NM1 - ___9____

PARTIAL CLOSURE PLAN APPROVAL

(Unlined Evaporation Pond)

July 2012

Agua Moss

October 16th, 2012

State Of New Mexico
Energy, Minerals and Natural Resources Department
1220 south St. Frances Drive
Santa Fe, NM 87505

Reference: Partial Facility Closure Un-lined Pond NM1-9
Agua Moss, L.L.C- Sunco Class I Injection Facility
S2, T29N, R12W
San Juan County, NM

Aqua Moss, LLC hereby requests that the Oil Conservation Division (OCD) issue final closure approval of the un-lined pond as outlined in the partial facility closure plan. We believe the data supports this request for the following reasons:

- The pond was never utilized as verified with both previous operators, Coleman Oil & Gas and Key Energy Services,
- The facility is located in an industrial area,
- Depth to groundwater within 1 mile of the location is greater than 94 feet,
- There are no contaminate levels in sufficient quantity that would impact groundwater or be a significant threat to public health or the environment based on NMAC, New Mexico Environment Department or EPA standards,
- TPH & Total BTEX are minimal to none, and are well below NMOCD standards,
- The analysis shows that all but four chemical elements are below background sampling. Where sample readings did exceed background levels, they did not do so in all the samples. In addition, all sample readings are reasonably close to background suggesting that they are representative of the native soil. (See attachment B).

Again, we request that the New Mexico OCD issue a final closure approval at your earliest convenience. If you should have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Philana Thompson

Philana Thompson
Regulatory Compliance Specialist
Agua Moss, LLC.
505-324-5336 office

Cc:
Ms. Jamie Bailey, NMOCD Director
Butch Mathews, Agua Moss, LLC
Jeff Davis, Agua Moss, LLC.
Steve Dunn, Merrion Oil & Gas Corporation

Industrial area

Internet Mapping Framework

Map center: 36° 45' 32.4" N, 108° 4' 14.4" W

Legend

- Township/Range
- PLSS SECTIONS
- Quarter Sections
- RIVERS
- LAKES
- FARMINGTON CITY LIMITS
- SJC Road Status
- Major Roads
- Private
- County Maintained
- Limited County Maintained
- City
- Oil and Gas roads
- ROADS
- SAN JUAN COUNTY
- NAVAJO RESERVATION
- PARCELS
- 2009 aerials

Scale: 1:8,040

Crouch Mesa Disposal

Soil Sampling Results for unused Earthen Impoundment Closure

											New Background			Background used for Landfarm					Industrial Soil	Groundwater	Industrial Soil
	Pond SB1	mg/kg	Pond SB2	mg/kg	Pond SB3	mg/kg	Pond SB4	mg/kg	Pond SB5	mg/kg	NW corner	mg/kg	SE Corner	BG-S	BG-NW	mg/kg	BG-NE	mg/kg	NMED SSL mg/kg	OCD NMAC 20.6.2.3103 mg/l	EPA RSL mg/kg
Total Pet Hydrocarbons	ND		ND		ND		ND		ND		ND		ND	ND	ND		0.8	0.0008	800		
BTEX																					
Benzene	ND		ND		ND		ND		ND		ND		ND	ND	ND		ND		ND	ND	ND
Toluene (µg/Kg)	47.30	0.0473	40.50	0.0405	10.10	0.0101	15.10	0.0151	11.60	0.0116	ND		ND	ND	1.7	0.0017	ND		57,800	0.75	45000
Ethylbenzene (µg/Kg)	ND		ND		ND		ND		ND		ND		ND	ND	2.9	0.0029	ND		38,500	0.75	271
Total Xylenes	42.80	0.0428	62.70	0.0627	12.00	0.012	22.50	0.0225	11.60	0.0116	13.60	0.0136	-	ND	23.1	0.0231	4.3	0.0043	58,700	0.62	2700
Total BTEX (µg/Kg)	**90.10**	**0.1901**	**103.00**	**0.103**	**22.00**	**0.022**	**37.50**	**0.0375**	**23.20**	**0.0232**	**13.60**	**0.0136**	**ND**	**ND**	**27.7**	**0.0277**	**4.3**	**0.0043**	218,900	2.12	
Other																					
Arsenic (mg/kg)	1.79		1.21		1.85		1.21		1.33		3.65		4.16	2.15	1.92		1.7		17.7	1	1.6
Barium (mg/kg)	29.40		11.70		64.20		19.30		28.20		318.00		231.00	86.9	113		124		224,000	1	190,000
Cadmium (mg/kg)	0.15		0.09		0.13		0.12		0.12		0.66		0.49	0.01	0.03		0.02		1,120	0.01	.0068 ug/m air
Chromium (mg/kg)	1.60		0.81		1.47		1.16		1.22		9.25		8.63	4.09	1.88		3.45		1,570,000	0.05	1,500,000
Copper (mg/kg)	3.52		1.84		3.03		2.64		2.67		14.00		6.68	9.84	5.59		7.83		43,400	1	41,000
Lead (mg/kg)	4.09		2.71		3.14		3.49		3.47		22.30		11.80	4.59	2.6		4.37		800	0.05	800
Manganese (mg/kg)	158.00		136.00		115.00		143.00		143.00		298.00		218.00	138	72.9		130		149,000	0.2	23,000
Mercury (mg/kg)	0.05		ND		0.09		0.02		0.02		0.22		0.41	0.01	0.11		0.03		49.9	0.002	430
Selenium (mg/kg)	ND		ND		ND		ND		ND		0.73		0.46	0.11	ND		0.06		5,880	0.05	5100
Silver (mg/kg)	ND		ND		ND		ND		ND		0.50		ND	1.17	2.15		1.27		5,920	0.05	5100
Zinc (mg/kg)	10.60		5.34		7.98		8.08		7.68		54.90		21.90	22	12.7		19		341,000	10	310000
Cyanide (mg/l)	0.001		0.001		0.001		0.012		0.001		0.002		0.004	ND	ND		ND		22,700	0.2	610
pH	6.79		7.18		7.71		8.6		8.35		7.69		7.78	8.25	8.08		8.14			between 6 & 9	
Nitrate Nitrogen	28.9		0.01		0.34		0.01		0.01		23		21.6	0.08	0.01		0.08		1,820,000	10	1,600,000
Chloride mg/l	1.54		0.8		1.66		3.84		0.78		40.1		38.2	110	630		120		not listed	250	
Fluoride mg/l	7.04		1.38		4.26		2.44		1.7		0.01		2.01	3.4	3.2		1.8		58,100	1.6	93.4
Phosphate mg/l	2.94		0.38		0.26		0.48		0.46		3.4		0.01	45	2		25		not listed		
Sulfate mg/l	28.3		5.48		21.8		9.48		4.2		34.6		247	100	310		57.5		not listed	600	
Iron mg/l	0.491		0.995		0.284		8.12		3.3		0.01		0.01	0.105	0.1		0.058		785,000	1	720000
Calcium mg/l	8.15		6.11		6.33		1.96		10.1		37.9		36.5	11.5	30.5		18		not listed		
Magnesium mg/l	3.76		2.55		2.39		1.27		3.8		6.52		7.9	6.4	31.8		6.75		not listed		
Potassium mg/l	0.268		0.519		0.614		0.455		1.66		12.9		3.68	5.53	5.92		6.38		not listed		
Sodium mg/l	8.39		7.15		15		18.7		12.9		10.8		39.4	160	490		120		not listed		
TDS mg/l	102		70		114		150		90		288		332	500	1550		410			1000	

1) µg/Kg (micrograms/kilogram) is the same as ppb (parts per billion)
2) mg/Kg (milligrams/kilogram) is the same as ppm (parts per million)
3) mg/L (milligrams/Liter) is the same as ppm (parts per million)
4) SSL is NMED "Soil Screening Levels" for TCLIP Analysis

over background

Attachment B

TPH & Total BTEX- None to below OCD limits & NMED limits

OTHER- below background levels, except for those listed below:

Cyanide- 1/5 detected

Background= .004 mg/kg
SB4= .012 mg/kg
NMED SSL= 22,700 mg/kg
OCD= .2 mg/l
EPA= 610 mg/kg

Conclusion- although over background levels the amount detected is well below OCD standards and is very close to the background sample.

Nitrate Nitrogen- 1/5 detected

Background= 23 mg/kg
SB1= 28.9 mg/kg
NMED SSL= 1,820,000 mg/kg
OCD= 10 mg/l
EPA= 1,600,000 mg/kg

Conclusion- the amount detected is very close to background levels. Well below EPA and NMED soil screening levels.

Fluoride- 2/5 detected-

Background= 3.4 mg/kg
SB1= 7.04 mg/kg
SB3= 4.26 mg/kg
NMED SSL= 68,100 mg/kg
OCD= 1.6 mg/l
EPA= 93.4 mg/kg

Conclusions- the amount detected is close to background levels. It is well below EPA and NMED soil screening levels.

Iron- 2/5 detected-

Background= .105 mg/kg
SB4= 8.12 mg/kg
SB5= 3.3 mg/kg
NMED SSL= 795,000 mg/kg
OCD= 1 mg/l
EPA= 720,000 mg/kg

Conclusions- the amount detected is close to background levels. It is well below EPA and NMED soil screening levels.

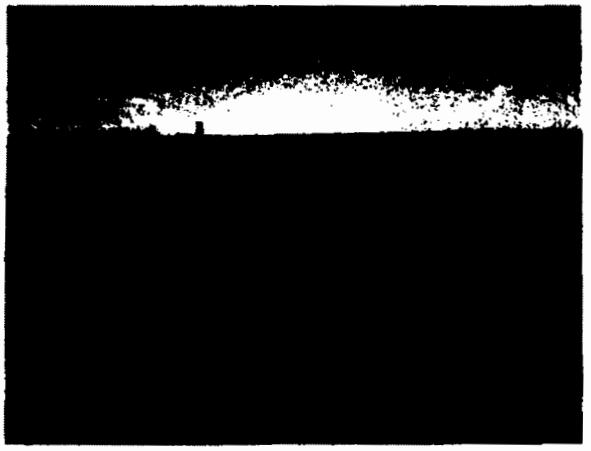
Jones, Brad A., EMNRD

From: Philana Thompson <pthompson@merrion.bz>
Sent: Wednesday, October 17, 2012 9:48 AM
To: Jones, Brad A., EMNRD
Cc: Steve Dunn; Butch Mathews; Jeff Davis
Subject: email 4
Attachments: 2011 background matrix .pdf

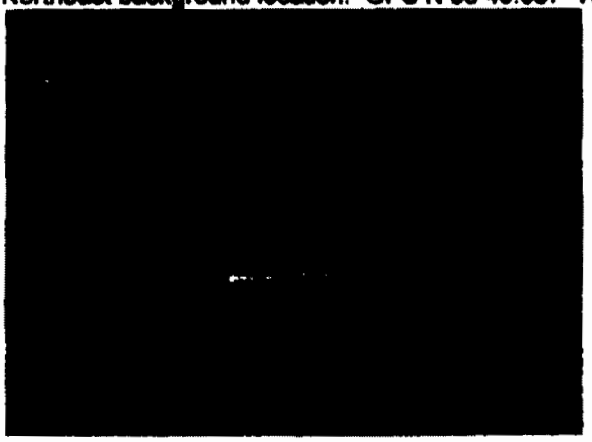
2011 background done by key for landfarm

--
Philana Thompson
Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171
office 505-324-5336

South Background Location: GPS N 36 45.409 W 108 04.269 Background samples were taken 3-5 feet deep and composited from just below the Root zone, Mid-way down, and Bottom.



Northeast background location: GPS N 36 45.537 W 108 04.258



Northwest Background Location: N 36 45.510 W 108 4.386

Appendix VIII- 2011 Background Sampling

- Sampling Results
- 8015D ORO/TX1005 ERO results included.
- COC's
- Field Reports and Selected Photos

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-S	Date Reported:	10-07-11
Laboratory Number:	59728	Date Sampled:	09-21-11
Chain of Custody No:	9952	Date Received:	09-22-11
Sample Matrix:	Soil	Date Extracted:	09-27-11
Preservative:	Cool	Date Analyzed:	09-27-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farm NM- NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NW	Date Reported:	10-07-11
Laboratory Number:	59729	Date Sampled:	09-21-11
Chain of Custody No:	9952	Date Received:	09-22-11
Sample Matrix:	Soil	Date Extracted:	09-27-11
Preservative:	Cool	Date Analyzed:	09-27-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Energy NM- NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NE	Date Reported:	10-07-11
Laboratory Number:	59730	Date Sampled:	09-21-11
Chain of Custody No:	9952	Date Received:	09-22-11
Sample Matrix:	Soil	Date Extracted:	09-27-11
Preservative:	Cool	Date Analyzed:	09-27-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**0.8**	**0.1**
Total Petroleum Hydrocarbons	**0.8**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Energy NM- NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	09-27-11 QA/QC	Date Reported:	09-29-11
Laboratory Number:	59668	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-27-11
Condition:	N/A	Analysis Requested:	TPH

	Cal Date	Cal RF	C-Cal RF	% Difference	Accept Range
Gasoline Range C5 - C10	40813	9.996E+02	1.000E+03	0.04%	0 - 15%
Diesel Range C10 - C28	40813	9.996E+02	1.000E+03	0.04%	0 - 15%

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	7.78	0.2
Diesel Range C10 - C28	2.36	0.1

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Range
Gasoline Range C5 - C10	ND	ND	0.00%	0 - 30%
Diesel Range C10 - C28	ND	ND	0.00%	0 - 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
Gasoline Range C5 - C10	ND	250	253	101%	75 - 125%
Diesel Range C10 - C28	ND	250	254	102%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste,
SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 59668-59669, 59683, 59703-59704, 59716-59720, 59726-59730, 59744-59747.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-S	Date Reported:	10-07-11
Laboratory Number:	59728	Date Sampled:	09-21-11
Chain of Custody:	9952	Date Received:	09-22-11
Sample Matrix:	Soil	Date Analyzed:	09-27-11
Preservative:	Cool	Date Extracted:	09-27-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	ND	1.0
Ethylbenzene	ND	1.0
p,m-Xylene	ND	1.2
o-Xylene	ND	0.9
Total BTEX	ND	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	92.3 %
	1,4-difluorobenzene	96.7 %
	Bromochlorobenzene	95.9 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farm NM- NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NW	Date Reported:	10-07-11
Laboratory Number:	59729	Date Sampled:	09-21-11
Chain of Custody:	9952	Date Received:	09-22-11
Sample Matrix:	Soil	Date Analyzed:	09-27-11
Preservative:	Cool	Date Extracted:	09-27-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	1.7	1.0
Ethylbenzene	2.9	1.0
p,m-Xylene	15.8	1.2
o-Xylene	7.3	0.9
Total BTEX	27.7	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	94.3 %
	1,4-difluorobenzene	104 %
	Bromochlorobenzene	97.4 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farm NM- NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505)632-0615 Fr (800)362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NE	Date Reported:	10-07-11
Laboratory Number:	59730	Date Sampled:	09-21-11
Chain of Custody:	9952	Date Received:	09-22-11
Sample Matrix:	Soil	Date Analyzed:	09-27-11
Preservative:	Cool	Date Extracted:	09-27-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	ND	1.0
Ethylbenzene	ND	1.0
p,m-Xylene	2.1	1.2
o-Xylene	2.2	0.9
Total BTEX	4.3	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	86.5 %
	1,4-difluorobenzene	91.1 %
	Bromochlorobenzene	92.8 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farm NM- NMI-9 Background**

Analyst

Review

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	09278BLK QA/QC	Date Reported:	09-28-11
Laboratory Number:	59698	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-27-11
Condition:	N/A	Analysis:	BTEX
		Dilution:	10

Calibration and Detection Limits (ug/L)	F-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc.	Detect. Limit
Benzene	3.4675E+006	3.4744E+006	0.2%	ND	0.1
Toluene	3.5462E+006	3.5533E+006	0.2%	ND	0.1
Ethylbenzene	3.1438E+006	3.1501E+006	0.2%	ND	0.1
p,m-Xylene	8.5492E+006	8.5664E+006	0.2%	ND	0.1
o-Xylene	2.9831E+006	2.9891E+006	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	ND	ND	0.0%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	ND	ND	0.0%	0 - 30%	1.2
o-Xylene	ND	ND	0.0%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	500	474	94.8%	39 - 150
Toluene	ND	500	472	94.4%	46 - 148
Ethylbenzene	ND	500	457	91.4%	32 - 160
p,m-Xylene	ND	1000	939	93.9%	46 - 148
o-Xylene	ND	500	474	94.7%	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 59698-59701, 59742, 59726, 59727-59730, 59637-59642

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505)632-0615 Fr (800)362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-S	Date Reported:	10/12/11
Laboratory Number:	59728	Date Sampled:	09/21/11
Chain of Custody:	9952	Date Received:	09/22/11
Sample Matrix:	Soil Extract	Date Analyzed:	10/10/11
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	8.25	s.u.		
Conductivity @ 25° C	538	umhos/cm		
Total Dissolved Solids @ 180C	530	mg/L		
Total Dissolved Solids (Calc)	500	mg/L		
SAR	9.40	ratio		
Total Alkalinity as CaCO3	84.0	mg/L		
Total Hardness as CaCO3	55.0	mg/L		
Bicarbonate as CaCO3	84.0	mg/L	1.4	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	0.080	mg/L	0.001	meq/L
Nitrite Nitrogen	3.50	mg/L	0.076	meq/L
Chloride	110	mg/L	3	meq/L
Fluoride	3.40	mg/L	0.179	meq/L
Phosphate	45.0	mg/L	1.422	meq/L
Sulfate	100	mg/L	2.08	meq/L
Iron	0.105	mg/L	0.004	meq/L
Calcium	11.5	mg/L	1	meq/L
Magnesium	6.40	mg/L	1	meq/L
Potassium	5.53	mg/L	0.1	meq/L
Sodium	160	mg/L	7	meq/L
Cations			8	meq/L
Anions			8	meq/L
Cation/Anion Difference			0.53%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farm NM-NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NW	Date Reported:	10/12/11
Laboratory Number:	59729	Date Sampled:	09/21/11
Chain of Custody:	9952	Date Received:	09/22/11
Sample Matrix:	Soil Extract	Date Analyzed:	10/10/11
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	8.08	s.u.		
Conductivity @ 25° C	1,610	umhos/cm		
Total Dissolved Solids @ 180C	1,370	mg/L		
Total Dissolved Solids (Calc)	1,550	mg/L		
SAR	14.8	ratio		
Total Alkalinity as CaCO3	66.0	mg/L		
Total Hardness as CaCO3	206	mg/L		
Bicarbonate as CaCO3	66.0	mg/L	1.1	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	< 0.01	mg/L	0.000	meq/L
Nitrite Nitrogen	2.00	mg/L	0.043	meq/L
Chloride	630	mg/L	18	meq/L
Fluoride	3.20	mg/L	0.168	meq/L
Phosphate	2.00	mg/L	0.063	meq/L
Sulfate	310	mg/L	6.45	meq/L
Iron	0.100	mg/L	0.004	meq/L
Calcium	30.5	mg/L	2	meq/L
Magnesium	31.8	mg/L	3	meq/L
Potassium	5.92	mg/L	0.2	meq/L
Sodium	490	mg/L	21	meq/L
Cations			26	meq/L
Anions			26	meq/L
Cation/Anion Difference			0.00%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farm NM-NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NE	Date Reported:	10/12/11
Laboratory Number:	59730	Date Sampled:	09/21/11
Chain of Custody:	9952	Date Received:	09/22/11
Sample Matrix:	Soil Extract	Date Analyzed:	10/10/11
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	8.14	s.u.		
Conductivity @ 25° C	411	umhos/cm		
Total Dissolved Solids @ 180C	360	mg/L		
Total Dissolved Solids (Calc)	410	mg/L		
SAR	6.10	ratio		
Total Alkalinity as CaCO3	81.0	mg/L		
Total Hardness as CaCO3	72.6	mg/L		
Bicarbonate as CaCO3	81.0	mg/L	1.3	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	0.080	mg/L	0.001	meq/L
Nitrite Nitrogen	1.88	mg/L	0.041	meq/L
Chloride	120	mg/L	3	meq/L
Fluoride	1.80	mg/L	0.095	meq/L
Phosphate	25.0	mg/L	0.790	meq/L
Sulfate	57.5	mg/L	1.20	meq/L
Iron	0.058	mg/L	0.002	meq/L
Calcium	18.0	mg/L	1	meq/L
Magnesium	6.75	mg/L	1	meq/L
Potassium	6.38	mg/L	0.2	meq/L
Sodium	120	mg/L	5	meq/L
Cations			7	meq/L
Anions			7	meq/L
Cation/Anion Difference			0.00%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farm NM-NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505)632-0615 Fr (800)362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-S	Date Reported:	09/26/11
Laboratory Number:	59728	Date Sampled:	09/21/11
Chain of Custody No:	9952	Date Received:	09/22/11
Sample Matrix:	Soil	Date Extracted:	09/26/11
Preservative:	Cool	Date Analyzed:	09/26/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**66.9**	**33.5**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farm Nm-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NW	Date Reported:	09/26/11
Laboratory Number:	59729	Date Sampled:	09/21/11
Chain of Custody No:	9952	Date Received:	09/22/11
Sample Matrix:	Soil	Date Extracted:	09/26/11
Preservative:	Cool	Date Analyzed:	09/26/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**40.2**	**33.5**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farm Nm-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NE	Date Reported:	09/26/11
Laboratory Number:	59730	Date Sampled:	09/21/11
Chain of Custody No:	9952	Date Received:	09/22/11
Sample Matrix:	Soil	Date Extracted:	09/26/11
Preservative:	Cool	Date Analyzed:	09/26/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	46.9	33.5

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farm Nm-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	09/26/11
Laboratory Number:	09-26-TPH.QA/QC 59742	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	09/26/11
Preservative:	N/A	Date Extracted:	09/26/11
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	08/23/11	09/26/11	1,674	1,670	0.3%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	33.5

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	214	201	6.3%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	214	2,000	2,340	106%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 59742, 59716-59720 and 59728-59730.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-S	Date Reported:	09/28/11
Lab ID#:	59728	Date Sampled:	09/21/11
Sample Matrix:	Soil	Date Received:	09/22/11
Preservative:	Cool	Date Analyzed:	09/23/11
Condition:	Intact	Chain of Custody:	9952

Parameter	Concentration (mg/Kg)
Total Chloride	**80**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farm NM-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NW	Date Reported:	09/28/11
Lab ID#:	59729	Date Sampled:	09/21/11
Sample Matrix:	Soil	Date Received:	09/22/11
Preservative:	Cool	Date Analyzed:	09/23/11
Condition:	Intact	Chain of Custody:	9952

Parameter	Concentration (mg/Kg)
Total Chloride	430

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farm NM-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505)632-0615 Fr (800)362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NE	Date Reported:	09/28/11
Lab ID#:	59730	Date Sampled:	09/21/11
Sample Matrix:	Soil	Date Received:	09/22/11
Preservative:	Cool	Date Analyzed:	09/23/11
Condition:	Intact	Chain of Custody:	9952

Parameter	Concentration (mg/Kg)
Total Chloride	20

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farm NM-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-S	Date Reported:	10/17/11
Laboratory Number:	59728	Date Sampled:	09/21/11
Chain of Custody:	9952	Date Received:	09/22/11
Sample Matrix:	Soil	Date Analyzed:	10/04/11
Preservative:	Cool	Date Digested:	09/29/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	2.15	0.01
Aluminum	5700	0.01
Barium	86.9	0.01
Cadmium	0.01	0.01
Chromium	4.09	0.01
Cobalt	3.25	0.01
Copper	9.84	0.01
Iron	4880	0.01
Lead	4.59	0.01
Manganese	138	0.01
Molybdenum	0.04	0.01
Mercury	0.01	0.01
Nickel	5.87	0.01
Selenium	0.11	0.01
Silver	1.17	0.01
Zinc	22.0	0.01

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farm NM-NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NW	Date Reported:	10/17/11
Laboratory Number:	59729	Date Sampled:	09/21/11
Chain of Custody:	9952	Date Received:	09/22/11
Sample Matrix:	Soil	Date Analyzed:	10/04/11
Preservative:	Cool	Date Digested:	09/29/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	1.92	0.01
Aluminum	3080	0.01
Barium	113	0.01
Cadmium	0.03	0.01
Chromium	1.88	0.01
Cobalt	1.77	0.01
Copper	5.59	0.01
Iron	2770	0.01
Lead	2.60	0.01
Manganese	72.9	0.01
Molybdenum	0.07	0.01
Mercury	0.11	0.01
Nickel	2.88	0.01
Selenium	ND	0.01
Silver	2.15	0.01
Zinc	12.7	0.01

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farm NM-NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NE	Date Reported:	10/17/11
Laboratory Number:	59730	Date Sampled:	09/21/11
Chain of Custody:	9952	Date Received:	09/22/11
Sample Matrix:	Soil	Date Analyzed:	10/04/11
Preservative:	Cool	Date Digested:	09/29/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	1.70	0.01
Aluminum	4690	0.01
Barium	124	0.01
Cadmium	0.02	0.01
Chromium	3.45	0.01
Cobalt	2.65	0.01
Copper	7.83	0.01
Iron	3930	0.01
Lead	4.37	0.01
Manganese	130	0.01
Molybdenum	0.02	0.01
Mercury	0.03	0.01
Nickel	4.79	0.01
Selenium	0.06	0.01
Silver	1.27	0.01
Zinc	19.0	0.01

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farm NM-NMI-9 Background**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS
Quality Control / Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	10-04-TM QA/QC	Date Reported:	10/17/11
Laboratory Number:	59727	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Analysis Requested:	Trace Metals	Date Analyzed:	10/04/11
Condition:	N/A	Date Digested:	09/29/11

Blank & Duplicate Conc. (mg/Kg)	Instrument Blank (mg/Kg)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.01	2.73	2.71	0.40%	0% - 30%
Aluminum	ND	ND	0.01	2390	2350	1.96%	0% - 30%
Barium	ND	ND	0.01	57.2	55.9	2.19%	0% - 30%
Cadmium	ND	ND	0.01	0.36	0.35	1.28%	0% - 30%
Chromium	ND	ND	0.01	2.75	2.70	1.83%	0% - 30%
Cobalt	ND	ND	0.01	1.61	1.61	0.00%	0% - 30%
Copper	ND	ND	0.01	8.71	8.69	0.16%	0% - 30%
Iron	ND	ND	0.01	3230	3230	0.00%	0% - 30%
Lead	ND	ND	0.01	3.15	3.14	0.41%	0% - 30%
Manganese	ND	ND	0.01	128	126	1.87%	0% - 30%
Molybdenum	ND	ND	0.01	0.25	0.25	0.00%	0% - 30%
Mercury	ND	ND	0.01	6.02	5.97	0.81%	0% - 30%
Nickel	ND	ND	0.01	1.96	1.95	0.31%	0% - 30%
Selenium	ND	ND	0.01	0.09	0.07	17.4%	0% - 30%
Silver	ND	ND	0.01	0.85	0.88	4.12%	0% - 30%
Zinc	ND	ND	0.01	56.7	56.4	0.49%	0% - 30%

Spike Conc. (mg/Kg)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	2.50	2.73	4.77	91.2%	80% - 120%
Aluminum	2.50	2,390	2,190	91.4%	80% - 120%
Barium	5.00	57.2	55.5	89.3%	80% - 120%
Cadmium	2.50	0.36	2.47	86.6%	80% - 120%
Chromium	5.00	2.75	6.43	82.9%	80% - 120%
Cobalt	2.50	1.61	3.57	86.8%	80% - 120%
Copper	5.00	8.71	12.4	90.2%	80% - 120%
Iron	2.50	3,230	3,020	93.5%	80% - 120%
Lead	5.00	3.15	6.71	82.3%	80% - 120%
Manganese	2.50	128	118	90.6%	80% - 120%
Molybdenum	1.00	0.25	1.04	83.0%	80% - 120%
Mercury	1.00	6.02	6.53	93.1%	80% - 120%
Nickel	5.00	1.96	5.85	84.0%	80% - 120%
Selenium	1.00	0.09	0.95	87.6%	80% - 120%
Silver	1.00	0.85	1.65	89.2%	80% - 120%
Zinc	5.00	56.7	58.3	94.5%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.
Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectoroscopy, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 59727, 59683, 59703-59704, 59728-59730, 59638, 59658**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505)632-0615 Fr (800)362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

Water Analysis

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-S	Date Reported:	09/23/11
Laboratory Number:	59728	Date Sampled:	09/21/11
Sample Matrix:	Soil Extract	Date Received:	09/22/11
Preservative:	Cool	Date Analyzed:	09/23/11
Condition:	Intact	Chain of Custody:	9952

Parameter	Analytical Result	Units
Cyanide (total)	**ND**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Key Farm NM-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505)632-0615 Fr (800)362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

Water Analysis

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NW	Date Reported:	09/23/11
Laboratory Number:	59729	Date Sampled:	09/21/11
Sample Matrix:	Soil Extract	Date Received:	09/22/11
Preservative:	Cool	Date Analyzed:	09/23/11
Condition:	Intact	Chain of Custody:	9952

Parameter	Analytical Result	Units
Cyanide (total)	**ND**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Key Farm NM-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

Water Analysis

Client:	Key Energy	Project #:	98065-0013
Sample ID:	BG-NE	Date Reported:	09/23/11
Laboratory Number:	59730	Date Sampled:	09/21/11
Sample Matrix:	Soil Extract	Date Received:	09/22/11
Preservative:	Cool	Date Analyzed:	09/23/11
Condition:	Intact	Chain of Custody:	9952

Parameter	Analytical Result	Units
Cyanide (total)	ND	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Key Farm NM-NMI-9 Background.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

CHAIN OF CUSTODY RECORD

09952

Client:	Project Name / Location:
KEY ENERGY	KEY FARM NM - NAVAJO BACK GROUND
Client Address:	**Sampler Name:** WAYNE PRICE
5651 HWY 64 - FARMINGTON NM 87401	
Client Phone No.:	**Client No.:**
505-715-2809	98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative: H_2SO_4	HCl	Ice	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE	WQCC METALS RCRA 8 + Cu			Sample Cool	Sample Intact
BG-S	9/21/11	3:30 pm	59728	Soil Solid / Sludge Aqueous	2-4oz JAR			X	X	X			X				X	X	X			✓	✓
				Soil Solid / Sludge Aqueous																			
BG-NW	11	5:30 pm	59729	Soil Solid / Sludge Aqueous	2-4oz JAR			X	X	X			X				X	X	X			✓	✓
				Soil Solid / Sludge Aqueous																			
BG-NE	11	4:35 pm	59730	Soil Solid / Sludge Aqueous	2-4oz JAR			X	X	X			X				X	X	X			✓	✓
				Soil Solid / Sludge Aqueous															Ca, Fe, Mg, Mn, K, Na, Co, Ni + RCRA 8				
				Soil Solid / Sludge Aqueous																			
				Soil Solid / Sludge Aqueous																			
				Soil Solid / Sludge Aqueous																			
				Soil Solid / Sludge Aqueous																			

Relinquished by: (Signature) WAYNE PRICE	Date 9/22/11	Time 10:25 AM	Received by: (Signature)	Date 9/22/11	Time 1025
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

envirotech
Analytical Laboratory
5796 US Highway 64 • Farmington, NM 87401 • 505-632-0615 • lab@envirotech-inc.com

Jones, Brad A., EMNRD

From: Philana Thompson <pthompson@merrion.bz>
Sent: Wednesday, October 17, 2012 9:47 AM
To: Jones, Brad A., EMNRD
Cc: Steve Dunn; Butch Mathews; Jeff Davis
Subject: email 3
Attachments: unlined pond analysis.pdf

unlined pond analysis

--
Philana Thompson
Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171
office 505-324-5336

envirotech

August 15, 2012 Project Number: 07117-0005

Ms. Philana Thompson
Regulatory Compliance
Agua Moss
345 CR 350
Farmington, New Mexico 87401 Phone: (505)-324-5336

RE: UNLINED POND SOIL SAMPLING AND ANALYTICAL RESULTS, AGUA MOSS, SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Thompson:

Please find enclosed the analytical results and field notes for the Agua Moss Farmington-NM-01-0009 unlined pond located in Section 2, Township 29 North, Range 12 West, San Juan County, New Mexico. Activities included sample collection and analysis, documentation and reporting in alignment with *Attachment A* in the *Partial Closure Plan Unlined Evaporation Pond NM1-9* that was provided.

If you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully Submitted,
ENVIROTECH, INC.

Christopher Arrigo
Staff Scientist
carrigo@envirotech-inc.com

Enclosure: Analytical Results
Field Notes

Cc: Client File Number: 07117

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs - 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fx (800) 362-1879

envirotech
Analytical Laboratory

Report Summary

Client: Agua Moss

Chain of Custody Number: 14221

Samples Received: 08-03-12

Job Number: 07117-0005

Sample Number(s): 62812-62816

Project Name/Location: Unlined Pond

Entire Report Reviewed By: _____ Date: 8/15/12

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

5796 US Highway 64, Farmington, NM 87401
Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301
Ph (970) 259-0615 Fr (800) 362-1879

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-1	Date Reported:	08-13-12
Laboratory Number:	62812	Date Sampled:	08-03-12
Chain of Custody No:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Extracted:	08-10-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-2	Date Reported:	08-13-12
Laboratory Number:	62813	Date Sampled:	08-03-12
Chain of Custody No:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Extracted:	08-10-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-3	Date Reported:	08-13-12
Laboratory Number:	62814	Date Sampled:	08-03-12
Chain of Custody No:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Extracted:	08-10-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-4	Date Reported:	08-13-12
Laboratory Number:	62815	Date Sampled:	08-03-12
Chain of Custody No:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Extracted:	08-10-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-5	Date Reported:	08-13-12
Laboratory Number:	62816	Date Sampled:	08-03-12
Chain of Custody No:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Extracted:	08-10-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	0813TCAL QA/QC	Date Reported:	08-13-12
Laboratory Number:	62812	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	08-13-12
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	08-13-12	9.9960E+02	1.0000E+03	0.04%	0 - 15%
Diesel Range C10 - C28	08-13-12	9.9960E+02	1.0000E+03	0.04%	0 - 15%

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1
Total Petroleum Hydrocarbons	ND	

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%
Diesel Range C10 - C28	ND	ND	0.0%	0 - 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	ND	250	246	98.2%	75 - 125%
Diesel Range C10 - C28	ND	250	237	94.7%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Was
SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 62812-62816**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-1	Date Reported:	08-08-12
Laboratory Number:	62812	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-07-12
Preservative:	Cool	Date Extracted:	08-07-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**47.3**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**42.8**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**90.1**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**82.8 %**
	1,4-difluorobenzene	**93.8 %**
	Bromochlorobenzene	**90.4 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-2	Date Reported:	08-08-12
Laboratory Number:	62813	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-07-12
Preservative:	Cool	Date Extracted:	08-07-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**40.5**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**47.9**	**10.0**
o-Xylene	**14.8**	**10.0**
Total BTEX	**103**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**78.6 %**
	1,4-difluorobenzene	**87.6 %**
	Bromochlorobenzene	**99.1 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-3	Date Reported:	08-08-12
Laboratory Number:	62814	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-07-12
Preservative:	Cool	Date Extracted:	08-07-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**10.1**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**12.0**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**22.0**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**88.2 %**
	1,4-difluorobenzene	**101 %**
	Bromochlorobenzene	**114 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-4	Date Reported:	08-08-12
Laboratory Number:	62815	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-07-12
Preservative:	Cool	Date Extracted:	08-07-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**15.1**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**22.5**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**37.5**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**85.6 %**
	1,4-difluorobenzene	**97.4 %**
	Bromochlorobenzene	**108 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-5	Date Reported:	08-08-12
Laboratory Number:	62816	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-07-12
Preservative:	Cool	Date Extracted:	08-07-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**11.6**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**11.6**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**23.2**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**84.7 %**
	1,4-difluorobenzene	**96.6 %**
	Bromochlorobenzene	**107 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0607BCAL QA/QC	Date Reported:	06-07-12
Laboratory Number:	62818	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-07-12
Condition:	N/A	Analysis:	BTEX
		Dilution:	50

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF: (Accept. Range 0-15%)	%Diff.	Blank Conc	Detect. Limit
Benzene	7.0301E-06	7.0301E-06	0.000	ND	0.2
Toluene	6.5473E-06	6.5473E-06	0.000	ND	0.2
Ethylbenzene	7.2704E-06	7.2704E-06	0.000	ND	0.2
p,m-Xylene	5.2861E-06	5.2861E-06	0.000	ND	0.2
o-Xylene	7.6016E-06	7.6016E-06	0.000	ND	0.2

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.00	0 - 30%	10
Toluene	ND	ND	0.00	0 - 30%	10
Ethylbenzene	14.0	13.7	0.02	0 - 30%	10
p,m-Xylene	60.5	62.7	0.04	0 - 30%	10
o-Xylene	11.8	12.2	0.03	0 - 30%	10

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	2500	2410	96.4	39 - 150
Toluene	ND	2500	2400	96.0	46 - 148
Ethylbenzene	14.0	2500	2410	95.9	32 - 160
p,m-Xylene	60.5	5000	4850	95.8	46 - 148
o-Xylene	11.8	2500	2410	95.9	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for Samples 62812-62816 and 62818-62822**

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-1	Date Reported:	08-13-12
Laboratory Number:	62812	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-08-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	**6.79**	s.u.		
Conductivity @ 25° C	**121**	umhos/cm		
Total Dissolved Solids @ 180C	**102**	mg/L		
SAR	**0.600**	ratio		
Total Alkalinity as CaCO3	**112**	mg/L		
Total Hardness as CaCO3	**35.8**	mg/L		
Bicarbonate as CaCO3	**112**	mg/L	1.8	meq/L
Carbonate as CaCO3	**< 0.01**	mg/L	0.000	meq/L
Hydroxide as CaCO3	**< 0.01**	mg/L	0.001	meq/L
Nitrate Nitrogen	**28.9**	mg/L	0.466	meq/L
Nitrite Nitrogen	**0.280**	mg/L	0.006	meq/L
Chloride	**1.54**	mg/L	0	meq/L
Fluoride	**7.04**	mg/L	0.371	meq/L
Phosphate	**2.94**	mg/L	0.093	meq/L
Sulfate	**28.3**	mg/L	0.59	meq/L
Iron	**0.491**	mg/L	0.018	meq/L
Calcium	**8.15**	mg/L	0	meq/L
Magnesium	**3.76**	mg/L	0	meq/L
Potassium	**0.268**	mg/L	0.0	meq/L
Sodium	**8.39**	mg/L	0	meq/L

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Unlined Pond**

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-2	Date Reported:	08-13-12
Laboratory Number:	62813	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-08-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	7.18	s.u.		
Conductivity @ 25° C	79.7	umhos/cm		
Total Dissolved Solids @ 180C	70.0	mg/L		
SAR	0.600	ratio		
Total Alkalinity as CaCO3	112	mg/L		
Total Hardness as CaCO3	25.7	mg/L		
Bicarbonate as CaCO3	78.0	mg/L	1.3	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	< 0.01	mg/L	0.000	meq/L
Nitrite Nitrogen	< 0.01	mg/L	0.000	meq/L
Chloride	0.800	mg/L	0	meq/L
Fluoride	1.38	mg/L	0.073	meq/L
Phosphate	0.380	mg/L	0.012	meq/L
Sulfate	5.48	mg/L	0.11	meq/L
Iron	0.995	mg/L	0.036	meq/L
Calcium	6.11	mg/L	0	meq/L
Magnesium	2.55	mg/L	0	meq/L
Potassium	0.519	mg/L	0.0	meq/L
Sodium	7.15	mg/L	0	meq/L

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Unlined Pond**

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-3	Date Reported:	08-13-12
Laboratory Number:	62814	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-08-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	7.71	s.u.		
Conductivity @ 25° C	137	umhos/cm		
Total Dissolved Solids @ 180C	114	mg/L		
SAR	1.30	ratio		
Total Alkalinity as CaCO3	102	mg/L		
Total Hardness as CaCO3	25.6	mg/L		
Bicarbonate as CaCO3	102	mg/L	1.7	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	0.340	mg/L	0.005	meq/L
Nitrite Nitrogen	0.120	mg/L	0.003	meq/L
Chloride	1.66	mg/L	0	meq/L
Fluoride	4.26	mg/L	0.224	meq/L
Phosphate	0.260	mg/L	0.008	meq/L
Sulfate	21.8	mg/L	0.45	meq/L
Iron	0.284	mg/L	0.010	meq/L
Calcium	6.33	mg/L	0	meq/L
Magnesium	2.39	mg/L	0	meq/L
Potassium	0.614	mg/L	0.0	meq/L
Sodium	15.0	mg/L	1	meq/L

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Weter And Waste Water", 18th ed., 1992.

Comments **Unlined Pond**

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-4	Date Reported:	08-13-12
Laboratory Number:	62815	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-08-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	8.60	s.u.		
Conductivity @ 25° C	137	umhos/cm		
Total Dissolved Solids @ 180C	150	mg/L		
SAR	2.60	ratio		
Total Alkalinity as CaCO3	150	mg/L		
Total Hardness as CaCO3	10.1	mg/L		
Bicarbonate as CaCO3	150	mg/L	2.5	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	< 0.01	mg/L	0.000	meq/L
Nitrite Nitrogen	< 0.01	mg/L	0.000	meq/L
Chloride	3.84	mg/L	0	meq/L
Fluoride	2.44	mg/L	0.128	meq/L
Phosphate	0.480	mg/L	0.015	meq/L
Sulfate	9.48	mg/L	0.20	meq/L
Iron	8.12	mg/L	0.291	meq/L
Calcium	1.96	mg/L	0	meq/L
Magnesium	1.27	mg/L	0	meq/L
Potassium	0.455	mg/L	0.0	meq/L
Sodium	18.7	mg/L	1	meq/L

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Unlined Pond**

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-5	Date Reported:	08-13-12
Laboratory Number:	62816	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-08-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	8.35	s.u.		
Conductivity @ 25° C	89.4	umhos/cm		
Total Dissolved Solids @ 180C	90.0	mg/L		
SAR	0.900	ratio		
Total Alkalinity as CaCO3	113	mg/L		
Total Hardness as CaCO3	40.8	mg/L		
Bicarbonate as CaCO3	113	mg/L	1.9	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	< 0.01	mg/L	0.000	meq/L
Nitrite Nitrogen	< 0.01	mg/L	0.000	meq/L
Chloride	0.780	mg/L	0	meq/L
Fluoride	1.70	mg/L	0.089	meq/L
Phosphate	0.460	mg/L	0.015	meq/L
Sulfate	4.20	mg/L	0.09	meq/L
Iron	3.30	mg/L	0.118	meq/L
Calcium	10.1	mg/L	1	meq/L
Magnesium	3.80	mg/L	0	meq/L
Potassium	1.66	mg/L	0.0	meq/L
Sodium	12.9	mg/L	1	meq/L

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Unlined Pond**

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-1	Date Reported:	08-14-12
Laboratory Number:	62812	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-13-12
Preservative:	Cool	Date Digested:	08-13-12
Condition:	Intact	Analysis Needed:	Total RCRA Metals
		Dilution	10

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	1.79	0.01
Barium	29.4	0.01
Cadmium	0.15	0.01
Chromium	1.60	0.01
Copper	3.52	0.01
Lead	4.09	0.01
Manganese	158	0.01
Mercury	0.05	0.01
Selenium	ND	0.01
Silver	ND	0.01
Zinc	10.6	0.01

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-2	Date Reported:	08-14-12
Laboratory Number:	62813	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-13-12
Preservative:	Cool	Date Digested:	08-13-12
Condition:	Intact	Analysis Needed:	Total RCRA Metals
		Dilution	10

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	1.21	0.01
Barium	11.7	0.01
Cadmium	0.09	0.01
Chromium	0.81	0.01
Copper	1.84	0.01
Lead	2.71	0.01
Manganese	136	0.01
Mercury	ND	0.01
Selenium	ND	0.01
Silver	ND	0.01
Zinc	5.34	0.01

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Unlined Pond**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs - 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-3	Date Reported:	08-14-12
Laboratory Number:	62814	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-13-12
Preservative:	Cool	Date Digested:	08-13-12
Condition:	Intact	Analysis Needed:	Total RCRA Metals
		Dilution	10

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**1.85**	**0.01**
Barium	**64.2**	**0.01**
Cadmium	**0.13**	**0.01**
Chromium	**1.47**	**0.01**
Copper	**3.03**	**0.01**
Lead	**3.14**	**0.01**
Manganese	**115**	**0.01**
Mercury	**0.09**	**0.01**
Selenium	**ND**	**0.01**
Silver	**ND**	**0.01**
Zinc	**7.92**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-4	Date Reported:	08-14-12
Laboratory Number:	62815	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-13-12
Preservative:	Cool	Date Digested:	08-13-12
Condition:	Intact	Analysis Needed:	Total RCRA Metals
		Dilution	10

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**1.21**	**0.01**
Barium	**19.3**	**0.01**
Cadmium	**0.12**	**0.01**
Chromium	**1.16**	**0.01**
Copper	**2.64**	**0.01**
Lead	**3.49**	**0.01**
Manganese	**143**	**0.01**
Mercury	**0.02**	**0.01**
Selenium	**ND**	**0.01**
Silver	**ND**	**0.01**
Zinc	**8.08**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Unlined Pond**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-5	Date Reported:	08-14-12
Laboratory Number:	62816	Date Sampled:	08-03-12
Chain of Custody:	14221	Date Received:	08-03-12
Sample Matrix:	Soil	Date Analyzed:	08-13-12
Preservative:	Cool	Date Digested:	08-13-12
Condition:	Intact	Analysis Needed:	Total RCRA Metals
		Dilution	10

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	1.33	0.01
Barium	28.2	0.01
Cadmium	0.12	0.01
Chromium	1.22	0.01
Copper	2.67	0.01
Lead	3.47	0.01
Manganese	143	0.01
Mercury	0.02	0.01
Selenium	ND	0.01
Silver	ND	0.01
Zinc	7.68	0.01

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Unlined Pond**

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS
Quality Control / Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	08-13-TM QA/QC	Date Reported:	08-14-12
Laboratory Number:	62901	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Analysis Requested:	Total Metals	Date Analyzed:	08-13-12
Condition:	N/A	Date Digested:	08-13-12
		Dilution	10

Blank & Duplicate Conc. (mg/Kg)	Instrument Blank (mg/L)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.01	3.25	3.16	2.68%	0% - 30%
Barium	ND	ND	0.01	58.0	56.3	2.98%	0% - 30%
Cadmium	ND	ND	0.01	0.21	0.21	0.00%	0% - 30%
Chromium	ND	ND	0.01	2.27	2.21	2.73%	0% - 30%
Copper	ND	ND	0.01	5.44	5.25	3.51%	0% - 30%
Lead	ND	ND	0.01	3.93	3.84	2.17%	0% - 30%
Mercury	ND	ND	0.01	0.01	0.01	0.00%	0% - 30%
Manganese	ND	ND	0.01	74.2	71.7	3.37%	0% - 30%
Selenium	ND	ND	0.01	0.11	0.10	12.6%	0% - 30%
Silver	ND	ND	0.01	ND	ND	0.00%	0% - 30%
Zinc	ND	ND	0.01	13.0	12.6	3.09%	0% - 30%

Spike Conc. (mg/Kg)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	2.50	3.25	5.57	96.9%	80% - 120%
Barium	5.00	58.0	57.1	90.6%	80% - 120%
Cadmium	2.50	0.21	2.56	94.5%	80% - 120%
Chromium	5.00	2.27	6.76	92.9%	80% - 120%
Copper	5.00	5.44	10.1	96.7%	80% - 120%
Lead	5.00	3.93	8.14	91.2%	80% - 120%
Mercury	1.00	0.01	0.96	95.2%	80% - 120%
Manganese	5.00	74.2	69.4	87.7%	80% - 120%
Selenium	1.00	0.11	1.08	97.6%	80% - 120%
Silver	1.00	ND	1.00	99.5%	80% - 120%
Zinc	5.00	13.0	17.0	94.5%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **QA/QC for Sample 62901, 62812-62816 and 62827**

envirotech
Analytical Laboratory

Water Analysis

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-1	Date Reported:	08-13-12
Laboratory Number:	62812	Date Sampled:	08-03-12
Sample Matrix:	Soil Extract	Date Received:	08-03-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Chain of Custody:	14221

Parameter	Analytical Result	Units
Cyanide (total)	**0.001**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Unlined Pond**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs - 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fx (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

envirotech
Analytical Laboratory

Water Analysis

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-2	Date Reported:	08-13-12
Laboratory Number:	62813	Date Sampled:	08-03-12
Sample Matrix:	Soil Extract	Date Received:	08-03-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Chain of Custody:	14221

Parameter	Analytical Result	Units
Cyanide (total)	**0.001**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Unlined Pond**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879

envirotech
Analytical Laboratory

Water Analysis

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-3	Date Reported:	08-13-12
Laboratory Number:	62814	Date Sampled:	08-03-12
Sample Matrix:	Soil Extract	Date Received:	08-03-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Chain of Custody:	14221

Parameter	Analytical Result	Units
Cyanide (total)	**0.001**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Unlined Pond**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs - 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fx (800) 362-1879

envirotech
Analytical Laboratory

Water Analysis

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-4	Date Reported:	08-13-12
Laboratory Number:	62815	Date Sampled:	08-03-12
Sample Matrix:	Soil Extract	Date Received:	08-03-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Chain of Custody:	14221

Parameter	Analytical Result	Units
Cyanide (total)	**0.012**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Unlined Pond**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs - 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fx (800) 362-1879

envirotech
Analytical Laboratory

Water Analysis

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	SB-5	Date Reported:	08-13-12
Laboratory Number:	62816	Date Sampled:	08-03-12
Sample Matrix:	Soil Extract	Date Received:	08-03-12
Preservative:	Cool	Date Analyzed:	08-13-12
Condition:	Intact	Chain of Custody:	14221

Parameter	Analytical Result	Units
Cyanide (total)	**0.001**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Unlined Pond**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs - 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
laboratory@envirotech-inc.com

CHAIN OF CUSTODY RECORD

14221

Client: Agua Moss

Project Name / Location: Unlined Pond

Email results to: Carrigo@envirotech-inc.com

Sampler Name: Chris Arrigo

Client Phone No.:

Client No.: 07117-0005

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative Cool	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion, CN^-	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
SB-1	8/3/12	8:55a	602812	1-4oz + 1qt bag			✓	X	X		X	X									X	X
SB-2	8/3/12	9:00a	602813	1-4oz + 1qt bag			✓	X	X		X	X									X	X
SB-3	8/3/12	9:10a	602814	1-4oz + 1qt bag			✓	X	X		X	X									X	X
SB-4	8/3/12	9:20a	602815	1-4oz + 1qt bag			✓	X	X		X	X									X	X
SB-5	8/3/12	9:30a	602816	1-4oz + 1qt bag			✓	X	X		X	X									X	X

(RCRA 8 Metals: + Cu, Mn, Zn)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	8/3/12	10:12a	[signature]	8/3/12	10:12am
Relinquished by: (Signature)			Received by: (Signature)		

Sample Matrix
Soil ☑ Solid ☐ Sludge ☐ Aqueous ☐ Other ☐ ________

☐ Sample(s) dropped off after hours to secure drop off area.

envirotech Analytical Laboratory

5795 US Highway 64 • Farmington, NM 87401 • 505-632-0615 • Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 • laboratory@envirotech-inc.com

PAGE NO: 1 OF 1

DATE STARTED: 8/3/12
DATE FINISHED: 8/3/12

envirotech

(505) 632-0615 (800) 362-1879
5796 U.S. Hwy 64, Farmington, NM 87401

ENVIRONMENTAL SPECIALIST: Chris Amigo
LAT: 36.757628
LONG: -108.072523

(Agua Moss) **FIELD REPORT: BGT / PIT CLOSURE VERIFICATION**

LOCATION: NAME: Unlined Evap. Pond WELL #: TEMP PIT: PERMANENT PIT: ✓ BGT:
LEGAL ADD: UNIT: SEC: 2 TWP: 29N RNG: 12W PM:
QTR/FOOTAGE: CNTY: San Juan ST: NM

EXCAVATION APPROX: 275 FT. X 285 FT. X 25 FT. DEEP CUBIC YARDAGE:
DISPOSAL FACILITY: REMEDIATION METHOD:
LAND OWNER: API: BGT / PIT VOLUME:
CONSTRUCTION MATERIAL: DOUBLE-WALLED, WITH LEAK DETECTION:

LOCATION APPROXIMATELY: FT. FROM WELLHEAD
DEPTH TO GROUNDWATER:

___ TEMPORARY PIT - GROUNDWATER 50-100 FEET DEEP
BENZENE ≤ 0.2 mg/kg, BTEX ≤ 50 mg/kg, GRO & DRO FRACTION (8015) ≤ 500 mg/kg, TPH (418.1) ≤ 2500 mg/kg, CHLORIDES ≤ 500 mg/kg

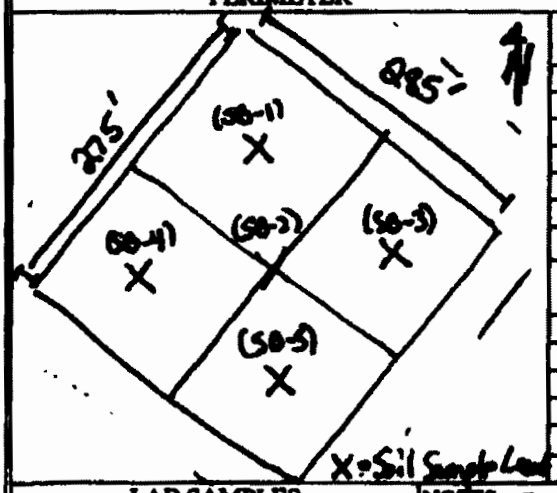
___ TEMPORARY PIT - GROUNDWATER ≥100 FEET DEEP
BENZENE ≤ 0.2 mg/kg, BTEX ≤ 50 mg/kg, GRO & DRO FRACTION (8015) ≤ 500 mg/kg, TPH (418.1) ≤ 2500 mg/kg, CHLORIDES ≤ 1000 mg/kg

✓ PERMANENT PIT OR BGT
BENZENE ≤ 0.2 mg/kg, BTEX ≤ 50 mg/kg, TPH (418.1) ≤ 100 mg/kg, CHLORIDES ≤ 250 mg/kg

FIELD 418.1 ANALYSIS

TIME	SAMPLE I.D.	LAB NO.	WEIGHT (g)	mL FREON	DILUTION	READING	CALC. (mg/kg)
	STD		-	-	-		
		1					
		2					
		3					
		4					
		5					
		6					

PERIMETER



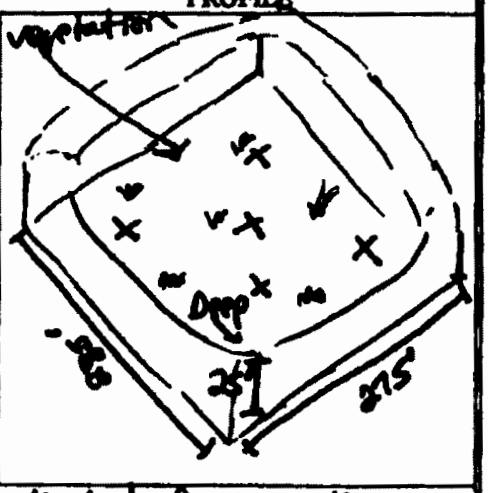
FIELD CHLORIDES RESULTS

SAMPLE ID	READING	CALC. (mg/kg)

PID RESULTS

SAMPLE ID	RESULTS (mg/kg)

PROFILE



LAB SAMPLES

SAMPLE ID	ANALYSIS	RESULTS
SB1-5	BENZENE	
SB1-5	BTEX	
SB1-5	GRO & DRO	
	CHLORIDES	
SB1-5	Metals	
SB1-5	Volatile Metals	

NOTES: Soil Samples were collected from 6" to 12" from the surface

SB-1: 36.757669, -108.072815
SB-2: 36.757608, -108.072523
SB-3: 36.757348, -108.072470
SB-4 36.757377, -108.072896
SB-5 36.757512, -108.072823

Ranking:

WORKORDER # WHO ORDERED

Jones, Brad A., EMNRD

From: Philana Thompson <pthompson@merrion.bz>
Sent: Tuesday, October 16, 2012 5:17 PM
To: Jones, Brad A., EMNRD
Cc: Steve Dunn; Butch Mathews; Jeff Davis; Bailey, Jami, EMNRD
Subject: unlined pond pre-closure analysis (email 1)
Attachments: Unlined pond closure report to ocd.pdf

Brad,
this is coming in four emails

--
Philana Thompson
Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171
office 505-324-5336

Agua Moss

October 16th, 2012

State Of New Mexico
Energy, Minerals and Natural Resources Department
1220 south St. Frances Drive
Santa Fe, NM 87505

Reference: Partial Facility Closure Un-lined Pond NM1-9
Agua Moss, L.L.C- Sunco Class I Injection Facility
S2, T29N, R12W
San Juan County, NM

Aqua Moss, LLC hereby requests that the Oil Conservation Division (OCD) issue final closure approval of the un-lined pond as outlined in the partial facility closure plan. We believe the data supports this request for the following reasons:

- The pond was never utilized as verified with both previous operators, Coleman Oil & Gas and Key Energy Services,
- The facility is located in an industrial area,
- Depth to groundwater within 1 mile of the location is greater than 94 feet,
- There are no contaminate levels in sufficient quantity that would impact groundwater or be a significant threat to public health or the environment based on NMAC, New Mexico Environment Department or EPA standards,
- TPH & Total BTEX are minimal to none, and are well below NMOCD standards,
- The analysis shows that all but four chemical elements are below background sampling. Where sample readings did exceed background levels, they did not do so in all the samples. In addition, all sample readings are reasonably close to background suggesting that they are representative of the native soil. (See attachment B).

Again, we request that the New Mexico OCD issue a final closure approval at your earliest convenience. If you should have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Philana Thompson
Regulatory Compliance Specialist
Agua Moss, LLC.
505-324-5336 office

Cc:
Ms. Jamie Bailey, NMOCD Director
Butch Mathews, Agua Moss, LLC
Jeff Davis, Agua Moss, LLC.
Steve Dunn, Merrion Oil & Gas Corporation

Crouch Mesa Disposal

Soil Sampling Results for unused Earthen Impoundment Closure

	Pond SB1	mg/kg	Pond SB2	mg/kg	Pond SB3	mg/kg	Pond SB4	mg/kg	Pond SB5	mg/kg	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Industrial Soil	Groundwater	Industrial Soil
Total Pet Hydrocarbons	ND		ND		ND		ND		ND		ND		ND	ND	ND		0.8	0.0008		
BTEX																				
Benzene	ND		ND		ND		ND		ND		ND		ND	ND	ND		ND			ND
Toluene (µg/Kg)	47.30	[illegible]	40.50	[illegible]	10.10	[illegible]	15.10	[illegible]	11.60	[illegible]	ND		ND	ND	1.7	0.0013	ND			45000
Ethylbenzene (µg/Kg)	ND		ND		ND		ND		ND		ND		ND	ND	2.9	0.0029	ND			27
Total Xylenes	42.80	[illegible]	62.70	[illegible]	12.00	0.012	22.50	[illegible]	11.60	0.0116	13.60	[illegible]	-	ND	13.1	0.0131	4.3	[illegible]		2700
Total BTEX (µg/Kg)	90.10	[illegible]	103.00	[illegible]	22.00	[illegible]	37.50	[illegible]	23.20	[illegible]	13.60	[illegible]	ND	ND	17.7	0.0177	4.3	[illegible]		
Other																				
Arsenic (mg/kg)	1.79		1.21		1.85		1.21		1.33		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			1.6
Barium (mg/kg)	29.40		11.70		64.20		19.30		28.20		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			190,000
Cadmium (mg/kg)	0.15		0.09		0.13		0.12		0.12		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			0098 ug/m air
Chromium (mg/kg)	1.60		0.81		1.47		1.16		1.22		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			1,500,000
Copper (mg/kg)	3.52		1.84		3.03		2.64		2.67		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			41,000
Lead (mg/kg)	4.09		2.71		3.14		3.49		3.47		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			800
Manganese (mg/kg)	158.00		136.00		115.00		143.00		143.00		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			23,000
Mercury (mg/kg)	0.05		ND		0.09		0.02		0.02		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			480
Selenium (mg/kg)	ND		ND		ND		ND		ND		[illegible]		[illegible]	[illegible]	ND		[illegible]			5100
Silver (mg/kg)	ND		ND		ND		ND		ND		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			5100
Zinc (mg/kg)	10.60		5.34		7.98		8.08		7.58		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			310000
Cyanide (mg/l)	0.001		0.001		0.002		[illegible]		0.001		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			610
pH	6.79		7.18		7.71		8.6		8.35		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			
Nitrate Nitrogen	[illegible]		0.01		0.34		0.01		0.01		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			1,600,000
Chloride mg/l	1.54		0.8		1.66		3.84		0.78		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			
Fluoride mg/l	[illegible]		1.38		[illegible]		2.44		1.7		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			91.4
Phosphate mg/l	2.94		0.38		0.26		0.48		0.46		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			
Sulfate mg/l	28.3		5.48		21.8		9.48		4.2		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			
Iron mg/l	0.491		0.995		0.284		[illegible]		[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			720000
Calcium mg/l	8.15		6.11		6.33		1.96		10.1		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			
Magnesium mg/l	3.76		2.55		2.39		1.27		3.8		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			
Potassium mg/l	0.268		0.519		0.614		0.455		1.66		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			
Sodium mg/l	8.39		7.15		15		18.7		12.9		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			
TDS mg/l	102		70		114		150		90		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]			

1) µg/Kg (micrograms/kilogram) is the same as ppb (parts per billion)
2) mg/Kg (milligrams/kilogram) is the same as ppm (parts per million)
3) mg/L (milligrams/Liter) is the same as ppm (parts per million)
4) SSL is NMED "Soil Screening Level" for TCLP Analysis

[redacted]

Attachment B

TPH & Total BTEX- None to below OCD limits & NMED limits

OTHER- below background levels, except for those listed below:

Cyanide- 1/5 detected

Background= .004 mg/kg
SB4= .012 mg/kg
NMED SSL= 22,700 mg/kg
OCD= .2 mg/l
EPA= 610 mg/kg

Conclusion- although over background levels the amount detected is well below OCD standards and is very close to the background sample.

Nitrate Nitrogen- 1/5 detected

Background= 23 mg/kg
SB1= 28.9 mg/kg
NMED SSL= 1,820,000 mg/kg
OCD= 10 mg/l
EPA= 1,600,000 mg/kg

Conclusion- the amount detected is very close to background levels. Well below EPA and NMED soil screening levels.

Fluoride- 2/5 detected-

Background= 3.4 mg/kg
SB1= 7.04 mg/kg
SB3= 4.26 mg/kg
NMED SSL= 68,100 mg/kg
OCD= 1.6 mg/l
EPA= 93.4 mg/kg

Conclusions- the amount detected is close to background levels. It is well below EPA and NMED soil screening levels.

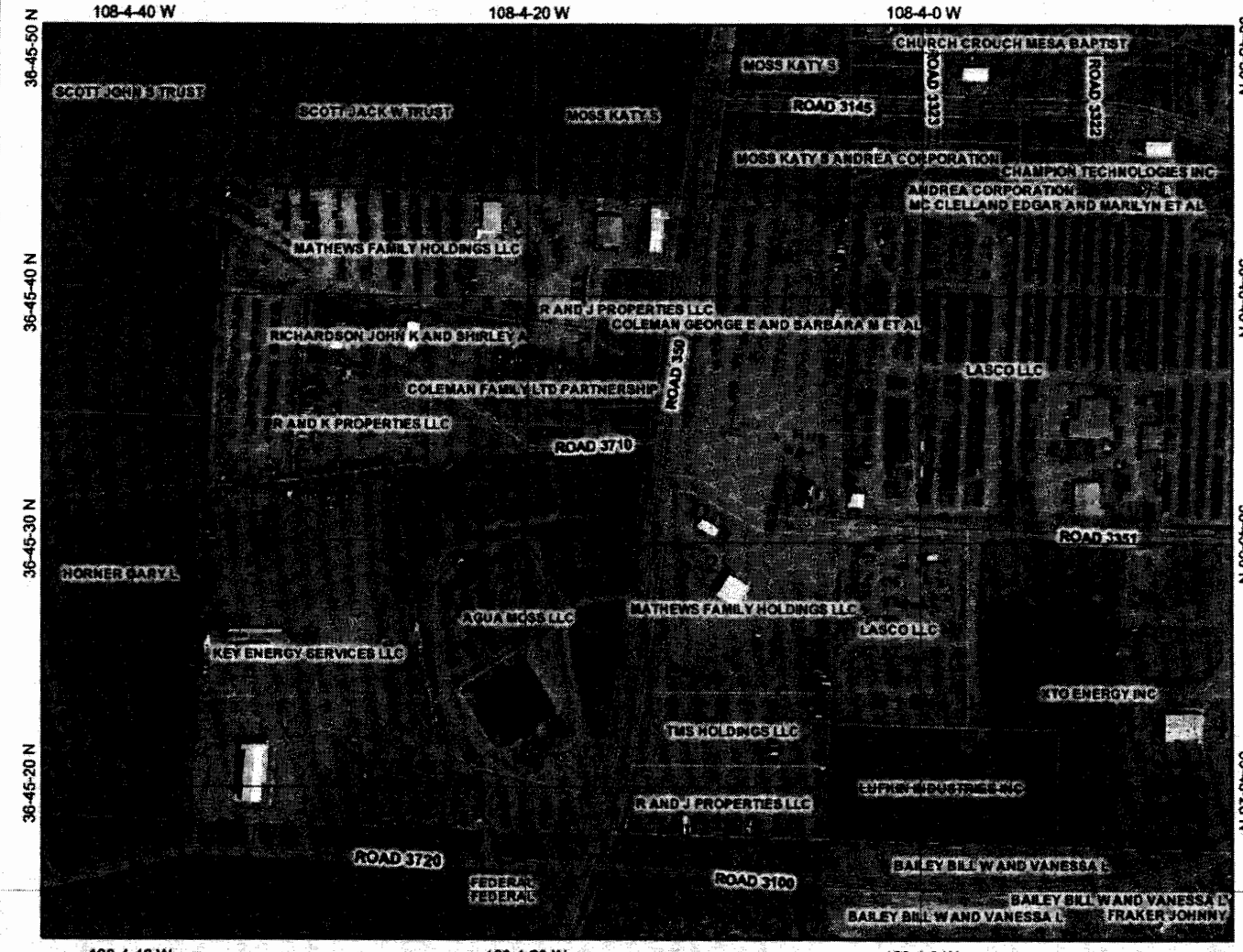
Iron- 2/5 detected-

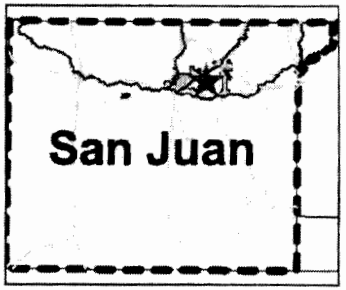
Background= .105 mg/kg
SB4= 8.12 mg/kg
SB5= 3.3 mg/kg
NMED SSL= 795,000 mg/kg
OCD= 1 mg/l
EPA= 720,000 mg/kg

Conclusions- the amount detected is close to background levels. It is well below EPA and NMED soil screening levels.

Industrial area

Internet Mapping Framework





Legend

- Township/Range
- PLSS SECTIONS
- Quarter Sections
- RIVERS
- LAKES
- FARMINGTON CITY LIMITS
- SJC Road Status
- Major Roads
- Private
- County Maintained
- Limited County Maintained
- City
- Oil and Gas roads
- ROADS
- SAN JUAN COUNTY
- NAVAJO RESERVATION
- PARCELS
- 2009 aerials

Map center: 36° 45' 32.4" N, 108° 4' 14.4" W

Scale: 1:8,040

Jones, Brad A., EMNRD

From: Philana Thompson <pthompson@merrion.bz>
Sent: Thursday, October 04, 2012 8:56 AM
To: Jones, Brad A., EMNRD
Subject: Fwd: Agua Moss un-lined pond background results
Attachments: agua moss unlined pit closure.pdf

Brad, I sent this to Carl by mistake. Glad the week is almost over....

---------- Forwarded message ----------
From: **Philana Thompson** <pthompson@merrion.bz>
Date: Wed, Oct 3, 2012 at 4:07 PM
Subject: Agua Moss un-lined pond background results
To: "Chavez, Carl J, EMNRD" <carlj.chavez@state.nm.us>

Please see attached

--
Philana Thompson
Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171
office 505-324-5336

--
Philana Thompson
Regulatory Compliance
Merrion Oil & Gas Corp
cell 505-486-1171
office 505-324-5336

MERRION

October 3, 2012

Carl Chavez
New Mexico OCD
1220 South St. Frances Drive
Santa Fe, NM 87505

Carl,

Please find attached our back ground soil sampling results from two different locations at the Sunco Disposal facility. I have also included a spreadsheet with all the analytical results from the soil samples along with the NMED soil screening levels for comparison.

In reviewing the results, and using the Industrial/Occupational Soil levels, it appears that all the samples provided are below the NMED Soil Screening Levels.

Please contact me if you have any questions or concerns.

Sincerely,

Philana Thompson
Regulatory Compliance Specialist
505-486-1171 cell
505-324-5336 offc

610 Reilly Avenue
Farmington, NM 87401
main 505.324.5300
fax 505.324.5350

Crouch Mesa Disposal

Soil Sampling Results for unused Earthen Impoundment Closure

						New Background		Original Background		
	Pond SB1	Pond SB2	Pond SB3	Pond SB4	Pond SB5	NW corner	SE Corner	History 1	History 2	NMED SSL mg/kg
Total Pet Hydrocarbons	ND	ND	ND	ND	ND	ND	ND	1.7 mg/kg	1.0 mg/kg	
BTEX										
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	85.4
Toluene (µg/Kg)	147.30	40.50	10.10	15.10	11.60	ND	ND	89.70	56.60	57,900
Ethylbenzene (µg/Kg)	ND	ND	ND	ND	ND	ND	ND	40.90	10.60	385
p,m-Xylene (µg/Kg)	42.80	47.90	12.00	22.50	11.60	ND	ND	278.00	71.60	27,200
o-Xylene (µg/Kg)	ND	14.8	ND	ND	ND	13.60	ND	123.00	32.70	31,500
Total BTEX (µg/Kg)	**190.10**	**103.20**	**22.10**	**37.60**	**23.20**	**13.60**	**ND**	**532.00**	**182.00**	
(mg/kg)	**0.1901**	**0.1032**	**0.0221**	**0.0376**	**0.0232**	**0.0136**	**ND**	**0.5320**	**0.1820**	117,070
Other										
Arsenic (mg/kg)	1.79	1.21	1.85	1.21	1.33	3.65	4.16	ND	ND	17.7
Barium (mg/kg)	29.40	11.70	64.20	19.30	28.20	318.00	231.00	138.00	442.00	224,000
Cadmium (mg/kg)	0.15	0.09	0.13	0.12	0.12	0.66	0.49	0.20	0.63	1,120
Chromium (mg/kg)	1.60	0.81	1.47	1.16	1.22	9.25	8.63	1.68	1.83	1,570,000
Copper (mg/kg)	3.52	1.84	3.03	2.64	2.67	14.00	6.68			45,400
Lead (mg/kg)	4.09	2.71	3.14	3.49	3.47	22.30	11.80	3.12	3.42	800
Manganese (mg/kg)	158.00	136.00	115.00	143.00	143.00	298.00	218.00			145,000
Mercury (mg/kg)	0.05	ND	0.09	0.02	0.02	0.22	0.41	ND	ND	49.9
Selenium (mg/kg)	ND	ND	ND	ND	ND	0.73	0.46	ND	ND	5,680
Silver (mg/kg)	ND	ND	ND	ND	ND	0.50	ND	ND	ND	5,680
Zinc (mg/kg)	10.60	5.34	7.98	8.08	7.68	54.90	21.90			341,000
Cyanide (mg/l)	0.001	0.001	0.001	0.012	0.001	0.002	0.004			22,700

Notes: 1) µg/Kg (micrograms/kilogram) is the same as ppb (parts per billion)
2) mg/Kg (milligrams/kilogram) is the same as ppm (parts per million)
3) mg/L (milligrams/Liter) is the same as ppm (parts per million)
4) SSL is NMED "Soil Screening Levels" for TCLIP Analysis

envirotech

September 26, 2012 Project Number: 07117-0005

Ms. Philana Thompson
Regulatory Compliance
Agua Moss
345 CR 350
Farmington, New Mexico 87401 Phone: (505)-324-5336

RE: BACKGROUND SOIL SAMPLING AND ANALYTICAL RESULTS, AGUA MOSS, SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Thompson:

Please find enclosed the analytical results and aerial maps for the Agua Moss background samples located in Section 2, Township 29 North, Range 12 West, San Juan County, New Mexico. Activities included sample collection and analysis, documentation and reporting in alignment with the information and locations provided by Agua Moss.

If you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully Submitted,
ENVIROTECH, INC.

Christopher Arrigo
Environmental Scientist
carrigo@envirotech-inc.com

Enclosure: Analytical Results
Figure 1: Southeast Corner
Figure 2: Northwest Corner

Cc: Client File Number: 07117

Source: 2012 Google Earth,, San Juan County, New Mexico

LEGEND
● Background Soil Sample

envirotech
ENVIRONMENTAL SCIENTISTS & ENGINEERS

5796 U.S. HIGHWAY 64
Farmington, New Mexico 87401
505.632.0615

Figure 1
Agua Mos
Aerial Map - Southeast Corner
Section 2, Township 29 N, Range 12 W
San Juan County, New Mexico

PROJECT Number:07117-0005 | Date Drawn: 09/24/12 | DRAWN BY: Christopher Aaigo | PROJECT MANAGER: Greg Crabtree

Source: Google Earth, 2012, San Juan County, New Mexico

LEGEND
● Background Soil Sample

envirotech
ENVIRONMENTAL SCIENCES & ENGINEERS

5796 U.S. HIGHWAY 64
Farmington, New Mexico 87401
505.632.0615

Figure 2
Agua Moss
Aerial Map - Northwest Corner
Section 2, Township 29 N, Range 12 W
San Juan County, New Mexico

PROJECT Number:07117-0005	Date Drawn: 09/24/12	DRAWN BY: Christopher Artigo	PROJECT MANAGER: Greg Crabtree

envirotech
Analytical Laboratory

Report Summary

Client: Agua Moss

Chain of Custody Number: 14447

Samples Received: 09-17-12

Job Number: 07117-0005

Sample Number(s): 63243-63244

Project Name/Location: Background Samples

Entire Report Reviewed By: _____ Date: 9/25/12

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5pt Comp SE Corner	Date Reported:	09-19-12
Laboratory Number:	63243	Date Sampled:	09-17-12
Chain of Custody No:	14447	Date Received:	09-17-12
Sample Matrix:	Soil	Date Extracted:	09-17-12
Preservative:	Cool	Date Analyzed:	09-18-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Background Samples**

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5pt Comp NW Corner	Date Reported:	09-19-12
Laboratory Number:	63244	Date Sampled:	09-17-12
Chain of Custody No:	14447	Date Received:	09-17-12
Sample Matrix:	Soil	Date Extracted:	09-17-12
Preservative:	Cool	Date Analyzed:	09-18-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Background Samples**

envirotech
Analytical Laboratory

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	0918TCAL QA/QC	Date Reported:	09-19-12
Laboratory Number:	63194	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-18-12
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	09-18-12	9.9960E+02	1.0000E+03	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	09-18-12	9.9960E+02	1.0000E+03	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**2.6**	**3.2**	**23.1%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**265**	**106%**	**75 - 125%**
Diesel Range C10 - C28	**2.6**	**250**	**270**	**107%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Was SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 63194-63203 and 63242-63244**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5pt. Comp SE Corner	Date Reported:	09-19-12
Laboratory Number:	63243	Date Sampled:	09-17-12
Chain of Custody:	14447	Date Received:	09-17-12
Sample Matrix:	Soil	Date Analyzed:	09-19-12
Preservative:	Cool	Date Extracted:	09-17-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**ND**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**ND**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**84.5 %**
	1,4-difluorobenzene	**87.2 %**
	Bromochlorobenzene	**103 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Background Samples**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5pt. Comp NW Corner	Date Reported:	09-19-12
Laboratory Number:	63244	Date Sampled:	09-17-12
Chain of Custody:	14447	Date Received:	09-17-12
Sample Matrix:	Soil	Date Analyzed:	09-19-12
Preservative:	Cool	Date Extracted:	09-17-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	50

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**10.0**
Toluene	**ND**	**10.0**
Ethylbenzene	**ND**	**10.0**
p,m-Xylene	**13.6**	**10.0**
o-Xylene	**ND**	**10.0**
Total BTEX	**13.6**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**83.7 %**
	1,4-difluorobenzene	**96.1 %**
	Bromochlorobenzene	**88.3 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846 USEPA, December 1996.

Comments: **Background Samples**

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0919BCAL QA/QC	Date Reported:	09-19-12
Laboratory Number:	63184	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-19-12
Condition:	N/A	Analysis:	BTEX
		Dilution:	50

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0-15%	Blank Conc	Detect. Limit
Benzene	9.4668E-06	9.4668E-06	0.000	ND	0.2
Toluene	9.0840E-06	9.0840E-06	0.000	ND	0.2
Ethylbenzene	1.0248E-05	1.0248E-05	0.000	ND	0.2
p,m-Xylene	7.3297E-06	7.3297E-06	0.000	ND	0.2
o-Xylene	1.0222E-05	1.0222E-05	0.000	ND	0.2

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.00	0 - 30%	10
Toluene	20.9	33.3	0.59	0 - 30%	10
Ethylbenzene	12.5	12.7	0.02	0 - 30%	10
p,m-Xylene	70.9	81.5	0.15	0 - 30%	10
o-Xylene	14.3	14.7	0.03	0 - 30%	10

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	2500	2770	111	39 - 150
Toluene	20.9	2500	2840	113	46 - 148
Ethylbenzene	12.5	2500	2820	112	32 - 160
p,m-Xylene	70.9	5000	5590	110	46 - 148
o-Xylene	14.3	2500	2760	110	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photolonization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 63184-63187, 63229 and 63243-63244

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory.envirotech-inc.com

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5pt. Comp SE Corner	Date Reported:	09-20-12
Laboratory Number:	63243	Date Sampled:	09-17-12
Chain of Custody:	14447	Date Received:	09-17-12
Sample Matrix:	Soil	Date Analyzed:	09-18-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	**7.78**	s.u.		
Conductivity @ 25° C	**476**	umhos/cm		
Total Dissolved Solids @ 180C	**332**	mg/L		
SAR	**1.50**	ratio		
Total Alkalinity as CaCO3	**98.0**	mg/L		
Total Hardness as CaCO3	**124**	mg/L		
Bicarbonate as CaCO3	**98.0**	mg/L	1.6	meq/L
Carbonate as CaCO3	**< 0.01**	mg/L	0.000	meq/L
Hydroxide as CaCO3	**< 0.01**	mg/L	0.001	meq/L
Nitrate Nitrogen	**21.6**	mg/L	0.348	meq/L
Nitrite Nitrogen	**< 0.01**	mg/L	0.000	meq/L
Chloride	**38.2**	mg/L	1	meq/L
Fluoride	**2.01**	mg/L	0.106	meq/L
Phosphate	**< 0.01**	mg/L	0.000	meq/L
Sulfate	**247**	mg/L	5.15	meq/L
Iron	**< 0.01**	mg/L	0.000	meq/L
Calcium	**36.5**	mg/L	2	meq/L
Magnesium	**7.90**	mg/L	1	meq/L
Potassium	**3.68**	mg/L	0.1	meq/L
Sodium	**39.4**	mg/L	2	meq/L

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Background Samples**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs - 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5pt. Comp NW Corner	Date Reported:	09-20-12
Laboratory Number:	63244	Date Sampled:	09-17-12
Chain of Custody:	14447	Date Received:	09-17-12
Sample Matrix:	Soil	Date Analyzed:	09-18-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	**7.69**	s.u.		
Conductivity @ 25° C	**368**	umhos/cm		
Total Dissolved Solids @ 180C	**288**	mg/L		
SAR	**0.400**	ratio		
Total Alkalinity as CaCO3	**87.0**	mg/L		
Total Hardness as CaCO3	**121**	mg/L		
Bicarbonate as CaCO3	**87.0**	mg/L	1.4	meq/L
Carbonate as CaCO3	**< 0.01**	mg/L	0.000	meq/L
Hydroxide as CaCO3	**< 0.01**	mg/L	0.001	meq/L
Nitrate Nitrogen	**23.0**	mg/L	0.371	meq/L
Nitrite Nitrogen	**< 0.01**	mg/L	0.000	meq/L
Chloride	**40.1**	mg/L	1	meq/L
Fluoride	**< 0.01**	mg/L	0.001	meq/L
Phosphate	**3.40**	mg/L	0.107	meq/L
Sulfate	**34.6**	mg/L	0.72	meq/L
Iron	**< 0.01**	mg/L	0.000	meq/L
Calcium	**37.9**	mg/L	2	meq/L
Magnesium	**6.52**	mg/L	1	meq/L
Potassium	**12.9**	mg/L	0.3	meq/L
Sodium	**10.8**	mg/L	0	meq/L

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Background Samples**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

envirotech
Analytical Laboratory

Water Analysis

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5 pt. Comp SE Corner	Date Reported:	09-20-12
Laboratory Number:	63243	Date Sampled:	09-17-12
Sample Matrix:	Soil Extract	Date Received:	09-17-12
Preservative:	Cool	Date Analyzed:	09-19-12
Condition:	Intact	Chain of Custody:	14447

Parameter	Analytical Result	Units
Cyanide (total)	**0.004**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Background Samples**

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs - 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
laboratory@envirotech-inc.com

envirotech
Analytical Laboratory

Water Analysis

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5 pt. Comp NW Corner	Date Reported:	09-20-12
Laboratory Number:	63244	Date Sampled:	09-17-12
Sample Matrix:	Soil Extract	Date Received:	09-17-12
Preservative:	Cool	Date Analyzed:	09-19-12
Condition:	Intact	Chain of Custody:	14447

Parameter	Analytical Result	Units
Cyanide (total)	**0.002**	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Background Samples**

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5pt Comp SE Corner	Date Reported:	09-24-12
Laboratory Number:	63243	Date Sampled:	09-17-12
Chain of Custody:	14447	Date Received:	09-17-12
Sample Matrix:	Soil	Date Analyzed:	09-21-12
Preservative:	Cool	Date Digested:	09-19-12
Condition:	Intact	Analysis Needed:	Total RCRA Metals
		Dilution	100

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**4.16**	**0.01**
Barium	**231**	**0.01**
Cadmium	**0.49**	**0.01**
Chromium	**8.63**	**0.01**
Copper	**6.68**	**0.01**
Lead	**11.8**	**0.01**
Mercury	**0.41**	**0.01**
Manganese	**218**	**0.01**
Selenium	**0.46**	**0.01**
Silver	**ND**	**0.01**
Zinc	**21.9**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Background Samples**

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Agua Moss	Project #:	07117-0005
Sample ID:	5pt Comp NW Corner	Date Reported:	09-24-12
Laboratory Number:	63244	Date Sampled:	09-17-12
Chain of Custody:	14447	Date Received:	09-17-12
Sample Matrix:	Soil	Date Analyzed:	09-21-12
Preservative:	Cool	Date Digested:	09-19-12
Condition:	Intact	Analysis Needed:	Total RCRA Metals
		Dilution	100

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**3.65**	**0.01**
Barium	**318**	**0.01**
Cadmium	**0.66**	**0.01**
Chromium	**9.25**	**0.01**
Copper	**14.0**	**0.01**
Lead	**22.3**	**0.01**
Mercury	**0.22**	**0.01**
Manganese	**298**	**0.01**
Selenium	**0.73**	**0.01**
Silver	**0.50**	**0.01**
Zinc	**54.9**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Background Samples**

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS
Quality Control / Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	09-21-TM QA/QC	Date Reported:	09-24-12
Laboratory Number:	63243	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Analysis Requested:	Total Metals	Date Analyzed:	09-21-12
Condition:	N/A	Date Digested:	09-19-12
		Dilution	100

Blank & Duplicate Conc. (mg/Kg)	Instrument Blank (mg/L)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.01	4.16	4.14	0.43%	0% - 30%
Barium	ND	ND	0.01	231	232	0.78%	0% - 30%
Cadmium	ND	ND	0.01	0.49	0.50	1.57%	0% - 30%
Chromium	ND	ND	0.01	8.63	8.68	0.51%	0% - 30%
Copper	ND	ND	0.01	6.68	6.37	4.61%	0% - 30%
Lead	ND	ND	0.01	11.8	11.9	0.68%	0% - 30%
Mercury	ND	ND	0.01	0.41	0.37	10.1%	0% - 30%
Manganese	ND	ND	0.01	218	220	1.06%	0% - 30%
Selenium	ND	ND	0.01	0.46	0.44	5.86%	0% - 30%
Silver	ND	ND	0.01	ND	ND	0.00%	0% - 30%
Zinc	ND	ND	0.01	21.9	22.2	1.14%	0% - 30%

Spike Conc. (mg/Kg)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	25.0	4.16	28.8	98.8%	80% - 120%
Barium	500	231	760	104%	80% - 120%
Cadmium	25.0	0.49	24.3	95.3%	80% - 120%
Chromium	50.0	8.63	55.8	95.1%	80% - 120%
Copper	50.0	6.68	56.4	99.4%	80% - 120%
Lead	50.0	11.8	57.0	92.2%	80% - 120%
Mercury	10.0	0.41	10.1	97.0%	80% - 120%
Manganese	50.0	218	231	86.1%	80% - 120%
Selenium	10.0	0.46	9.70	92.8%	80% - 120%
Silver	10.0	ND	10.4	104%	80% - 120%
Zinc	50.0	21.9	70.1	97.5%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **QA/QC for Sample 63243-63244, 63268-63272, and 63275**

14447

CHAIN OF CUSTODY RECORD

Client:	Project Name / Location:
Agua Moss	Background Samples
Email results to:	Sampler Name:
carrigo@envirotech-inc.com	Chris Arrigo
Client Phone No.:	Client No.: 07117-0005

Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative cool	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion, CV	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
Spt. Comp SE Corner	9/17/12	8:45am	63243	1-4oz			X	X	X		X	X									X	X
Spt. Comp NW Corner	9/17/12	9:00am	63244	1-4oz			X	X	X		X	X									X	X
											↓											
											+Cu, Mn, Zn											

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	9/17/12	9:45am		9/17/12	9:54
Relinquished by: (Signature)			Received by: (Signature)		

Sample Matrix

Soil ☑ Solid ☐ Sludge ☐ Aqueous ☐ Other ☐ _____

☐ Sample(s) dropped off after hours to secure drop off area.

envirotech
Analytical Laboratory

5795 US Highway 64 • Farmington, NM 87401 • 505-632-0615 • Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 • laboratory@envirotech-inc.com

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

John Bemis
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division

July 31, 2012

Ms. Philana Thompson
Agua Moss, L.L.C.
P.O. Box 600
Farmington, New Mexico 87499

RE: Partial Facility Closure Plan Review
Agua Moss, L.L.C. - Commercial Surface Waste Management Facility
Permit NM-1-009: Sunco Class I Injection Facility
Location: Section 2, Township 29 North, Range 12 West, NMPM
San Juan County, New Mexico

Dear Ms. Thompson:

The Oil Conservation Division (OCD) has reviewed Agua Moss, L.L.C.'s (Agua Moss) partial facility closure plan, dated July 18, 2012, for the closure of the unlined earthen evaporation pond at the OCD permitted commercial surface waste management facility: Sunco Class I Injection Facility Permit NM-1-009. Based on the information provided, the partial facility closure plan **is hereby approved** with the following understandings and conditions:

1. Agua Moss shall comply with all applicable requirements of the Surface Waste Management Facilities Rule (19.15.36 NMAC), the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), and all conditions specified in this approval;

2. Agua Moss shall ensure that the closure activities identified in the July 18, 2012 submittal are completed as proposed in the closure plan;

3. Agua Moss shall excavate and remove any visual surface contamination within and surrounding the unlined earthen evaporation pond footprint. The contaminated soils shall be disposed at an OCD approved facility;

4. Agua Moss shall ensure that any backfilling and contouring at the facility shall be completed in a manner to prevent erosion and ponding of water;

5. Agua Moss shall obtain the appropriate permit modification request approvals prior to implementing the alternative to re-vegetation as proposed in the July 18, 2012 partial facility closure plan;

6. Agua Moss shall submit a closure report at the completion of the closure activities that summarizes the closure activities, including but not limited to, identification of material disposal facilities; sampling results; backfilling and contouring activities; a contour map; the alternative to re-vegetation; re-vegetation seeding mixture and application rates; and photo documentation;

7. Agua Moss shall submit a permit modification request, including associated closure plans, and obtain OCD approval prior to relocating any features approved under Permit NM-1-009; and

8. Agua Moss shall submit a permit modification request and obtain OCD approval prior to removing and/or relocating any features approved under the Permit UICI-005. Such requests should be submitted to Mr. Carl Chavez of the Environmental Bureau in OCD's Santa Fe office.

Please be advised that approval of this request does not relieve Agua Moss of liability if its operations result in pollution of surface water, ground water, or the environment. Nor does approval relieve Agua Moss of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,

Brad A. Jones
Environmental Engineer

BAJ/baj

cc: OCD District III Office, Aztec
Carl Chavez, OCD Environmental Bureau, Santa Fe
Merrion Oil & Gas Corp., Philana Thompson, 610 Reilly Ave., Farmington NM 87401

Partial Closure Plan

Unlined Evaporation Pond

NM1-9

Agua Moss, LLC

PO Box 600

Farmington, NM 87499

July 18th 2012

Action	Estimated Schedule
Effective Date of Closure	Date the NMOCD grants approval
Samples collected and analyzed	Within 5 days of closure approval
Results from soil samples submitted to NMOCD and requests to either dispose of the soil or begin to backfill pond.	Within 2 days of receiving analytical results
Begin backfilling pond	Approximately 3 weeks

Agua Moss, LLC

PO Box 600

Farmington, NM 87499

Future Surface (NM1-009):

1) Requesting partial closure to NM1-9. Agua Moss, LLC requests to close the unused, unlined earthen evaporation pond in compliance with regulations and the facility permit. (closure plan attached)
2) Closure of other surface sites permitted under NM1-009 will be submitted pursuant to the conditions specified in Permit NM1-009 and the applicable provisions of 19.15.36 NMAC prior to closure at a later date.
3) Re-locate the above grade tank battery, below grade sumps (on steel impoundment #1 that has a shale shaker attached, the shaker will be removed before re-location. The plans for removal and re-location will be outlined in a separate plan to be submitted to the NMOCD NM1-009) and office to a location near the injection well to reduce the footprint of the final disposal facility. A separate permit modification with closure plan request will be submitted under NM1-009 for relocation of the below grade sumps.

The Sunco Class I Injection facility covers approximately 3.9 acres. The majority of the property is bare ground. Trucks enter the facility from County Road 3500.

Partial Closure Plan~ Unlined Evaporation Pond NM1-9

A. Pond and pit closure. Agua Moss, LLC shall ensure that:
   1) There are no liquids in the unlined evaporation pond
   2) There is no equipment associated with the unlined evaporation pond that will need to be removed.
   3) The site of the un-lined evaporation pond will be sampled, in accordance with the procedures specified in chapter nine of EPA publication SW-846, test methods for evaluating solid waste, physical/chemical methods for TPH, BTEX, metals and other inorganics listed in Subsections A and B of 20.6.2.3103 NMAC, in accordance with a gridded plat of the site containing at least four equal sections that the division has approved **(see attachment A testing plans and plat)**; and
   4) The sample results will be submitted to the environmental bureau in the division's Santa Fe office.
   5) The un-lined evaporation pond will then be backfilled with non waste containing earthen material, and the surface will be restored as outlined in attached diagrams.

B. Un-lined evaporation pond post closure: The post closure for this un-lined pond will not occur until the entire surface facility is closed. If there has been a release discovered during closure of this un-lined pond to the vadose zone or to ground water, then Agua Moss, LLC shall comply with the applicable requirements of Remediation 19.15.30 NMAC and Release Notification 19.15.29 NMAC.

C. 19.15.36.18 G Alternatives to re-vegetation. If the landowner contemplates use of the land where a cell or surface waste management facility is located for purposes inconsistent with re-vegetation, the landowner may, with division approval, implement an alternative surface treatment appropriate for the contemplated use, provided that the alternative treatment will effectively prevent erosion. If the division approves an alternative to re-vegetation, it shall not release the portion of the operator's financial assurance reserved for post-closure until the landowner has obtained necessary regulatory approvals and begun implementation of such alternative use.
   1) Agua Moss, LLC plans to utilize the surface facility where the un-lined evaporation pond is located for placement of tank battery and office facility so that it is closer to the injection well to reduce the footprint of the final disposal facility layout, therefore re-vegetation of the location of the current un-lined evaporation pond would be inconsistent with re-vegetation for the planned future use of the facility. Agua Moss, LLC would like to request division approval to implement an alternative surface treatment consistent with the facilities future use. **(see attachment C Sediment and Erosion prevention plan)**

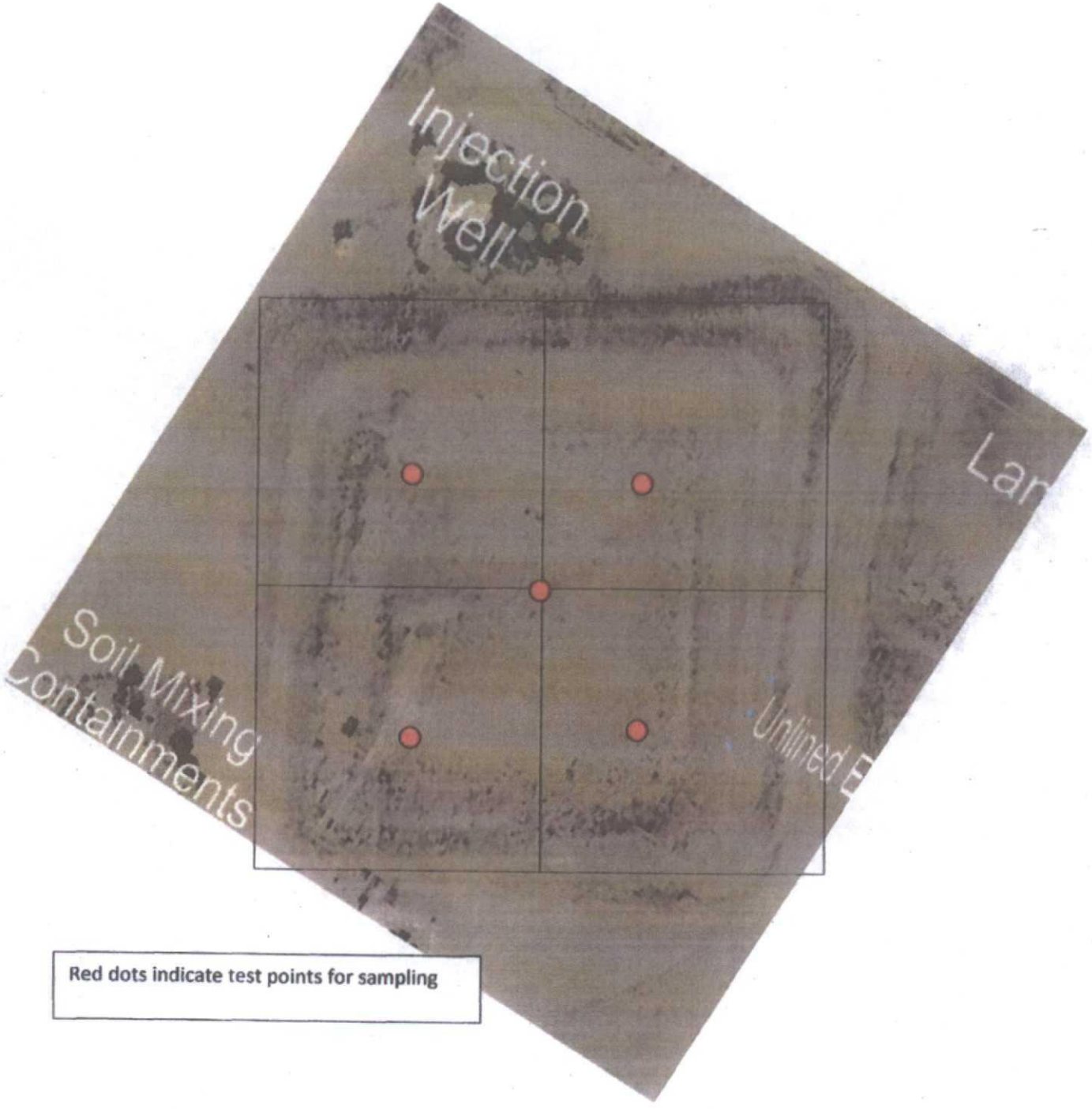
Attachment A

Soil Sampling

1. Sampling will be conducted by a third party operator:

   Envirotech, Inc.
   5796 HWY 64
   Farmington, NM 87401
   (505) 632-0615

2. Collect soil sample from 6" to 12" from the surface.
3. The site of the un-lined evaporation pond will be sampled, in accordance with the procedures specified in chapter nine of EPA publication SW-846, test methods for evaluating solid waste, physical/chemical methods for TPH, BTEX, metals and other inorganics listed in Subsections A and B of 20.6.2.3103 NMAC, in accordance with a gridded plat of the site containing at least four equal sections that the division has approved.
4. Sample results will be provided to the Santa Fe Environmental Bureau prior to backfilling the unlined evaporation pond.
5. In the event that the samples show that they are above acceptable standards then Agua Moss, LLC shall comply with the applicable requirements of 19.15.29 NMAC and/or 19.15.30 NMAC.



Red dots indicate test points for sampling

Attachment C

Sediment and Erosion Control Plan

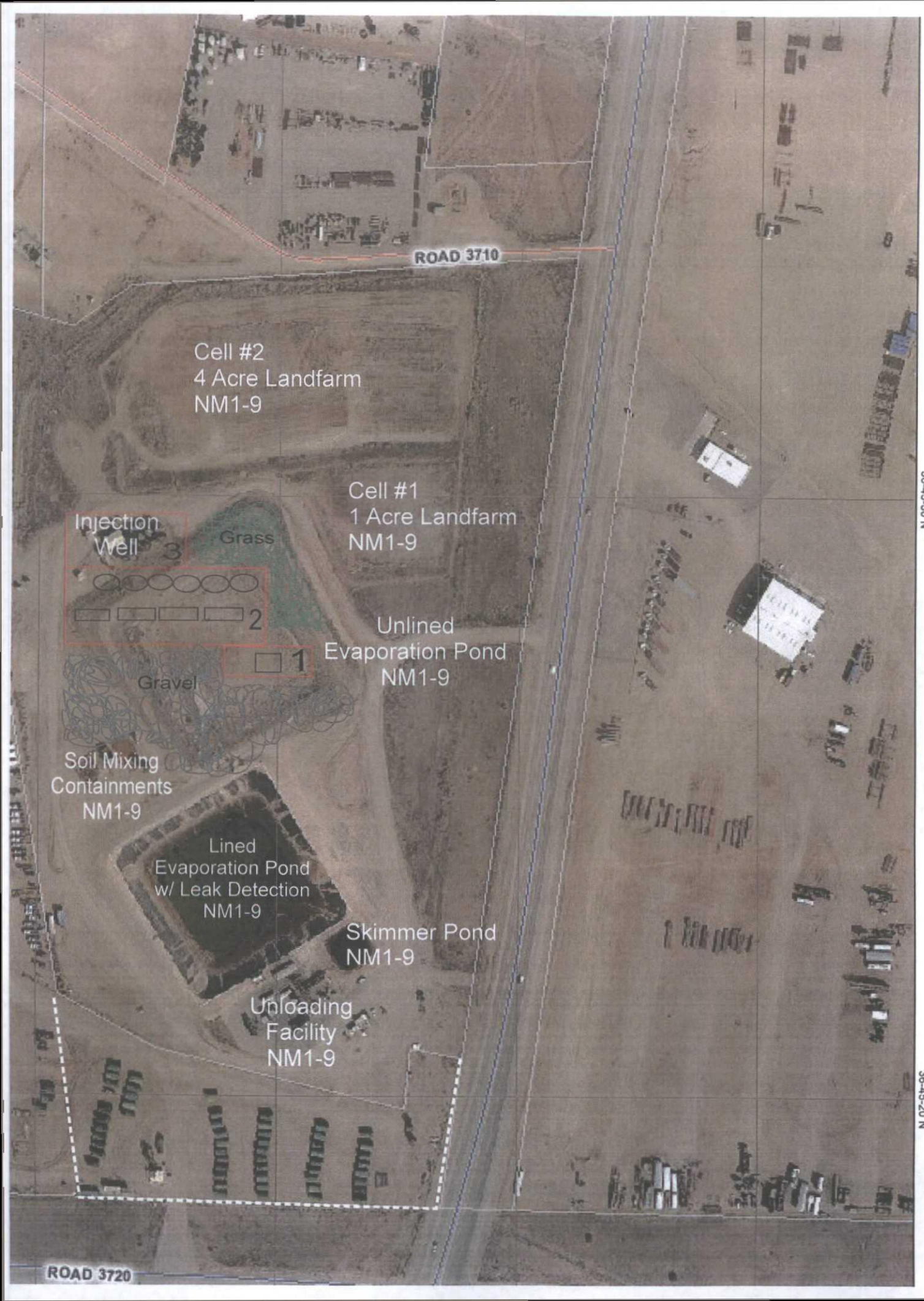
Drainage at the site is primarily by sheet flow to the north. The site is relatively flat with drainage to the west from the south end of the facility, and from the north end of the facility drainage would be north. If significant erosion begins to occur at the Sunco Facility area, this section will be updated to include a description of the structural, vegetative, and/or stabilization BMP's that will be implemented to limit erosion.

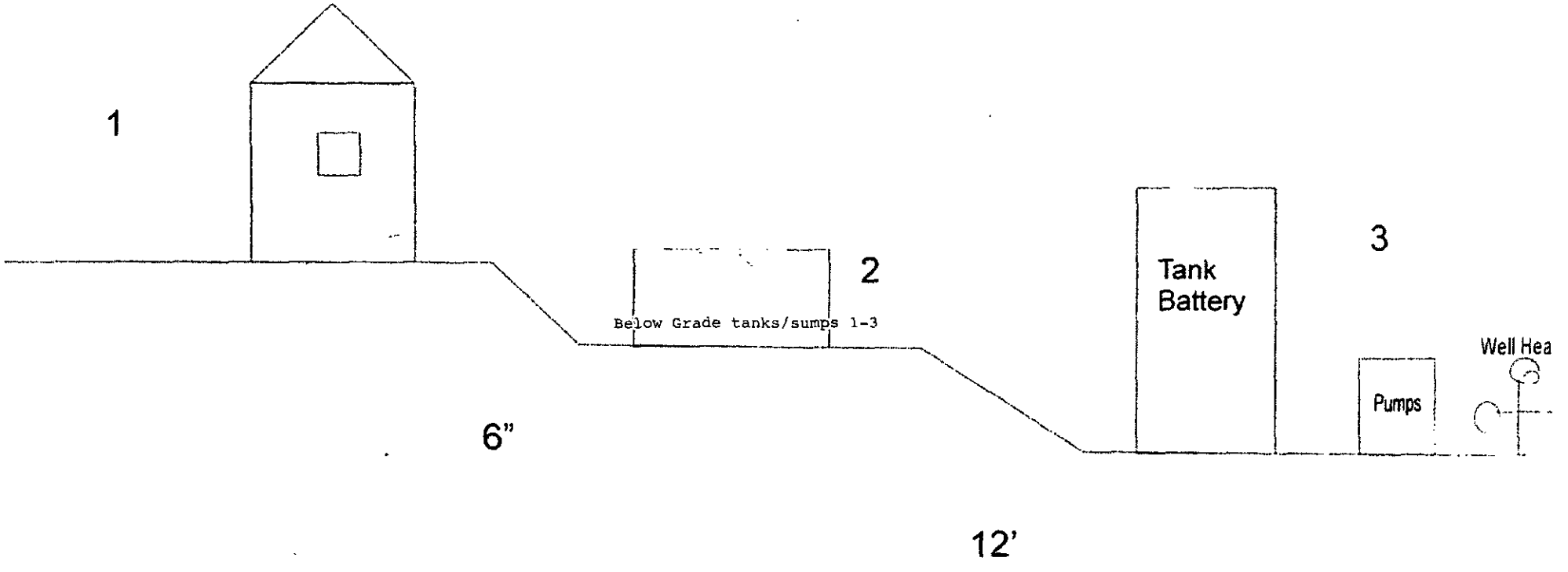
A. 19.15.36.18 G Alternatives to re-vegetation. If the landowner contemplates use of the land where a cell or surface waste management facility is located for purposes inconsistent with re-vegetation, the landowner may, with division approval, implement an alternative surface treatment appropriate for the contemplated use, provided that the alternative treatment will effectively prevent erosion. If the division approves an alternative to re-vegetation, it shall not release the portion of the operator's financial assurance reserved for post-closure until the landowner has obtained necessary regulatory approvals and begun implementation of such alternative use.
    1) Agua Moss, LLC plans to utilize the surface facility where the un-lined evaporation pond is located for placement of tank battery and office facility so that it is closer to the injection well to reduce the footprint of the final disposal facility layout, therefore re-vegetation of the entire location of the current un-lined evaporation pond would be inconsistent with re-vegetation for the planned future use of the facility. Agua Moss, LLC would like to request division approval to implement an alternative surface treatment consistent with the facilities future use. (See attached diagrams)
        i. Agua Moss, LLC shall re-vegetate the unused portion of the site. Re-vegetation shall consist of establishment of a vegetative cover equal to 70 percent of the native perennial vegetative cover (un-impacted by overgrazing; fire or other intrusion damaging to native vegetation) or scientifically documented ecological description consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintenance of that cover through two successive growing seasons. (see attached aerial photo for designation)
        ii. Agua Moss, LLC will utilize wattle's on the slopes (see picture & description) along with straw mulching. Gravel and water will be utilized for compaction on the areas that will be driven on.

If it becomes necessary sediment control structures will be installed where needed to slow or redirect runoff and trap sediment.

Straw Wattle

Erosion control and Sediment Retention Wattles (ESW) or Slope Interruption Devices (SID) commonly known as Wattles, are elongated tubes of compacted straw and/or other fibers that are installed along contours or at the base of slopes to help reduce soil erosion and retain sediment. They function by shortening slope length, reducing runoff water velocity, trapping dislodged soil particles and ameliorating the effects of slope steepness. Wattles are used as water flow dissipaters, trapping sediment when located prior to Drain Inlets (D.I.) etc. Wattles are highly effective when they are used in combination with other surface soil erosion/re-vegetation practices such as surface roughening, straw mulching, erosion control blankets, hydraulic mulching and application of bonded fiber matrix or other hydraulic soil stabilizers. Agua Moss will utilize wattles and straw mulching.


ROAD 3710
Cell #2
4 Acre Landfarm
NM1-9
Cell #1
1 Acre Landfarm
NM1-9
Injection
Well
3
Grass
2
1
Unlined
Evaporation Pond
NM1-9
Gravel
Soil Mixing
Containments
NM1-9
Lined
Evaporation Pond
w/ Leak Detection
NM1-9
Skimmer Pond
NM1-9
Unloading
Facility
NM1-9
ROAD 3720
36-45-30 N
36-45-20 N


1
2
Below Grade tanks/sumps 1-3
3
Tank
Battery
Pumps
Well Hea
6"
12'

Emergency Contact List

Facility Spill Response Coordinator: Philana Thompson	Office (505) 324-5336	Cell (505) 486-1171
Facility Spill Response Team Leader: Jeff Davis	Office (505) 632-3640	Cell (505) 330-1617
National Response Center	(800) 424-8802	
Police	911	
New Mexico State Police	(505) 827-9300	After Hours (24 hr Emergency) (505) 827-3476
Fire	911	
Hospital	911	
State Emergency Response Center	Normal Business Hours (505) 476-9600	After Normal Business Hours (505) 476-9635

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☐ Final Report

Name of Company	Contact
Address	Telephone No.
Facility Name	Facility Type

Surface Owner	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County

Latitude_____ Longitude_____

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Was Immediate Notice Given? ☐ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☐ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

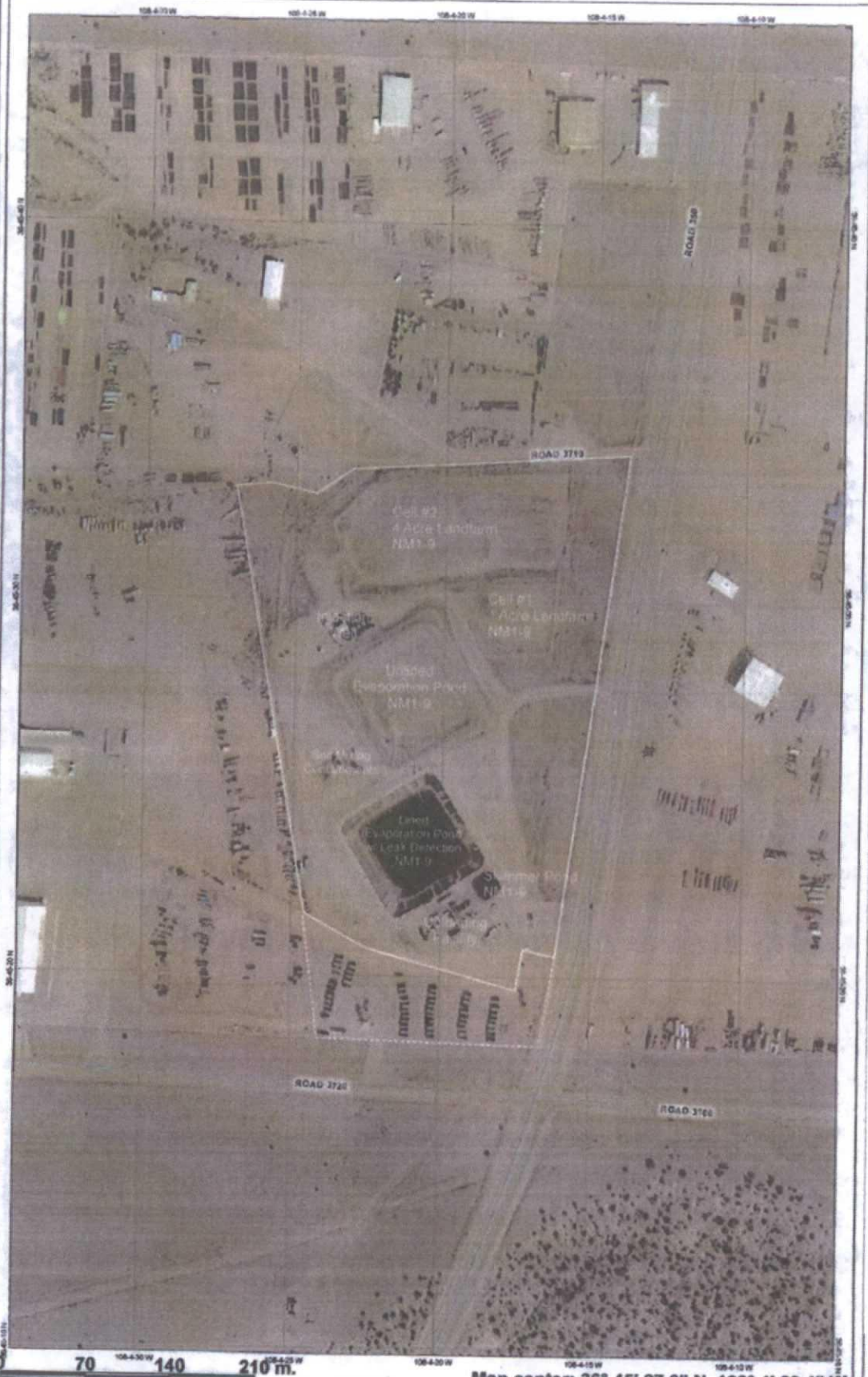
Describe Area Affected and Cleanup Action Taken.*

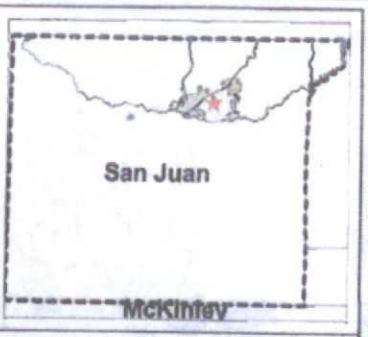
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name:	Approved by Environmental Specialist:	
Title:	Approval Date:	Expiration Date:
E-mail Address:	Conditions of Approval:	Attached ☐
Date: Phone:		

* Attach Additional Sheets If Necessary

Sunco Facility & Yard





Legend

- RIVERS
- LAKES
- SJC Road Status
- Major Roads
- Private
- County Maintained
- Limited County Maintained
- City
- Oil and Gas
- roads
- ROADS
- SAN JUAN COUNTY
- NAVAJO RESERVATION
- PARCELS
- 2009 aerials

0 70 140 210 m.

Map center: 36° 45' 27.6" N, 108° 4' 20.4" W

Scale: 1:2,400

30N
12W
34
35
31
30N
11W
CR 3323
Sunco Facility
CR 3773
29N
12W
29N
11W
10
11
12
0 937 1874 3748 5622 7496 Fe

FEMA

Save your FIRMette

Back

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0715F

FIRM

FLOOD INSURANCE RATE MAP

SAN JUAN COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 715 OF 2750

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX

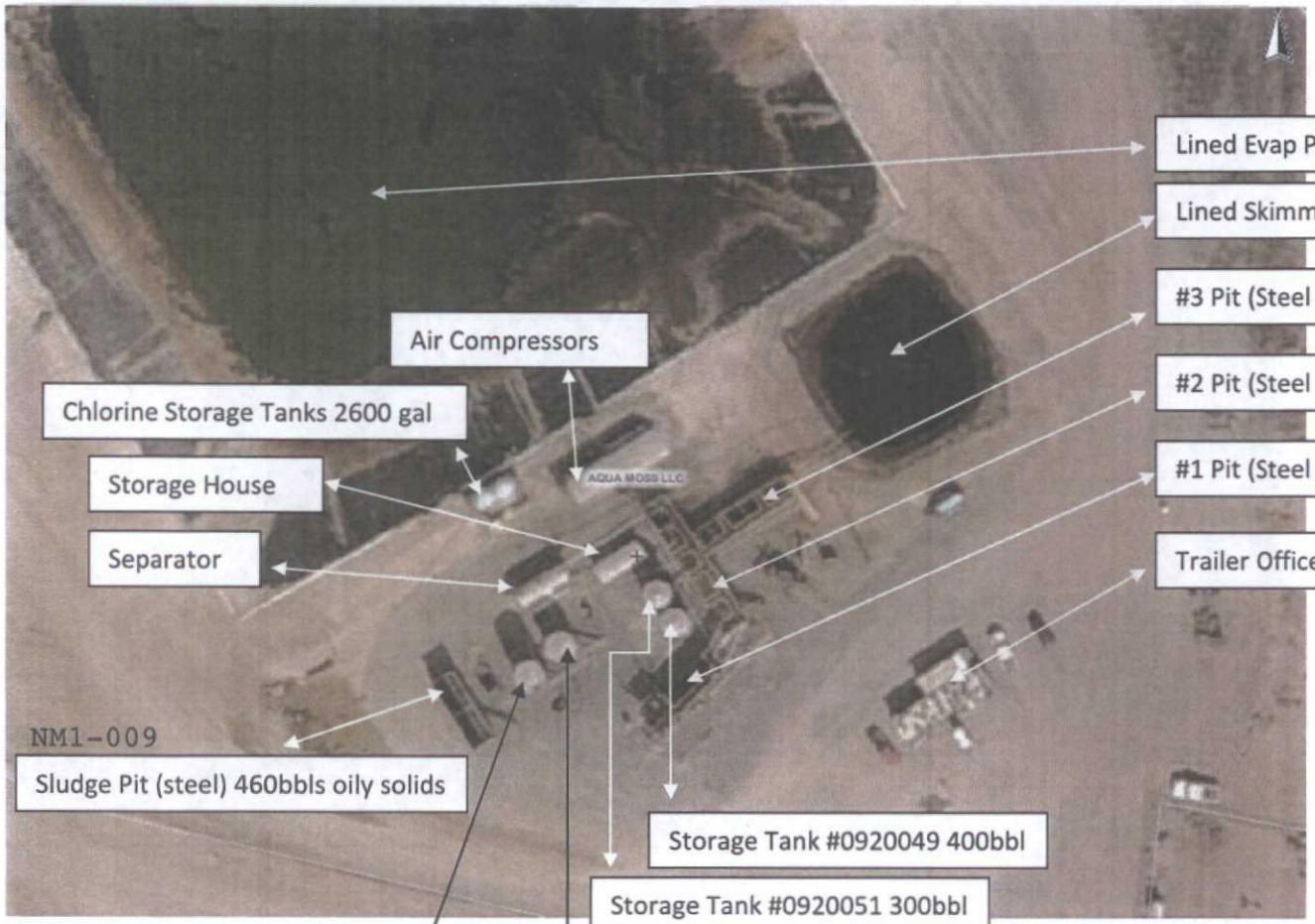
MAP NUMBER
35045C0715F

EFFECTIVE DATE
AUGUST 5, 2010

Federal Emergency Management Agency

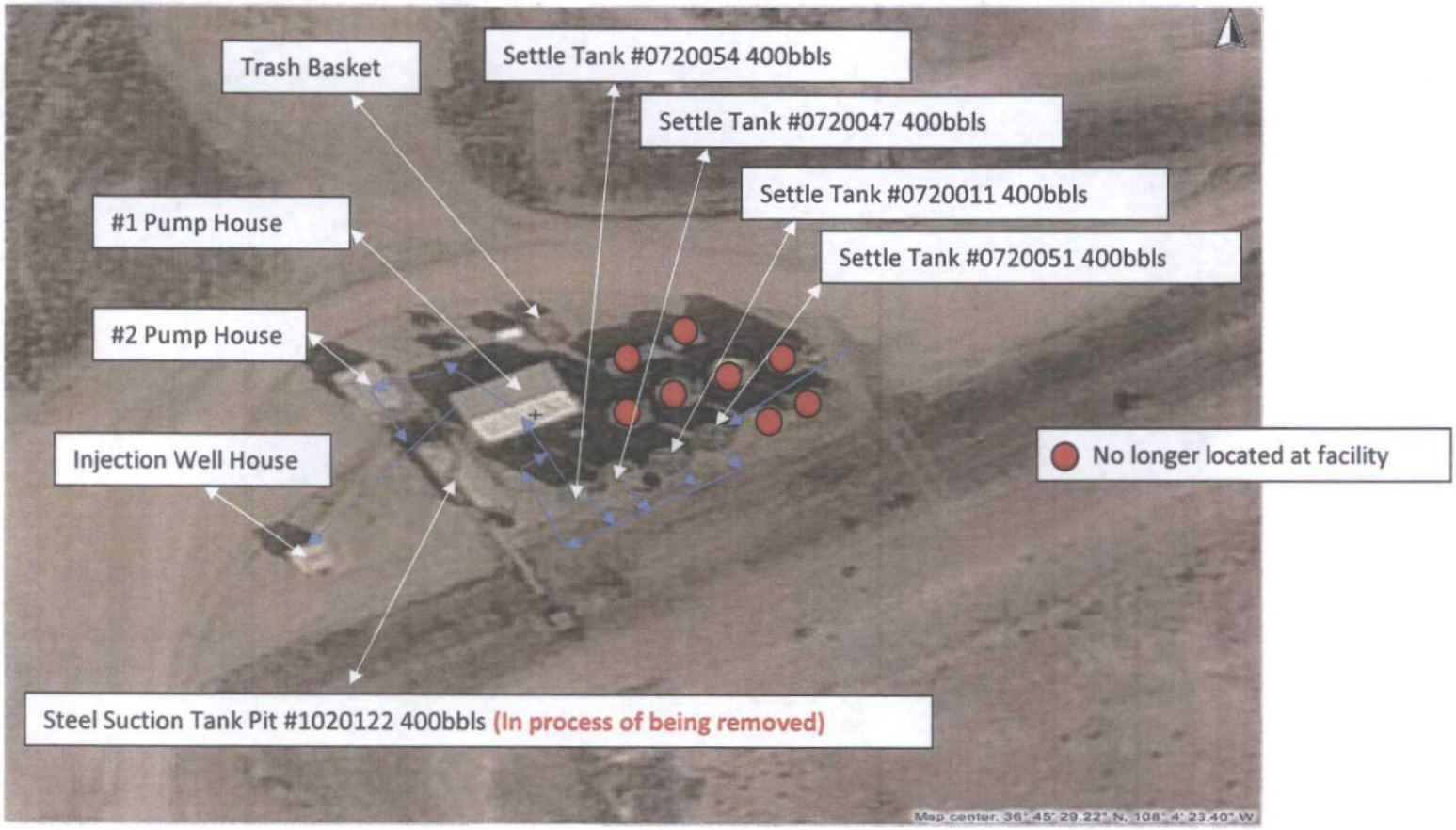
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fem

South End of Location: Detailed diagram



The South End of the facility is no longer being utilized by Agua Moss.

North End of Location: Detailed diagram & Process description



Process:

Truck arrives on location, unloads into settle tanks. Approximately every two days the tank contents are transferred to pump house #1 through two filter pots (Pump House #2 is back up) and then injected down well head located in the injection well house.

West End of Location: Detailed Diagram of soil Mixing Containments

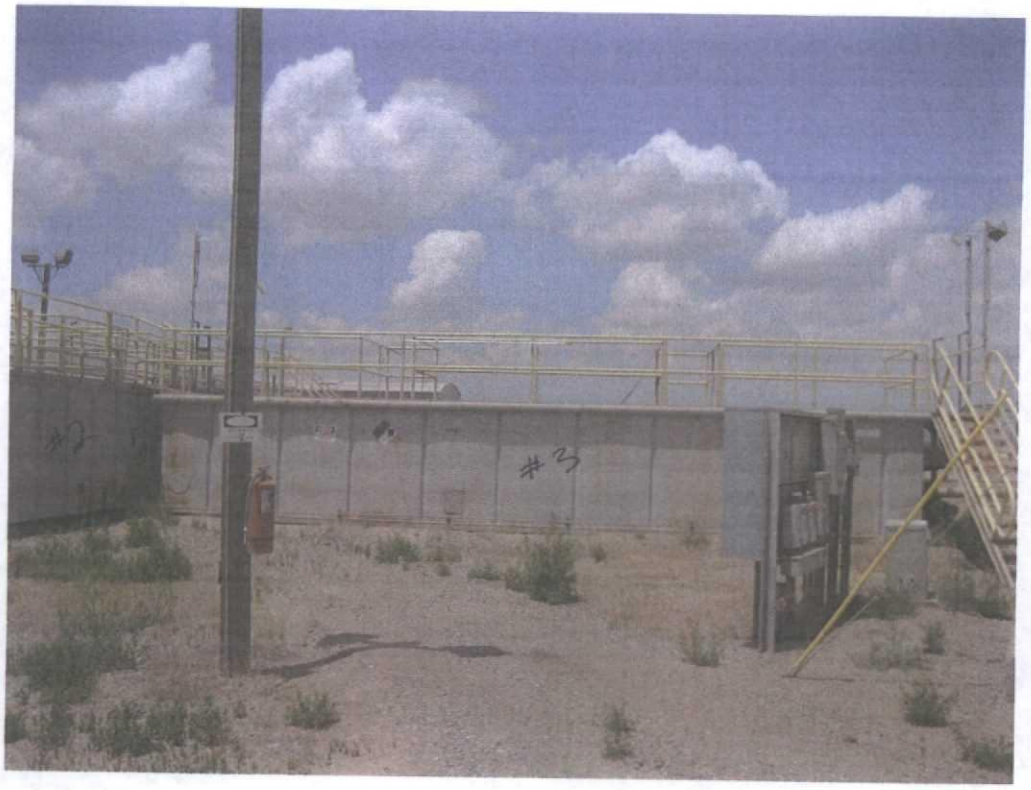
This part of the facility is not in use.

Shaker to be Removed

Steel Pit #1 (Shaker)

Steel Sludge Pit

Steel Pit #3



Steel Pit #2

Oil Storage tanks (#0920053 & 0920052)

Storage Tanks (#0920049 & 0920051)

Separator & Storage House

Chlorine Tanks & Air Compressor Shed

Lined Skimmer Pond

Unlined Pond (What is being proposed to close)