Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

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APR 30 1997
DIVISION OF OIL
GAS & MINING PRICE UTAH

April 11, 1997

Steve Traweek
EARTHCO
6000 Wash Plant Road
Wellington, UT 84542

ACT/002/012
#7

Dear Mr. Traweek:

Enclosed are the analytical results for the samples submitted for analyses to Inter-Mountain Labs - Farmington, New Mexico, on March 27, 1997. The samples were analyzed for EARTHCO Ground Water and Surface Water Parameters, as indicated on the accompanying Chain of Custody documents #46338 and 46339. You will notice several of the samples have greater dissolved metal values than total metal values. We reanalyzed these and the results did not change significantly, indicating some type of matrix interference.

Tests were performed in accordance with 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis, " as amended.

Please call me if you have any questions or comments concerning the analyses.

Sincerely,

Wanda Manley
Water Lab Supervisor
IML - Farmington

Enclosure: Analytical Report

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Trace Metals / Known Analysis / Spike Analysis / Blank Analysis
TOTAL METALS

Client:	EARTHCO		
Project:	Wellington (CVR Plant)	Date Reported:	04/11/97
Laboratory ID:	0397W00441-0452	Date Sampled:	03/24/97
Sample Matrix:	Water	Date Received:	03/27/97
Condition:	Cool / Intact		

Known Analysis

Parameter	Found Value (mg/L)	Known Value (mg/L)	Percent Recovery
Boron	1.01	1.00	101%
Iron	0.98	1.00	98%
Manganese	1.02	1.00	102%
Selenium	0.009	0.010	90%

Spike Analysis

Parameter	Spike Result (mg/L)	Unspiked Sample Result (mg/L)	Spike Amount (mg/L)	Percent Recovery
Boron	2.47	0.63	2.00	95%
Iron	2.41	0.75	2.00	87%
Manganese	2.09	0.34	2.00	89%
Selenium	0.022	<0.005	0.025	88%

Blank Analysis

Parameter	Found Value (mg/L)	Detection Limit (mg/L)
Boron	ND	0.10
Iron	ND	0.02
Manganese	ND	0.005
Selenium	ND	0.005

Reference: 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: Quality control run concurrently with the above sample lab numbers.
ND = None Detected at stated detection level.

Reviewed By: SB

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Trace Metals / Known Analysis / Spike Analysis / Blank Analysis
DISSOLVED METALS

Client:	**EARTHCO**		
Project:	Wellington (CVR Plant)	Date Reported:	04/11/97
Laboratory ID:	0397W00441-0452	Date Sampled:	03/24/97
Sample Matrix:	Water	Date Received:	03/27/97
Condition:	Cool / Intact		

Known Analysis

Parameter	Found Value (mg/L)	Known Value (mg/L)	Percent Recovery
Boron	1.01	1.00	101%
Iron	0.99	1.00	99%
Lead	0.038	0.040	95%
Manganese	1.02	1.00	102%
Selenium	0.010	0.010	100%

Spike Analysis

Parameter	Spike Result (mg/L)	Unspiked Sample Result (mg/L)	Spike Amount (mg/L)	Percent Recovery
Boron	1.49	0.65	1.00	90%
Iron	1.74	0.97	1.00	86%
Lead	0.020	<0.005	0.020	100%
Manganese	2.04	1.31	1.00	86%
Selenium	0.024	<0.005	0.025	96%

Blank Analysis

Parameter	Found Value (mg/L)	Detection Limit (mg/L)
Boron	ND	0.10
Iron	ND	0.02
Lead	ND	0.005
Manganese	ND	0.005
Selenium	ND	0.005

Reference: 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: Quality control run concurrently with the above sample lab numbers.
ND = None Detected at stated detection level.

Reviewed By: JB

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-1
Lab ID: 0397W00441
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1120

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	6.9	s.u.		
Electrical Conductivity	5,360	µmhos/cm		
Solids - Total Dissolved	5,456	mg/L		
Alkalinity	472	mg/L		
Hardness	2,437	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	576	mg/L	9.44	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	99.5	mg/L	2.81	meq/L
Sulfate	3,325	mg/L	69.2	meq/L
MAJOR CATIONS				
Calcium	473	mg/L	23.6	meq/L
Magnesium	305	mg/L	25.1	meq/L
Potassium	5.30	mg/L	0.14	meq/L
Sodium	609	mg/L	26.5	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			75.4	meq/L
Anion Sum			81.5	meq/L
Cation/Anion Balance			3.90	%
DISSOLVED METALS				
Boron	0.84	mg/L		
Iron	0.12	mg/L		
Lead	<0.005	mg/L		
Manganese	0.04	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.87	mg/L		
Iron	1.52	mg/L		
Manganese	0.52	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-2
Lab ID: 0397W00442
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1200

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.4	s.u.		
Electrical Conductivity	30,800	µmhos/cm		
Solids - Total Dissolved	36,488	mg/L		
Alkalinity	1,105	mg/L		
Hardness	10,231	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	1,348	mg/L	22.1	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	593	mg/L	16.7	meq/L
Sulfate	25,785	mg/L	537	meq/L
MAJOR CATIONS				
Calcium	443	mg/L	22.1	meq/L
Magnesium	2,218	mg/L	183	meq/L
Potassium	58.0	mg/L	1.48	meq/L
Sodium	7,415	mg/L	323	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			529	meq/L
Anion Sum			576	meq/L
Cation/Anion Balance			4.26	%
DISSOLVED METALS				
Boron	2.71	mg/L		
Iron	0.59	mg/L		
Lead	<0.005	mg/L		
Manganese	2.07	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	2.58	mg/L		
Iron	0.71	mg/L		
Manganese	1.91	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-3
Lab ID: 0397W00443
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1150

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.8	s.u.		
Electrical Conductivity	79,000	µmhos/cm		
Solids - Total Dissolved	139,826	mg/L		
Alkalinity	999	mg/L		
Hardness	43,024	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	1,219	mg/L	20.0	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	3,393	mg/L	95.7	meq/L
Sulfate	94,847	mg/L	1,975	meq/L
MAJOR CATIONS				
Calcium	581	mg/L	29.0	meq/L
Magnesium	10,102	mg/L	831	meq/L
Potassium	105	mg/L	2.70	meq/L
Sodium	24,320	mg/L	1,058	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			1,921	meq/L
Anion Sum			2,090	meq/L
Cation/Anion Balance			4.22	%
DISSOLVED METALS				
Boron	1.19	mg/L		
Iron	2.67	mg/L		
Lead	<0.005	mg/L		
Manganese	1.76	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	1.04	mg/L		
Iron	23.9	mg/L		
Manganese	1.65	mg/L		
Selenium	0.006	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-4
Lab ID: 0397W00444
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1245

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.2	s.u.		
Electrical Conductivity	4,990	µmhos/cm		
Solids - Total Dissolved	4,756	mg/L		
Alkalinity	492	mg/L		
Hardness	1,964	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	600	mg/L	9.84	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	80.0	mg/L	2.26	meq/L
Sulfate	2,872	mg/L	59.8	meq/L
MAJOR CATIONS				
Calcium	385	mg/L	19.2	meq/L
Magnesium	244	mg/L	20.1	meq/L
Potassium	8 68	mg/L	0.22	meq/L
Sodium	647	mg/L	28.2	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			67.6	meq/L
Anion Sum			71.9	meq/L
Cation/Anion Balance			3.05	%
DISSOLVED METALS				
Boron	0.95	mg/L		
Iron	0.04	mg/L		
Lead	<0.005	mg/L		
Manganese	0.39	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.93	mg/L		
Iron	1.02	mg/L		
Manganese	0.39	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-6
Lab ID: 0397W00446
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1250

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.2	s.u.		
Electrical Conductivity	4,550	µmhos/cm		
Solids - Total Dissolved	4,258	mg/L		
Alkalinity	505	mg/L		
Hardness	1,772	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	616	mg/L	10.1	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	78.3	mg/L	2.21	meq/L
Sulfate	2,523	mg/L	52.5	meq/L
MAJOR CATIONS				
Calcium	297	mg/L	14.8	meq/L
Magnesium	250	mg/L	20.6	meq/L
Potassium	7.20	mg/L	0.18	meq/L
Sodium	548	mg/L	23.8	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			59.4	meq/L
Anion Sum			64.8	meq/L
Cation/Anion Balance			4.33	%
DISSOLVED METALS				
Boron	0.86	mg/L		
Iron	<0.02	mg/L		
Lead	<0.005	mg/L		
Manganese	0.67	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.87	mg/L		
Iron	0.19	mg/L		
Manganese	0.62	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-7
Lab ID: 0397W00447
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1040

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.1	s.u.		
Electrical Conductivity	7,140	µmhos/cm		
Solids - Total Dissolved	6,576	mg/L		
Alkalinity	490	mg/L		
Hardness	2,200	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	597	mg/L	9.79	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	185	mg/L	5.23	meq/L
Sulfate	3,959	mg/L	82.4	meq/L
MAJOR CATIONS				
Calcium	378	mg/L	18.9	meq/L
Magnesium	305	mg/L	25.1	meq/L
Potassium	11.0	mg/L	0.28	meq/L
Sodium	1,100	mg/L	47.9	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			92.1	meq/L
Anion Sum			97.4	meq/L
Cation/Anion Balance			2.80	%
DISSOLVED METALS				
Boron	0.65	mg/L		
Iron	0.97	mg/L		
Lead	<0.005	mg/L		
Manganese	1.27	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.65	mg/L		
Iron	61.0	mg/L		
Manganese	1.18	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-8
Lab ID: 0397W00448
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 0950

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.2	s.u.		
Electrical Conductivity	12,330	µmhos/cm		
Solids - Total Dissolved	11,300	mg/L		
Alkalinity	921	mg/L		
Hardness	3,488	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	1,124	mg/L	18.4	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	1,093	mg/L	30.8	meq/L
Sulfate	6,037	mg/L	126	meq/L
MAJOR CATIONS				
Calcium	350	mg/L	17.5	meq/L
Magnesium	635	mg/L	52.3	meq/L
Potassium	13.2	mg/L	0.34	meq/L
Sodium	2,173	mg/L	94.5	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			165	meq/L
Anion Sum			175	meq/L
Cation/Anion Balance			3.04	%
DISSOLVED METALS				
Boron	0.66	mg/L		
Iron	0.02	mg/L		
Lead	<0.005	mg/L		
Manganese	0.01	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.70	mg/L		
Iron	0.11	mg/L		
Manganese	0.01	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-9
Lab ID: 0397W00449
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1005

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.8	s.u.		
Electrical Conductivity	2,940	µmhos/cm		
Solids - Total Dissolved	2,278	mg/L		
Alkalinity	106	mg/L		
Hardness	750	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	129	mg/L	2.11	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	191	mg/L	5.40	meq/L
Sulfate	1,272	mg/L	26.5	meq/L
MAJOR CATIONS				
Calcium	208	mg/L	10.4	meq/L
Magnesium	56.4	mg/L	4.64	meq/L
Potassium	9.65	mg/L	0.25	meq/L
Sodium	397	mg/L	17.3	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			32.5	meq/L
Anion Sum			34.0	meq/L
Cation/Anion Balance			2.18	%
DISSOLVED METALS				
Boron	0.27	mg/L		
Iron	0.10	mg/L		
Lead	<0.005	mg/L		
Manganese	0.02	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.34	mg/L		
Iron	1.00	mg/L		
Manganese	0.02	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-9B
Lab ID: 0397W00450
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1015

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.1	s.u.		
Electrical Conductivity	9,580	µmhos/cm		
Solids - Total Dissolved	9,576	mg/L		
Alkalinity	598	mg/L		
Hardness	3,237	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	729	mg/L	12.0	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	417	mg/L	11.8	meq/L
Sulfate	5,395	mg/L	112	meq/L
MAJOR CATIONS				
Calcium	355	mg/L	17.7	meq/L
Magnesium	572	mg/L	47.0	meq/L
Potassium	8.23	mg/L	0.21	meq/L
Sodium	1,453	mg/L	63.2	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			128	meq/L
Anion Sum			136	meq/L
Cation/Anion Balance			2.98	%
DISSOLVED METALS				
Boron	0.71	mg/L		
Iron	0.70	mg/L		
Lead	<0.005	mg/L		
Manganese	1.80	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.68	mg/L		
Iron	24.9	mg/L		
Manganese	1.59	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-10
Lab ID: 0397W00451
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1025

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.7	s.u.		
Electrical Conductivity	7,570	µmhos/cm		
Solids - Total Dissolved	6,708	mg/L		
Alkalinity	404	mg/L		
Hardness	1,839	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	493	mg/L	8.08	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	308	mg/L	8.69	meq/L
Sulfate	4,029	mg/L	83.9	meq/L
MAJOR CATIONS				
Calcium	245	mg/L	12.2	meq/L
Magnesium	298	mg/L	24.6	meq/L
Potassium	7.37	mg/L	0.19	meq/L
Sodium	1,335	mg/L	58.1	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			95	meq/L
Anion Sum			101	meq/L
Cation/Anion Balance			2.86	%
DISSOLVED METALS				
Boron	0.89	mg/L		
Iron	0.09	mg/L		
Lead	<0.005	mg/L		
Manganese	0.02	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.80	mg/L		
Iron	0.85	mg/L		
Manganese	0.04	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: _____
Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-12
Lab ID: 0397W00445
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1050

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.4	s.u.		
Electrical Conductivity	9,190	µmhos/cm		
Solids - Total Dissolved	8,956	mg/L		
Alkalinity	570	mg/L		
Hardness	3,203	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	695	mg/L	11.4	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	368	mg/L	10.4	meq/L
Sulfate	5,354	mg/L	111	meq/L
MAJOR CATIONS				
Calcium	309	mg/L	15.4	meq/L
Magnesium	591	mg/L	48.7	meq/L
Potassium	9.89	mg/L	0.25	meq/L
Sodium	1,388	mg/L	60.4	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			125	meq/L
Anion Sum			133	meq/L
Cation/Anion Balance			3.31	%
DISSOLVED METALS				
Boron	0.68	mg/L		
Iron	0.19	mg/L		
Lead	<0.005	mg/L		
Manganese	0.40	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.63	mg/L		
Iron	0.75	mg/L		
Manganese	0.34	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources GW
Sample ID: GW-14
Lab ID: 0397W00452
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1100

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.1	s.u.		
Electrical Conductivity	8,580	µmhos/cm		
Solids - Total Dissolved	8,622	mg/L		
Alkalinity	633	mg/L		
Hardness	3,187	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	772	mg/L	12.7	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	222	mg/L	6.26	meq/L
Sulfate	5,115	mg/L	106	meq/L
MAJOR CATIONS				
Calcium	360	mg/L	18.0	meq/L
Magnesium	556	mg/L	45.8	meq/L
Potassium	13.1	mg/L	0.34	meq/L
Sodium	1,258	mg/L	54.7	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			119	meq/L
Anion Sum			125	meq/L
Cation/Anion Balance			2.71	%
DISSOLVED METALS				
Boron	1.20	mg/L		
Iron	0.24	mg/L		
Lead	<0.005	mg/L		
Manganese	1.58	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	1.20	mg/L		
Iron	11.4	mg/L		
Manganese	1.46	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources SW
Sample ID: SW-1
Lab ID: 0397W00453
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1315

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	8.1	s.u.		
Electrical Conductivity	1,030	µmhos/cm		
Solids - Total Dissolved	722	mg/L		
Solids - Total Suspended	2,650	mg/L		
Solids - Settleable	3.0	mL/L		
Alkalinity	197	mg/L		
Hardness	386	mg/L		
Oil & Grease	<1	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	240	mg/L	3.94	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	30.0	mg/L	0.84	meq/L
Sulfate	321	mg/L	6.68	meq/L
MAJOR CATIONS				
Calcium	76.9	mg/L	3.84	meq/L
Magnesium	47.0	mg/L	3.87	meq/L
Potassium	3.96	mg/L	0.10	meq/L
Sodium	83.4	mg/L	3.63	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			11.4	meq/L
Anion Sum			11.5	meq/L
Cation/Anion Balance			0.09	%
DISSOLVED METALS				
Boron	0.13	mg/L		
Iron	0.44	mg/L		
Manganese	0.05	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.24	mg/L		
Iron	18.1	mg/L		
Manganese	1.00	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources SW
Sample ID: SW-2
Lab ID: 0397W00454
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1300

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	8.1	s.u.		
Electrical Conductivity	1,034	µmhos/cm		
Solids - Total Dissolved	736	mg/L		
Solids - Total Suspended	2,190	mg/L		
Solids - Settleable	2.0	mL/L		
Alkalinity	206	mg/L		
Hardness	385	mg/L		
Oil & Grease	<1	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	251	mg/L	4.12	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	31.1	mg/L	0.88	meq/L
Sulfate	320	mg/L	6.67	meq/L
MAJOR CATIONS				
Calcium	76.3	mg/L	3.81	meq/L
Magnesium	47.3	mg/L	3.89	meq/L
Potassium	3.99	mg/L	0.10	meq/L
Sodium	83.9	mg/L	3.65	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			11.5	meq/L
Anion Sum			11.7	meq/L
Cation/Anion Balance			0.95	%
DISSOLVED METALS				
Boron	0.13	mg/L		
Iron	0.41	mg/L		
Manganese	0.05	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.24	mg/L		
Iron	29.3	mg/L		
Manganese	0.98	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: EARTHCO
Project: Castle Valley Resources SW
Sample ID: SW-4
Lab ID: 0397W00455
Matrix: Water
Condition: Cool/Intact

Date Received: 03/27/97
Date Reported: 04/11/97
Date Sampled: 03/24/97
Time Sampled: 1130

Parameter	Analytical Result	Units		Units
GENERAL PARAMETERS				
pH	7.9	s.u.		
Electrical Conductivity	4,940	µmhos/cm		
Solids - Total Dissolved	4,666	mg/L		
Solids - Total Suspended	8	mg/L		
Solids - Settleable	<0 1	mL/L		
Alkalinity	314	mg/L		
Hardness	1,729	mg/L		
Oil & Grease	<1	mg/L		
MAJOR ANIONS				
Bicarbonate (HCO3)	383	mg/L	6.28	meq/L
Carbonate (CO3)	<1	mg/L	<0.03	meq/L
Hydroxide (OH)	<1	mg/L	<0.06	meq/L
Chloride	71.8	mg/L	2.03	meq/L
Sulfate	3,012	mg/L	62.7	meq/L
MAJOR CATIONS				
Calcium	396	mg/L	19.8	meq/L
Magnesium	180	mg/L	14.8	meq/L
Potassium	14.6	mg/L	0.37	meq/L
Sodium	677	mg/L	29.4	meq/L
CATION / ANION BALANCE QC INFORMATION				
Cation Sum			64.4	meq/L
Anion Sum			71.0	meq/L
Cation/Anion Balance			4.90	%
DISSOLVED METALS				
Boron	0.51	mg/L		
Iron	<0.02	mg/L		
Manganese	0.14	mg/L		
Selenium	<0.005	mg/L		
TOTAL METALS				
Boron	0.57	mg/L		
Iron	0.09	mg/L		
Manganese	0.13	mg/L		
Selenium	<0.005	mg/L		

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: GB

Gloria Bartlett, Asst. Lab Manager

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Trace Metals / Known Analysis / Spike Analysis / Blank Analysis
TOTAL METALS

Client:	**EARTHCO**		
Project:	Wellington (CVR Plant)	Date Reported:	04/11/97
Laboratory ID:	0397W00453-0455	Date Sampled:	03/24/97
Sample Matrix:	Water	Date Received:	03/27/97
Condition:	Cool / Intact		

Known Analysis

Parameter	Found Value (mg/L)	Known Value (mg/L)	Percent Recovery
Boron	1.02	1.00	**102%**
Iron	0.95	1.00	**95%**
Manganese	1.03	1.00	**103%**
Selenium	0.010	0.010	**100%**

Spike Analysis

Parameter	Spike Result (mg/L)	Unspiked Sample Result (mg/L)	Spike Amount (mg/L)	Percent Recovery
Boron	3.18	1.40	2.00	**96%**
Iron	3.96	2.50	2.00	**86%**
Manganese	5.72	4.32	2.00	**92%**
Selenium	0.027	<0.005	0.025	**96%**

Blank Analysis

Parameter	Found Value (mg/L)	Detection Limit (mg/L)
Boron	ND	**0.10**
Iron	ND	**0.02**
Manganese	ND	**0.005**
Selenium	ND	**0.005**

Reference: 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: Quality control run concurrently with the above sample lab numbers.
ND = None Detected at stated detection level.

Reviewed By JB

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Trace Metals / Known Analysis / Spike Analysis / Blank Analysis
DISSOLVED METALS

Client:	**EARTHCO**		
Project:	Wellington (CVR Plant)	Date Reported:	04/11/97
Laboratory ID:	0397W00453-0455	Date Sampled:	03/24/97
Sample Matrix:	Water	Date Received:	03/27/97
Condition:	Cool / Intact		

Known Analysis

Parameter	Found Value (mg/L)	Known Value (mg/L)	Percent Recovery
Boron	1.01	1.00	**101%**
Iron	1.02	1.00	**102%**
Manganese	1.04	1.00	**104%**
Selenium	0.010	0.010	**100%**

Spike Analysis

Parameter	Spike Result (mg/L)	Unspiked Sample Result (mg/L)	Spike Amount (mg/L)	Percent Recovery
Boron	1.39	0.51	1.00	**93%**
Iron	0.88	<0.025	1.00	**88%**
Manganese	1.01	0.139	1.00	**88%**
Selenium	0.022	<0.005	0.025	**88%**

Blank Analysis

Parameter	Found Value (mg/L)	Detection Limit (mg/L)
Boron	ND	**0.10**
Iron	ND	**0.02**
Manganese	ND	**0.005**
Selenium	ND	**0.005**

Reference: 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: Quality control run concurrently with the above sample lab numbers.
ND = None Detected at stated detection level.

Reviewed By: SB

imi
Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
EARTHCO	Wellington (CVR Plant)
Sampler: (Signature)	**Chain of Custody Tape No.**
Mike Hubbard	

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Raw	Metals			Remarks
GW-1	3-24-97	11:20		Ground Water	2	✓	✓			These samples have not been field filtered
GW-2	"	12:00			"					
GW-3	"	11:50			"					
GW-4	"	12:45			"					
GW-5R	"	10:50			"					
GW-6	"	12:50			"					
GW-7	"	10:40			"					
GW-8	"	9:50			"					
GW-9	"	10:05			"					
GW-9B	"	10:15			"					
GW-10	"	10:25			"					
GW-14	"	11:00			"					
										cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Mike Hubbard	3-24-97	3:00	Chris Raymer	3-27-97	1105
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

Inter-Mountain Laboratories, Inc.

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☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

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TABLE 7.24-2
GROUND WATER QUALITY PARAMETER LIST

run shaded / clear only

PARAMETERS	BASELINE	OPERATIONAL*
FIELD PARAMETERS		
Flow or Water Level (gpm)		
Specific Conductivity (umhos/cm)		
Temperature (°C)		
pH		
LABORATORY PARAMETERS		
Ammonia (NH_3)		
Alkalinity (Carbonate)		
Alkalinity (Bicarbonate)		
Alkalinity (Total)		
Aluminum Dissolved		
Arsenic Dissolved		
Boron Total		
Boron Dissolved		
Cadmium Dissolved		
Calcium		
Chloride		
Copper Dissolved		
Total Hardness		
Iron Dissolved		
Iron Total		
Lead Dissolved		
Magnesium		
Manganese Dissolved		
Manganese Total		
Molybdenum Dissolved		
Nitrate		
Nitrite		
Oil & Grease		
Phosphate (Ortho)		
Potassium		
Selenium Total		
Selenium Dissolved		
Sodium		
Sulfate		
Zinc Dissolved		
pH		
Specific Conductance		
Total Dissolved Solids (TDS)		
Cation/Anion Balance		

* OPERATIONAL AND POSTMINING

imi
Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
EARTHCO	Wellington (CVR Plant)	
Sampler: (Signature)	**Chain of Custody Tape No.**	
Mike Hubbard		

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Raw	Metals	Oil & Grease		Remarks
SW-1	3-24-97	1:15		Surface Water	3	✓	✓	✓		
SW-2	3-24-97	1:00			"	✓	✓	✓		
SW-4	3-24-97	1:30			"	✓	✓	✓		
										Cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Mike Hubbard	3-24-95	3:00	Chris Raymer	3-25-97	1105
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

Inter-Mountain Laboratories, Inc.

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☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

46339

TABLE 7.24-5
SURFACE WATER QUALITY PARAMETER LIST

PARAMETERS	BASELINE	OPERATIONAL*
FIELD PARAMETERS		
Flow or Water Level (gpm)		
Specific Conductivity (umhos/cm)		
Temperature (°C)		
pH		
Dissolved Oxygen (ppm)		
LABORATORY PARAMETERS		
Ammonia (NH_3)		
Alkalinity (Carbonate)		
Alkalinity (Bicarbonate)		
Alkalinity (Total)		
Aluminum Total		
Arsenic Total		
Boron Total		
Boron Dissolved		
Cadmium Total		
Calcium		
Chloride		
Copper Total		
Total Hardness		
Iron Dissolved		
Iron Total		
Lead Total		
Magnesium		
Manganese Dissolved		
Manganese Total		
Molybdenum Total		
Nitrate		
Nitrite		
Oil & Grease		
Phosphate (Ortho)		
Potassium		
Selenium Total		
Selenium Dissolved		
Sodium		
Sulfate		
Zinc Total		
pH		
Specific Conductance		
Total Dissolved Solids (TDS)		
Total Settleable Solids		
Total Suspended Solids		
Cation/Anion Balance		

* OPERATIONAL AND POSTMINING

EARTECO

SURFACE WATER MONITORING

LOCATION	SAMPLE NO.	DATE	TIME	SAMPLER	TEMP (C)	FLOW GPM	pH	COND	D.O.	COMMENTS
Price River - Upstream Discharge Siaperas Ditch	SW-1	3-24-97	0115hr	M.H, T.M.	7°C	390 GPM 52 cfs	8.63	1.17x 1000	7.4 ppm	
Price River - Downstream Pumphouse	SW-2	3-24-97	0100 hr	M.H., T.M.	7°C	385 GPM 51.5 cfs	8.18	1.36x 1000	7.5 ppm	
Diversion Ditch - Upstream Head End Siaperas Ditch E. End	SW-3	3-24-97	1205 hr	M.H., T.M.	—	—	—	—	—	DRY
Diversion Ditch - Downstream Culvert Farnam Rd. Siaperas D.	SW-4	3-24-97	1130 hr	M.H., T.M.	7°C	2	8.17	5.54x 1000	5.5 ppm	
Upper Refuse Pond Center Dike	SW-5	3-24-97	1210 hr	M.H, T.M.	—	—	—	—	—	DRY
Lower Refuse Pond South East End Clear Water	SW-6	3-24-97	1240 hr	M.H., T.M.	—	—	—	—	—	DRY
Clearwater Pond West Spillway	SW-7	3-24-97	1230 hr	M.H., T.M.	—	—	—	—	—	DRY
Auxillary Pond In Front of Office	SW-8	3-24-97	1110 hr	M.H., T.M.	—	—	—	—	—	DRY

EARTHCO

GROUND WATER MONITORING

LOCATION	SAMPLE NO.	DATE	TIME	SAMPLER	TEMP (C)	WATER LEVEL	pH	COND	COMMENTS
Field North of North Dike	GW-1	3-24-97	1120 hr	M.H, T.M.	8°C	7 ft	8.11	6.12x1000	
[redacted]st End of North Dike	GW-2	3-24-97	1200 hr	M.H, T.M.	9°C	13 ft	7.70	>x1000	
West End of North Dike	GW-3	3-24-97	1150 hr	M.H, T.M.	10°C	12 ft	7.39	>x1000	
South End of Clearwater Dike	GW-4	3-24-97	1245 hr	M.H., T.M.	9°C	3ft	8.25	8.97x1000	
North End of Clearwater Dike	GW-5	3-24-97	1230 hr	M.H., T.M.	-	-	-	-	DRY
South of River Pumphouse	GW-6	3-24-97	1250 hr	M.H., T.M.	7°C	3 ft	8.05	5.60x1000	[redacted]
By Gate into Pressett's Field	GW-[redacted]12	3-24-97	1050 hr.	M.H., T.M.	8°C	4 ft	7.92	9.99x1000	
South End of Refuse Pile	GW-8	3-24-97	0950 hr	MH, T.M.	12°C	15ft	7.72	15.59x1000	
North End of Refuse Pile	GW-9	3-24-97	1005 hr	M.H, T.M.	12°C	0	8.13	4.12x1000	
South of Dryer	GW-9B	3-24-97	1015 hr	M.H, T.M	12°C	6 ft	7.83	11.24x1000	
[redacted]y Dryer Pond	GW-10	3-24-97	1025 hr	M.H., T.M.	10°C	1 ft	7.88	[redacted]	8.65x1000
North of Dryer Pond	GW-11	3-24-97	[redacted] 1030 hr	M.H., T.M.	-	-	-	-	DRY
In Field by Pipe Bridge	GW-[redacted]7	3-24-97	1040 hr	M.H., T.M.	9°C	4 ft	7.95	7.95x1000	
West of Main Plant Buildings	GW-13	3-24-97	1115 hr	M.H., T.M.	-	-	-	-	DRY
In Field North of Pipe Bridge	GW-14	3-24-97	1100 hr	M.H., T.M.	9°C	6 ft	7.94	9.56x1000	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-1
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	7.00
PH	8.11
Sp. Cond. [ohms]	6,120.00
Temp. [C]	8.00

Lab. Meas. [mg/l]	
Al as HCO3	576.00
Al as C03	<1
Al Total	472.00
Anions [meq/l]	81.50
Calcium, Total	473.00
Cations [meq/l]	75.40
Chloride	99.50
Hard. Total	2,437.00
Iron, Diss.	0.12
Magnesium	305.00
Manganese, Diss.	0.04
Potassium	5.30
Sodium	609.00
Sol. Tot. Diss.	5,456.00
Sulfate	3,325.00
Cat/An. Balance	3.90

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-2
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	13.00
PH	7.70
Sp. Cond. [ohms]	<1000
Temp. [C]	9.00

Lab. Meas. [mg/l]	
Al as HCO3	1,348.00
Al as CO3	<1
Al Total	1,105.00
Anions [meq/l]	576.00
Calcium, Total	443.00
Cations [meq/l]	529.00
Chloride	593.00
Hard. Total	10,231.00
Iron, Diss.	0.59
Magnesium	2,218.00
Manganese, Diss.	2.07
Potassium	58.00
Sodium	7,415.00
Sol. Tot. Diss.	36,488.00
Sulfate	25,785.00
Cat/An. Balance	4.26

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-3
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	12.00
PH	7.39
Sp. Cond. [ohms]	>1000
Temp. [C]	10.00

Lab. Meas. [mg/l]	
Al as HCO3	1,219.00
Al as C03	<1
Al Total	999.00
Anions [meq/l]	2,090.00
Calcium	581.00
Cations [meq/l]	1,921.00
Chloride	3,393.00
Hard. Total	43,024.00
Iron, Diss.	2.67
Magnesium	10,102.00
Manganese, Diss.	1.76
Potassium	105.00
Sodium	24,320.00
Sol. Tot. Diss.	139,826.00
Sulfate	94,847.00
Cat/An Balance	4.22

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-4
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	3.00
PH	8.25
Sp. Cond. [ohms]	8,970.00
Temp. [C]	9.00

Lab. Meas. [mg/l]	
Al as HCO3	600.00
Al as C03	<1
Al Total	492.00
Anions [meq/l]	71.90
Calcium	385.00
Cations [meq/l]	67.60
Chloride	80.00
Hard. Total	1,964.00
Iron, Diss.	0.04
Magnesium	244.00
Manganese, Diss.	0.39
Potassium	8.68
Sodium	647.00
Sol. Tot. Diss.	4,756.00
Sulfate	2,872.00
Cat/An Balance	3.05

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-5
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [F]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as C03	
Al Total	
Anions meg/l	
Calcium	
Cations meg/l	
Chloride	
Hard. Total	
Iron, Diss.	
Magnesium	
manganese	
Potassium	
Sodium	
Sol. Tot. Diss.	
Sulfate	
Cat/Anion Balance	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-6
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	3.00
PH	8.05
Sp. Cond. [ohms]	5,600.00
Temp. [C]	7.00

Lab. Meas. [mg/l]	
Al as HCO3	616.00
Al as C03	<1
Al Total	505.00
Anions meq/l	64.80
Calcium	297.00
Cations meq/l	59.40
Chloride	78.30
Hard. Total	1,772.00
Iron, Diss.	<0.02
Magnesium	250.00
Manganese, Diss.	0.67
Potassium	7.20
Sodium	548.00
Sol. Tot. Diss.	4,258.00
Sulfate	2,523.00
Cat/An. Balance	4.33

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-7
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	4.00
PH	7.95
Sp. Cond. [ohms]	7,950.00
Temp. [C]	9.00

Lab. Meas. [mg/l]	
Al as HCO3	597.00
Al as C03	<1
Al Total	490.00
Anions meq/l	97.40
Calcium	378.00
Cations meq/l	92.10
Chloride	185.00
Hard. Total	2,200.00
Iron, Diss.	0.97
Magnesium	305.00
Manganese, Diss.	1.27
Potassium	11.00
Sodium	1,100.00
Sol. Tot. Diss.	6,576.00
Sulfate	3,959.00
Cat/An Balance	2.80

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-8
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	15.00
PH	7.72
Sp. Cond. [ohms]	15,590.00
Temp. [C]	12.00

Lab. Meas. [mg/l]	
Al HCO3	1,124.00
Al as C03	<1
Al Total	921.00
Anions meq/l	175.00
Calcium	350.00
Cations meq/l	165.00
Chloride	1,093.00
Hard. Total	3,488.00
Iron, Diss.	0.02
Magnesium	635.00
Manganese, Diss.	0.01
Potassium	13.20
Sodium	2,173.00
Sol. Tot. Diss.	11,300.00
Sulfate	6,037.00
Cat/An Balance	3.04

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-9
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	0.00
PH	8.13
Sp. Cond. [ohms]	4,120.00
Temp. [C]	12.00

Lab. Meas. [mg/l]	
Al as HCO3	129.00
Al as C03	<1
Al Total	106.00
Anions meq/l	34.00
Calcium	208.00
Cations meq/l	32.50
Chloride	191.00
Hard. Total	750.00
Iron, Diss.	0.10
Magnesium	56.40
Manganese, Diss.	0.02
Potassium	9.65
Sodium	397.00
Sol. Tot. Diss.	2,278.00
Sulfate	1,272.00
Cat/An Balance	2.18

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-9B
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	6.00
PH	7.83
Sp. Cond. [ohms]	11,240.00
Temp. [C]	12.00

Lab. Meas. [mg/l]	
Al as HCO3	729.00
Al as C03	<1
Al Total	598.00
Anions meq/l	136.00
Calcium	355.00
Cations meq/l	128.00
Chloride	417.00
Hard. Total	3,237.00
Iron, Diss.	24.90
Magnesium	572.00
Manganese, Diss.	1.80
Potassium	8.23
Sodium	1,453.00
Sol. Tot. Diss.	9,576.00
Sulfate	5,395.00
Cat/An Balance	2.98

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-10
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	7.00
PH	7.88
Sp. Conduct.	8,650.00
Temp. [C]	10.00

Lab. Meas. [mg/l]	
Al as HCO3	493.00
Al as C03	<1
Al Total	404.00
Anions meq/l	101.00
Calcium	245.00
Cations meq/l	95.00
Chloride	308.00
Hard. Total	1,839.00
Iron, Diss.	0.09
Magnesium	298.00
Manganese, Diss.	0.02
Potassium	7.37
Sodium	1,335.00
So. Tot. Diss.	6,708.00
Sulfate	4,029.00
Cat/An Balance	2.86

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW -11
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [F]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as C03	
Al Total	
Anions meq/l	
Calcium	
Cations meq/l	
Chloride	
Hard. Total	
Iron, Diss.	
Magnesium	
Manganese	
Potassium	
Sodium	
So. Tot. Diss.	
Sulfate	
Cat/An Balance	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-12
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	4.00
PH	7.92
Sp. Cond. [ohms]	9,990.00
Temp. [C]	8.00

Lab. Meas. [mg/l]	
Al as HCO3	695.00
Al as CO3	<1
Al Total	570.00
Anions meq/l	133.00
Calcium	309.00
Cations meq/l	125.00
Chloride	368.00
Hard. Total	3,203.00
Iron, Diss.	0.19
Magnesium	591.00
Manganese, Diss.	0.40
Potassium	9.89
Sodium	1,388.00
So. Tot. Diss.	8,956.00
Sulfate	5,354.00
Cat/An Balance	3.31

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-13
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [C]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as C03	
Al Total	
Anions meq/l	
Calcium	
Cations meq/l	
Chloride	
Hard. Total	
Iron, Diss.	
Magnesium	
Manganese	
Potassium	
Sodium	
So. Tot. Diss.	
Sulfate	
Cat/An Balance	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: GW-14
Location: Wellington Prep Plant
Type: Well
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Depth [f]	6.00
PH	7.94
Sp. Cond. [ohms]	9,560.00
Temp. [C]	9.00

Lab. Meas. [mg/l]	
Al as HCO3	772.00
Al as C03	<1
Al Total	633.00
Anions meq/l	125.00
Calcium	360.00
Cations meq/l	119.00
Chloride	222.00
Hard. Total	3,187.00
Iron, Diss.	0.24
Magnesium	556.00
Manganese, Diss.	1.58
Potassium	13.10
Sodium	1,258.00
So. Tot. Diss.	8,622.00
Sulfate	5,115.00
Cat/An Balance	2.71

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-1
Location: Upper Price River
Type: Stream
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow (cfs)	52.00
PH	8.63
Sp. Cond. [ohms]	1,170.00
Temp. [C]	7.00
Diss. O [ppm]	7.40
Lab. Meas. [mg/l]	
Acidity	
Al as HC03	240.00
Al as C03	<1
Al Total CaC03	197.00
Anions [meq/l]	11.50
Calcium	76.90
Cations [meq/l]	11.40
Chloride	30.00
Hard. Total	386.00
Iron	18.10
Iron, Diss.	0.44
Magnesium	47.00
Manganese, Diss.	0.05
Oil & Grease	<1
Potassium, Total	3.96
Sodium, Total	83.40
Sol. Set.	3.00
Sol. Tot. Diss.	722.00
Sol. Tot. Sus.	2,650.00
Sulfate	321.00
Cat/An Balance	0.09

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-2
Location: Lower Price River
Type: Stream
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow (CFS)	51.50
PH	8.18
Sp. Cond. [ohms]	1,360.00
Temp. [C]	7.00
Diss. O [ppm]	7.50
Lab. Meas. [mg/l]	
Acidity	
Al as HCO3	251.00
Al as C03	<1
Al Total CaC03	206.00
Anions	11.70
Calcium, Total	76.30
Cations	11.50
Chloride	31.10
Hard. Total	385.00
Iron, Total	29.30
Iron, Diss.	0.41
Magnesium	47.30
Manganese, Diss.	0.05
Oil & Grease	<1
Potassium, Total	3.99
Sodium	83.90
Sol. Set.	2.00
Sol. Tot. Diss.	736.00
Sol. Tot. Sus.	2,190.00
Sulfate	320.00
Cat/An Balance	0.95

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-3
Location: Diver. Ditch Upstream
Type: Ditch
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow [gpm]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [F]	
Diss. O [ppm]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as C03	
Al Total	
Anions	
Calcium	
Cations	
Chloride	
Hard. Total	
Iron	
Magnesium	
Manganese	
Potassium	
Sodium	
Sol. Set.	
Sol. Tot. Diss.	
Sulfate	
Mn	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-4
Location: Diver. Ditch Downstream
Type: Ditch
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow [gpm]	2.00
PH	8.17
Sp. Cond. [ohms]	5,540.00
Temp. [F]	7.00
Diss. O [ppm]	5.50

Lab. Meas. [mg/l]	
Al as HCO3	383.00
Al as C03	<1
Al Total	314.00
Anions	71.00
Calcium	396.00
Cations	64.40
Chloride	71.80
Hard. Total	1,729.00
Iron	0.09
Magnesium	180.00
Manganese	0.13
Potassium	14.60
Sodium	677.00
Sol. Set.	<0.1
Sol. Tot. Diss.	4,940.00
Sol. Tot. Sus.	4,666.00
Sulfate	3,012.00
Cat/An Balance	4.90

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-5
Location: Upper Refuse Pond
Type: Pond
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow [gpm]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [F]	
Diss. O [ppm]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as C03	
Al Total	
Anions	
Calcium	
Cations	
Chloride	
Hard. Total	
Iron	
Magnesium	
Manganese	
Potassium	
Sodium	
Sol. Set.	
Sol. Tot. Diss.	
Sol. Tot. Sus.	
Sulfate	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-6
Location: Lower Refuse Pond
Type: Pond
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow [gpm]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [F]	
Diss. O [ppm]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as C03	
Al Total	
Anions	
Calcium	
Cations	
Chloride	
Hard. Total	
Iron	
Magnesium	
Manganese	
Potassium	
Sodium	
Sol. Set.	
Sol. Tot. Diss.	
Sol. Tot. Sus	
Sulfate	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-7
Location: Clearwater Pond
Type: Pond
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow [gpm]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [F]	
Diss. O [ppm]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as CO3	
Al Total	
Anions	
Calcium	
Cations	
Chloride	
Hard. Total	
Iron	
Magnesium	
Manganese	
Potassium	
Sodium	
Sol. Set.	
Sol. Tot. Diss.	
Sol. Tot. Sus.	
Sulfate	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-8
Location: Coarse Refuse Pile
Type:
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow [gpm]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [F]	
Diss. O [ppm]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as C03	
Al Total	
Anions	
Calcium	
Cations	
Chloride	
Hard. Total	
Iron	
Magnesium	
Manganese	
Potassium	
Sodium	
Sol Set.	
Sol. Tot. Diss.	
Sol. Tot. Sus.	
Sulfate	

WATER MONITORING REPORT

Property: Castle Valley Resources
Station: SW-8
Location: Coarse Refuse Pile
Type:
Frequency: Quarterly

Field Measurements	Date Sampled 03/24/97
Flow [gpm]	DRY
PH	
Sp. Cond. [ohms]	
Temp. [F]	
Diss. O [ppm]	

Lab. Meas. [mg/l]	
Al as HCO3	
Al as CO3	
Al Total	
Anions	
Calcium	
Cations	
Chloride	
Hard. Total	
Iron	
Magnesium	
Manganese	
Potassium	
Sodium	
Sol Set.	
Sol. Tot. Diss.	
Sol. Tot. Sus.	
Sulfate	