added a section titled West Pit Preliminary Compaction to describe the backfilling procedures.

10. Removed two paragraphs relating to the remediation procedures to be used in dealing with the reserve pits. Added additional clarification of the remediation procedures to be used on the Emergency Pits.

Revision "C"
Added paragraph 11, "Reserve Pit Remediation"

Revision "D"
Reinserted paragraph 10.2 addressing the West Reserve Pit inadvertently omitted from the previous revisions.

Revision "E"
In going through the various revisions to the protocol, we found a number of typographical errors and errors of omission. The enclosed copy of QP-47E is provided to correct all such errors.

P.O. Box 827
398-4960

GANDY CORPORATION

TATUM, NEW MEXICO 88267

Roustabout Crews —:— Winch Trucks

NMSCC #14225

1109 E. Broadway

№ 121153

AUTHORIZATION FOR WORK

Date August - 7/98

YOUR NO. 510

COMPANY H.M.C LEASE

MAIL INVOICE TO WELL Below up

DESCRIPTION OF WORK

Haul 49 Loads Rock and Caliche to ~~Batil~~ Fill up the Hole

Equipment Used	510 D.T	@ $	46.00	Hrs. worked	9	Total 414.00
Equipment Used		@ $		Hrs. worked		Total
Pusher	MOHAMMED FAROOQ	@ $		Hrs. worked	9	Total
Labor		@ $		Hrs. worked		Total
Roustabout		Hrs. worked				Sub Total 414.00
Roustabout		Hrs. worked				Sales Tax 24.39
Roustabout		Hrs. worked				TOTAL 438.39
Roustabout		Hrs. worked				

Approved by M. Gandy

SUPERIOR-102

P.O. Box 827
398-4960

GANDY CORPORATION

TATUM, NEW MEXICO 88267

Roustabout Crews —:— Winch Trucks

NMSCC #14225

1109 E. Broadway

Aug 6/98

Nº 121152

AUTHORIZATION FOR WORK

Date August 6/98

YOUR NO. 510

COMPANY U.M.C LEASE Conley - G

MAIL INVOICE TO WELL No. 1

DESCRIPTION OF WORK Haul Caliche to Fill up

Haul - 21 Loads

Equipment Used	510 D.T	@ $	216.00	Hrs. worked	6 1/2	Total	299.00
Equipment Used	252 YDS CALICHE	@ $		Hrs. worked		Total	
Pusher	MOHAMMAD FAROOQ	@ $		Hrs. worked	6 1/2	Total	
Labor		@ $		Hrs. worked		Total	
Roustabout		Hrs. worked				Sub Total	299.00
Roustabout		Hrs. worked				Sales Tax	17.76
Roustabout		Hrs. worked				TOTAL	316.76
Roustabout		Hrs. worked					

Approved by

Modeling Data Entry
Carlisle State COM # 1
West Pit
NaCl

Control Data	Entry	U / M
Deterministic	Yes	
Monte Carlo	No	
Low Permeability Layer Below Contamination	No	

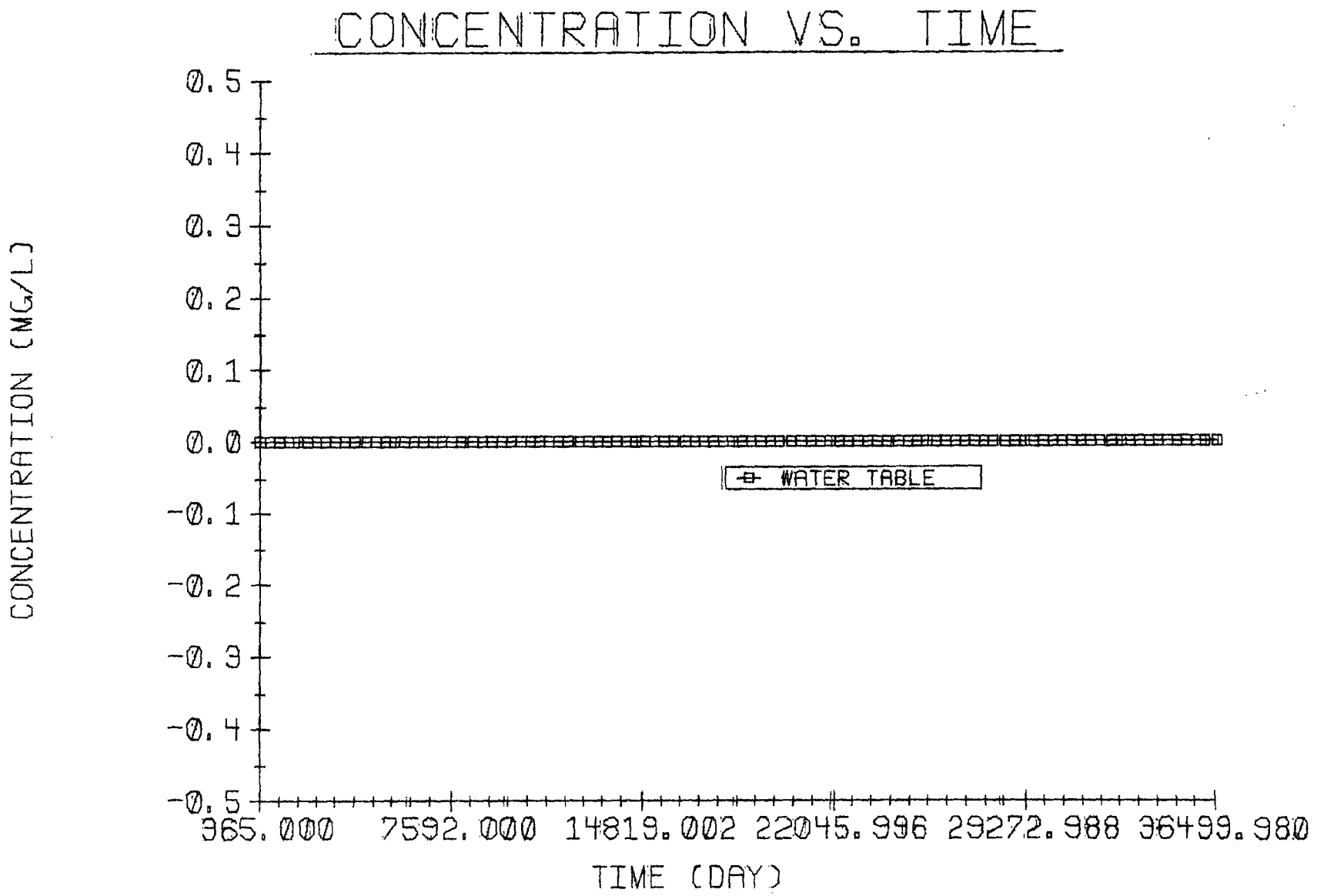
Source Data		
Waste Zone Thickness	6.096	meters
Waste Zone Area	3,048	sq. meters
Ratio of Length to Width	2.43: 1	
Soil Thickness Above Waste Zone	0.1524	meter
Soluable Concentration in Soil / Waste Zone	3,000	ppm

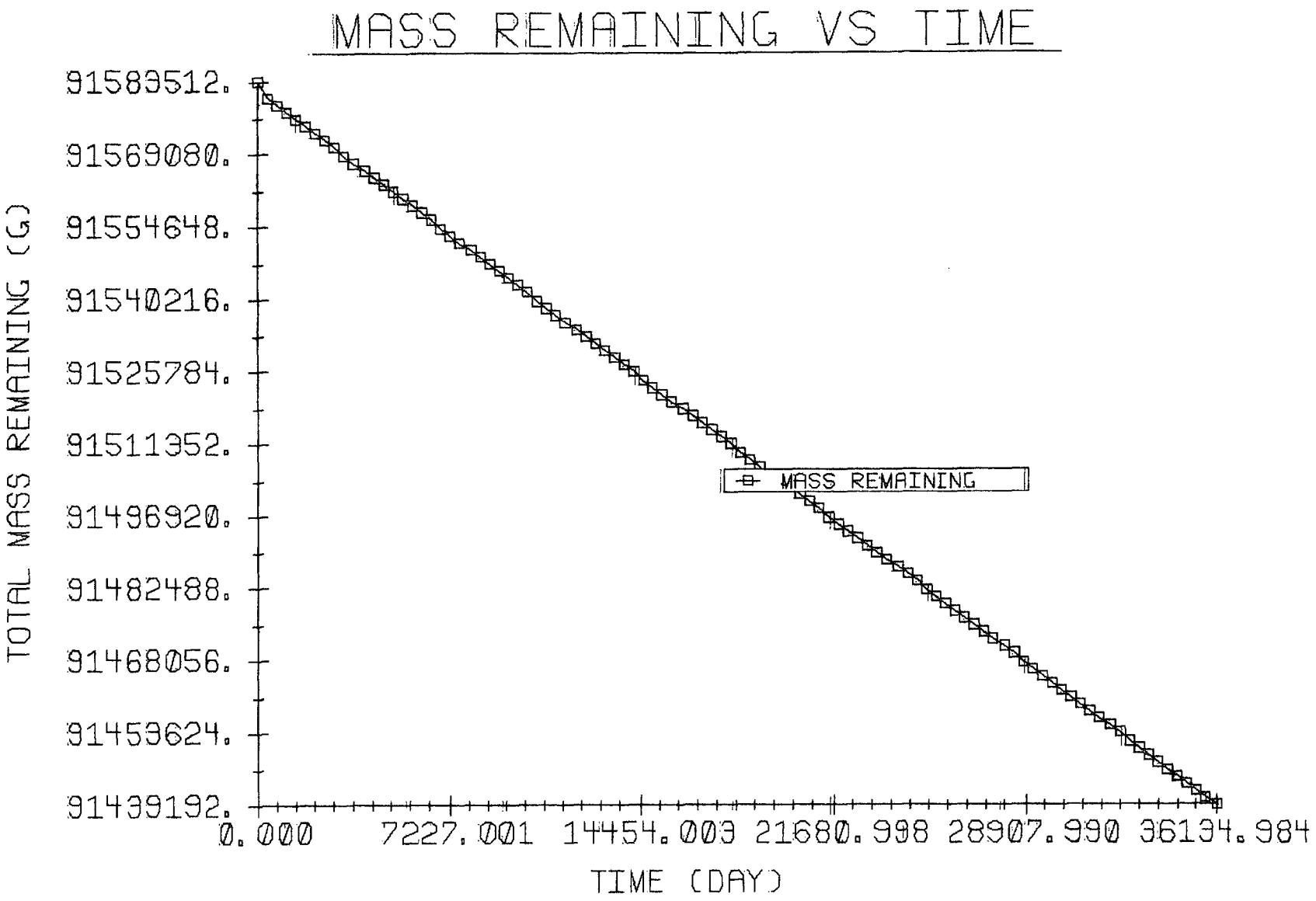
Chemical Data	
NaCl	Yes

Unsaturated Zone		
Biodecay Cooefficient	0.001	1 / day
Soil Database	Sandy Clay	
Hydrological Database	Sedimentary	
Unsaturated Zone Thickness	9.23	Meters
Soil Database	Sandy Clay	
van Genuchten n	1.09	(Default)
Residual Water Content	0.01001	
Unsaturated Zone Dispersivity	0	**Internally**

Saturated Zone		
Aquifer Porosity	0.2	(Default)
Longitudinal Dispersivity	0	**Internally**
Ratio of Long. / Trans. Dispersivities	3	
Ratio of Trans. / Vert. Dispersivities	87	
Hydrological Database	Sedimentary	
Aquifer Thickness	10	meters
Aquifer Gradient	0.023	
Saturated Hydraulic Conductivity	0.13	meters / day

Net Infiltration Rate	0.00001	ft. / day


CONCENTRATION VS. TIME
CONCENTRATION (MG/L)
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
WATER TABLE
365.000
7592.000
14819.002
22045.996
29272.988
36499.980
TIME (DAY)


MASS REMAINING VS TIME
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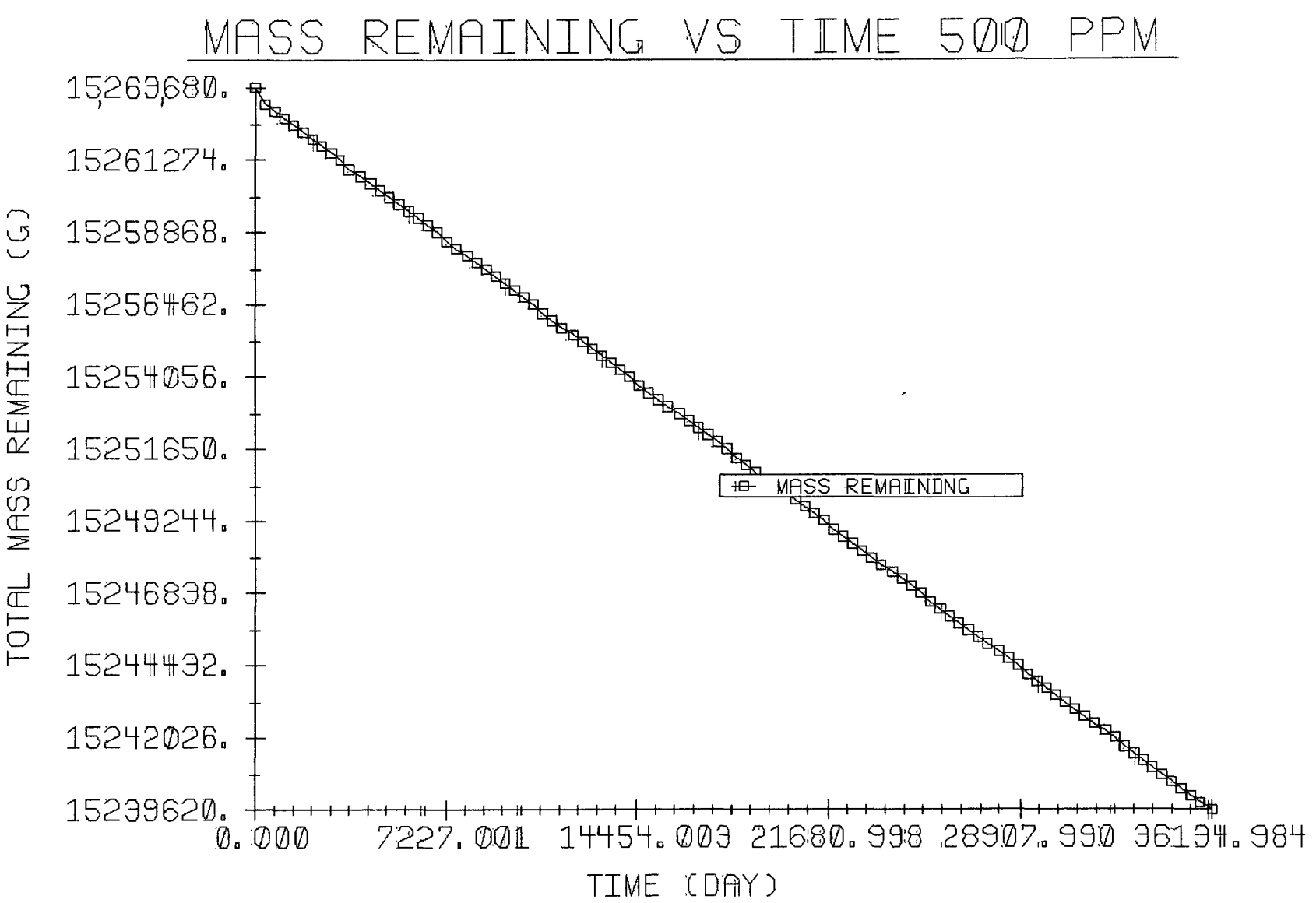
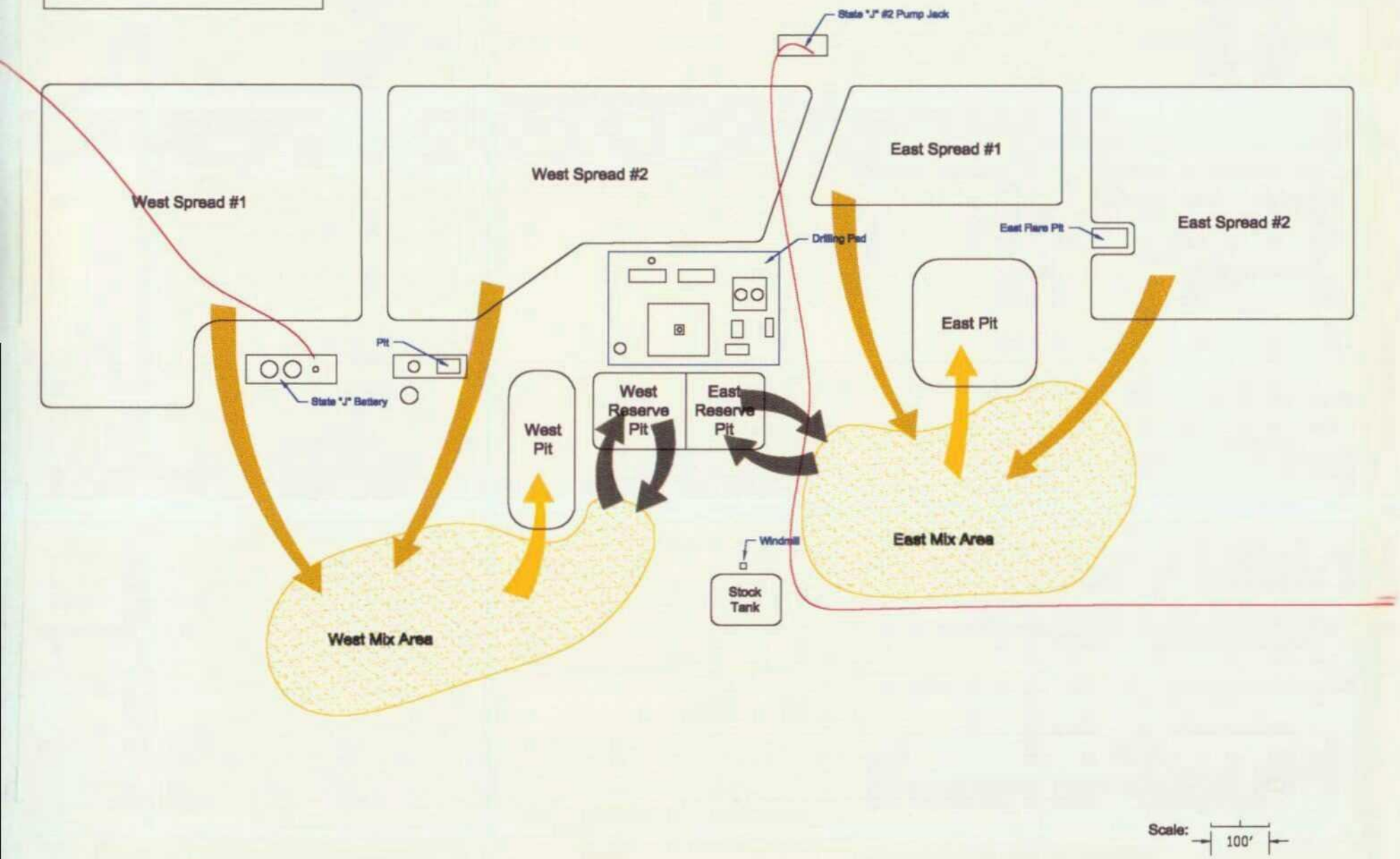
91569080.
91554648.
91540216.
91525784.
91511352.
91496920.
91482488.
91468056.
91453624.
91439192.
TOTAL MASS REMAINING (G)
MASS REMAINING
0.000
7227.001
14454.003
21680.998
28907.990
36134.984
TIME (DAY)


MASS REMAINING VS TIME 500 PPM
TOTAL MASS REMAINING (G)
15263680.
15261274.
15258868.
15256462.
15254056.
15251650.
15249244.
15246838.
15244432.
15242026.
15239620.
MASS REMAINING
0.000
7227.001
14454.003
21680.998
28907.990
36134.984
TIME (DAY)

UMC CARLISLE STATE COM #1

Plat Map



Pit Remediation Protocol
Ocean Energy Corporation
Carlisle State COM # 1
Pits Requiring Modeling

1.0 Purpose

This protocol is provide a detailed outline of the steps to be employed in the remediation and final closure of the Ocean Energy pits using risk assessment modeling.

2.0 Scope

This protocol is site specific for the Carlisle State COM # 1 remediation project.

3.0 Preliminary

Prior to any field operations, Whole Earth Environmental shall conduct the following activities:

3.1 Client Review

3.1.1 Whole Earth shall meet with cognizant personnel within Ocean Energy to review this protocol and make any requested modifications or alterations prior to submittal to the State of New Mexico Oil Conservation Division.

3.1.2 Changes to this protocol will be documented and submitted for final review by Ocean Energy prior to submittal to the Oil Conservation Division.

3.2 Oil Conservation Division Review

3.2.1 Upon client approval, this protocol and associated modeling results will be submitted to the New Mexico Oil Conservation Division for review and comment. Recommended changes will be reviewed by the client prior to implementation.

3.2.2 Any recommended changes effecting costs will require a revised quotation to be issued to the client for approval prior to the commencement of any on-site remediation activity.

4.0 Safety

4.1 Prior to work on the site, Whole Earth shall obtain the location and phone numbers of the nearest emergency medical treatment facility. We will review all safety-related issues with the appropriate Ocean Energy personnel, sub-contractors and exchange phone numbers.

4.2 A tailgate safety meeting shall be held and documented each day. All sub-contractors must attend and sign the daily log-in sheet.

4.3 Anyone allowed on to location must be wearing sleeved shirts, steel-toed boots, and long pants. Each vehicle must be equipped with two-way communication capabilities.

4.4 Prior to any excavation, the area shall be surveyed with a line finder. If lines are discovered within the area to be excavated, they shall be marked with pin flags on either side of the line at maximum five-foot intervals. The area will be photographed prior to any excavation or fluid removal.

4.5 Each pit area will be swept with a Ludlam 2350 to determine if NORM is present in concentrations greater than 40μr / hr.

5.0 Fluid Removal

Prior to any excavation, the pit fluids including liquids contained within the reserve pits shall be removed by vacuum truck and transported to the Gandy Crossroads recycling facility. A shipping manifest and an O.C.D. Form C-117-A shall be prepared for each waste load.

6.0 Monitor Wells

6.1 Harrison & Cooper, Inc. will drill, develop and case three monitoring wells. The first will be in the approximate southeast corner of the east pit excavation, the second at the southeast corner of the west pit. The third well will be situated at a point due south of the center of the east / west line drawn between the two previous locations at a distance equal to the distance separating the two previous wells so as to form an equilateral triangle. The third well may be cased and completed within in a 4" diameter PVC pipe to allow for future conversion to a source well. Whole Earth

will obtain soil samples at each five-foot incremental depth following our procedure QP- 77. Whole earth will additionally field screen for TPH and BTEX in accordance with QP-06 and QP-19. Calibration, record retention, and instrument reporting accuracy procedures for these field screen tests are contained in QP-25 and QP-55. If the Whole Earth screen testing reveals BTEX or chloride concentrations within the first two wells in excess of NMWQCC standards, the holes will be left uncased until laboratory confirmation is obtained. Should the criteria pollutant concentrations be confirmed to be higher than NMWQCC standards, Whole Earth will obtain the necessary additional information required to model the effects of natural attenuation using the USAF Bio Screen program. If the Bio Screen model reveals contamination potential to any off-site source well, the monitoring wells may be converted to recovery wells by completing within 4" casing. All confirmation samples will be analyzed by Environmental Labs of Texas for BTEX and DRO using EPA Methods 8020, 5030 and 8015m for TPH, BTEX and chlorides.

6.2 All monitoring or recovery wells will be constructed with a well screen penetrating 10' into the water table and extending 5' above. The well will be filled with a sand / gravel pack 2' above the screen. A bentonite plug will be properly hydrated and set atop the gravel pack. The well will be cemented to surface with cement and a 1-3% bentonite grout and a suitable base constructed for protection. The wells will be developed and purged before sampling.

7.0 Liners

Each Emergency Pit will receive a liner having a minimum thickness of 20 mil high density polyethylene. The sides of the liner will be brought up to a minimum distance of 5' below ground level.

8.0 Modeling

8.1 Whole Earth will model the migration potential of the plume on VADSAT using the results of the field screen analyses. If the results reflect a zero percentage probability of the plume impacting ground water, the OCD will be immediately notified and monitoring well development begun.

8.2 The sites will be modeled to verify a 100 year zero percentage probability of impacting the Ogallala. All modeling data will be submitted to the client and OCD prior to the drilling of any monitoring wells and will be included within the closure protocol submitted to Ocean Energy and the OCD.

9.0 West Emergency Pit Preliminary Compaction

9.1 In order to achieve sufficient separation between the bottom of the west pit and the top of the Ogallala, the pit will be filled in with large boulders removed from the East and West Emergency Pit excavations and with clean sand and topsoils trucked into the site. Once filled to a sufficient depth, the bottom will be compacted using D-6 or larger bulldozers.

10.0 Emergency Pit Remediation

10.1 Prior to any contaminated soils being re-deposited within the excavations, the Hobbs office of the OCD will be notified that we will be taking confirmation concentration samples of each pits side walls and bottom. The OCD may either witness, or collect split samples with Whole Earth. The bottom of the pit and all four side walls will be tested for TPH and Benzene concentrations using WEQP-06 and WEQP-19. The samples will be collected and analyzed as described in 6.1 of this protocol. Acceptable criteria pollutant concentrations shall be <5,000 ppm TPH, <10 ppm benzene, <50 ppm ttl. BTEX and < 500 ppm soluble chlorides.

10.2 The excavated materials will be mixed and blended with additional topsoils obtained from the area immediately adjacent to the pit until the hydrocarbon concentrations fall below the maximum limits as described in Paragraph 10.1 of this protocol. The remediated materials will then be replaced into the excavated area, compacted and the surface contoured to provide for positive drainage.

10.3 The top two feet of the excavation shall be covered in remediated materials having a maximum TPH concentration of <100 ppm and benzene concentrations of <2 ppm. The area will be seeded with a mixture of local grasses.

11.0 Reserve Pit Remediation

11.1 The West Reserve Pit will be remediated in accordance with paragraph 10.1 of this protocol. Because the pits were constructed at grade, we will sample and confirm only the pit bottom concentrations.

11.2 The East Reserve Pit will be partially excavated to a depth below the liner and soil samples collected in accordance with WEQP-77. If the results are nominal, indicating that the liner is intact, the pit will be closed in accordance with NMOCD Rule 105A

12.0 Site Restoration

If the sodium chloride concentrations within the surface of the Emergency Pits or spread zones exceed a sodium adsorption ratio of 12, additional remediation to include treatment with gypsum and / or calcium nitrate may be required.

13.0 Documentation & Reporting

At the conclusion of the pit remediation project, Whole Earth will prepare a closure report to include the following information:

- A plat map of the location showing the exact location of the pit, the dimensions prior to excavation and the actual excavated dimensions.
- Photographs of the pit prior to excavation, at the point of maximum excavation and after final closure
- Field Sampling Report to include the side wall and pit bottom TPH and BTEX concentrations after excavation.
- Field Sampling Report to include TPH and BTEX concentrations of all remediated materials deposited into the pit deposited into the pit.
- Daily calibration records of each testing instrument
- Shipping manifests and OCD Form C-117-A
- Risk assessment model and supporting documentation
- M.S.D.S. and permeability certification of liner materials

Request # 7

The NMOCD's file indicates that on April 28, 1998 Ocean Energy applied for permission on form C-103 to install a liner over the existing drilling reserve pit and committed to removing the contents along with the original contents after completion of the well. The final report reveals there were actually two drilling pits, one called West Reserve Pit and the other East Reserve Pit. Please provide a detailed written description and chronology of all events related to these pits and the final disposition of the contents of the drilling pits in question.

It appears that one of the reserve pits was buried over existing contamination and that blasting had occurred in close proximity, thus causing concern that remaining buried contaminants might infiltrate into the shallow groundwater over time. Also there was no information provided as to the type of liner installed or the mechanical integrity of the liner.

Response

East Reserve Pit

The April 28, 1998 request was superceded by the overall site closure protocol QP-47. This protocol called for closure of the East Reserve pit to be in accordance with NMOCD Rule 105-A. (Explained further in response 6c. of this report).

West Reserve Pit

The West Reserve Pit was closed in-situ. The protocol for closure was to remove all fluids from the pit, scrape the pit area down to below the location of the liner, sample the bottom for TPH and BTEX, (reference ELT 15249 enclosed within this section), mix the pit contents with approximately 2,200 cubic yards of fresh soils trucked into the location until the concentrations were <10 ppm benzene, <50 ppm BTEX and <5,000 ppm TPH. Copies of the haul tickets are included within this section.

A total of 4,890 barrels of liquids from both pits were hauled off and sent to commercial disposal wells prior to physical remediation.

Liner Integrity

The liner within the East Reserve Pit appeared to be 20 mil polyethylene. The portions of the liner exposed to direct flame from the blowout melted. The only portion of the liner exposed to direct flame was at the top of the containment berms. The portion of the liner

below the mud line was quite unaffected by the heat and completely intact. The soil berms surrounding the pit were baked but retained containment integrity.

The liner below the West Reserve Pit also appeared to be 20 mil polyethylene and was installed after the original well was capped. It appeared to be installed slightly below grade with the excavated soils used as berm wall material thus any soil contamination from the original well's over-spray would be utilized within the construction of the second Reserve Pit and subsequently remediated when the pit was closed.

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 08/19/98
Sample Type: Soil
Project Name: Carlysle #1
Project #: Ocean Energy
Project Location: Lovington, New Mexico

Analysis Date: 08/20/98
Sampling Date: 8/8 thru 8/18/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
15243	1st Lift - West Pit	<0.100	0.229	0.208	1.292	0.872
15244	2nd Lift - West Pit	0.237	0.270	0.284	2.22	1.38
15245	3rd Lift - West Pit	<0.100	0.138	0.149	2.56	2.18
15246	4th Lift - West Pit	<0.100	0.128	0.132	2.14	1.70
15247	5th Lift - West Pit	0.102	0.425	0.250	3.87	2.52
15248	Spread Composite	0.137	<0.100	<0.100	1.64	1.44
15249	W. Res. Pit Bottom	<0.100	<0.100	<0.100	<0.100	<0.100
	% IA	93	102	108	108	106
	% EA	94	105	110	111	110
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Raland K. Tuttle

8-21-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-464-8996

Receiving Date: 08/19/98
Sample Type: Soil
Project #: Ocean Energy
Project Name: Carlysle #1
Project Location: Lovington, New Mexico

Analysis Date: 08/20/98
Sampling Date: 8-8 / 8-18-98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	(GRO) C6-C10 mg/kg	(DRO) C10-C28 mg/kg	Total TPH C6-C28 mg/kg
15243	1st Lift West Pit	90	568	658
15244	2nd Lift West Pit	353	2,544	2,897
15245	3rd Lift West Pit	440	2,711	3,151
15246	4th Lift West Pit	519	3,575	4,094
15247	5th Lift West Pit	954	7,490	8,444
15248	Spread Composite	542	3,187	3,729
15249	W. Res. Pit Bottom	<10	<10	<10
	QUALITY CONTROL	633	485	1,118
	TRUE VALUE	584	503	1,087
	% PRECISION	108	94	101
	BLANK	<10	<10	<10

METHODS: SW 846-8015M / GRO,DRO

Raland K. Tuttle

8-21-98
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East [illegible], Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Mike Griffin
Phone #: (281) 492-7077
FAX #: (281) 646-8996

Company Name & Address: 19606 San Gabriel Houston, Tx. 77084

Project #:
Project Name: Ocean Energy Carlysle #1

Project Location: Covington
Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8120/5030	TPH ~~418.1~~ 8015 Gro Dro	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
243	1st lift - west pit	1			✓						✓			8-8		✓	✓						
244	2nd lift - " "	1			✓						✓			8-8		✓	✓						
245	3rd lift - " "	1			✓						✓			8-9		✓	✓						
246	4th lift - " "	1			✓						✓			8-9		✓	✓						
247	5th lift - " "	1			✓						✓			8-10		✓	✓						
248	Spread Composite	1			✓						✓			8-8		✓	✓						
249	W. Res. Pit Bottom	1			✓						✓			8-18		✓	✓						

Relinquished by:	Date:	Times:	Received by:
M. Griffin	8-19	1730	Rebecca Hernandez
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS
Bill to Ocean Energy
Attn: Scott Webb

. Box 827
98-4960

GANDY CORPORATION

TATUM, NEW MEXICO 88267

Roustabout Crews —:— Winch Trucks

NMSCC #14225

1109 E. Broadway

AUTHORIZATION FOR WORK

№ 116918

Date 6-6-76

YOUR NO. 501

COMPANY HNRC LEASE Co. Line

MAIL INVOICE TO _____ WELL _____

DESCRIPTION OF WORK Hauled Cable to pit 60 Loads

Equipment Used	Dump truck	@ $	46.00	Hrs. worked	9	Total 414.00
Equipment Used		@ $		Hrs. worked		Total
Pusher	Tim R. Lee	@ $		Hrs. worked	9	Total
Labor		@ $		Hrs. worked		Total
Roustabout		Hrs. worked				Sub Total 414.00
Roustabout		Hrs. worked				Sales Tax 24.59
Roustabout		Hrs. worked				TOTAL 438.59
Roustabout		Hrs. worked				

Approved by M. Gandy

P.O. Box 827
398-4960

GANDY CORPORATION

TATUM, NEW MEXICO 88267
Roustabout Crews —:— Winch Trucks
NMSCC #14225

1109 E. Broadway

№ 116919

AUTHORIZATION FOR WORK

Date 5-7-98

YOUR NO. 507

COMPANY UMC LEASE Carlton

MAIL INVOICE TO _____ WELL 10-Y

DESCRIPTION OF WORK

Hauled 51 Loads of Caliche to pit

Equipment Used	Dump Truck	@ $	46.00	Hrs. worked	9	Total	414.00
Equipment Used		@ $		Hrs. worked		Total	
Pusher		@ $		Hrs. worked	9	Total	
Labor	Tom Rose	@ $		Hrs. worked		Total	
Roustabout		Hrs. worked				Sub Total	414.00
Roustabout		Hrs. worked				Sales Tax	24.39
Roustabout		Hrs. worked				TOTAL	438.39
Roustabout		Hrs. worked					

Approved by M. Gandy

SUPERIOR-102

Request # 8

The groundwater quality monitoring is incomplete. Groundwater was not analyzed for general chemistry anions or the complete New Mexico Water Quality Control Commission (WQCC) water contaminants. Please provide an initial round of sampling for each monitoring well to include analyzing for the complete New Mexico Water Quality Control Commission (WQCC) regulation water contaminants utilizing EPA approved methods, thereafter Ocean Energy may propose analyzing for constituents of concern.

Response

Enclosed within this section is a copy of the Chain of Custody and related test results from a new round of well sampling conducted on September 10th, 1999. The well sampling was conducted in accordance with WEQP-76 (enclosed within this section) and EPA Methods 375.4, 325.3, 310, SW846-6010B, 7470, SW846-8020, 5030, SW846 8270C, and 3510.

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

SampleType: Water
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: 09/11/99

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
19908	W. Water Well	0.019	0.001	<0.001	<0.001	<0.001
19909	E. Water Well	<0.001	<0.001	<0.001	<0.001	<0.001
19910	S. Water Well	<0.001	<0.001	<0.001	<0.001	<0.001
	% IA	99	95	95	94	94
	% EA	97	94	93	92	92
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Raland K Tuttle
Raland K. Tuttle

9-14-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Sample Type: Water
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: See Below

ELT#	FIELD CODE	Sulfate mg/L	Chloride mg/L	Carbonate mg/L	Bicarbonate mg/L
19908	W. Water Well	120	177	0	225
19909	E. Water Well	107	35	0	275
19910	S. Water Well	104	35	0	150
	QUALITY CONTROL	55.1	5052	*	*
	TRUE VALUE	50.0	5000	*	*
	% PRECISION	110	101	*	*
	ANALYSIS DATE	9/21/99	9/17/99	9/21/99	9/21/99

METHODS: EPA 375.4, 325.3, 310

Raland K. Tuttle

9-27-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Sample Type: Water
Sample Condition: Intact/Iced/HCl
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sample Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: 09/16/99
Analysis Date: Hg 09/20/99
Analysis Date: Mo,Sn,B,Sr 9/29/99

Analyte (mg/L)	W. Water Well 19908	E. Water Well 19909	S. Water Well 19910	Reporting Limit	%IA	%EA	BLANK	RPD
Aluminum	3.510	5.860	1.700	0.0500	114	94	<0.0500	1.55
Arsenic	0.0060	0.0100	0.0080	0.0050	112	100	<0.0050	3.05
Barium	0.2290	0.2330	0.0920	0.0100	114	98	<0.0100	1.23
Beryllium	ND	ND	ND	0.0040	109	98	<0.0040	2.06
Cadmium	ND	ND	ND	0.0010	107	93	<0.0010	1.08
Calcium	228.0	225.0	80.30	1.000	*	*	<1.000	0.90
Chromium	0.0080	0.0130	ND	0.0050	105	94	<0.0050	1.88
Cobalt	ND	ND	ND	0.0200	113	94	<0.0200	1.82
Copper	ND	ND	ND	0.0100	108	96	<0.0100	1.47
Iron	2.190	2.860	0.8120	0.0500	119	94	<0.0500	1.21
Lead	ND	0.0040	ND	0.0030	107	91	<0.0030	2.22
Magnesium	24.50	21.20	10.30	1.000	*	*	<1.000	0.00
Manganese	0.0570	0.0710	0.0260	0.0150	106	92	<0.0150	1.70
Mercury	ND	ND	ND	0.00020	98	116	<0.00020	2.62
Molybdenum	ND	ND	ND	0.050	101	101	<0.050	N/A
Nickel	ND	ND	ND	0.0100	110	94	<0.0100	1.38
Potassium	5.730	4.310	2.270	1.000	*	*	<1.000	N/A
Selenium	ND	0.0080	ND	0.0050	112	102	<0.0050	1.98
Silver	ND	ND	ND	0.0050	104	88	<0.0050	0.00
Sodium	63.20	52.50	37.20	1.000	*	*	<1.000	0.12
Tin	ND	ND	ND	0.0500	90	90	<0.0500	N/A
Vanadium	0.0500	0.0710	0.0460	0.0200	101	92	<0.0200	1.87
Zinc	0.6670	0.0200	ND	0.0200	110	99	<0.0200	1.84
Boron	0.283	0.248	0.230	0.050	97	97	<0.050	N/A
Strontium	0.986	0.844	0.548	0.050	89	89	<0.050	N/A

ND = Below Reporting Limit
METHOD: EPA SW846-6010B, 7470

Raland K. Tuttle

9-29-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Sample Type: Water
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington, N.M.
Field Code: W. Water Well

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Extraction Date: 09/14/99
Analysis Date: 09/19/99

EPA SW846 8270 (mg/l)	REPORT LIMIT	ELT# 19908	RPD	%EA	%IA
Naphthalene	0.005	0.007			64
Acenaphthylene	0.005	ND			80
Acenaphthene	0.005	ND	11.49	46	64
Fluorene	0.005	ND			78
Phenanthrene	0.005	ND			86
Anthracene	0.005	ND			82
Fluoranthene	0.005	ND			88
Pyrene	0.005	ND	2.41	42	92
Benzo[a]anthracene	0.005	ND			96
Chrysene	0.005	ND			100
Benzo[b]fluoranthene	0.005	ND			80
Benzo[k]fluoranthene	0.005	ND			102
Benzo [a]pyrene	0.005	ND			92
Indeno[1,2,3-cd]pyrene	0.005	ND			102
Dibenz[a,h]anthracene	0.005	ND			108
Benzo[g,h,i]perylene	0.005	ND			102

	% RECOVERY
Nitrobenzene-d5 SURR	48
2-Fluorobiphenyl SURR	48
Terphenyl-d14 SURR	25

ND= NOT DETECTED

Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

9-27-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Sample Type: Water
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington, N.M.
Field Code: E. Water Well

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Extraction Date: 09/14/99
Analysis Date: 09/20/99

EPA SW846 8270 (mg/l)	REPORT LIMIT	ELT# 19909	RPD	%EA	%IA
Naphthalene	0.005	ND			64
Acenaphthylene	0.005	ND			80
Acenaphthene	0.005	ND	11.49	46	64
Fluorene	0.005	ND			78
Phenanthrene	0.005	ND			86
Anthracene	0.005	ND			82
Fluoranthene	0.005	ND			88
Pyrene	0.005	ND	2.41	42	92
Benzo[a]anthracene	0.005	ND			96
Chrysene	0.005	ND			100
Benzo[b]fluoranthene	0.005	ND			80
Benzo[k]fluoranthene	0.005	ND			102
Benzo [a]pyrene	0.005	ND			92
Indeno[1,2,3-cd]pyrene	0.005	ND			102
Dibenz[a,h]anthracene	0.005	ND			108
Benzo[g,h,i]perylene	0.005	ND			102

	% RECOVERY
Nitrobenzene-d5 SURR	56
2-Fluorobiphenyl SURR	57
Terphenyl-d14 SURR	19

ND= NOT DETECTED

Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

9-27-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Sample Type: Water
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington, N.M.
Field Code: S. Water Well

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Extraction Date: 09/14/99
Analysis Date: 09/20/99

EPA SW846 8270 (mg/l)	REPORT LIMIT	ELT# 19910	RPD	%EA	%IA
Naphthalene	0.005	ND			64
Acenaphthylene	0.005	ND			80
Acenaphthene	0.005	ND	11.49	46	64
Fluorene	0.005	ND			78
Phenanthrene	0.005	ND			86
Anthracene	0.005	ND			82
Fluoranthene	0.005	ND			88
Pyrene	0.005	ND	2.41	42	92
Benzo[a]anthracene	0.005	ND			96
Chrysene	0.005	ND			100
Benzo[b]fluoranthene	0.005	ND			80
Benzo[k]fluoranthene	0.005	ND			102
Benzo [a]pyrene	0.005	ND			92
Indeno[1,2,3-cd]pyrene	0.005	ND			102
Dibenz[a,h]anthracene	0.005	ND			108
Benzo[g,h,i]perylene	0.005	ND			102

	% RECOVERY
Nitrobenzene-d5 SURR	41
2-Fluorobiphenyl SURR	41
Terphenyl-d14 SURR	16

ND= NOT DETECTED

Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

9-27-99
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: M. Griffin
Phone #: (800) 894-4358
FAX #: (281) 646-9996
Company Name & Address: Ocean Energy
Project #:
Project Name:
Project Location: Lovington
Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	HONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	State Metals, Ions, PAH Chlorides	Major Cat & Ions: Li, SO_4, CO_3/HCO_3, Ca, Na, Mg, K
19908	W. Water Well	3		X							X													X	
19909	E. Water Well	3		X							X													X	
19910	S. Water Well	3		X							X													X	
19911	W. Emergency				X						X			9/10/99	Bailer	X	X							X	X
19912	Far West Spread				X						X					X	X							X	
19913	Near West Spread				X						X					X	X							X	
19914	Near East Spread				X						X					X	X							X	
19915	Far East Spread				X						X					X	X							X	

Relinquished by:	Date:	Time:	Received by:
M. Griffin	9/10/99	1630	Robert Jaco
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

P.03

QP-76 (Rev. A)

WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE

Procedure for Obtaining Water Samples (Cased Wells) Using One Liter Bailer

Completed By: Approved By: Effective Date: / /

1.0 Purpose

This procedure outlines the methods to be employed in obtaining water samples from cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Preliminary

3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the water. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.

3.2 The following table shall be used to select the appropriate sampling container, preservative method and holding times for the various elements and compounds to be analyzed.

Compound to be Analyzed	Sample Container Size	Sample Container Description	Cap Requirements	Preservative	Maximum Hold Time
BTEX	40 ml.	VOA Container	Teflon Lined	HCl	7 days
TPH	1 liter	clear glass	Teflon Lined	HCl	28 days
PAH	1 liter	clear glass	Teflon Lined	Ice	7 days
Cation / Anion	1 liter	clear glass	Teflon Lined	None	48 Hrs.
Metals	1 liter	HD polyethylene	Any Plastic	Ice / HNO_3	28 Days
TDS	300 ml.	clear glass	Any Plastic	Ice	7 Days

4.0 Chain of Custody

4.1 Prepare a Sample Plan. The plan will list the well identification and the individual tests to be performed at that location. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.

4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.

4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label). Affix the labels to the jars.

5.0 Bailing Procedure

5.1 Identify the well from the site schematics. Place pre-labeled jar(s) next to the well. Remove the bolts from the well cover and place the cover with the bolts nearby. Remove the plastic cap from the well bore by first lifting the metal lever and then unscrewing the entire assembly.

5.2 The well may be equipped with an individual 1 liter bailing tube. If so, use the tube to bail a volume of water from the well bore equal to 10 liters for each 5' of well bore in the water table. (This assumes a 2" dia. Well bore).

5.3 Take care to insure that the bailing device and string do not become cross-contaminated. A clean pair of rubber gloves should be used when handling either the retrieval string or bailer. The retrieval string should not be allowed to come into contact with the ground.

6.0 Sampling Procedure

6.1 Once the well has been bailed in accordance with 5.2 of this procedure, a sample may be decanted into the appropriate sample collection jar directly from the bailer. The collection jar should be filled to the brim. Once the jar is sealed, turn the jar over to detect any bubbles that may be present. Add additional water to remove all bubbles from the sample container.

6.2 Note the time of collection on the sample collection jar with a fine Sharpie.

6.3 Place the sample directly on ice for transport to the laboratory. The preceding table shows the maximum hold times between collection and testing for the various analyses.

6.4 Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

7.0 Documentation

7.1 The testing laboratory shall provide the following minimum information:

A. Client, Project and sample name.
B. Signed copy of the original Chain of Custody Form including data on the time the sample was received by the lab.
C. Results of the requested analyses
D. Test Methods employed
E. Quality Control methods and results

Request # 9

The BTEX values taken from soil samples 14927-14933 collected during the vertical extent-drilling event in the East Emergency Pit exceed WQCC groundwater standards. 8015 GRO &DRO values were provided. It is NMOCD's understanding that the liner was installed over this area thus leaving elevated contamination under the liner. There was no drilling log provided in the report. **Please address this issue.**

Response

Both Emergency Pits were remediated using risk-based criteria for sodium chloride, TPH and benzene. The initial models were based on a 30' separation between the bottom of the pit and the water table and contaminant concentrations immediately below the liner of 1,000 ppm TPH, 10 ppm benzene and 3,000 ppm chlorides.

Using actual data from the core sample we've prepared the attached revised migration model which indicates that the water table remains protected from any potential benzene plume.

A copy of the driller's field notes is enclosed within this section.

Modeling Data Entry
Carlisle State Com # 1
East Pit
Hydrocarbon Model # 1

Control Data	Entry	U / M
Deterministic	Yes	
Monte Carlo	No	
Evaporation of Chemicals	Yes	
Adsorbed Phase Biodecay	Yes	
Low Permeability Layer Below Contamination	Not Present	

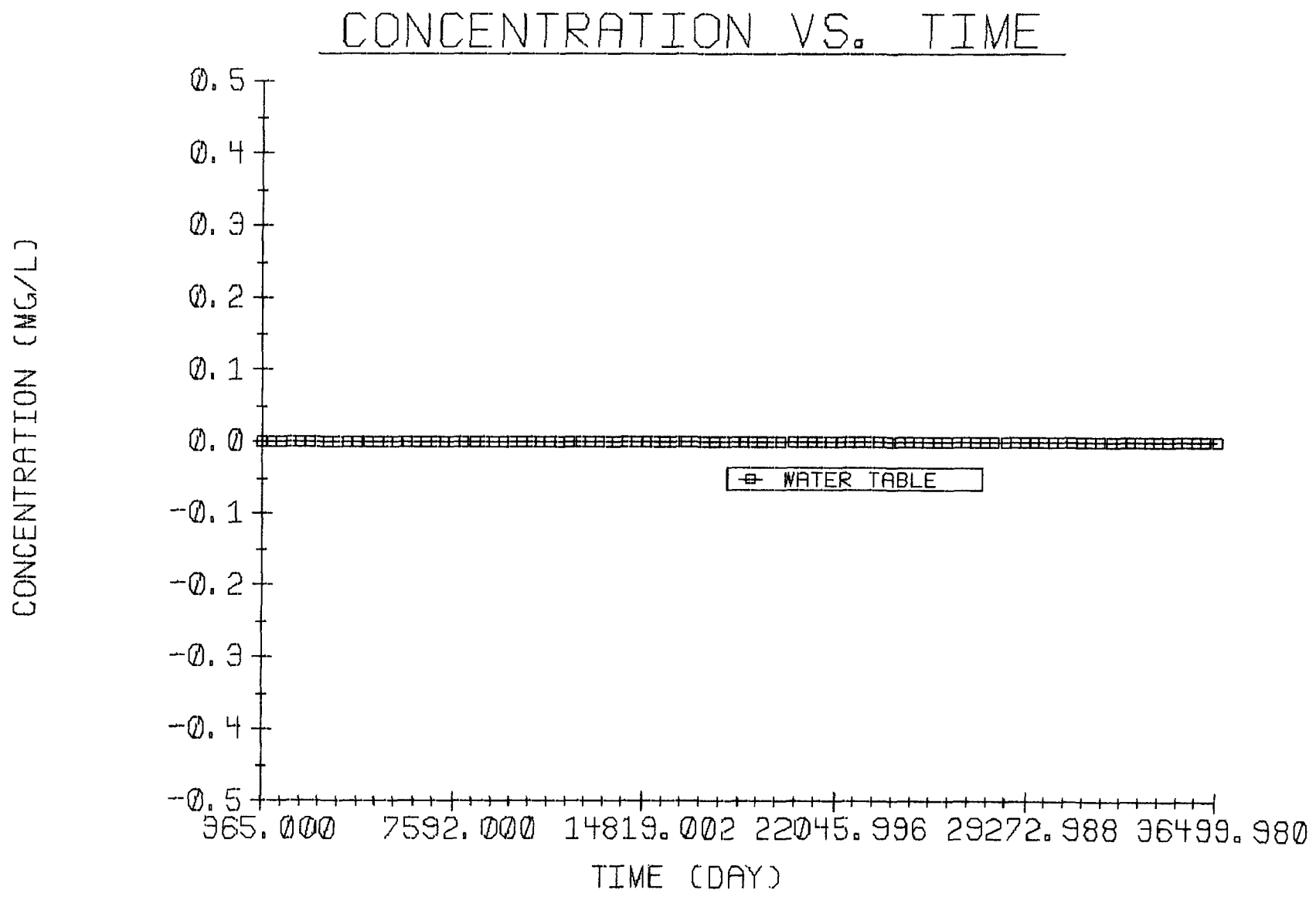
Source Data		
Waste Zone Thickness	6.096	meters
Waste Zone Area	4,432	Sq. meters
Ratio of Length to Width	1:1	
Soil Thickness Above Waste Zone	0.1524	meters
Contaminant Concentration in Soil / Waste Zone	**0.469**	ppm (benzene)
Hydrocarbon Concentration in Soil / Waste Zone	1,000	ppm

Chemical Data	
Benzene	Yes

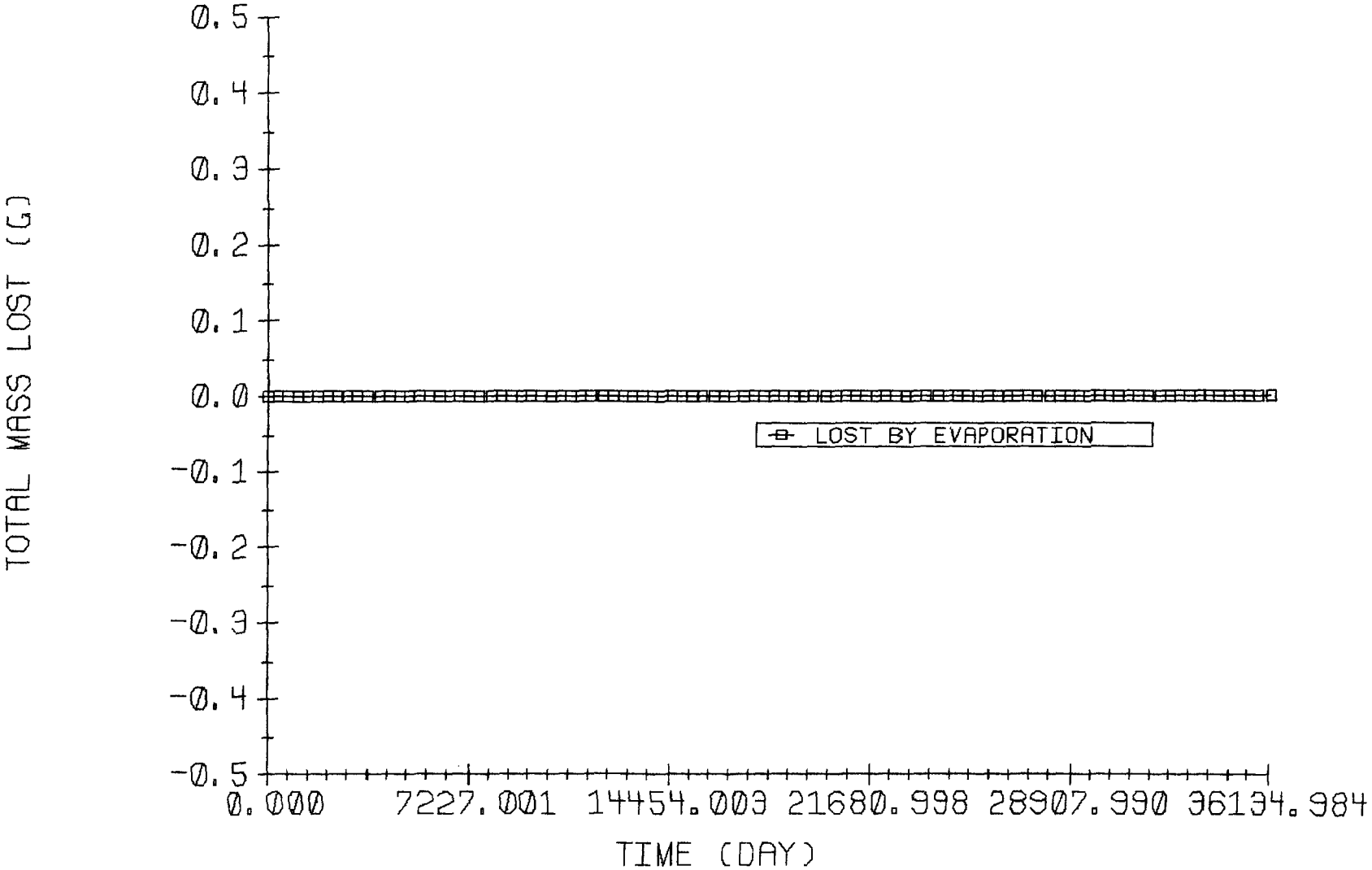
Unsaturated Zone		
Biodecay Cooefficient	0.001	1 / day
Organic Carbon Fraction	1.00E-06	
Soil Database	Sandy Clay	
Hydrological Database	Sedimentary	
Unsaturated Zone Thickness	**4.615**	meter
Soil Database	Sandy Clay	
van Genuchten n	1.09	(Default)
Residual Water Content	0.01001	
Unsaturated Zone Dispersivity	0	**Internally**

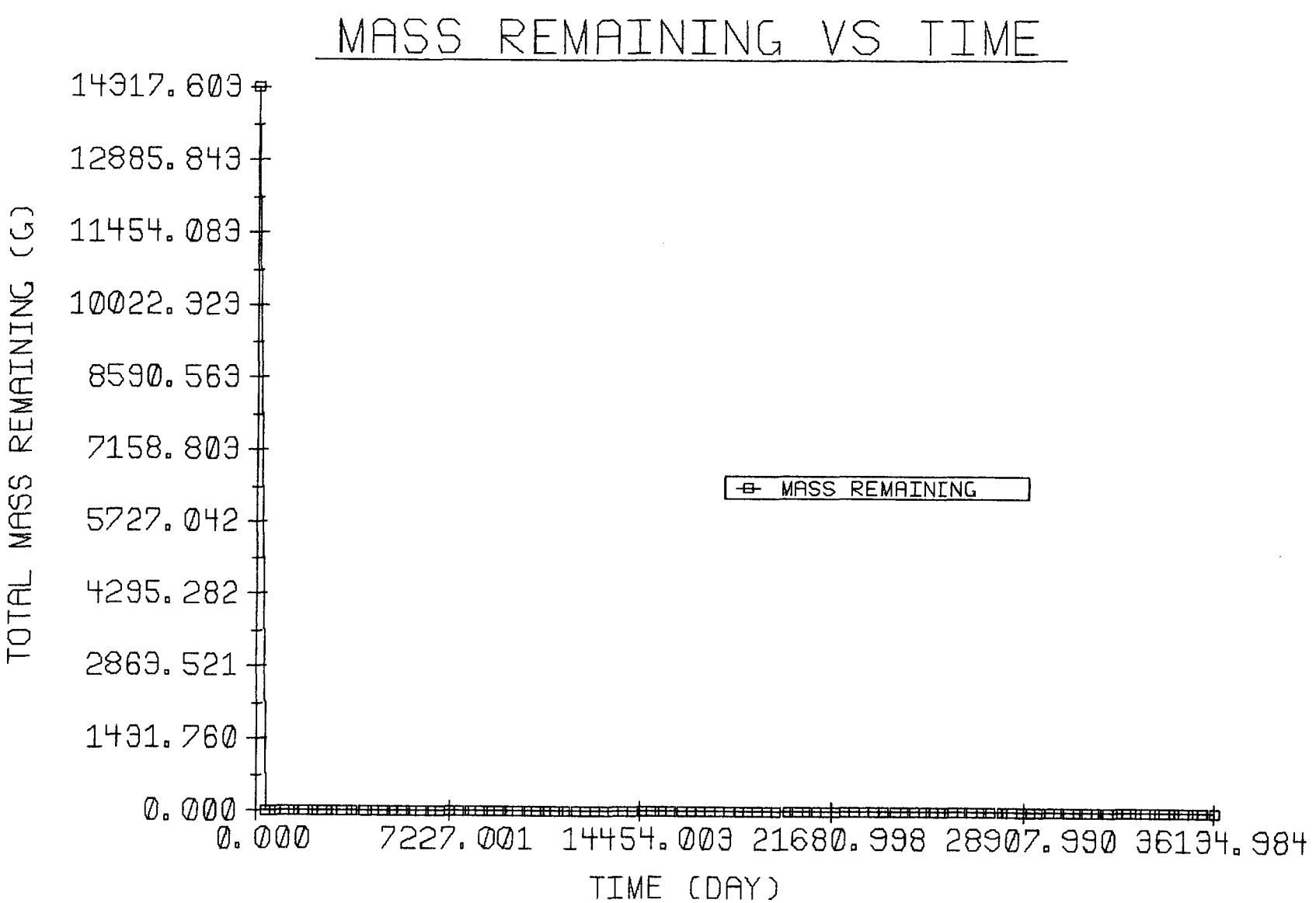
Saturated Zone		
Biodecay Cooefficient	0.001	1 / day
Aquifer Porosity	0.2	(Default)
Organic Carbon Fraction	0	**Internally**
Longitudinal Dispersivity	0	**Internally**
Ratio of Long. / Trans. Dispersivities	3	
Ratio of Trans. / Vert. Dispersivities	87	**Default**
Hydrological Database	Sedimentary	
Aquifer Thickness	10	meters
Aquifer Gradient	0.023	
Saturated Hydraulic Conductivity	0.13	meters / day

Net Infiltration Rate	0.00001	ft. / day


CONCENTRATION VS. TIME
CONCENTRATION (MG/L)
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
WATER TABLE
365.000
7592.000
14819.002
22045.996
29272.988
36499.980
TIME (DAY)

MASS LOST VS TIME




MASS REMAINING VS TIME
14317.603
12885.843
11454.083
10022.323
8590.563
7158.803
5727.042
4295.282
2869.521
1431.760
0.000
TOTAL MASS REMAINING (G)
MASS REMAINING
0.000
7227.001
14454.003
21680.998
28907.990
36134.984
TIME (DAY)

Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Ocean Energy T/U #15 of

(Page 1 of 2)

Company Name: Ocean Energy (Whole Earth)
Contact: Mike Griffin
Job #: 98271

Date : 7/28/98
Drill Start : 7:50
Drill End : 10:00
Boring Location : Center of East P.I

Site Location : 4 miles W. NM 82 ½ mile S. Lovington
Auger Type : Hollow Stem
Logged by : Bates

Well: # 1 East
Elev.:

Depth in feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab No.	PID ppm-v	Blows/Ft.
0				In center of P.I 20' deep Clay w/ Caliche, Tan, Loose, Fill Dry			
5				Caliche Clay w/rock Fiam Tan Damp			
10				Silty Sand w/ Caliche Rock Tan Loose Dry Sand Tan Loose Damp			
15							
20				Sandstone and Sand Tan. Fiam. Damp Sand. Tan, Loose Damp			
25							
30				Sandstone w/Sand Tan Fiam Damp w/r 31.5'			
35				Sandy Clay Tan Tan. moist. to Saturated T/D.			
40							
45							

Grout to 4/5

2 Ft Bentonite Plug

01-28-1998 c:\mtech46\geoblank\blank.bor

Request # 10

Soil samples 15326-15329 for the East Emergency Pit appeared to have been collected without preservation and therefore may not be valid. **Please explain?**

Response

Within fifteen minutes of their collection, **all** soil and water samples retained for laboratory organic analysis were identified and placed in the freezer compartment of a refrigerator located within a trailer used as a field office on this project. When transported to Environmental Labs of Texas, each such sample was placed within a ten gallon Igloo cooler container filled with ice and transported to the laboratory. Upon arrival at the laboratory, rather than transporting a rather large cooler containing only four, four ounce jars, the samples were removed and brought into the building as four individual samples.

The total amount of time that the sample collection jars were left in an un-refrigerated condition was the brief period of time it took to complete the Chain of Custody form (approximately five minutes).

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: M. Griffin

Phone #: (281) 492-7077
FAX #: (281) 646-8996

Company Name & Address: Whole Earth Environmental

Project #: Blowout Lifts From E. Pit

Project Name: Carlisle #1

Project Location: Lovington, NM

Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH 418.1 DRO, GRO 8015	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	Chlorides / E.C.
~~15324~~	~~Lifts from E. pit~~	~~4~~			~~4~~						~~X~~	~~X~~				X	X							X
15326	E.P. 1st 3' Lift	1			X							X		8/25/98		X	X							X
15327	E. Pit 2nd 3' Lift	1			X							X		8/25/98		X	X							X
15328	3rd 3' Lift	1			X							X		8/26/98		X	X							X
15329	6th 3' Lift	1			X							X		8/8/98		X	X							X

Relinquished by:	Date:	Times:	Received by:
M. Griffin	8-27-98	1700	J McMurrey
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

B.H. to ~~Conoco~~ Ocean Energy

Also Fax: 505-396-5346
Lovington Inn
1600 W. Ave D
Lovington NM 88260

Request # 11

Soil Sample 15249 West Reserve Pit Bottom was not analyzed for chlorides. This was required as a condition of approval in the original NMOCD approval letter dated April 18, 1998, see item 1. Attachment. **Please provide!**

Response

Enclosed within this section is a copy of the Chain of Custody and chloride laboratory analysis for a soil sample taken on September 10, 1999 from a depth of 3' below ground level in the approximate center of the West Reserve Pit.

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

SampleType: Soil
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: BTEX 9/13/99
Analysis Date: TPH 9/14/99

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH mg/kg
19911	West Reserve Pit	<0.100	0.387	0.791	20.31	10.15	6080
19912	Far West Spread	<0.100	0.248	<0.100	0.244	0.187	20
19913	Near West Spread	<0.100	<0.100	<0.100	<0.100	<0.100	10
19914	Near East Spread	<0.100	<0.100	<0.100	<0.100	<0.100	100
19915	Far East Spread	<0.100	<0.100	<0.100	<0.100	<0.100	40
	% IA	90	85	86	86	87	101
	% EA	102	98	96	98	97	114
	BLANK	<0.100	<0.100	<0.100	<0.100	<0.100	<10

METHODS: SW 846-8020,5030, EPA 418.1

Raland K. Tuttle

10-25-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Sample Type: Soil
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: See Below

ELT#	FIELD CODE	Sulfate mg/kg	Chloride mg/kg	Carbonate mg/kg	Bicarbonate mg/kg
19911	West Reserve Pit	*	7976	*	*
19912	Far West Spread	113	71	0	250
19913	Near West Spread	184	160	0	100
19914	Near East Spread	69	195	0	200
19915	Far East Spread	49	71	0	150
	QUALITY CONTROL	55.1	5052	*	*
	TRUE VALUE	50.0	5000	*	*
	% PRECISION	110	101	*	*
	ANALYSIS DATE	9/21/99	9/17/99	9/21/99	9/21/99

METHODS: SW-846-9038, 9252,EPA 310

Raland K. Tuttle

10-25-99
Date

Environmental Lab of Texas, Inc. 12600 West I-[redacted] st Odessa, Texas 79765
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: M. Griffin
Phone #: (800) 854-4358
FAX #: (281) 646-3996
Company Name & Address: Ocean Energy
Project #:
Project Name :
Project Location: Lovington
Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	State Metals, Ions, PAH Chlorides	Major Cat & Ions $Cl^-, SO_4, CO_3/HCO_3$ Ca, Na, Mg, K
19908	W. Water Well	3		X							X					X							X		
19909	E. Water Well	3		X							X					X							X		
19910	S. Water Well	3		X							X					X							X		
19911	W. Reserve				X						X					X	X							X	X
19912	Far West Spread				X						X					X	X							X	X
19913	Near West Spread				X						X					X	X							X	X
19914	Near East Spread				X						X					X	X							X	X
19915	Far East Spread				X						X					X	X							X	X

Relinquished by:	Date:	Time:	Received by:
M. Griffin	9/10/99	1630	Richard Jones
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

Request # 12

Soil Sample 15248 "Spread Composite" is not identified. **Please explain what this represents?**

Response

We found a slightly differing soil texture containing a high clay percentage within the mixing area. It is often difficult in the field to completely extract the hydrocarbon fractions from within such soils. We ran a laboratory backup to our own field-testing to insure that our field testing instruments were accurately measuring the actual TPH and BTEX concentrations.

Request # 13

The final report contains analytical results from Cardinal Laboratory which are not identified in the report. **Please explain what these analytical reports represent and where they were taken?**

Response
Soil sample # H3792-1 was taken from a mix zone and used in part to confirm our own field instrument readings for TPH (see attached Field Test Report summary). The primary purpose of both sets of analyses were to establish a correlation between our own measurement of electrical conductivity and total chlorides in advance of the remediation of the Reserve Pits.

		MIX ZONE	6650	12						
		MIX ZONE	3570	38						
	4:45 PM	W. PIT 3RD 3' LIFT	3570	18	<0.100	0.135	0.144	4.120		15245
08/13/98	7:00 AM	MIX ZONE	5110	22						
		MIX ZONE	4750	18						
		MIX ZONE	4420	12						
		MIX ZONE	5120	22						
		MIX ZONE	3610	11						
		MIX ZONE	4430	19						
		W. PIT BACKFILL	4820	22						
	1:00 PM	MIX ZONE	6650	28						
		MIX ZONE	4420	18						
		MIX ZONE	4650	12						
		MIX ZONE	4960	23						
		MIX ZONE	3510	15						
		MIX ZONE	4110	19						
		W. PIT BACKFILL	4930	22						
	3:00 PM	MIX ZONE	5510	18						
		MIX ZONE	3340	15						
		MIX ZONE	6120	12						
		MIX ZONE	2250	31						
		MIX ZONE	3550	22						
DATE	**TIME**	**LOCATION**	**TPH**	**EC**	**B**	**T**	**E**	**X**	**VOC**	**CONF**
08/13/98		MIX ZONE	6440	24						
		W. PIT BACKFILL	4150	22						
08/14/98	7:00 AM	MIX ZONE	6580	25						
		MIX ZONE	4430	38						
		MIX ZONE	8720	52						
		MIX ZONE	7750	47						
		MIX ZONE	4710	22						
		MIX ZONE	1280	31						
		W. PIT BACKFILL	4710	19						
	11:00 AM	MIX ZONE	5540	18						
		MIX ZONE	4120	34						
		MIX ZONE	6810	28	<0.100	<0.100	<0.100	2.150		H3792-1

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
WHOLE EARTH ENVIRONMENTAL
ATTN: E. WERNER
19606 SAN GABRIEL
HOUSTON, TX 77084
FAX TO: (281) 646-8996

Receiving Date: 09/08/98
Reporting Date: 09/09/98
Project Number: NOT GIVEN
Project Name: OCEAN ENERGY CARLISLE #1
Project Location: LOVINGTON, NM

Sampling Date: 09/04/98
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Na (meq/Kg)	Ca (meq/Kg)	Mg (meq/Kg)	EC (uS/cm)
ANALYSIS DATE		09/08/98	09/08/98	09/08/98	09/08/98
H3839-1	W. EMER.	30.4	20.1	4.77	1698
H3839-2	W. RESERVE	318	79.8	32.0	10420
Quality Control		NR	48	52	1402
True Value QC		NR	50	50	1413
% Accuracy		NR	96	104	99.2
Relative Percent Difference		NR	4.2	3.8	0.1
METHODS: STD. METHODS		-	3500-CaD	3500-MgE	2510

*Conductivity determined on a 1:4 w:v aq. extract.

Chemist

09/09/98
Date

H3839-2.XLS

CARDINAL LABORATORIES, INC.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2111 Beechwood, Abilene, TX 79603 (915) 673-7001 Fax (915) 673-7020
101 East Marland, Hobbs, NM 88240 (505) 393-2326 Fax (505) 393-2476

Page ____ of ____

Company Name:	Whole Earth Environ.
Project Manager:	E. Werner
Address:	19606 San Gabriel
City:	Houston State: Tx Zip: 77084
Phone #:	(281) 492-7077
Fax #:	(281) 646-8996
Project #:	Project Owner:
Project Name:	Ocean Energy Carlisle #1
Project Location:	Lexington

BILL TO	PO #:
Company:	
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

FOR LAB USE ONLY LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRES.: ACID:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	Calcium	Magnesium	Sodium	E.C.	Chlorides	TPH 418.1	BTEX
H3839-1	W. Emen.					X							9-4	8:15	1	1	1	1	1	1	1
H3839-2	W. Reserve					X							9-4	8:15	1	1	1	1	1	1	1

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished: M. Gill.	Date: 9-4 Time: 9:30 A	Received By:	Phone Result ☐ Yes ☐ No Additional Fax #:
Relinquished By: M. Gill.	Date: 9-4 Time: 9:30 A	Received By: (Lab Staff) Amy Hill	Fax Result: ☐ Yes ☐ No
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: ☐ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)

REMARKS: Receiving date 9/18/98 as per logbook

† Cardinal cannot accept verbal changes. Please fax written changes to 915-673-7020.

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
WHOLE EARTH ENVIRONMENTAL
ATTN: MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TX 77084
FAX TO: (281) 646-8996

Receiving Date: 08/14/98
Reporting Date: 08/18/98
Project Owner: OCEAN ENERGY
Project Name: CARLISLE #1
Project Location: NOT GIVEN

Sampling Date: 08/14/98
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:		08/15/98	08/14/98	08/14/98	08/14/98	08/14/98
H3792-1	# 1	6550	<0.002	0.022	0.051	1.39
Quality Control		206	0.099	0.098	0.093	0.284
True Value QC		200	0.100	0.100	0.100	0.300
% Recovery		103	99.4	99.7	93.4	94.7
Relative Percent Difference		3.3	0.7	2.3	2.1	5.6

METHODS: TRPHC - EPA 600/7-79-020, 418.1; BTEX - EPA SW-846 8260

Chemist

8/18/98
Date

H3792-2.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
WHOLE EARTH ENVIRONMENTAL
ATTN: MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TX 77084
FAX TO: (281) 646-8996

Receiving Date: 08/14/98
Reporting Date: 08/18/98
Project Owner: OCEAN ENERGY
Project Name: CARLISLE #1
Project Location: NOT GIVEN

Sampling Date: 08/14/98
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Conductivity (mS/cm)	Cl (mg/K)
ANALYSIS DATE:		08/14/98	08/14/98
H3792-1	# 1	2.75*	2290
Quality Control		1.402	1209
True Value QC		1.413	1319
% Recovery		99.2	91.7
Relative Percent Difference		0.1	4.4
METHODS: EPA 600/4-79-020		120.1	325.3

*Analysis performed on a 1:4 w:v aqueous extract.

Chemist

8/14/98
Date

H3792-1.XLS

CARDINAL LABORATORIES, INC.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240
(915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

Page 1 of 1

Company Name: Whole Earth Environmental	BILL TO
Project Manager: Mike Griffin	P.O. #:
Address: 19606 San Gabriel	Company:
City: Houston State: Tx Zip: 77084	Attn:
Phone #: (800) 854-4358 Fax #: (281) 646-8996	Address:
Project #: Project Owner: Ocean Energy	City:
Project Name: Carlisle #1	State: Zip:
Project Location:	Phone #:
Sampler Name:	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV			SAMPLING		ANALYSIS REQUEST													
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	TPH DRO - GRO 8015M	BTEX	Chlorides (Cl)	EC Lube analysis										
H19927-1	#1	C	1			X					X		8-14	10:15	✓	✓	✓	✓										

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date:	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time:		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By: M. Griffin	Date: 8/15/98 Time: 10:45	Received By: (Lab Staff) Brenda G Cook	REMARKS:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: ☒ Yes ☐ No Intact: ☒ Yes ☐ No	CHECKED BY: (Initials)

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476.

Request # 14

The July 28, 1998 (7/28/98) chronology indicates that the East Emergency Pit south wall soil sample # 14936 was collected for retesting due to the first samples exceeding the closure protocols. The analytical results provided is for water not soil. **Please provide the correct analysis for these samples.**

Response

Our field notes indicate that the south wall of the East Emergency Pit was sampled and that eleven soil samples were transported to the laboratory.

We are certain that the sample was collected and placed in the field office refrigerator for collection and transportation to the laboratory. Additional soil samples from the East and West Reserve pits, the East Emergency Pit coring and the first blending of the mix zone were additionally collected and transported in one batch to the laboratory. Whole Earth did not employ an internal chain of custody process capable of documenting the status of samples prior to delivery at the laboratory.

Environmental Labs of Texas is certain that the sample contained water. We've no record of any water sample being collected for any purpose.

Request # 15

NMOCD is in receipt of Whole Earth Environmental, Inc.s' letter dated June 16, 1999 with analytical attachment. Please note that there is no way to identify which monitor wells these samples were taken from or how the wells were purged. Was this sampling event witnessed by NMOCD? **Please explain and correct!**

Response

Enclosed within this section are the chain of custody documents, laboratory analyses and summary spreadsheet for the monitoring well investigation.

The wells were developed and purged in accordance with WEQP-28 and WEQP-76 (enclosed within this section).

The NMOCD was notified at least twenty-four hours in advance of each sampling event. In each instance the OCD declined to attend.

Ocean Energy Corporation
UMC Carlisle State Com # 1
Monitor Well Sampling Results

Well Designation	Trace Number	Date Sampled	Date Analyzed	Benzene	Toluene	Ethylbenzene	mp-Xylene	o-Xylene	Total Xylene
East Well	14689	7/23/98	7/23/98	0.001	0.001	0.001	0.001	0.001	0.001
	16299	6/8/99	6/8/99	0.001	0.001	0.001	0.001	0.001	0.001
	19908	9/10/99	9/10/99	0.001	0.001	0.001	0.001	0.001	0.001
West Well	14690	7/23/98	7/23/98	0.001	0.001	0.001	0.001	0.001	0.001
	16300	6/8/99	6/8/99	0.001	0.001	0.001	0.001	0.001	0.001
	19909	9/10/99	9/10/99	0.019	0.001	0.001	0.001	0.001	0.001
South Well	14691	7/23/98	7/23/98	0.001	0.001	0.001	0.002	0.001	0.003
	16301	6/8/99	6/8/99	0.001	0.001	0.001	0.001	0.001	0.001
	19910	9/10/99	9/10/99	0.001	0.001	0.001	0.001	0.001	0.001

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 07/23/98
Sample Type: Water
Project Name: Pit Closure
Project #: Ocean Energy
Project Location: Lovington, New Mexico

Analysis Date: 07/23/98
Sampling Date: 07/23/98
Sample Condition: Intact/HCl

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
14889 ✓	East Pit	<0.001	<0.001	<0.001	0.001	0.001
14890 ✓	West Pit	<0.001	<0.001	<0.001	<0.001	<0.001
14891 ✓	South Pit	<0.001	<0.001	<0.001	0.002	0.001
% IA		97	96	94	93	95
% EA		112	109	107	107	110
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Raland K Tuttle
Raland K. Tuttle

7-31-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Receiving Date: 07/23/98
Sample Type: Water
Project #: Ocean Energy
Project Name: Pit Closure
Project Location: Lovington, New Mexico

Analysis Date: see below
Sampling Date: 07/23/98
Sample Condition: Intact/HCl

TOTAL METALS (ppm)

ELT#	Field Code	Ag	As	Ba	Cd	Cr	Hg	Pb	Se
14889	East Pit	<0.01	0.020	<0.10	0.009	<0.03	<0.001	<0.10	<0.002
14890	West Pit	<0.01	0.022	<0.10	0.008	<0.03	0.003	<0.10	<0.002
14891	South Pit	<0.01	0.016	<0.10	0.007	<0.03	0.003	<0.10	<0.002
	Minimum Detection Limit (MDL)	0.01	0.002	0.10	0.005	0.03	0.001	0.10	0.002
	% IA	102	100	87	102	100	100	98	90
	% EA	103	102	111	104	75	80	103	120

METHODS: EPA SW 846-3005, 7760, 7062, 7080, 7130, 7190, 7470, 7420, 7742

Raland K. Tuttle

Raland K. Tuttle

7-31-98

Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 07/23/98
Sample Type: Water
Project Name: Pit Closure
Project #: Ocean Energy
Project Location: Lovington, New Mexico

Analysis Date: 07/24/98
Sampling Date: 07/23/98
Sample Condition: Intact/HCl

ELT#	FIELD CODE	SO4 mg/L	Na mg/L	Mg mg/L	Ca mg/L
14889	East Pit	82	34.6	16.1	96.8
14890	West Pit	79	31.1	22.2	93.8
14891	South Pit	72	31.6	14.4	98.2
	% IA	90	99	105	93
	% EA	*	110	115	*
	BLANK	<1	<5	<1	<1

METHODS: EPA 375.4, SW 846-7770,7450,7140

Raland K. Tuttle

7-31-98
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: M. Griffin
Phone #:
FAX #:
Company Name & Address: Whole Earth Environ.
Project #: Ocean Energy
Project Name: Pit Closure
Project Location: Lovington, NM
Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	Chlorides, SO4	Major Cat & Anions, Na, K, Ca, Mg	PAH
4889	East Pit	8		✓					✓					7-23-98		✓			✓						✓	✓
4890	West Pit	4		✓					✓					↓		✓			✓						✓	✓
4891	South Pit	4		✓					✓					↓		✓			✓						✓	✓

Relinquished by:	Date:	Times:	Received by:
M. Griffin	7-23	5:23	Richard Kirkland
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS
No PAH Per Mike 7-27-98 MT
Add METALS

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 06/08/99
Sample Type: Water
Project Name: None Given
Project #: Ocean Lovington
Project Location: None Given

Analysis Date: 06/08/99
Sampling Date: 06/08/99
Sample Condition: Iced/Intact

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
18299	0-1	<0.001	<0.001	<0.001	<0.001	<0.001
18300	0-2	<0.001	<0.001	<0.001	<0.001	<0.001
18301	0-3	<0.001	<0.001	<0.001	<0.001	<0.001
	% IA	93	89	90	88	89
	% EA	97	94	92	91	91
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Raland K Tuttle
Raland K. Tuttle

6-9-99
Date

Environmental Lab of Texas, Inc.

12600 West I-20 E... C...sa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

ject Manager: M. Griffin
Phone #:
FAX #:

npany Name & Address: Whole Earth Environ

ject #: Ocean Lovington
Project Name :

ject Location:
Sampler Signature: M. Griffin

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
8299	0-1	1		✓							✓			6-8	11:10	✓							
8300	0-2	1		✓							✓			✓	11:15	✓							
8301	0-3	1		✓							✓			✓	11:40	✓							

Relinquished by:	Date:	Times:	Received by:
M. Griffin	6-8-99	5:15	Roland Gutierrez
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

SampleType: Water
Sample Condition: Intact/ Iced
Project #: None Given
Project Name: Ocean Energy
Project Location: Lovington

Sampling Date: 09/10/99
Receiving Date: 09/10/99
Analysis Date: 09/11/99

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/kg
19908	W. Water Well	0.019	0.001	<0.001	<0.001	<0.001
19909	E. Water Well	<0.001	<0.001	<0.001	<0.001	<0.001
19910	S. Water Well	<0.001	<0.001	<0.001	<0.001	<0.001
	% IA	99	95	95	94	94
	% EA	97	94	93	92	92
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Raland K. Tuttle

9-14-99
Date

Environmental Lab of Texas, Inc.

12600 West I-20 [redacted] Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS RE[redacted]

Project Manager: M. Griffin

Phone #: (800) 854-4358
FAX #: (281) 646-8996

Company Name & Address: Whole Earth Environ.

Project #: UMC Lovington

Project Name: Morton Wells

Project Location: Lovington, NM

Sampler Signature: M. Griffin

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	HONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	IRC	VM WQCC PAH, Metals, cat ions/anions
	MW #1													9/9/99										✓
	MW #2													9/9/99										✓
	MW #3													9/9/99										✓

Relinquished by:	Date:	Time:	Received by:
M. Griffin			
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

QP-28

WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE

Procedure for Developing Cased Water Monitoring Wells

Completed By: Approved By: Effective Date: / /

1.0 Purpose

This procedure outlines the methods to be employed to develop cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Preliminary

3.1 Prior to development, the static water level and height of the water column within the well casing will be measured with the use of an electric D.C. probe or a steel engineer's tape and water sensitive paste.

3.2 All measurements will be recorded within a field log notebook and subsequently reported within the driller's boring log report.

3.3 All equipment used to measure the static water level will be decontaminated after each use by means of Alconox, a phosphate free laboratory detergent, and water to reduce the possibility of cross-contamination. The volume of water in each well casing will be calculated.

4.0 Purging

4.1 Wells will be purged by removing a minimum of three well casing volumes by using a 2" decontaminated submersible pump or dedicated one liter Teflon bailer.

4.2 If a submersible is used the pump will be decontaminated prior to use by scrubbing the outside surface of tubing and wiring with an Alconox-water mixture, pumping an Alconox-water mixture through the pump, and a final flush with fresh water.

5.0 Water Disposal

5.1 All purge and decontamination water will be temporarily stored within a 60 gallon portable tank and then pumped into a permanent storage tank to be later disposed of in an appropriate manner.

6.0 Records

6.1 Whole Earth will record the amount of water removed from the well during development procedures. The purge volume will be reported to the appropriate regulatory authority when filing the closure report.

QP-76 (Rev. A)

WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE

Procedure for Obtaining Water Samples (Cased Wells)
Using One Liter Bailer

Completed By: Approved By: Effective Date: / /

1.0 Purpose

This procedure outlines the methods to be employed in obtaining water samples from cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Preliminary

3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the water. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.

3.2 The following table shall be used to select the appropriate sampling container, preservative method and holding times for the various elements and compounds to be analyzed.

Compound to be Analyzed	Sample Container Size	Sample Container Description	Cap Requirements	Preservative	Maximum Hold Time
BTEX	40 ml.	VOA Container	Teflon Lined	HCl	7 days
TPH	1 liter	clear glass	Teflon Lined	HCl	28 days
PAH	1 liter	clear glass	Teflon Lined	Ice	7 days
Cation / Anion	1 liter	clear glass	Teflon Lined	None	48 Hrs.
Metals	1 liter	HD polyethylene	Any Plastic	Ice / HNO_3	28 Days
TDS	300 ml.	clear glass	Any Plastic	Ice	7 Days

4.0 Chain of Custody

4.1 Prepare a Sample Plan. The plan will list the well identification and the individual tests to be performed at that location. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.

4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.

4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label). Affix the labels to the jars.

5.0 Bailing Procedure

5.1 Identify the well from the site schematics. Place pre-labeled jar(s) next to the well. Remove the bolts from the well cover and place the cover with the bolts nearby. Remove the plastic cap from the well bore by first lifting the metal lever and then unscrewing the entire assembly.

5.2 The well may be equipped with an individual 1 liter bailing tube. If so, use the tube to bail a volume of water from the well bore equal to 10 liters for each 5' of well bore in the water table. (This assumes a 2" dia. well bore).

5.3 Take care to insure that the bailing device and string do not become cross-contaminated. A clean pair of rubber gloves should be used when handling either the retrieval string or bailer. The retrieval string should not be allowed to come into contact with the ground.

6.0 Sampling Procedure

6.1 Once the well has been bailed in accordance with 5.2 of this procedure, a sample may be decanted into the appropriate sample collection jar directly from the bailer. The collection jar should be filled to the brim. Once the jar is sealed, turn the jar over to detect any bubbles that may be present. Add additional water to remove all bubbles from the sample container.

6.2 Note the time of collection on the sample collection jar with a fine Sharpie.

6.3 Place the sample directly on ice for transport to the laboratory. The preceding table shows the maximum hold times between collection and testing for the various analyses.

6.4 Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

7.0 Documentation

7.1 The testing laboratory shall provide the following minimum information:

A. Client, Project and sample name.
B. Signed copy of the original Chain of Custody Form including data on the time the sample was received by the lab.
C. Results of the requested analyses
D. Test Methods employed
E. Quality Control methods and results

Callaway Safety
Request # 1

Item B.5 from NMOCD letter dated November 24, 1998 requested background levels be established and vertical extent be performed in the pits for chlorides? **Ocean Energy has failed to perform this request! Please provide.**

Response

Enclosed, are copies of the laboratory analytical results and associated chain of custody forms for chloride samples taken from a depth of 4' below ground level at each Halliburton Pit and the Flare Pit.

Additionally included are background chloride samples obtained from the undisturbed pasture land immediately west of the Halliburton Pits and the undisturbed pasture area located south of the access road nearest the Flare Pit.

Callaway Safety
Request # 2

Please identify and provide dimensional plot plans and vertical profile drawings for all general areas that were used as Landfarm/Soil Storage zones. Each drawing shall contain the following information:

a. Final isoconcentration values for BTEX TPH, Chloride and any other analytical results (i.e. EC, CEC, SAR, ESP, etc.) for all areas that were used for Landfarm/Soil Storage zones.

b. Each analytical concentration value shown on the drawing shall be identified and listed in a summary table (i.e. Laboratory Confirmation Testing Index) and cross-referenced to laboratory or field reports. If these values are averaged then list the high and low values obtained. Please include all field or laboratory reports, Chain of Custody forms, etc. in an appendix to support values shown on the drawings.

c. The center of each location in referenced to a known surveyed point.

d. Ocean Energy shall incorporate the treatment zone monitoring into these drawings.

Response

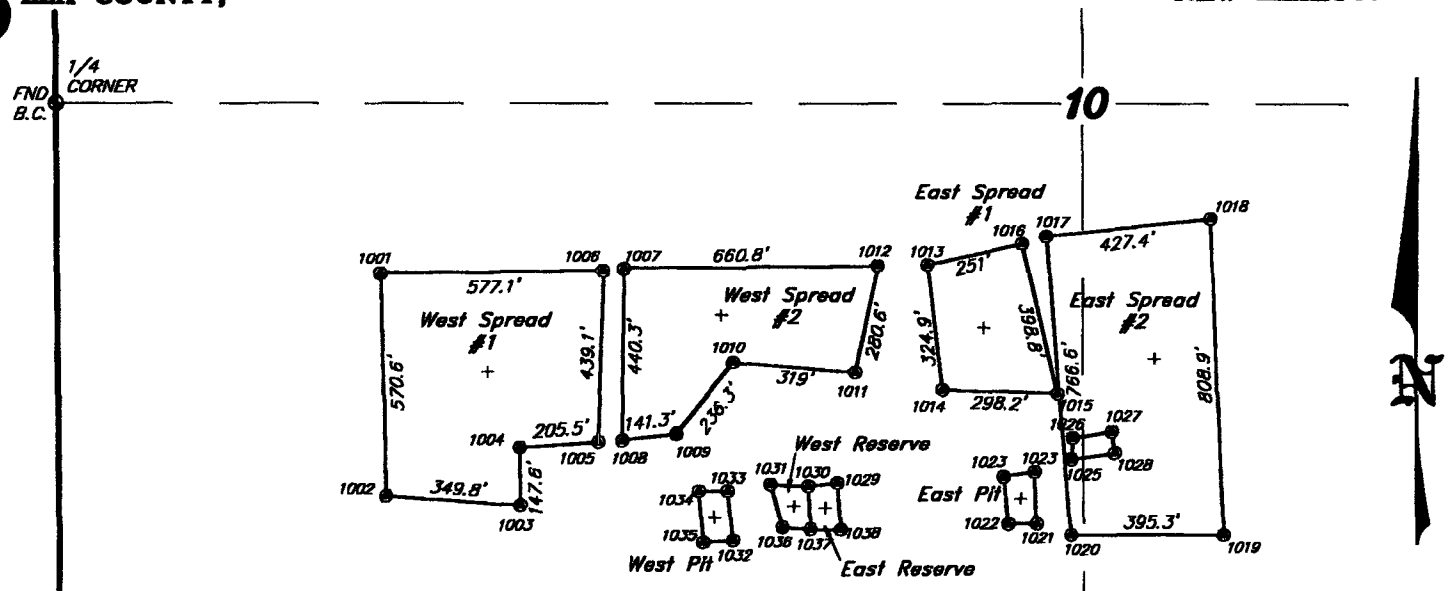
a & b The landfarm / storage areas prepared by Callaway Safety were the same as those used by Whole Earth Environmental. Each area was re-tested with analytical results (both field and laboratory analyses) provided within the Whole Earth Closure Report.

c. A survey map showing the locations of the Halliburton pits is enclosed within this section.

d. The requested information is contained within the sections designated WE 2 and 3 of this report.

SECTION 10, TOWNSHIP 16 SOUTH, RANGE 35 EAST, N.M.P.M.,

LEA COUNTY, **NEW MEXICO.**



CENTER POINT	DISTANCE FROM WEST LINE	DISTANCE FROM SOUTH LINE	LATITUDE	LONGITUDE
WEST SPREAD #1	1109.4'	1944.5'	N32°56'04.92"	W103°27'01.97"
WEST SPREAD #2	1717.8'	2091.5'	N32°56'06.35"	W103°26'54.83"
EAST SPREAD #1	2399.7'	2061.0'	N32°56'06.02"	W103°26'46.83"
EAST SPREAD #2	2841.9'	1980.7'	N32°56'05.21"	W103°26'41.64"
EAST PIT	2494.7'	1624.2'	N32°56'01.70"	W103°26'45.71"
WEST PIT	1697.4'	1575.7'	N32°56'01.25"	W103°26'55.07"
EAST RESERVE	1987.0'	1598.9'	N32°56'01.47"	W103°26'51.67"
WEST RESERVE	1905.2'	1603.5'	N32°56'01.52"	W103°26'52.63"

FND B.C. — 1/4 CORNER — FND B.C.

NOTE – SEE PAGE 2 FOR LATITUDES AND LONGITUDES

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES N.M. P.S. No. 7977
TEXAS P.L.S. No. 5074

BASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

WHOLE EARTH ENVIROMENTAL, INC.

REF: UMC CARLISLE STATE COM #1

A TRACT OF LAND LOCATED IN

SECTION 10, TOWNSHIP 16 SOUTH, RANGE 35 EAST,

N.M.P.M., LEA COUNTY. NEW MEXICO.

Callaway Safety
Request # 3

NMOCD acknowledges receipt of the Over spray area Peripheral Survey and defers comment at this time.

Response
None.