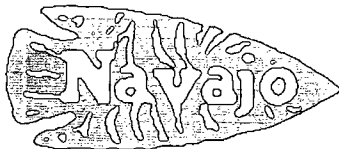


GW - 28

REPORTS

YEAR(S):

2001



REFINING COMPANY

FAX

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(505) 746-5481 TRUCKING
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501 EAST MAIN STREET • P. O. BOX 159
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(505) 746-5480 P / L

April 18, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505

OIL CONSERVATION DIV.
02 APR 22 PM 3:17

RE: FALL 2001 REPORT GROUND WATER SAMPLING AROUND EVAPORATION PONDS

Dear Roger:

Enclosed are results from our Fall 2001 sampling of the monitor wells around the evaporation ponds. This is on a staggered schedule per your letter of October 21, 1991. MW-1 was run over by pipeline digging equipment and is no longer useful. We can discuss if and/or when it will need to be replaced. The following is a summary of field observations:

<u>Well #</u>	<u>Ground water</u> <u>ft amsL</u>	<u>pH</u>	<u>EC</u> <u>umhos</u>	<u>Deg. C</u>	<u>Description</u>
MW-2 ✓	3298.80	7.5	8100	20.8	Slight Odor
MW-3 ✓	3299.10	7.62	12000	21.8	Odor
MW-4 ✓	3298.63	7.88	11000	21.2	Mod. Odor
MW-5 ✓	3301.15	7.8	9100	19.3	Odor, Silty
OCD-2 ✓	3304.33	8.1	9000	21.6	Slight Odor
OCD-4 ✓	3302.28	8.4	8950	20.4	Mild odor, silty
OCD-6 ✓	3300.75	8.51	10000	19.9	Odor
OCD-8 ✓	3298.30	7.10	11000	21.2	Slight Odor

If you have any questions, please contact me at 748-3311, extension 281.

Respectfully yours,
NAVAJO REFINING CO.

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.
cc: USEPA

Report Date: February 13, 2002 Order Number: A02020107
N/A Evaporation Ponds

Page Number: 1 of 5
Artesia

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: February 13, 2002

Order ID Number: A02020107

Project Number: N/A
Project Name: Evaporation Ponds
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
190106	OCD-4	Water	1/31/02	:	2/1/02
190107	MW-3	Water	1/31/02	:	2/1/02
190108	OCD-6	Water	1/31/02	9:10	2/1/02
190109	MW-2	Water	1/31/02	9:40	2/1/02
190110	OCD-2	Water	1/31/02	10:00	2/1/02

0 This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample - Field Code	BTX				
	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	M,P,O-Xylene (ppm)	Total BTX (ppm)
190106 - OCD-4	<0.001	<0.001	<0.001	<0.001	<0.001
190107 - MW-3	<0.005	<0.005	<0.005	<0.005	<0.005
190108 - OCD-6	<0.001	<0.001	<0.001	<0.001	<0.001
190109 - MW-2	<0.005	<0.005	<0.005	0.0074	0.0074
190110 - OCD-2	<0.005	<0.005	<0.005	<0.005	<0.005

Sample: 190106 - OCD-4

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃
Bicarbonate Alkalinity		206	mg/L as CaCO ₃
Total Alkalinity		206	mg/L as CaCO ₃
Total Mercury		<0.0002	mg/L
Chloride	1	4790	mg/L
Fluoride	2	1.31	mg/L
Nitrate-N		<1.00	mg/L
Sulfate	3	2700	mg/L
Dissolved Calcium		916	mg/L
Dissolved Magnesium		302	mg/L

Continued on next page ...

¹Chloride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 90; CCV %IA = 92; matrix spikes RPD = 1, %EA = 90; LCS spikes RPD = 0, %EA = 91.

²Fluoride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 93; CCV %IA = 92; matrix spikes RPD = 5, %EA = 88; LCS spikes RPD = 0, %EA = 91.

³Sulfate re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 1, %EA = 92; LCS spikes RPD = 0, %EA = 94.

Report Date: February 13, 2002 Order Number: A02020107

Page Number: 2 of 5

N/A

Evaporation Ponds

Artesia

Sample 190106 continued ...

Param	Flag	Result	Units
Dissolved Potassium		71.1	mg/L
Dissolved Sodium		2619	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.010	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		1.45	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		4.40	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.189	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.219	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

Sample: 190107 - MW-3

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		286	mg/L as CaCo3
Total Alkalinity		286	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride	4	1030	mg/L
Fluoride	5	2.43	mg/L
Nitrate-N		<1.00	mg/L
Sulfate	6	2300	mg/L
Dissolved Calcium		563	mg/L
Dissolved Magnesium		208	mg/L
Dissolved Potassium		11.0	mg/L
Dissolved Sodium		862	mg/L
Total Aluminum		1.06	mg/L
Total Arsenic		0.0262	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.817	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

⁴Chloride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 90; CCV %IA = 92; matrix spikes RPD = 1, %EA = 90; LCS spikes RPD = 0, %EA = 91.

⁵Fluoride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 93; CCV %IA = 92; matrix spikes RPD = 5, %EA = 88; LCS spikes RPD = 0, %EA = 91.

⁶Sulfate re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 1, %EA = 92; LCS spikes RPD = 0, %EA = 94.

Report Date: February 13, 2002 Order Number: A02020107

Page Number: 3 of 5

N/A Evaporation Ponds

Artesia

Sample 190107 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		2.39	mg/L
Total Lead		<0.010	mg/L
Total Manganese		2.82	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.114	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

Sample: 190108 - OCD-6

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		620	mg/L as CaCo3
Total Alkalinity		620	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride	7	2340	mg/L
Fluoride	8	4.66	mg/L
Nitrate-N		<1.00	mg/L
Sulfate	9	3590	mg/L
Dissolved Calcium		580	mg/L
Dissolved Magnesium		186	mg/L
Dissolved Potassium		35.7	mg/L
Dissolved Sodium		2232	mg/L
Total Aluminum		0.183	mg/L
Total Arsenic		0.156	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.618	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		9.96	mg/L
Total Lead		<0.010	mg/L
Total Manganese		1.90	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.467	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

⁷Chloride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 90; CCV %IA = 92; matrix spikes RPD = 1, %EA = 90; LCS spikes RPD = 0, %EA = 91.

⁸Fluoride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 93; CCV %IA = 92; matrix spikes RPD = 5, %EA = 88; LCS spikes RPD = 0, %EA = 91.

⁹Sulfate re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 1, %EA = 92; LCS spikes RPD = 0, %EA = 94.

Report Date: February 13, 2002 Order Number: A02020107

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N/A Evaporation Ponds

Artesia

Sample: 190109 - MW-2

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		596	mg/L as CaCo3
Total Alkalinity		596	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride	10	2130	mg/L
Fluoride	11	12.4	mg/L
Nitrate-N		<1.00	mg/L
Sulfate	12	2900	mg/L
Dissolved Calcium		607	mg/L
Dissolved Magnesium		116	mg/L
Dissolved Potassium		22.7	mg/L
Dissolved Sodium		2191	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		0.299	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.369	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		9.26	mg/L
Total Lead		<0.010	mg/L
Total Manganese		3.30	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.455	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

Sample: 190110 - OCD-2

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		266	mg/L as CaCo3
Total Alkalinity		266	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride	13	1930	mg/L
Fluoride	14	1.78	mg/L
Nitrate-N		<1.00	mg/L

Continued on next page ...

¹⁰Chloride re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 92; CCV %IA = 90; matrix spikes RPD = 0, %EA = 105; LCS spikes RPD = 4, %EA = 104.

¹¹Fluoride re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 6, %EA = 87; LCS spikes RPD = 1, %EA = 92.

¹²c

¹³Chloride re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 92; CCV %IA = 90; matrix spikes RPD = 0, %EA = 105; LCS spikes RPD = 4, %EA = 104.

¹⁴Fluoride re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 6, %EA = 87; LCS spikes RPD = 1, %EA = 92.

Report Date: February 13, 2002

Order Number: A02020107

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N/A

Evaporation Ponds

Artesia

Sample 190110 continued ...

Param	Flag	Result	Units
Sulfate	¹⁵	2390	mg/L
Dissolved Calcium		424	mg/L
Dissolved Magnesium		265	mg/L
Dissolved Potassium		11.3	mg/L
Dissolved Sodium		1370	mg/L
Total Aluminum		2.59	mg/L
Total Arsenic		0.0154	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.473	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		8.09	mg/L
Total Lead		<0.010	mg/L
Total Manganese		1.39	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.388	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L



TRACE ANALYSIS, INC.

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Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: February 13, 2002

Order ID Number: A02020107

Project Number: N/A
Project Name: Evaporation Ponds
Project Location: Artesia

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
190106	OCD-4	Water	1/31/02	:	2/1/02
190107	MW-3	Water	1/31/02	:	2/1/02
190108	OCD-6	Water	1/31/02	9:10	2/1/02
190109	MW-2	Water	1/31/02	9:40	2/1/02
190110	OCD-2	Water	1/31/02	10:00	2/1/02

0

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.

This report consists of a total of 18 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.



Dr. Blair Leftwich, Director

Analytical Report

Sample: 190106 - OCD-4

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC18005 Date Analyzed: 2/5/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17547 Date Prepared: 2/5/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		206	mg/L as CaCo3	1	1
Total Alkalinity		206	mg/L as CaCo3	1	1

Sample: 190106 - OCD-4

Analysis: BTEX Analytical Method: E 602 QC Batch: QC17823 Date Analyzed: 2/1/02
Analyst: CG Preparation Method: N/A Prep Batch: PB17423 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0895	mg/L	1	0.10	90	70 - 130
4-BFB		0.103	mg/L	1	0.10	103	70 - 130

Sample: 190106 - OCD-4

Analysis: Hg, Total Analytical Method: S 7470A QC Batch: QC18054 Date Analyzed: 2/9/02
Analyst: BC Preparation Method: N/A Prep Batch: PB17593 Date Prepared: 2/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 190106 - OCD-4

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC17900 Date Analyzed: 2/1/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17480 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride	1	4790	mg/L	100	0.50
Fluoride	2	1.31	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20

Continued ...

¹Chloride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 90; CCV %IA = 92; matrix spikes RPD = 1, %EA = 90; LCS spikes RPD = 0, %EA = 91.

²Fluoride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 93; CCV %IA = 92; matrix spikes RPD = 5, %EA = 88; LCS spikes RPD = 0, %EA = 91.

... Continued Sample: 190106 Analysis: Ion Chromatography (IC)

Param	Flag	Result	Units	Dilution	RDL
Sulfate	3	2700	mg/L	100	0.50

Sample: 190106 - OCD-4

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC18073 Date Analyzed: 2/8/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB17491 Date Prepared: 2/6/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		916	mg/L	1	0.50
Dissolved Magnesium		302	mg/L	1	0.50
Dissolved Potassium		71.1	mg/L	1	0.50
Dissolved Sodium		2619	mg/L	1	0.50

Sample: 190106 - OCD-4

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC17888 Date Analyzed: 2/5/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB17425 Date Prepared: 2/4/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.010	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		1.45	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		4.40	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.189	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.219	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

Sample: 190107 - MW-3

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC18005 Date Analyzed: 2/5/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17547 Date Prepared: 2/5/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		286	mg/L as CaCo3	1	1
Total Alkalinity		286	mg/L as CaCo3	1	1

³Sulfate re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 1, %EA = 92; LCS spikes RPD = 0, %EA = 94.

Sample: 190107 - MW-3

Analysis: BTEX Analytical Method: E 602 QC Batch: QC17823 Date Analyzed: 2/1/02
Analyst: CG Preparation Method: N/A Prep Batch: PB17423 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.086	mg/L	5	0.10	86	70 - 130
4-BFB	4	0.202	mg/L	5	0.10	202	70 - 130

Sample: 190107 - MW-3

Analysis: Hg, Total Analytical Method: S 7470A QC Batch: QC18054 Date Analyzed: 2/9/02
Analyst: BC Preparation Method: N/A Prep Batch: PB17593 Date Prepared: 2/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 190107 - MW-3

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC17900 Date Analyzed: 2/1/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17480 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride	5	1030	mg/L	50	0.50
Fluoride	6	2.43	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate	7	2300	mg/L	50	0.50

Sample: 190107 - MW-3

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC18073 Date Analyzed: 2/8/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB17491 Date Prepared: 2/6/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		563	mg/L	1	0.50
Dissolved Magnesium		208	mg/L	1	0.50
Dissolved Potassium		11.0	mg/L	1	0.50
Dissolved Sodium		862	mg/L	1	0.50

⁴High surrogate recovery due to peak interference.

⁵Chloride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 90; CCV %IA = 92; matrix spikes RPD = 1, %EA = 90; LCS spikes RPD = 0, %EA = 91.

⁶Fluoride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 93; CCV %IA = 92; matrix spikes RPD = 5, %EA = 88; LCS spikes RPD = 0, %EA = 91.

⁷Sulfate re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 1, %EA = 92; LCS spikes RPD = 0, %EA = 94.

Sample: 190107 - MW-3

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC17888 Date Analyzed: 2/5/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB17425 Date Prepared: 2/4/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		1.06	mg/L	1	0.10
Total Arsenic		0.0262	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.817	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		2.39	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		2.82	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.114	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

Sample: 190108 - OCD-6

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC18005 Date Analyzed: 2/5/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17547 Date Prepared: 2/5/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		620	mg/L as CaCo3	1	1
Total Alkalinity		620	mg/L as CaCo3	1	1

Sample: 190108 - OCD-6

Analysis: BTEX Analytical Method: E 602 QC Batch: QC17823 Date Analyzed: 2/1/02
Analyst: CG Preparation Method: N/A Prep Batch: PB17423 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	⁸	0.064	mg/L	1	0.10	64	70 - 130

Continued ...

⁸Low surrogate recovery due to prep error. ICV, CCV, CCV show the method to be in control.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-BFB	⁹	0.344	mg/L	1	0.10	344	70 - 130

Sample: 190108 - OCD-6

Analysis: Hg, Total Analytical Method: S 7470A QC Batch: QC18054 Date Analyzed: 2/9/02
Analyst: BC Preparation Method: N/A Prep Batch: PB17593 Date Prepared: 2/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 190108 - OCD-6

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC17900 Date Analyzed: 2/1/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17480 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride	¹⁰	2340	mg/L	100	0.50
Fluoride	¹¹	4.66	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate	¹²	3590	mg/L	100	0.50

Sample: 190108 - OCD-6

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC18073 Date Analyzed: 2/8/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB17491 Date Prepared: 2/6/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		580	mg/L	1	0.50
Dissolved Magnesium		186	mg/L	1	0.50
Dissolved Potassium		35.7	mg/L	1	0.50
Dissolved Sodium		2232	mg/L	1	0.50

Sample: 190108 - OCD-6

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC17888 Date Analyzed: 2/5/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB17425 Date Prepared: 2/4/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.183	mg/L	1	0.10
Total Arsenic		0.156	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.618	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005

Continued ...

⁹High surrogate recovery due to peak interference.

¹⁰Chloride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 90; CCV %IA = 92; matrix spikes RPD = 1, %EA = 90; LCS spikes RPD = 0, %EA = 91.

¹¹Fluoride re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 93; CCV %IA = 92; matrix spikes RPD = 5, %EA = 88; LCS spikes RPD = 0, %EA = 91.

¹²Sulfate re-ran on IC020602-2.sch (PB17524; QC17971). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 1, %EA = 92; LCS spikes RPD = 0, %EA = 94.

... Continued Sample: 190108 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		9.96	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		1.90	mg/L	1	0.02
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.467	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

Sample: 190109 - MW-2

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC18005 Date Analyzed: 2/5/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17547 Date Prepared: 2/5/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		596	mg/L as CaCo3	1	1
Total Alkalinity		596	mg/L as CaCo3	1	1

Sample: 190109 - MW-2

Analysis: BTEX Analytical Method: E 602 QC Batch: QC17823 Date Analyzed: 2/1/02
Analyst: CG Preparation Method: N/A Prep Batch: PB17423 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		0.0074	mg/L	5	0.001
Total BTEX		0.0074	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.088	mg/L	5	0.10	88	70 - 130
4-BFB	13	0.186	mg/L	5	0.10	186	70 - 130

Sample: 190109 - MW-2

Analysis: Hg, Total Analytical Method: S 7470A QC Batch: QC18054 Date Analyzed: 2/9/02
Analyst: BC Preparation Method: N/A Prep Batch: PB17593 Date Prepared: 2/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

¹³High surrogate recovery due to peak interference.

Sample: 190109 - MW-2

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC17900 Date Analyzed: 2/1/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17480 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride	¹⁴	2130	mg/L	100	0.50
Fluoride	¹⁵	12.4	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate	¹⁶	2900	mg/L	100	0.50

Sample: 190109 - MW-2

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC18073 Date Analyzed: 2/8/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB17491 Date Prepared: 2/6/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		607	mg/L	1	0.50
Dissolved Magnesium		116	mg/L	1	0.50
Dissolved Potassium		22.7	mg/L	1	0.50
Dissolved Sodium		2191	mg/L	1	0.50

Sample: 190109 - MW-2

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC17888 Date Analyzed: 2/5/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB17425 Date Prepared: 2/4/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		0.299	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.369	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		9.26	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		3.30	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.455	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

¹⁴Chloride re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 92; CCV %IA = 90; matrix spikes RPD = 0, %EA = 105; LCS spikes RPD = 4, %EA = 104.

¹⁵Fluoride re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 6, %EA = 87; LCS spikes RPD = 1, %EA = 92.

¹⁶c

Sample: 190110 - OCD-2

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC18005 Date Analyzed: 2/5/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17547 Date Prepared: 2/5/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		266	mg/L as CaCo3	1	1
Total Alkalinity		266	mg/L as CaCo3	1	1

Sample: 190110 - OCD-2

Analysis: BTEX Analytical Method: E 602 QC Batch: QC17823 Date Analyzed: 2/1/02
Analyst: CG Preparation Method: N/A Prep Batch: PB17423 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.086	mg/L	5	0.10	86	70 - 130
4-BFB		0.105	mg/L	5	0.10	105	70 - 130

Sample: 190110 - OCD-2

Analysis: Hg, Total Analytical Method: S 7470A QC Batch: QC18054 Date Analyzed: 2/9/02
Analyst: BC Preparation Method: N/A Prep Batch: PB17593 Date Prepared: 2/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 190110 - OCD-2

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC17900 Date Analyzed: 2/1/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17480 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride	17	1930	mg/L	50	0.50
Fluoride	18	1.78	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate	19	2390	mg/L	50	0.50

¹⁷Chloride re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 92; CCV %IA = 90; matrix spikes RPD = 0, %EA = 105; LCS spikes RPD = 4, %EA = 104.

¹⁸Fluoride re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 92; CCV %IA = 94; matrix spikes RPD = 6, %EA = 87; LCS spikes RPD = 1, %EA = 92.

¹⁹Sulfate re-ran on IC020602-3.sch (PB17524; QC17972). ICV %IA = 94; CCV %IA = 96; matrix spikes RPD = 1, %EA = 103; LCS spikes RPD = 1, %EA = 104.

Sample: 190110 - OCD-2

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC18073 Date Analyzed: 2/8/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB17491 Date Prepared: 2/6/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		424	mg/L	1	0.50
Dissolved Magnesium		265	mg/L	1	0.50
Dissolved Potassium		11.3	mg/L	1	0.50
Dissolved Sodium		1370	mg/L	1	0.50

Sample: 190110 - OCD-2

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC17888 Date Analyzed: 2/5/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB17425 Date Prepared: 2/4/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		2.59	mg/L	1	0.10
Total Arsenic		0.0154	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.473	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		8.09	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		1.39	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.388	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

Quality Control Report Method Blank

Method Blank QCBatch: QC17823

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0844	mg/L	1	0.10	84	70 - 130
4-BFB		0.091	mg/L	1	0.10	91	70 - 130

Method Blank QCBatch: QC17888

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		0.0145	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		0.0118	mg/L	0.01
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.050	mg/L	0.05
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC17900

Param	Flag	Results	Units	Reporting Limit
Nitrate-N		<0.2	mg/L	0.20

Method Blank QCBatch: QC18005

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4	mg/L as CaCo3	1
Total Alkalinity		<4	mg/L as CaCo3	1

Method Blank QCBatch: QC18054

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC18073

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.6	mg/L	0.50

Quality Control Report Duplicate Samples

Duplicate QCBatch: QC18005

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1	<1.0	mg/L as CaCo3	1	0	7
Carbonate Alkalinity		<1	<1.0	mg/L as CaCo3	1	0	7
Bicarbonate Alkalinity		226	222	mg/L as CaCo3	1	1	7
Total Alkalinity		226	222	mg/L as CaCo3	1	1	7

Quality Control Report Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC17823

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.0921	0.0924	mg/L	1	0.10	<0.001	92	0	80 - 120	20
Benzene	0.0936	0.0924	mg/L	1	0.10	<0.001	94	1	80 - 120	20
Toluene	0.0982	0.0968	mg/L	1	0.10	<0.001	98	1	80 - 120	20
Ethylbenzene	0.0994	0.0976	mg/L	1	0.10	<0.001	99	2	80 - 120	20

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
M,P,O-Xylene	0.302	0.298	mg/L	1	0.30	<0.001	101	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.0915	0.0915	mg/L	1	0.10	92	92	70 - 130
4-BFB	0.108	0.108	mg/L	1	0.10	108	108	70 - 130

Laboratory Control Spikes

QCBatch: QC17888

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.958	0.945	mg/L	1	1	<0.100	96	1	75 - 125	20
Total Arsenic	0.517	0.488	mg/L	1	0.50	0.0145	100	6	75 - 125	20
Total Barium	1.02	1.01	mg/L	1	1	<0.100	102	1	75 - 125	20
Total Beryllium	0.024	0.0237	mg/L	1	0.02	<0.0025	96	1	75 - 125	20
Total Boron	0.0528	0.051	mg/L	1	0.05	0.0118	82	3	75 - 125	20
Total Cadmium	0.245	0.241	mg/L	1	0.25	<0.005	98	2	75 - 125	20
Total Chromium	0.103	0.102	mg/L	1	0.10	<0.010	103	1	75 - 125	20
Total Cobalt	0.253	0.248	mg/L	1	0.25	<0.025	101	2	75 - 125	20
Total Copper	0.124	0.122	mg/L	1	0.12	<0.0125	99	2	75 - 125	20
Total Iron	0.514	0.501	mg/L	1	0.50	<0.050	103	2	75 - 125	20
Total Lead	0.488	0.476	mg/L	1	0.50	<0.010	98	2	75 - 125	20
Total Manganese	0.255	0.253	mg/L	1	0.25	<0.025	102	1	75 - 125	20
Total Molybdenum	0.516	0.513	mg/L	1	0.50	<0.050	103	0	75 - 125	20
Total Nickel	0.254	0.251	mg/L	1	0.25	<0.025	102	1	75 - 125	20
Total Selenium	0.414	0.404	mg/L	1	0.50	<0.050	83	2	75 - 125	20
Total Silver	0.122	0.119	mg/L	1	0.12	<0.0125	98	2	75 - 125	20
Total Uranium	0.510	0.502	mg/L	1	0.50	<0.050	102	2	75 - 125	20
Total Vanadium	0.254	0.252	mg/L	1	0.25	<0.025	102	1	75 - 125	20
Total Zinc	0.242	0.238	mg/L	1	0.25	<0.025	97	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC17900

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Nitrate-N	2.27	2.27	mg/L	1	2.50	<0.2	90	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC18073

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	106	105	mg/L	1	100	<0.5	106	0	75 - 125	20
Dissolved Magnesium	104	104	mg/L	1	100	<0.5	104	0	75 - 125	20

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Potassium	99.8	102	mg/L	1	100	<0.5	99	2	75 - 125	20
Dissolved Sodium	103	101	mg/L	1	100	<0.6	103	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report Matrix Spikes and Duplicate Spikes

Matrix Spikes QCBatch: QC17888

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.27	1.26	mg/L	1	1	<0.100	127	0	75 - 125	20
Total Arsenic	0.476	0.472	mg/L	1	0.50	<0.010	95	0	75 - 125	20
Total Barium	0.776	0.780	mg/L	1	1	<0.100	77	0	75 - 125	20
Total Beryllium	0.0179	0.0179	mg/L	1	0.02	<0.0025	71	0	75 - 125	20
Total Boron	1.51	1.48	mg/L	1	0.05	1.45	111	73	75 - 125	20
Total Cadmium	²⁰ 0.174	0.176	mg/L	1	0.25	<0.005	69	1	75 - 125	20
Total Chromium	0.0754	0.0745	mg/L	1	0.10	<0.010	75	1	75 - 125	20
Total Cobalt	0.187	0.188	mg/L	1	0.25	<0.025	74	0	75 - 125	20
Total Copper	0.124	0.123	mg/L	1	0.12	<0.0125	99	0	75 - 125	20
Total Iron	4.87	4.75	mg/L	1	0.50	4.40	94	28	75 - 125	20
Total Lead	²¹ 0.351	0.355	mg/L	1	0.50	<0.010	70	1	75 - 125	20
Total Manganese	²² 0.372	0.376	mg/L	1	0.25	0.189	73	2	75 - 125	20
Total Molybdenum	0.390	0.389	mg/L	1	0.50	<0.050	78	0	75 - 125	20
Total Nickel	²³ 0.170	0.170	mg/L	1	0.25	<0.025	68	0	75 - 125	20
Total Selenium	0.415	0.409	mg/L	1	0.50	<0.050	83	1	75 - 125	20
Total Silver	0.118	0.119	mg/L	1	0.12	<0.0125	94	0	75 - 125	20
Total Uranium	²⁴ 0.582	0.575	mg/L	1	0.50	0.219	72	1	75 - 125	20
Total Vanadium	0.196	0.196	mg/L	1	0.25	<0.025	78	0	75 - 125	20
Total Zinc	²⁵ 0.176	0.175	mg/L	1	0.25	<0.025	70	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC17900

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Nitrate-N	115.32	115.37	mg/L	1	125	<1.00	92	0	84 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

²⁰Matrix spike recovery invalid due to matrix difficulties. LCS demonstrates process under control.

²¹Matrix spike recovery invalid due to matrix difficulties. LCS demonstrates process under control.

²²Matrix spike recovery invalid due to matrix difficulties. LCS demonstrates process under control.

²³Matrix spike recovery invalid due to matrix difficulties. LCS demonstrates process under control.

²⁴Matrix spike recovery invalid due to matrix difficulties. LCS demonstrates process under control.

²⁵Matrix spike recovery invalid due to matrix difficulties. LCS demonstrates process under control.

Matrix Spikes QCBatch: QC18073

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	²⁶ 1055	²⁷ 961	mg/L	1	100	916	139	102	75 - 125	20
Dissolved Magnesium	411	²⁸ 391	mg/L	1	100	302	109	20	75 - 125	20
Dissolved Potassium	²⁹ 194	184	mg/L	1	100	71.1	122	8	75 - 125	20
Dissolved Sodium	³⁰ 2801	³¹ 2687	mg/L	1	100	2619	182	91	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report Continuing Calibration Verification Standards

CCV (1) QCBatch: QC17823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.092	92	85 - 115	2/1/02
Benzene		mg/L	0.10	0.091	91	85 - 115	2/1/02
Toluene		mg/L	0.10	0.096	96	85 - 115	2/1/02
Ethylbenzene		mg/L	0.10	0.096	96	85 - 115	2/1/02
M,P,O-Xylene		mg/L	0.30	0.298	99	85 - 115	2/1/02

CCV (2) QCBatch: QC17823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.095	95	85 - 115	2/1/02
Benzene		mg/L	0.10	0.091	91	85 - 115	2/1/02
Toluene		mg/L	0.10	0.098	98	85 - 115	2/1/02
Ethylbenzene		mg/L	0.10	0.095	95	85 - 115	2/1/02
M,P,O-Xylene		mg/L	0.30	0.295	98	85 - 115	2/1/02

ICV (1) QCBatch: QC17823

²⁶MS RECOVERY INVALID DUE TO MATRIX EFFECT/DILUTION FACTOR. USE LCS/LCSD TO DEMONSTRATE THE RUN IS UNDER CONTROL.

²⁷MS RECOVERY INVALID DUE TO MATRIX EFFECT/DILUTION FACTOR. USE LCS/LCSD TO DEMONSTRATE THE RUN IS UNDER CONTROL.

²⁸MS RECOVERY INVALID DUE TO MATRIX EFFECT/DILUTION FACTOR. USE LCS/LCSD TO DEMONSTRATE THE RUN IS UNDER CONTROL.

²⁹MS RECOVERY INVALID DUE TO MATRIX EFFECT/DILUTION FACTOR. USE LCS/LCSD TO DEMONSTRATE THE RUN IS UNDER CONTROL.

³⁰MS RECOVERY INVALID DUE TO MATRIX EFFECT/DILUTION FACTOR. USE LCS/LCSD TO DEMONSTRATE THE RUN IS UNDER CONTROL.

³¹MS RECOVERY INVALID DUE TO MATRIX EFFECT/DILUTION FACTOR. USE LCS/LCSD TO DEMONSTRATE THE RUN IS UNDER CONTROL.

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0966	97	85 - 115	2/1/02
Benzene		mg/L	0.10	0.0907	91	85 - 115	2/1/02
Toluene		mg/L	0.10	0.0951	95	85 - 115	2/1/02
Ethylbenzene		mg/L	0.10	0.0957	96	85 - 115	2/1/02
M,P,O-Xylene		mg/L	0.30	0.293	98	85 - 115	2/1/02

CCV (1)

QCBatch: QC17888

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.92	96	90 - 110	2/5/02
Total Arsenic		mg/L	1	0.930	92	90 - 110	2/5/02
Total Barium		mg/L	2	1.96	98	90 - 110	2/5/02
Total Beryllium		mg/L	0.05	0.0487	97	90 - 110	2/5/02
Total Boron		mg/L	0.10	0.106	94	90 - 110	2/5/02
Total Cadmium		mg/L	0.50	0.484	97	90 - 110	2/5/02
Total Chromium		mg/L	0.20	0.196	98	90 - 110	2/5/02
Total Cobalt		mg/L	0.50	0.486	97	90 - 110	2/5/02
Total Copper		mg/L	0.25	0.247	99	90 - 110	2/5/02
Total Iron		mg/L	1	0.961	96	90 - 110	2/5/02
Total Lead		mg/L	1	0.975	98	90 - 110	2/5/02
Total Manganese		mg/L	0.50	0.494	99	90 - 110	2/5/02
Total Molybdenum		mg/L	1	0.976	98	90 - 110	2/5/02
Total Nickel		mg/L	0.50	0.489	98	90 - 110	2/5/02
Total Selenium		mg/L	1	0.965	96	90 - 110	2/5/02
Total Silver		mg/L	0.25	0.244	98	90 - 110	2/5/02
Total Uranium		mg/L	1	0.972	97	90 - 110	2/5/02
Total Vanadium		mg/L	0.50	0.490	98	90 - 110	2/5/02
Total Zinc		mg/L	0.50	0.485	97	90 - 110	2/5/02

ICV (1)

QCBatch: QC17888

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.93	96	90 - 110	2/5/02
Total Arsenic		mg/L	1	0.951	94	90 - 110	2/5/02
Total Barium		mg/L	2	1.96	98	90 - 110	2/5/02
Total Beryllium		mg/L	0.05	0.0488	98	90 - 110	2/5/02
Total Boron		mg/L	0.10	0.104	92	90 - 110	2/5/02
Total Cadmium		mg/L	0.50	0.489	98	90 - 110	2/5/02
Total Chromium		mg/L	0.20	0.197	98	90 - 110	2/5/02
Total Cobalt		mg/L	0.50	0.491	98	90 - 110	2/5/02
Total Copper		mg/L	0.25	0.246	98	90 - 110	2/5/02
Total Iron		mg/L	1	0.970	97	90 - 110	2/5/02
Total Lead		mg/L	1	0.981	98	90 - 110	2/5/02
Total Manganese		mg/L	0.50	0.491	98	90 - 110	2/5/02
Total Molybdenum		mg/L	1	0.987	99	90 - 110	2/5/02

Continued ...

... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	0.50	0.493	99	90 - 110	2/5/02
Total Selenium		mg/L	1	0.989	99	90 - 110	2/5/02
Total Silver		mg/L	0.25	0.245	98	90 - 110	2/5/02
Total Uranium		mg/L	1	0.984	98	90 - 110	2/5/02
Total Vanadium		mg/L	0.50	0.490	98	90 - 110	2/5/02
Total Zinc		mg/L	0.50	0.491	98	90 - 110	2/5/02

CCV (1)

QCBatch: QC17900

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.29	91	90 - 110	2/1/02

ICV (1)

QCBatch: QC17900

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.30	92	90 - 110	2/1/02

CCV (1)

QCBatch: QC18005

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1	0	90 - 110	2/5/02
Carbonate Alkalinity		mg/L as CaCo3	0	216	0	90 - 110	2/5/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	26	0	90 - 110	2/5/02
Total Alkalinity		mg/L as CaCo3	250	242	96	90 - 110	2/5/02

ICV (1)

QCBatch: QC18005

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1	0	90 - 110	2/5/02
Carbonate Alkalinity		mg/L as CaCo3	0	236	0	90 - 110	2/5/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	4	0	90 - 110	2/5/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	2/5/02

CCV (1)

QCBatch: QC18054

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00105	105	80 - 120	2/9/02

ICV (1) QCBatch: QC18054

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00103	103	80 - 120	2/9/02

CCV (1) QCBatch: QC18073

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.2	100	90 - 110	2/8/02
Dissolved Magnesium		mg/L	25	24.6	98	90 - 110	2/8/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	2/8/02
Dissolved Sodium		mg/L	25	24.7	98	90 - 110	2/8/02

ICV (1) QCBatch: QC18073

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.0	100	95 - 105	2/8/02
Dissolved Magnesium		mg/L	25	24.7	98	95 - 105	2/8/02
Dissolved Potassium		mg/L	25	24.2	96	95 - 105	2/8/02
Dissolved Sodium		mg/L	25	25.1	100	95 - 105	2/8/02

190106-107 -10

Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #

A02020107

Company Name:

NAVARO

Phone #:

Address:

(Street, City, Zip)

Fax #:

501 E main

Contact Person:

Darren Moore or Charles Rogers

Invoice to:

(If different from above)

Project #:

Project Name:

Evap/Spade.

Project Location:

Sampler Signature:

[Signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX				PRESERVATIVE METHOD				DATE	TIME
				WATER	SOIL	AIR	SLUDGE	HCL	HNO3	ICE	NONE		
190106	OC04	1	1L	X						X	X		
	" "	5	500	X					X	X			
	" "	2	40ml	X				X		X			
190107	MW3	1	1L	X						X			
	" "	1	500ml	X				X	X	X			
	" "	2	40ml	X				X		X			

Relinquished by:

[Signature]

Date:

1/31/02 1615

Received by:

Date:

Time:

Relinquished by:

[Signature]

Date:

Time:

Received by:

Date:

Time:

Relinquished by:

[Signature]

Date:

Time:

Received at Laboratory by:

Date:

Time:

Mell Green 2-1-02 10:00am

ANALYSIS REQUEST

(Circle or Specify Method No.)

MTBE 8021B/602	
BTEX 8021B/602	
TPH 418.1/TX1005	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
TCLP Pesticides	
RCI	
GC-MS Vol. 8260B/624	
GC/MS Semi. Vol. 8270C/625	
PCB's 8082/608	
Pesticides 8081A/608	
BOD, TSS, pH	
Turn Around Time if different from standard	

See List

REMARKS:

LAB USE ONLY

Intact

Y / N

Headspace

Y / N

Temp

°

Log-in Review

17

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Carrier #

FYP
2/13/02

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

Company Name: Navajo Phone #: _____

Address: (Street, City, Zip) 501 E Main Fax #: _____

Contact Person: Darrell Moore or Charice Phynale

Invoice to: _____
If different from above)

Project #: _____

Project Location: _____
Project Name: Evap. Ponds
Sampler Signature: [Signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX				PRESERVATIVE METHOD						SAMPLING	
				WATER	SOIL	AIR	SLUDGE	HCl	HNO ₃	H ₂ SO ₄	NaOH	ICE	NONE	DATE	TIME
190108	OCD 6	1	1 L	X								X	X	1/3/02	910
	" "	1	500ml	X							X		X	1/3/02	910
	" "	2	40ml	X				X				X	X	1/3/02	910
190109	MWZ	1	1 L	X								X	X	1/3/02	940
	" "	1	500ml	X							X		X	1/3/02	940
	" "	2	40ml	X				X				X	X	1/3/02	940
190110	OCD 2	1	1 L	X								X	X	1/3/02	1000
	" "	1	500ml	X								X	X	1/3/02	1000
	" "	2	40ml	X								X	X	1/3/02	1000

Relinquished by: [Signature] Date: 1/3/02 Time: 1615

Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____

Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____

Received at Laboratory by: Mell Green Date: 2-1-02 Time: 10:00am

Submission of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

ANALYSIS REQUEST

(Circle or Specify Method No.)

MTBE 8021B/602	
BTEX 8021B/602	
TPH 418.1/TX1005	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
TCLP Pesticides	
RCI	
GC/MS Vol. 8260B/624	
GC/MS Semi. Vol. 8270C/625	
PCBs 8082/608	
Pesticides 8081A/608	
BOD, TSS, pH	
Turn Around Time if different from standard	

See List

REMARKS:

LAB USE ONLY

Intact Y / N _____

Headspace Y / N _____

Temp _____

Log-in Review 1/3

Carrier # _____

☐ Check If Special Reporting Limits Are Needed

Summary Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: February 13, 2002

Order ID Number: A02012910

Project Number: N/A
Project Name: Evaporation Ponds
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
189882	MW-4	Water	1/28/02	9:40	1/29/02
189883	MW-5	Water	1/28/02	10:00	1/29/02
189884	OCD-8	Water	1/28/02	10:30	1/29/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample - Field Code	BTEX					Total BTEX (ppm)
	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	M,P,O-Xylene (ppm)	Total BTEX (ppm)	
189882 - MW-4	0.0121	0.0299	0.0275	0.0432	0.113	0.113
189883 - MW-5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
189884 - OCD-8	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Sample: 189882 - MW-4

Param	Flag	Result	Units
Naphthalene		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		208	mg/L as CaCo3
Total Alkalinity		208	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride	1	931	mg/L
Fluoride		2.28	mg/L
Nitrate-N		<1.00	mg/L
Sulfate	2	1350	mg/L
Dissolved Calcium		355	mg/L
Dissolved Magnesium		124	mg/L
Dissolved Potassium		7.99	mg/L
Dissolved Sodium		650	mg/L

Continued on next page ...

¹Chloride re-ran on IC020402-2.sch. ICV %IA = 91; CCV %IA = 91; matrix spikes RPD = 0, %EA = 86; LCS spikes RPD = 0, %EA = 90.

²Sulfate re-ran on IC013102-1.sch (PB17477; QC17896). ICV %IA = 93; CCV %IA = 92; matrix spikes RPD = 0, %EA = 92; LCS spikes RPD = 1, %EA = 92.

This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: February 13, 2002 Order Number: A02012910

Page Number: 2 of 3

N/A

Evaporation Ponds

Artesia

Sample 189882 continued ...

Param	Flag	Result	Units
Total Aluminum		0.178	mg/L
Total Arsenic		0.0578	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.518	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		1.51	mg/L
Total Lead		<0.010	mg/L
Total Manganese		1.70	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.126	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

Sample: 189883 - MW-5

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		410	mg/L as CaCo3
Total Alkalinity		410	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride	3	4010	mg/L
Fluoride		4.16	mg/L
Nitrate-N		<1.00	mg/L
Sulfate	4	6710	mg/L
Dissolved Calcium		583	mg/L
Dissolved Magnesium		962	mg/L
Dissolved Potassium		16.6	mg/L
Dissolved Sodium		3910	mg/L
Total Aluminum		0.371	mg/L
Total Arsenic		0.104	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		1.53	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		6.66	mg/L
Total Lead		<0.010	mg/L
Total Manganese		1.53	mg/L

Continued on next page ...

³Chloride re-ran on IC020402-2.sch. ICV %IA = 91; CCV %IA = 91; matrix spikes RPD = 0, %EA = 86; LCS spikes RPD = 0, %EA = 90.

⁴Sulfate re-ran on IC013102-2.sch (PB17477; QC17897). ICV %IA = 92; CCV %IA = 91; matrix spikes RPD = 0, %EA = 91; LCS spikes RPD = 0, %EA = 91.

This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: February 13, 2002 Order Number: A02012910

Page Number: 3 of 3

N/A

Evaporation Ponds

Artesia

Sample 189883 continued ...

Param	Flag	Result	Units
Total Molybdenum		<0.050	mg/L
Total Nickel		0.0315	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.510	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

Sample: 189884 - OCD-8

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		218	mg/L as CaCo3
Total Alkalinity		218	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride	5	1800	mg/L
Fluoride		1.64	mg/L
Nitrate-N		<1.00	mg/L
Sulfate	6	2230	mg/L
Dissolved Calcium		764	mg/L
Dissolved Magnesium		201	mg/L
Dissolved Potassium		18.1	mg/L
Dissolved Sodium		1126	mg/L
Total Aluminum		0.101	mg/L
Total Arsenic		<0.010	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.364	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		0.687	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.621	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.089	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

⁵Chloride re-ran on IC020402-2.sch. ICV %IA = 91; CCV %IA = 91; matrix spikes RPD = 0, %EA = 86; LCS spikes RPD = 0, %EA = 90.

⁶Sulfate re-ran on IC013102-2.sch (PB17477; QC17897). ICV %IA = 92; CCV %IA = 91; matrix spikes RPD = 0, %EA = 91; LCS spikes RPD = 0, %EA = 91.

This is only a summary. Please, refer to the complete report package for quality control data.



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Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: February 13, 2002

Order ID Number: A02012910

Project Number: N/A
Project Name: Evaporation Ponds
Project Location: Artesia

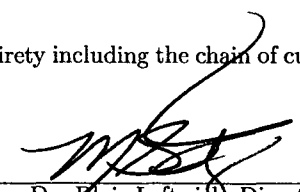
Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
189882	MW-4	Water	1/28/02	9:40	1/29/02
189883	MW-5	Water	1/28/02	10:00	1/29/02
189884	OCD-8	Water	1/28/02	10:30	1/29/02

0

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.

This report consists of a total of 18 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.



Dr. Blair Leftwich, Director

Analytical Report

Sample: 189882 - MW-4

Analysis: 8270 Analytical Method: S 8270C QC Batch: QC17962 Date Analyzed: 2/5/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB17520 Date Prepared: 1/31/02

Param	Flag	Result	Units	Dilution	RDL
Naphthalene		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		18.76	mg/L	1	80	23	21 - 100
Phenol-d5		12.68	mg/L	1	80	15	11 - 94
Nitrobenzene-d5		40.71	mg/L	1	80	50	35 - 114
2-Fluorobiphenyl		45.22	mg/L	1	80	56	43 - 116
2,4,6-Tribromophenol		53.95	mg/L	1	80	67	10 - 123
Terphenyl-d14		44.85	mg/L	1	80	56	33 - 141

Sample: 189882 - MW-4

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC18004 Date Analyzed: 2/5/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17546 Date Prepared: 2/5/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		208	mg/L as CaCo3	1	1
Total Alkalinity		208	mg/L as CaCo3	1	1

Sample: 189882 - MW-4

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC17711 Date Analyzed: 1/29/02
Analyst: CG Preparation Method: S 5030B Prep Batch: PB17346 Date Prepared: 1/29/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.0121	mg/L	10	0.001
Toluene		0.0299	mg/L	10	0.001
Ethylbenzene		0.0275	mg/L	10	0.001
M,P,O-Xylene		0.0432	mg/L	10	0.001
Total BTEX		0.113	mg/L	1	0.001
Total BTEX		0.113	mg/L	10	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.079	mg/L	10	0.10	79	70 - 130
4-BFB		0.088	mg/L	10	0.10	88	70 - 130

Sample: 189882 - MW-4

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC18055 Date Analyzed: 2/9/02
Analyst: BC Preparation Method: N/A Prep Batch: PB17593 Date Prepared: 2/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 189882 - MW-4

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC17812 Date Analyzed: 1/29/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17413 Date Prepared: 1/29/02

Param	Flag	Result	Units	Dilution	RDL
Chloride	1	931	mg/L	50	0.50
Fluoride		2.28	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate	2	1350	mg/L	50	0.50

Sample: 189882 - MW-4

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC17917 Date Analyzed: 2/4/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB17369 Date Prepared: 1/31/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		355	mg/L	1	0.50
Dissolved Magnesium		124	mg/L	1	0.50
Dissolved Potassium		7.99	mg/L	1	0.50
Dissolved Sodium		650	mg/L	1	0.50

Sample: 189882 - MW-4

Analysis: Total Metals Analytical Method: E 200.7 QC Batch: QC17782 Date Analyzed: 1/31/02
Analyst: RR Preparation Method: N/A Prep Batch: PB17360 Date Prepared: 1/30/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.178	mg/L	1	0.10
Total Arsenic		0.0578	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.518	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		1.51	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		1.70	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02

Continued ...

¹Chloride re-ran on IC020402-2.sch. ICV %IA = 91; CCV %IA = 91; matrix spikes RPD = 0, %EA = 86; LCS spikes RPD = 0, %EA = 90.

²Sulfate re-ran on IC013102-1.sch (PB17477; QC17896). ICV %IA = 93; CCV %IA = 92; matrix spikes RPD = 0, %EA = 92; LCS spikes RPD = 1, %EA = 92.

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... Continued Sample: 189882 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.126	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

Sample: 189883 - MW-5

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC18004 Date Analyzed: 2/5/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17546 Date Prepared: 2/5/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		410	mg/L as CaCo3	1	1
Total Alkalinity		410	mg/L as CaCo3	1	1

Sample: 189883 - MW-5

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC17823 Date Analyzed: 2/1/02
Analyst: CG Preparation Method: S 5030B Prep Batch: PB17423 Date Prepared: 2/1/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	1	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.089	mg/L	5	0.10	89	70 - 130
4-BFB		0.652	mg/L	5	0.10	652	70 - 130

Sample: 189883 - MW-5

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC18055 Date Analyzed: 2/9/02
Analyst: BC Preparation Method: N/A Prep Batch: PB17593 Date Prepared: 2/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 189883 - MW-5

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC17812 Date Analyzed: 1/29/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17413 Date Prepared: 1/29/02

Continued ...

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... Continued Sample: 189883 Analysis: Ion Chromatography (IC)

Param	Flag	Result	Units	Dilution	RDL
Param	Flag	Result	Units	Dilution	RDL
Chloride	3	4010	mg/L	200	0.50
Fluoride		4.16	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate	4	6710	mg/L	500	0.50

Sample: 189883 - MW-5

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC17917 Date Analyzed: 2/4/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB17369 Date Prepared: 1/31/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		583	mg/L	1	0.50
Dissolved Magnesium		962	mg/L	1	0.50
Dissolved Potassium		16.6	mg/L	1	0.50
Dissolved Sodium		3910	mg/L	1	0.50

Sample: 189883 - MW-5

Analysis: Total Metals Analytical Method: E 200.7 QC Batch: QC17782 Date Analyzed: 1/31/02
Analyst: RR Preparation Method: N/A Prep Batch: PB17360 Date Prepared: 1/30/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.371	mg/L	1	0.10
Total Arsenic		0.104	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		1.53	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		6.66	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		1.53	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		0.0315	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.510	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

Sample: 189884 - OCD-8

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC18004 Date Analyzed: 2/5/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17546 Date Prepared: 2/5/02

³Chloride re-ran on IC020402-2.sch. ICV %IA = 91; CCV %IA = 91; matrix spikes RPD = 0, %EA = 86; LCS spikes RPD = 0, %EA = 90.

⁴Sulfate re-ran on IC013102-2.sch (PB17477; QC17897). ICV %IA = 92; CCV %IA = 91; matrix spikes RPD = 0, %EA = 91; LCS spikes RPD = 0, %EA = 91.

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Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		218	mg/L as CaCo3	1	1
Total Alkalinity		218	mg/L as CaCo3	1	1

Sample: 189884 - OCD-8

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC17711 Date Analyzed: 1/29/02
Analyst: CG Preparation Method: S 5030B Prep Batch: PB17346 Date Prepared: 1/29/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0806	mg/L	1	0.10	81	70 - 130
4-BFB	5	0.183	mg/L	1	0.10	183	70 - 130

Sample: 189884 - OCD-8

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC18055 Date Analyzed: 2/9/02
Analyst: BC Preparation Method: N/A Prep Batch: PB17593 Date Prepared: 2/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 189884 - OCD-8

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC17812 Date Analyzed: 1/29/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17413 Date Prepared: 1/29/02

Param	Flag	Result	Units	Dilution	RDL
Chloride	6	1800	mg/L	100	0.50
Fluoride		1.64	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate	7	2230	mg/L	100	0.50

Sample: 189884 - OCD-8

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC17917 Date Analyzed: 2/4/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB17369 Date Prepared: 1/31/02

⁵High surrogate recovery due to peak interference.

⁶Chloride re-ran on IC020402-2.sch. ICV %IA = 91; CCV %IA = 91; matrix spikes RPD = 0, %EA = 86; LCS spikes RPD = 0, %EA = 90.

⁷Sulfate re-ran on IC013102-2.sch (PB17477; QC17897). ICV %IA = 92; CCV %IA = 91; matrix spikes RPD = 0, %EA = 91; LCS spikes RPD = 0, %EA = 91.

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Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		764	mg/L	1	0.50
Dissolved Magnesium		201	mg/L	1	0.50
Dissolved Potassium		18.1	mg/L	1	0.50
Dissolved Sodium		1126	mg/L	1	0.50

Sample: 189884 - OCD-8

Analysis: Total Metals Analytical Method: E 200.7 QC Batch: QC17782 Date Analyzed: 1/31/02
Analyst: RR Preparation Method: N/A Prep Batch: PB17360 Date Prepared: 1/30/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.101	mg/L	1	0.10
Total Arsenic		<0.010	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.364	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.687	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.621	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.089	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

Quality Control Report Method Blank

Method Blank QCBatch: QC17711

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0867	mg/L	1	0.10	87	70 - 130
4-BFB		0.0878	mg/L	1	0.10	88	70 - 130

Method Blank QCBatch: QC17782

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.010	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		0.0139	mg/L	0.01
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.050	mg/L	0.05
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC17812

Param	Flag	Results	Units	Reporting Limit
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20

Method Blank QCBatch: QC17823

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0844	mg/L	1	0.10	84	70 - 130
4-BFB		0.091	mg/L	1	0.10	91	70 - 130

Method Blank QCBatch: QC17917

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC17962

Param	Flag	Results	Units	Reporting Limit
Naphthalene		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		37.31	mg/L	1	80	46	21 - 100
Phenol-d5		24.08	mg/L	1	80	30	11 - 94
Nitrobenzene-d5		64.9	mg/L	1	80	81	35 - 114
2-Fluorobiphenyl		70.81	mg/L	1	80	88	43 - 116
2,4,6-Tribromophenol		70.83	mg/L	1	80	88	10 - 123
Terphenyl-d14		69.36	mg/L	1	80	86	33 - 141

Method Blank QCBatch: QC18004

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4	mg/L as CaCo3	1

Continued ...

... Continued

Param	Flag	Results	Units	Reporting Limit
Total Alkalinity		<4	mg/L as CaCo3	1

Method Blank QCBatch: QC18055

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Quality Control Report Duplicate Samples

Duplicate QCBatch: QC18004

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1	<1.0	mg/L as CaCo3	1	0	7
Carbonate Alkalinity		<1	<1.0	mg/L as CaCo3	1	0	7
Bicarbonate Alkalinity		220	218	mg/L as CaCo3	1	0	7
Total Alkalinity		220	218	mg/L as CaCo3	1	0	7

Quality Control Report Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC17711

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.100	0.100	mg/L	1	0.10	<0.001	100	0	80 - 120	20
Benzene	0.0882	0.0894	mg/L	1	0.10	<0.001	88	1	80 - 120	20
Toluene	0.0889	0.0898	mg/L	1	0.10	<0.001	89	1	80 - 120	20
Ethylbenzene	0.0893	0.090	mg/L	1	0.10	<0.001	89	1	80 - 120	20
M,P,O-Xylene	0.261	0.263	mg/L	1	0.30	<0.001	87	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.0825	0.087	mg/L	1	0.10	82	87	70 - 130
4-BFB	0.0858	0.0898	mg/L	1	0.10	86	90	70 - 130

Laboratory Control Spikes QCBatch: QC17782

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.969	0.959	mg/L	1	1	<0.100	96	1	75 - 125	20
Total Arsenic	0.510	0.492	mg/L	1	0.50	<0.010	102	3	75 - 125	20
Total Barium	1.01	1.00	mg/L	1	1	<0.100	101	0	75 - 125	20
Total Beryllium	0.024	0.0239	mg/L	1	0.02	<0.0025	96	0	75 - 125	20
Total Boron	0.0538	0.052	mg/L	1	0.05	0.0139	107	3	75 - 125	20
Total Cadmium	0.239	0.239	mg/L	1	0.25	<0.005	95	0	75 - 125	20
Total Chromium	0.102	0.101	mg/L	1	0.10	<0.010	102	0	75 - 125	20
Total Cobalt	0.250	0.251	mg/L	1	0.25	<0.025	100	0	75 - 125	20
Total Copper	0.136	0.136	mg/L	1	0.12	<0.0125	108	0	75 - 125	20
Total Iron	0.586	0.496	mg/L	1	0.50	<0.050	117	16	75 - 125	20
Total Lead	0.482	0.472	mg/L	1	0.50	<0.010	96	2	75 - 125	20
Total Manganese	0.255	0.254	mg/L	1	0.25	<0.025	102	0	75 - 125	20
Total Molybdenum	0.505	0.501	mg/L	1	0.50	<0.050	101	0	75 - 125	20
Total Nickel	0.208	0.209	mg/L	1	0.25	<0.025	83	0	75 - 125	20
Total Selenium	0.407	0.405	mg/L	1	0.50	<0.050	81	0	75 - 125	20
Total Silver	0.121	0.120	mg/L	1	0.12	<0.0125	96	0	75 - 125	20
Total Uranium	0.504	0.499	mg/L	1	0.50	<0.050	100	0	75 - 125	20
Total Vanadium	0.253	0.251	mg/L	1	0.25	<0.025	101	0	75 - 125	20
Total Zinc	0.239	0.238	mg/L	1	0.25	<0.025	95	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC17812

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Fluoride	2.24	2.18	mg/L	1	2.50	<0.2	89	2	90 - 110	20
Nitrate-N	2.41	2.40	mg/L	1	2.50	<0.2	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC17823

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.0921	0.0924	mg/L	1	0.10	<0.001	92	0	80 - 120	20
Benzene	0.0936	0.0924	mg/L	1	0.10	<0.001	94	1	80 - 120	20
Toluene	0.0982	0.0968	mg/L	1	0.10	<0.001	98	1	80 - 120	20
Ethylbenzene	0.0994	0.0976	mg/L	1	0.10	<0.001	99	2	80 - 120	20
M,P,O-Xylene	0.302	0.298	mg/L	1	0.30	<0.001	101	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.0915	0.0915	mg/L	1	0.10	92	92	70 - 130
4-BFB	0.108	0.108	mg/L	1	0.10	108	108	70 - 130

Laboratory Control Spikes

QCBatch: QC17917

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	110	108	mg/L	1	100	<0.5	110	1	75 - 125	20
Dissolved Magnesium	106	102	mg/L	1	100	<0.5	106	3	75 - 125	20
Dissolved Potassium	105	101	mg/L	1	100	<0.5	105	3	75 - 125	20
Dissolved Sodium	104	103	mg/L	1	100	<0.5	104	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC17962

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	20.81	22.54	mg/L	1	80	<0.005	26	7	5 - 112	20
2-Chlorophenol	58.87	62.05	mg/L	1	80	<0.005	73	5	23 - 134	20
1,4-Dichlorobenzene	61.01	64.97	mg/L	1	80	<0.005	76	6	20 - 124	20
n-Nitrosodi-n-propylamine	67.5	73.84	mg/L	1	80	<0.005	84	8	0 - 230	20
1,2,4-Trichlorobenzene	61.2	64.08	mg/L	1	80	<0.005	76	4	44 - 142	20
4-Chloro-3-methylphenol	58.51	62.32	mg/L	1	80	<0.005	73	6	22 - 147	20
Acenaphthene	67.34	66.7	mg/L	1	80	<0.005	84	0	47 - 145	20
4-Nitrophenol	19.47	18.33	mg/L	1	80	<0.005	24	6	0 - 132	20
2,4-Dinitrotoluene	70.12	68.19	mg/L	1	80	<0.005	87	2	39 - 139	20
Pentachlorophenol	59.09	56.65	mg/L	1	80	<0.005	73	4	14 - 176	20
Pyrene	73.42	67.66	mg/L	1	80	<0.005	91	8	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	33.1	35.51	mg/L	1	80	41	44	21 - 100
Phenol-d5	21.5	23.75	mg/L	1	80	26	29	11 - 94
Nitrobenzene-d5	59.94	63.93	mg/L	1	80	74	79	35 - 114
2-Fluorobiphenyl	64.22	66.92	mg/L	1	80	80	83	43 - 116
2,4,6-Tribromophenol	72.04	73.06	mg/L	1	80	90	91	10 - 123
Terphenyl-d14	72.12	70.7	mg/L	1	80	90	88	33 - 141

Laboratory Control Spikes

QCBatch: QC18055

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00101	0.00085	mg/L	1	0.001	<0.0002	101	17	84 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC17782

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.30	1.32	mg/L	1	1	0.178	112	1	75 - 125	20
Total Arsenic	0.574	0.556	mg/L	1	0.50	0.0578	103	3	75 - 125	20
Total Barium	0.880	0.873	mg/L	1	1	<0.100	88	0	75 - 125	20
Total Beryllium	0.0209	0.0208	mg/L	1	0.02	<0.0025	83	0	75 - 125	20
Total Boron	⁸ 0.589	0.561	mg/L	1	0.05	0.518	141	49	75 - 125	20
Total Cadmium	0.205	0.203	mg/L	1	0.25	<0.005	82	0	75 - 125	20
Total Chromium	0.0874	0.0851	mg/L	1	0.10	<0.010	87	2	75 - 125	20
Total Cobalt	0.214	0.215	mg/L	1	0.25	<0.025	86	0	75 - 125	20
Total Copper	0.129	0.130	mg/L	1	0.12	<0.0125	103	0	75 - 125	20
Total Iron	1.96	1.96	mg/L	1	0.50	1.51	90	0	75 - 125	20
Total Lead	0.427	0.423	mg/L	1	0.50	<0.010	85	0	75 - 125	20
Total Manganese	1.96	1.94	mg/L	1	0.25	1.70	103	8	75 - 125	20
Total Molybdenum	0.443	0.439	mg/L	1	0.50	<0.050	88	0	75 - 125	20
Total Nickel	0.209	0.208	mg/L	1	0.25	<0.025	83	0	75 - 125	20
Total Selenium	0.414	0.399	mg/L	1	0.50	<0.050	82	3	75 - 125	20
Total Silver	0.121	0.120	mg/L	1	0.12	<0.0125	96	0	75 - 125	20
Total Uranium	0.560	0.573	mg/L	1	0.50	0.126	86	2	75 - 125	20
Total Vanadium	0.223	0.222	mg/L	1	0.25	<0.025	89	0	75 - 125	20
Total Zinc	0.200	0.198	mg/L	1	0.25	<0.025	80	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC17812

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Fluoride	13.92	13.91	mg/L	1	12.50	2.97	87	0	80 - 113	20
Nitrate-N	14.37	14.22	mg/L	1	12.50	2.55	94	1	84 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC17917

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	297	303	mg/L	1	100	194	103	5	75 - 125	20
Dissolved Magnesium	315	312	mg/L	1	100	204	111	2	75 - 125	20
Dissolved Potassium	133	125	mg/L	1	100	25.2	107	7	75 - 125	20
Dissolved Sodium	210	211	mg/L	1	100	106	104	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC18055

⁸Matrix spike recovery invalid due to matrix problems. LCS demonstrates process under control.

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Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00121	0.00122	mg/L	1	0.001	<0.0002	121	0	84 - 127	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report Continuing Calibration Verification Standards

CCV (1) QCBatch: QC17711

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0987	99	85 - 115	1/29/02
Benzene		mg/L	0.10	0.0886	89	85 - 115	1/29/02
Toluene		mg/L	0.10	0.0887	89	85 - 115	1/29/02
Ethylbenzene		mg/L	0.10	0.0894	89	85 - 115	1/29/02
M,P,O-Xylene		mg/L	0.30	0.262	87	85 - 115	1/29/02

CCV (2) QCBatch: QC17711

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.102	102	85 - 115	1/29/02
Benzene		mg/L	0.10	0.094	94	85 - 115	1/29/02
Toluene		mg/L	0.10	0.094	94	85 - 115	1/29/02
Ethylbenzene		mg/L	0.10	0.094	94	85 - 115	1/29/02
M,P,O-Xylene		mg/L	0.30	0.276	92	85 - 115	1/29/02

ICV (1) QCBatch: QC17711

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.101	101	85 - 115	1/29/02
Benzene		mg/L	0.10	0.0904	90	85 - 115	1/29/02
Toluene		mg/L	0.10	0.0907	91	85 - 115	1/29/02
Ethylbenzene		mg/L	0.10	0.0909	91	85 - 115	1/29/02
M,P,O-Xylene		mg/L	0.30	0.265	88	85 - 115	1/29/02

CCV (1) QCBatch: QC17782

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/31/02
Total Arsenic		mg/L	1	0.941	94	90 - 110	1/31/02
Total Barium		mg/L	2	1.94	97	90 - 110	1/31/02
Total Beryllium		mg/L	0.05	0.0481	96	90 - 110	1/31/02
Total Boron		mg/L	0.10	0.0964	82	90 - 110	1/31/02
Total Cadmium		mg/L	0.50	0.479	96	90 - 110	1/31/02
Total Chromium		mg/L	0.20	0.194	97	90 - 110	1/31/02
Total Cobalt		mg/L	0.50	0.489	98	90 - 110	1/31/02
Total Copper		mg/L	0.25	0.233	93	90 - 110	1/31/02
Total Iron		mg/L	1	0.974	97	90 - 110	1/31/02
Total Lead		mg/L	1	0.965	96	90 - 110	1/31/02
Total Manganese		mg/L	0.50	0.484	97	90 - 110	1/31/02
Total Molybdenum		mg/L	1	0.972	97	90 - 110	1/31/02
Total Nickel		mg/L	0.50	0.490	98	90 - 110	1/31/02
Total Selenium		mg/L	1	0.950	95	90 - 110	1/31/02
Total Silver		mg/L	0.25	0.241	96	90 - 110	1/31/02
Total Uranium		mg/L	1	1.02	102	90 - 110	1/31/02
Total Vanadium		mg/L	0.50	0.489	98	90 - 110	1/31/02
Total Zinc		mg/L	0.50	0.466	93	90 - 110	1/31/02

ICV (1)

QCBatch: QC17782

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.93	96	90 - 110	1/31/02
Total Arsenic		mg/L	1	0.956	96	90 - 110	1/31/02
Total Barium		mg/L	2	1.95	98	90 - 110	1/31/02
Total Beryllium		mg/L	0.05	0.0488	98	90 - 110	1/31/02
Total Boron		mg/L	0.10	0.103	103	90 - 110	1/31/02
Total Cadmium		mg/L	0.50	0.486	97	90 - 110	1/31/02
Total Chromium		mg/L	0.20	0.196	98	90 - 110	1/31/02
Total Cobalt		mg/L	0.50	0.490	98	90 - 110	1/31/02
Total Copper		mg/L	0.25	0.244	98	90 - 110	1/31/02
Total Iron		mg/L	1	0.966	97	90 - 110	1/31/02
Total Lead		mg/L	1	0.977	98	90 - 110	1/31/02
Total Manganese		mg/L	0.50	0.488	98	90 - 110	1/31/02
Total Molybdenum		mg/L	1	0.981	98	90 - 110	1/31/02
Total Nickel		mg/L	0.50	0.487	97	90 - 110	1/31/02
Total Selenium		mg/L	1	0.994	99	90 - 110	1/31/02
Total Silver		mg/L	0.25	0.245	98	90 - 110	1/31/02
Total Uranium		mg/L	1	0.972	97	90 - 110	1/31/02
Total Vanadium		mg/L	0.50	0.488	98	90 - 110	1/31/02
Total Zinc		mg/L	0.50	0.486	97	90 - 110	1/31/02

CCV (1)

QCBatch: QC17812

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.27	90	90 - 110	1/29/02
Nitrate-N		mg/L	2.50	2.41	96	90 - 110	1/29/02

ICV (1) QCBatch: QC17812

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.25	90	90 - 110	1/29/02
Nitrate-N		mg/L	2.50	2.39	95	90 - 110	1/29/02

CCV (1) QCBatch: QC17823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.092	92	85 - 115	2/1/02
Benzene		mg/L	0.10	0.091	91	85 - 115	2/1/02
Toluene		mg/L	0.10	0.096	96	85 - 115	2/1/02
Ethylbenzene		mg/L	0.10	0.096	96	85 - 115	2/1/02
M,P,O-Xylene		mg/L	0.30	0.298	99	85 - 115	2/1/02

CCV (2) QCBatch: QC17823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.095	95	85 - 115	2/1/02
Benzene		mg/L	0.10	0.091	91	85 - 115	2/1/02
Toluene		mg/L	0.10	0.098	98	85 - 115	2/1/02
Ethylbenzene		mg/L	0.10	0.095	95	85 - 115	2/1/02
M,P,O-Xylene		mg/L	0.30	0.295	98	85 - 115	2/1/02

ICV (1) QCBatch: QC17823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0966	97	85 - 115	2/1/02
Benzene		mg/L	0.10	0.0907	91	85 - 115	2/1/02
Toluene		mg/L	0.10	0.0951	95	85 - 115	2/1/02
Ethylbenzene		mg/L	0.10	0.0957	96	85 - 115	2/1/02
M,P,O-Xylene		mg/L	0.30	0.293	98	85 - 115	2/1/02

CCV (1) QCBatch: QC17917

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	27.5	110	90 - 110	2/4/02
Dissolved Magnesium		mg/L	25	26.9	107	90 - 110	2/4/02
Dissolved Potassium		mg/L	25	24.9	99	90 - 110	2/4/02
Dissolved Sodium		mg/L	25	26.4	105	90 - 110	2/4/02

ICV (1) QCBatch: QC17917

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	23.1	92	95 - 105	2/4/02
Dissolved Magnesium		mg/L	25	25.1	100	95 - 105	2/4/02
Dissolved Potassium		mg/L	25	24.9	99	95 - 105	2/4/02
Dissolved Sodium		mg/L	25	25.7	102	95 - 105	2/4/02

CCV (1) QCBatch: QC17962

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	56.06	93	80 - 120	2/5/02
1,4-Dichlorobenzene		mg/L	60	59.27	98	80 - 120	2/5/02
2-Nitrophenol		mg/L	60	62.51	104	80 - 120	2/5/02
2,4-Dichlorophenol		mg/L	60	60.26	100	80 - 120	2/5/02
Hexachlorobutadiene		mg/L	60	58.42	97	80 - 120	2/5/02
4-Chloro-3-methylphenol		mg/L	60	58.04	96	80 - 120	2/5/02
2,4,6-Trichlorophenol		mg/L	60	64.46	107	80 - 120	2/5/02
Acenaphthene		mg/L	60	61.45	102	80 - 120	2/5/02
Diphenylamine		mg/L	60	60.08	100	80 - 120	2/5/02
Pentachlorophenol		mg/L	60	62.6	104	80 - 120	2/5/02
Fluoranthene		mg/L	60	61.96	103	80 - 120	2/5/02
Di-n-octylphthalate		mg/L	60	52.97	88	80 - 120	2/5/02
Benzo(a)pyrene		mg/L	60	59.69	99	80 - 120	2/5/02
2-Fluorophenol		mg/L	60	61.8	103	80 - 120	2/5/02
Phenol-d5		mg/L	60	61.92	103	80 - 120	2/5/02
Nitrobenzene-d5		mg/L	60	58.93	98	80 - 120	2/5/02
2-Fluorobiphenyl		mg/L	60	62.98	104	80 - 120	2/5/02
2,4,6-Tribromophenol		mg/L	60	64.25	107	80 - 120	2/5/02
Terphenyl-d14		mg/L	60	60.99	101	80 - 120	2/5/02

CCV (1) QCBatch: QC18004

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1	0	90 - 110	2/5/02
Carbonate Alkalinity		mg/L as CaCo3	0	236	0	90 - 110	2/5/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	4	0	90 - 110	2/5/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	2/5/02

ICV (1) QCBatch: QC18004

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1	0	90 - 110	2/5/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	90 - 110	2/5/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	26	0	90 - 110	2/5/02
Total Alkalinity		mg/L as CaCo3	250	246	98	90 - 110	2/5/02

CCV (1) QCBatch: QC18055

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00105	105	80 - 120	2/9/02

ICV (1) QCBatch: QC18055

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00103	103	80 - 120	2/9/02

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #

AD2012910

Company Name:

Navajo Refineries

Phone #:

505 748 5311

Address:

(Street City, Zip)

Fax #:

505 746 5421

Contact Person:

Charlie Plymale

Invoice to:

(If different from above)

Project #:

Project Name:

Evap Ponds

Project Location:

Evap. Ponds (Artesia)

Sampler Signature:

B

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX				PRESERVATIVE METHOD					SAMPLING	
				WATER	SOIL	AIR	SLUDGE	HCl	HNO ₃	H ₂ SO ₄	NaOH	ICE	NONE	DATE
18982	MW-4	1	100X	X							X	X	1/28	0940
	MW-4	1	1	X							X	X		
	MW-4	2	100X	X				X				X		
	MW-4	1	0.5	X				X				X		
83	MW-5	1	1	X							X	X	1/28	0000
	MW-5	1	0.5	X				X				X		
	MW-5	2	100X	X				X				X		
	MW-5	1	1	X							X	X		
84	OC08	1	1	X							X	X	030	
	OC08	1	1	X				X					030	
	OC08	2	100X	X				X				X	030	

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Relinquished by:

Date:

Time:

Received at Laboratory by:

Date:

Time:

Received at Laboratory by: *Pick. Dunn*
Date: 1-29-02 Time: 10:00

LAB USE ONLY

Intact Y / N

Headspace Y / N

Temp Y / N

Log-in Review

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side SAC.O.C.

ORIGINAL COPY

Carrier # FedEx 346-7693-984

REMARKS:

FAP
2/14/02

ANALYSIS REQUEST

(Circle or Specify Method No.)

MTBE 8021B/602	
BTEX 8021B/602	
TPH 418.1/TX1005	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
TCLP Pesticides	
RCI	
GC/MS Vol. 8260B/624	
GC/MS Semi. Vol. 8270C/625	
PCB's 8082/608	
Pesticides 8081A/608	
BOD, TSS, pH	
Turn Around Time if different from standard	

See list



GARY E. JOHNSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, New Mexico 87505
Telephone (505) 428-2500
Fax (505) 428-2567



PETER MAGGIORE
SECRETARY

FAX COVER SHEET

Date: September 27, 2001

To: Bill Olson

Wayne Price

Subject: Navajo Ground Water Monitoring

Phone: _____

Fax: 505-476-3462

Comments: Wayne and Bill:

This is a list (two copies) of wells sampled by Navajo that Darrell Moore provided yesterday. Please take a look at the list and let me know if this agrees with the data that you receive from Navajo, if you approve of their sampling program and what, if any, changes you'd like to have them make. I'll follow this fax with a phone call tomorrow. Thanks.

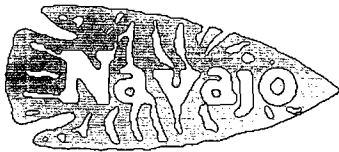
From: Dave Cobrain
New Mexico Environment Department
Hazardous Waste Bureau
505-428-2541
505-428-2567 (fax)

Pages (including cover sheet): 3

10/18/2001
WILLIE, PLEASE FIND ATTACHED
THE SPRING 2001 SAMPLING REPORTS
FOR THE NAVAJO-ARTESIA EVAP PONDS!
PLEASE SEE ME ON THIS ISSUE, I AM WRITING
THEIR D.P. WAYNE P.

SAMPLING GROUP	FREQUENCY	WELLS	ANALYSIS
Offsite Plume	Monthly	RA-4196, RA-4798, RA-313, RA-314, RA-1331, RA-307 RA-1227	Method 602 Xylenes?
Offsite Plume	Quarterly	RA-3156, RA-3353	Method 602
Offsite Plume	Quarterly	KWB-1A, KWB-1C, KWB-2A, KWB-3A, KWB-7, KWB-9, KWB-11A, KWB-12A,, MW-18, MW-45	Method 624
Offsite	Annually	KWB-1A, KWB-1C, KWB-2A, KWB-3A, KWB-7, KWB-9, KWB-11A, KWB-12A, MW-18, MW-45	PAH's, Metals Cations/Anions
Ponds	Semi-Annual (Spring)	MW-3, MW-4, MW-5, MW-6, MW-7, OCD-1, OCD-3, OCD-5, OCD-7	BTEX, Cations/Anions Fluoride
Ponds	Semi_Annual (Fall)	MW-1, MW-2, MW-3, MW-4 MW-5, OCD-2, OCD-4, OCD-6, OCD-8	BTEX Cations/Anions Fluoride
NCL-TEL	Quarterly	TEL-1, TEL-2, TEL-3, TEL-4 MW-53, MW-54A, MW-55, MW-56, NCL-32, NCL-33, NCL-34, NCL-44, NCL-49	Volatiles, Metals Semi-Volatiles, Phenolics, Sulfid Uranium

SAMPLING GROUP	FREQUENCY	WELLS	ANALYSIS
Offsite Plume	Monthly	RA-4196, RA-4798, RA-313, RA-314, RA-1331, RA-307 RA-1227	Method 602 <i>hydrocarbons?</i>
Offsite Plume	Quarterly	RA-3156, RA-3353	Method 602
Offsite Plume	Quarterly	KWB-1A, KWB-1C, KWB-2A, KWB-3A, KWB-7, KWB-9, KWB-11A, KWB-12A,, MW-18, MW-45	Method 624
Offsite	Annually	KWB-1A, KWB-1C, KWB-2A, KWB-3A, KWB-7, KWB-9, KWB-11A, KWB-12A, MW-18, MW-45	PAH's, Metals Cations/Anions
Ponds	Semi-Annual (Spring)	MW-3, MW-4, MW-5, MW-6, MW-7, OCD-1, OCD-3, OCD-5, OCD-7	BTEX, Cations/Anions Fluoride
Ponds	Semi-Annual (Fall)	MW-1, MW-2, MW-3, MW-4 MW-5, OCD-2, OCD-4, OCD-6, OCD-8	BTEX Cations/Anions Fluoride
NCL-TEL	Quarterly	TEL-1, TEL-2, TEL-3, TEL-4 MW-53, MW-54A, MW-55, MW-56, NCL-32, NCL-33, NCL-34, NCL-44, NCL-49	Volatiles, Metals Semi-Volatiles, Phenolics, Sulfid Uranium



REFINING COMPANY

FAX

(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX

(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

August 20, 2001

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505

OIL CONSERVATION DIV.
01 AUG 27 11:44

RE: SPRING 2001 REPORT GROUND WATER SAMPLING AROUND EVAPORATION PONDS

Dear Roger:

Enclosed are results from our Spring 2001 sampling of the monitor wells around the evaporation ponds. This is on a staggered schedule per your letter of October 21, 1991. MW-1 was run over by pipeline digging equipment and is no longer useful. We can discuss if and/or when it will need to be replaced. The following is a summary of field observations:

<u>Well #</u>	<u>Ground water</u> <u>ft amsL</u>	<u>pH</u>	<u>EC</u> <u>umhos</u>	<u>Deg. C</u>	<u>Description</u>
MW-3	3298.80	7.5	8100	20.8	Slight Odor
MW-4	3299.10	7.62	12000	21.8	Odor
MW-5A	3298.63	7.88	11000	21.2	Mod. Odor
MW-6	3301.15	7.8	9100	19.3	Odor, Silty
MW-7	3298.18	7.59	13100	21.3	Odor
OCD-1	3304.33	8.1	9000	21.6	Slight Odor
OCD-3	3302.28	8.4	8950	20.4	Mild odor, silty
OCD-5	3300.75	8.51	10000	19.9	Odor
OCD-7	3298.30	7.10	11000	21.2	Slight Odor

If you have any questions, please contact me at 748-3311, extension 281.

Respectfully yours,
NAVAJO REFINING CO.

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.
cc: USEPA

TraceAnalysis, Inc.

6701 Aberdeen Ave., Suite 9

Lubbock, TX 79424-1515

(806) 794-1296

Report Date: June 21, 2001 Order Number: A01060116

Page Number: 1 of 3

N/A

Evaporation Ponds

Artesia

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: June 21, 2001

Order ID Number: A01060116

Project Number: N/A
Project Name: Evaporation Ponds
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
172331	MW-6	Water	5/31/01	10:20	6/1/01
172332	OCD-3	Water	5/31/01	14:45	6/1/01
172333	OCD-1	Water	5/31/01	14:20	6/1/01
172334	OCD-5	Water	5/31/01	15:00	6/1/01
172335	MW-5A	Water	5/31/01	15:20	6/1/01
172336	MW-3	Water	5/31/01	11:05	6/1/01

This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample - Field Code	BTEX				
	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	M,P,O-Xylene (mg/L)	Total BTEX (mg/L)
172331 - MW-6	<0.005	0.0077	0.014	0.0747	0.0964
172332 - OCD-3	<0.001	<0.001	<0.001	<0.001	<0.001
172333 - OCD-1	<0.005	<0.005	<0.005	<0.005	<0.005
172334 - OCD-5	<0.001	<0.001	<0.001	<0.001	<0.001
172335 - MW-5A	<0.005	<0.005	<0.005	<0.005	<0.005
172336 - MW-3	<0.005	<0.005	<0.005	<0.005	<0.005

Sample: 172331 - MW-6

Param	Flag	Result	Units
Naphthalene		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCO3
Carbonate Alkalinity		<1.0	mg/L as CaCO3
Bicarbonate Alkalinity		212	mg/L as CaCO3
Total Alkalinity		212	mg/L as CaCO3
Total Mercury		<0.0002	mg/L
CL		1070	mg/L
Fluoride		2.51	mg/L
Nitrate-N		<1.00	mg/L
Sulfate		1450	mg/L
Dissolved Calcium		318	mg/L
Dissolved Magnesium		112	mg/L
Dissolved Potassium		7.68	mg/L

Continued on next page ...

TraceAnalysis, Inc.

6701 Aberdeen Ave., Suite 9

Lubbock, TX 79424-1515

(806) 794-1296

Report Date: June 21, 2001 Order Number: A01060116

Page Number: 3 of 3

N/A

Evaporation Ponds

Artesia

Sample 172334 continued ...

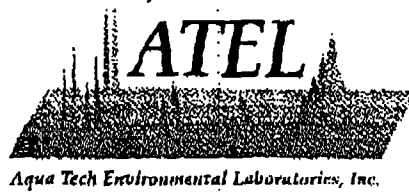
Param	Flag	Result	Units
Dissolved Calcium		772	mg/L
Dissolved Magnesium		244	mg/L
Dissolved Potassium		56.9	mg/L
Dissolved Sodium		2497	mg/L

Sample: 172335 - MW-5A

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃
Bicarbonate Alkalinity		408	mg/L as CaCO ₃
Total Alkalinity		408	mg/L as CaCO ₃
Total Mercury		<0.0002	mg/L
CL		4500	mg/L
Fluoride		4.67	mg/L
Nitrate-N		<1.00	mg/L
Sulfate		7850	mg/L
Dissolved Calcium		413	mg/L
Dissolved Magnesium		767	mg/L
Dissolved Potassium		16.6	mg/L
Dissolved Sodium		3237	mg/L

Sample: 172336 - MW-3

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃
Bicarbonate Alkalinity		108	mg/L as CaCO ₃
Total Alkalinity		108	mg/L as CaCO ₃
Total Mercury		<0.0002	mg/L
CL		629	mg/L
Fluoride		2.74	mg/L
Nitrate-N		<1.00	mg/L
Sulfate		1190	mg/L
Dissolved Calcium		300	mg/L
Dissolved Magnesium		75.7	mg/L
Dissolved Potassium		2.37	mg/L
Dissolved Sodium		487	mg/L



- CERTIFICATE OF ANALYSIS -

Client #: 12565

Report Date: 12-11-01

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

Attn: Nell Green

Our Lab #: MAR01-12376

Your Sample ID: 172331

Date Logged-In: 6/7/01

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

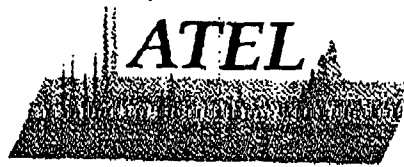
Project #:

Date Submitted to Lab: 6/6/2001

- COLLECTION INFORMATION -

Date/Time/By: 5/31/01

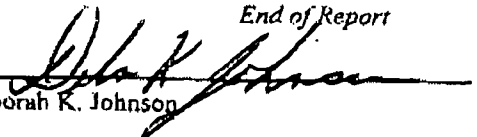
Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	ND (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	96 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
B-MS	200.8/6020	Boron, B	600 (50)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	ND (10)	UG/L	6/8/01	M/RJ	26065
CD-MS	200.8/6020	Cadmium, Cd	ND (0.5)	UG/L	6/8/01	RCM	26073
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	ND (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	2000 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganese, Mn	1680 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	ND (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	ND (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	ND (30)	UG/L	6/8/01	RCM	26073



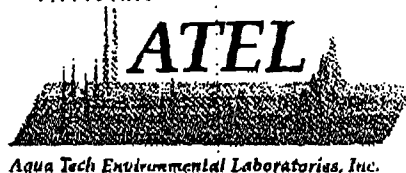
Aqua Tech Environmental Laboratories, Inc.

Note: The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

Report Approved By:

End of Report

 Deborah K. Johnson

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- CERTIFICATE OF ANALYSIS -

Client #: 12565

Report Date: 14-Jun-01

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

Attn: Nell Green

Our Lab #: MAR01-12377

Your Sample ID: 172332

Date Logged-In: 6/7/01

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 6/6/2001

- COLLECTION INFORMATION -

Date/Time/By: 5/31/01

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	470 (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	12 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
B-MS	200.8/6020	Boron, B	760 (50)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	28 (10)	UG/L	6/8/01	M/RJ	26065
CD-MS	200.8/6020	Cadmium, Cd	ND (0.5)	UG/L	6/8/01	RCM	26073
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	ND (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	3900 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganese, Mn	268 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	ND (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	ND (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	ND (30)	UG/L	6/8/01	RCM	26073

ATFI

Aqua Tech Environmental Laboratories, Inc.

Note: The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

Report Approved By: _____

Deborah K. Johnson

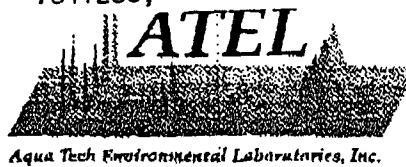
End of Report

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory. The results presented on this Certificate only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s).

CERTIFICATIONS: NCDWQ263, NCDEI139700, AZ0071, OH4053, NY11071, A2LA102325

Lab Number MAR01-12377;Page 2

1776 MARION-WALDO RD. • P.O. BOX 436 • MARION, OH 43301-0436
PHONE 740-340-4001 • TOLL-FREE 800-255-2526 • FAX 740-800-1401



- CERTIFICATE OF ANALYSIS -

Client #: 12565

Report Date: 14-Jun-01

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

Attn: Nell Green

Our Lab #: MAR01-12378

Your Sample ID: 172333

Date Logged-In: 6/7/01

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 6/6/2001

- COLLECTION INFORMATION -

Date/Time/By: 5/31/01

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	1100 (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	262 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
B-MS	200.8/6020	Boron, B	460 (50)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	23 (10)	UG/L	6/8/01	M/RJ	26065
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	ND (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	7600 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganese, Mn	2390 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	ND (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	ND (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	ND (30)	UG/L	6/8/01	RCM	26073
CD-GFAA	3113B/7131	Cadmium, Cd	ND (0.5)	UG/L	6/12/01	PM/R	26117

CERTIFICATIONS: NCDWQ263, NCDEH32700, AZ0071, OH4053, NY11071, AZLA102325

Lab Number MAR01-12378; Page 1

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Note: The data is valid although the BATCH matrix spike/matrix spike duplicate results associated with Iron, Manganese and Silver were outside the recommended limits.

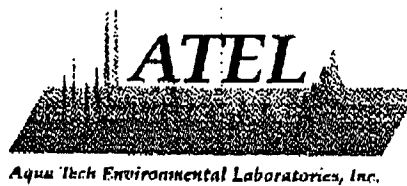
The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

Report Approved By: _____

Deborah K. Johnson

End of Report

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory. The results reported in this report are the results of the analysis of the sample(s) received with the sample(s).



- CERTIFICATE OF ANALYSIS -

Client #: 12565

Report Date: 14-Jun-01

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

Attn: Nell Green

Our Lab #: MAR01-12379

Your Sample ID: 172334

Date Logged-In: 6/7/01

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 6/6/2001

- COLLECTION INFORMATION -

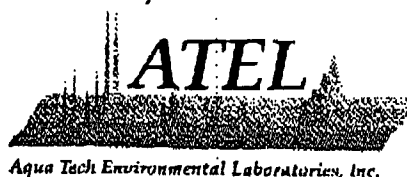
Date/Time/By: 5/31/01

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	500 (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	26 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
B-MS	200.8/6020	Boron, B	1200 (50)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	30 (10)	UG/L	6/8/01	M/RJ	26065
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	ND (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	6500 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganesec, Mn	224 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	ND (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	ND (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	ND (3.0)	UG/L	6/8/01	RCM	26073
CD-GFAA	3113B/7131	Cadmium, Cd	ND (0.5)	UG/L	6/12/01	PM/R	26117

CERTIFICATIONS: NCDWQ263, NCD5H39700, AZ0071, OH4053, NY11071, AZLA102325

Lab Number MAR01-12379; Page 1

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NOTE: The data is based on the results of the analysis of the sample(s) which were outside the recommended limits.

The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

Report Approved By:

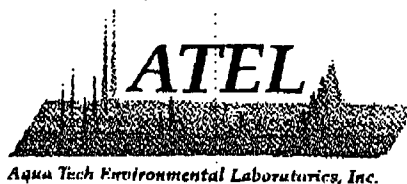
Deborah K. Johnson ^{End of Report}
Deborah K. Johnson

This report shall not be considered valid unless it is accompanied by the chain of custody or other documentation received with the sample(s).

CERTIFICATIONS: NCDWQ263, NCDEH20700, AZ0071, OH1053, NY11071, AZCA 012325

Lab Number MAR01-17370-Page 7

1776 MARION-WALDO RD. • P.O. BOX 436 • MARION, OH 43301-0438
PHONE 740-389-5991 • 1-800-873-2835 • FAX 740-389-1481



- CERTIFICATE OF ANALYSIS -

Client #: 12565

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Attn: Nell Green

Our Lab #: MAR01-12380

Date Logged-In: 6/7/01

Matrix: Water

Project #:

Your Sample ID: 172335

Sample Source: Other/Undefined

Client Project #:

Date Submitted to Lab: 6/6/2001

Report Date: 14-Jun-01

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

P.O. #:

- COLLECTION INFORMATION -

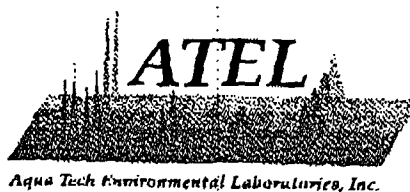
Date/Time/By: 5/31/01

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	260 (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	258 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
B-MS	200.8/6020	Boron, B	650 (50)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	18 (10)	UG/L	6/8/01	M/RJ	26065
CD-MS	200.8/6020	Cadmium, Cd	ND (0.5)	UG/L	6/8/01	RCM	26073
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	26 (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	13000 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganese, Mn	3120 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	ND (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	ND (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	ND (30)	UG/L	6/8/01	RCM	26073

CERTIFICATIONS: NCDWQ263, NCDEH39700, AZ0071, OH4053, NY11071, A2LA102325

Lab Number MAR01-12380: Page 1

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Note: The data is valid although the BATCH matrix spike/matrix spike duplicate results associated with Iron, Manganese and Silver were outside the recommended limits.

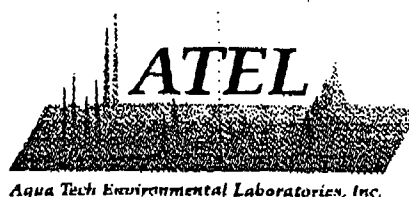
The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

Report Approved By:

End of Report

Deborah K. Johnson

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- CERTIFICATE OF ANALYSIS -

Client #: 12565

Report Date: 14-Jun-01

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

Attn: Nell Green

Our Lab #: MAR01-12381

Your Sample ID: 172336

Date Logged-In: 6/7/01

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 6/6/2001

- COLLECTION INFORMATION -

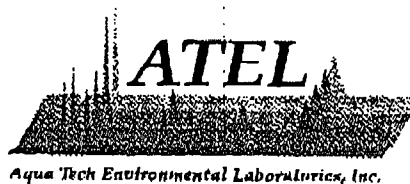
Date/Time/By: 5/31/01

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	4200 (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	32.0 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
B-MS	200.8/6020	Boron, B	410 (50)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	55 (10)	UG/L	6/8/01	M/RJ	26065
CD-MS	200.8/6020	Cadmium, Cd	ND (0.5)	UG/L	6/8/01	RCM	26073
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	ND (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	3000 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganese, Mn	401 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	3.0 (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	ND (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	ND (30)	UG/L	6/8/01	RCM	26073

CERTIFICATIONS: NCDWQ263, NCDEH39700, AZ0071, OH4053, NY11021, A2LA102325

Lab Number MAR01-12381 Page 1

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Note: The data is valid although the BATCH matrix spike/matrix spike duplicate results associated with Iron, Manganese and Silver were outside the recommended limits.

The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

End of Report

Report Approved By: _____

Deborah R. Johnson

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CERTIFICATIONS: NCDWQ263, NCDEH39700, AZ0071, OH4053, NY11071, AZLA102325

Lub Number MAR01-12381: Page 2

1776 MARION-WALDO RD. • P.O. BOX 436 • MARION, OH 43301-0436
PHONE 740-389-5991 • 1-800-873-2835 • FAX 740-389-1481



TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9
155 McCutcheon, Suite H

Lubbock, Texas 79424
El Paso, Texas 79932

800•378•1296
800•588•3443
E-Mail: lab@traceanalysis.com

806•794•1296
915•505•3443

FAX 806•794•1296
FAX 915•505•4944

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: June 21, 2001

Order ID Number: A01060116

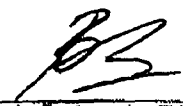
Project Number: N/A
Project Name: Evaporation Ponds
Project Location: Artesia

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
172331	MW-6	Water	5/31/01	10:20	6/1/01
172332	OCD-3	Water	5/31/01	14:45	6/1/01
172333	OCD-1	Water	5/31/01	14:20	6/1/01
172334	OCD-5	Water	5/31/01	15:00	6/1/01
172335	MW-5A	Water	5/31/01	15:20	6/1/01
172336	MW-3	Water	5/31/01	11:05	6/1/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 18 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.


Dr. Blair Leftwich, Director

Report Date: June 21, 2001
N/A

Order Number: A01060116
Evaporation Ponds

Page Number: 2 of 18
Artesia

Analytical Report

Sample: 172331 - MW-6

Analysis: 8270 Analytical Method: S 8270C QC Batch: QC12089 Date Analyzed: 6/13/01
Analyst: RC Preparation Method: E 3510C Prep Batch: PB10343 Date Prepared: 6/4/01

Param	Flag	Result	Units	Dilution	RDL
Naphthalene		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		35.08	mg/L	1	80	43	21 - 100
Phenol-d5		20.64	mg/L	1	80	25	11 - 94
Nitrobenzene-d5		67.69	mg/L	1	80	84	35 - 114
2-Fluorobiphenyl		70.11	mg/L	1	80	87	43 - 116
2,4,6-Tribromophenol		64.2	mg/L	1	80	80	10 - 123
Terephthalol d14		30.22	mg/L	1	80	62	33 - 141

Sample: 172331 - MW-6

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC11714 Date Analyzed: 6/5/01
Analyst: R3 Preparation Method: N/A Prep Batch: PB10013 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCO3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCO3	1	1
Bicarbonate Alkalinity		212	mg/L as CaCO3	1	1
Total Alkalinity		212	mg/L as CaCO3	1	1

Sample: 172331 - MW-6

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC11761 Date Analyzed: 6/6/01
Analyst: JW Preparation Method: E 5030B Prep Batch: PB10059 Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.006	mg/L	5	0.001
Toluene		0.0077	mg/L	5	0.001
Ethylbenzene		0.014	mg/L	5	0.001
M,P,O-Xylene		0.0747	mg/L	5	0.001
Total BTEX		0.0964	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.459	mg/L	5	0.10	91	72 - 128
4-BFB		0.532	mg/L	5	0.10	106	72 - 128

Report Date: June 21, 2001

Order Number: A01060116

Page Number: 3 of 18

N/A

Evaporation Ponds

Artesia

Sample: 172331 - MW-6

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC11676 Date Analyzed: 6/5/01
 Analyst: SSC Preparation Method: N/A Prep Batch: PB09989 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172331 MW-6

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC11695 Date Analyzed: 6/1/01
 Analyst: JS Preparation Method: N/A Prep Batch: PB09956 Date Prepared: 6/1/01

Param	Flag	Result	Units	Dilution	RDL
CL		1070	mg/L	50	0.50
Fluoride		2.51	mg/L	5	0.20
Nitrate N		1.00	mg/L	5	0.20
Sulfate		1450	mg/L	50	0.50

Sample: 172331 - MW-6

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC11723 Date Analyzed: 6/5/01
 Analyst: LDB Preparation Method: E 3005 A Prep Batch: PB09954 Date Prepared: 6/4/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		318	mg/L	1	0.50
Dissolved Magnesium		112	mg/L	1	0.50
Dissolved Potassium		7.68	mg/L	1	0.50
Dissolved Sodium		96.5	mg/L	1	0.60

Sample: 172332 - OCD-3

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC11714 Date Analyzed: 6/5/01
 Analyst: RS Preparation Method: N/A Prep Batch: PB10013 Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		198	mg/L as CaCo3	1	1
Total Alkalinity		198	mg/L as CaCo3	1	1

Sample: 172332 - OCD-3

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC11761 Date Analyzed: 6/6/01
 Analyst: JW Preparation Method: E 5030B Prep Batch: PB10059 Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Report Date: June 21, 2001
N/A

Order Number: A01060116
Evaporation Ponds

Page Number: 4 of 18
Artesia

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0986	mg/L	1	0.10	98	72 - 128
4-BFB		0.0924	mg/L	1	0.10	92	73 - 128

Sample: 172332 - OCD-3

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC11676 Date Analyzed: 6/5/01
Analyst: SSC Preparation Method: N/A Prep Batch: PB09989 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172332 - OCD-3

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC11635 Date Analyzed: 6/1/01
Analyst: JS Preparation Method: N/A Prep Batch: PB09956 Date Prepared: 6/1/01

Param	Flag	Result	Units	Dilution	RDL
CL		1120	mg/L	50	0.50
Fluoride		1.87	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate		1860	mg/L	50	0.50

Sample: 172332 - OCD-3

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC11723 Date Analyzed: 6/5/01
Analyst: I.D.R. Preparation Method: E 3000 A Prep Batch: PB09851 Date Prepared: 6/4/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		465	mg/L	1	0.50
Dissolved Magnesium		191	mg/L	1	0.50
Dissolved Potassium		31.8	mg/L	1	0.50
Dissolved Sodium		702	mg/L	1	0.60

Sample: 172333 - OCD-1

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC11714 Date Analyzed: 6/5/01
Analyst: RS Preparation Method: N/A Prep Batch: PB10013 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCO3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCO3	1	1
Bicarbonate Alkalinity		586	mg/L as CaCO3	1	1
Total Alkalinity		586	mg/L as CaCO3	1	1

Sample: 172333 - OCD-1

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC11761 Date Analyzed: 6/6/01
Analyst: JW Preparation Method: E 5030B Prep Batch: PB10059 Date Prepared: 6/6/01

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Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.427	mg/L	5	0.10	85	72 - 128
4-BFB	1	0.704	mg/L	5	0.10	54	72 - 128

Sample: 172333 - OCD-1

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC11676 Date Analyzed: 6/5/01
Analyst: SSC Preparation Method: N/A Prep Batch: PB09989 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172333 - OCD-1

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC11635 Date Analyzed: 6/1/01
Analyst: JS Preparation Method: N/A Prep Batch: PB09956 Date Prepared: 6/1/01

Param	Flag	Result	Units	Dilution	RDL
CL		2390	mg/L	500	0.50
Fluoride		10.4	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate		3540	mg/L	500	0.50

Sample: 172333 - OCD-1

Analysis: Salts Analytical Method: S 6010B QC Batch: QC11723 Date Analyzed: 6/5/01
Analyst: LDB Preparation Method: E 3005 A Prep Batch: PB09954 Date Prepared: 6/4/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		512	mg/L	1	0.50
Dissolved Magnesium		118	mg/L	1	0.50
Dissolved Potassium		18.8	mg/L	1	0.50
Dissolved Sodium		1957	mg/L	1	0.50

Sample: 172334 - OCD-5

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC11714 Date Analyzed: 6/5/01
Analyst: RS Preparation Method: N/A Prep Batch: PB10013 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃	1	1

Continued ...

¹Surrogate outside of normal limits due to peak interference.

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... Continued Sample: 172334 Analysis: Alkalinity

Param	Flag	Result	Units	Dilution	RDL
Bicarbonate Alkalinity		198	mg/L as CaCo3	1	1
Total Alkalinity		198	mg/L as CaCo3	1	1

Sample: 172334 - OCD-5

Analysis: BTEX

Analytical Method: S 8021B

QC Batch: QC11761

Date Analyzed: 6/6/01

Analyst: IW

Preparation Method: E 5030B

Prep Batch: PD10069

Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.101	mg/L	1	0.10	101	72 - 128
4-BFB	2	0.178	mg/L	1	0.10	13	72 - 128

Sample: 172334 - OCD-5

Analysis: Hg, Total

Analytical Method: E 245.2

QC Batch: QC11676

Date Analyzed: 6/5/01

Analyst: SSC

Preparation Method: N/A

Prep Batch: PB09989

Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172334 - OCD-5

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0

QC Batch: QC11636

Date Analyzed: 6/1/01

Analyst: JS

Preparation Method: N/A

Prep Batch: PB09956

Date Prepared: 6/1/01

Param	Flag	Result	Units	Dilution	RDL
CL		4790	mg/L	500	0.50
Fluoride		2.02	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate		3030	mg/L	500	0.50

Sample: 172334 - OCD-5

Analysis: Salts

Analytical Method: E 200.7

QC Batch: QC11723

Date Analyzed: 6/5/01

Analyst: LDB

Preparation Method: E 3005 A

Prep Batch: PB09954

Date Prepared: 6/4/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		772	mg/L	1	0.50
Dissolved Magnesium		244	mg/L	1	0.50
Dissolved Potassium		56.9	mg/L	1	0.50

Continued ...

*Surrogate outside of normal limits due to peak interference.

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... Continued Sample: 172334 Analysis: Salts

Param	Flag	Result	Units	Dilution	RDL
Dissolved Sodium		2497	mg/L	1	0.60

Sample: 172335 - MW-5A

Analysis: Alkalinity Analytical Method: E 310.1
Analyst: RS Preparation Method: N/A

QC Batch: QC11714 Date Analyzed: 6/5/01
Prep Batch: PB10013 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		408	mg/L as CaCo3	1	1
Total Alkalinity		408	mg/L as CaCo3	1	1

Sample: 172335 - MW-5A

Analysis: BTEX Analytical Method: S 8021B
Analyst: JW Preparation Method: E 5030B

QC Batch: QC11761 Date Analyzed: 6/6/01
Prep Batch: PB10059 Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.426	mg/L	5	0.10	85	72 - 128
4-BFB	3	2.29	mg/L	5	0.10	176	72 - 128

Sample: 172335 - MW-5A

Analysis: Hg, Total Analytical Method: E 245.2
Analyst: SSC Preparation Method: N/A

QC Batch: QC11676 Date Analyzed: 6/5/01
Prep Batch: PB09989 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172335 - MW-5A

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0
Analyst: JS Preparation Method: N/A

QC Batch: QC11696 Date Analyzed: 6/1/01
Prep Batch: PB09956 Date Prepared: 6/1/01

Param	Flag	Result	Units	Dilution	RDL
CL		4500	mg/L	500	0.50
Fluoride		4.67	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate		7850	mg/L	500	0.50

³Surrogate outside of normal limits due to peak interference.

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Sample: 172335 - MW-5A

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC11723 Date Analyzed: 6/5/01
Analyst: LDB Preparation Method: E 3005 A Prep Batch: PB09954 Date Prepared: 6/4/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		413	mg/L	1	0.50
Dissolved Magnesium		767	mg/L	1	0.50
Dissolved Potassium		16.6	mg/L	1	0.50
Dissolved Sodium		3237	mg/L	1	0.60

Sample: 172336 - MW-3

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC11714 Date Analyzed: 6/5/01
Analyst: RS Preparation Method: N/A Prep Batch: PB10013 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃	1	1
Bicarbonate Alkalinity		108	mg/L as CaCO ₃	1	1
Total Alkalinity		108	mg/L as CaCO ₃	1	1

Sample: 172336 - MW-3

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC11761 Date Analyzed: 6/6/01
Analyst: JW Preparation Method: E 5030B Prep Batch: PB10059 Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O Xylenes		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.446	mg/L	5	0.10	89	72 - 128
4-BFB		0.494	mg/L	5	0.10	90	72 - 128

Sample: 172336 - MW-3

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC11676 Date Analyzed: 6/5/01
Analyst: SSC Preparation Method: N/A Prep Batch: PB09989 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172336 - MW-3

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC11636 Date Analyzed: 6/1/01
Analyst: JS Preparation Method: N/A Prep Batch: PB09956 Date Prepared: 6/1/01

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Param	Flag	Result	Units	Dilution	RDL
CL		629	mg/L	50	0.50
Fluoride		2.74	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate		1190	mg/L	50	0.50

Sample: 172336 - MW-3

Analysis: Salts	Analytical Method: E 200.7	QC Batch: QC11723	Date Analyzed: 6/5/01
Analyst: LDB	Preparation Method: E 3005 A	Prep Batch: PB09954	Date Prepared: 6/4/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		309	mg/L	1	0.50
Dissolved Magnesium		75.7	mg/L	1	0.50
Dissolved Potassium		2.37	mg/L	1	0.50
Dissolved Sodium		487	mg/L	1	0.60

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Method Blank

Method Blank QCBatch: QC11635

Param	Flag	Results	Units	Reporting Limit
CL		<2.0	mg/L	0.50
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<2.0	mg/L	0.50

Method Blank QCBatch: QC11636

Param	Flag	Results	Units	Reporting Limit
CL		<2.0	mg/L	0.50
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<2.0	mg/L	0.50

Method Blank QCBatch: QC11670

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC11714

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCO3	1
Carbonate Alkalinity		<1.0	mg/L as CaCO3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCO3	1
Total Alkalinity		<4.0	mg/L as CaCO3	1

Method Blank QCBatch: QC11723

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		0.6	mg/L	0.50
Dissolved Calcium		0.6	mg/L	0.50
Dissolved Magnesium		<.5	mg/L	0.50
Dissolved Magnesium		<.5	mg/L	0.50
Dissolved Potassium		<.5	mg/L	0.50
Dissolved Potassium		<.5	mg/L	0.50

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Param	Flag	Results	Units	Reporting Limit
Dissolved Sodium		<.5	mg/L	0.60
Dissolved Sodium		<.5	mg/L	0.60

Method Blank

QCBatch: QC11761

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0998	mg/L	1	0.10	99	72 - 128
4-BFB		0.0891	mg/L	1	0.10	89	72 - 128

Method Blank

QCBatch: QC12089

Param	Flag	Results	Units	Reporting Limit
Naphthalene		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		37.58	mg/L	1	80	46	21 - 100
Phenol-d5		23.35	mg/L	1	80	29	11 - 94
Nitrobenzene-d5		70.17	mg/L	1	80	87	35 - 114
2-Fluorobiphenyl		70.72	mg/L	1	80	88	43 - 116
2,4,6-Tribromophenol		69.13	mg/L	1	80	86	10 - 123
Terphenyl-d14		42.64	mg/L	1	80	53	33 - 141

Quality Control Report Duplicate Samples

Duplicate

QCBatch: QC11714

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCO3	1	0	7
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCO3	1	0	7

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Bicarbonate Alkalinity		248	246	mg/L as CaCO3	1	0	7
Total Alkalinity		248	246	mg/L as CaCO3	1	0	7

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC11635

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
CL	11.37	11.69	mg/L	1	12.50	<2.0	90	2	90 - 110	20
Fluoride	2.36	2.33	mg/L	1	2.50	<0.2	94	1	90 - 110	20
Nitrate-N	2.34	2.39	mg/L	1	2.50	<0.2	93	2	90 - 110	20
Sulfate	11.41	11.89	mg/L	1	12.50	<2.0	91	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC11636

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
CL	11.63	11.83	mg/L	1	12.50	<2.0	93	0	90 - 110	20
Fluoride	2.30	2.41	mg/L	1	2.50	<0.2	92	4	90 - 110	20
Nitrate-N	2.30	2.35	mg/L	1	2.50	<0.2	94	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC11724

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Alkalinity	0.00160	0.00207	mg/L	1	0.001	0.00002	105	0	84 - 126	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC11723

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	100	101	mg/L	1	100	0.6	105	3	75 - 125	20
Dissolved Calcium	100	102	mg/L	1	100	0.6	105	3	75 - 125	20
Dissolved Magnesium	101	OK 5	mg/L	1	100	<0.5	101	4	75 - 125	20
Dissolved Magnesium	101	OK 5	mg/L	1	100	<0.5	101	4	75 - 125	20
Dissolved Potassium	98.4	98.4	mg/L	1	100	<0.5	98	0	75 - 125	20
Dissolved Potassium	98.4	98.4	mg/L	1	100	<0.5	98	0	75 - 125	20
Dissolved Sodium	97.5	99.2	mg/L	1	100	<0.5	97	1	75 - 125	20

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	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Sodium	97.5	90.2	mg/L	1	100	<.5	97	7	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC11761

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.104	0.104	mg/L	1	0.10	<0.001	104	0	80 - 120	20
Benzene	0.0981	0.099	mg/L	1	0.10	<0.001	98	0	80 - 120	20
Toluene	0.0986	0.0998	mg/L	1	0.10	<0.001	98	1	80 - 120	20
Ethylbenzene	0.099	0.1	mg/L	1	0.10	<0.001	99	1	80 - 120	20
M,P,O-Xylene	0.284	0.288	mg/L	1	0.30	<0.001	94	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.102	0.102	mg/L	1	0.10	102	102	72 - 128
4-BFB	0.101	0.101	mg/L	1	0.10	101	101	72 - 128

Laboratory Control Spikes

QCBatch: QC12089

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Acenaphthene	51.36	52.3	mg/L	1	80		64	1	47 - 145	20
Pyrene	44.84	46.11	mg/L	1	80		55	3	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	37.85	36.46	mg/L	1	80	47	45	21 - 100
Phenol-d5	23.12	23.09	mg/L	1	80	28	28	11 - 94
Nitrobenzene-d5	64.09	67.32	mg/L	1	80	80	84	35 - 114
2-Fluorobiphenyl	67.71	72.81	mg/L	1	80	84	91	43 - 116
2,4,6-Tribromophenol	62.84	56.55	mg/L	1	80	78	70	10 - 128
Terphenyl-d14	31.66	32.65	mg/L	1	80	39	40	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC11635

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Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
CL	93.31	93.00	mg/L	1	62.50	36.6	90	0	52 - 131	20
Fluoride	11.77	11.91	mg/L	1	12.50	1.14	85	1	80 - 113	20
Nitrate-N	29.11	28.79	mg/L	1	12.50	17.1	96	2	86 - 110	20
Sulfate	73.66	74.85	mg/L	1	62.50	16.6	91	2	71 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC11636

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
CL	⁴ 1762.88	⁵ 1795.10	mg/L	1	1250	629	90	2	52 - 131	20
Fluoride	⁶ 238.49	⁷ 238.57	mg/L	1	250	2.74	94	0	80 - 113	20
Nitrate-N	⁸ 246.02	⁹ 246.90	mg/L	1	250	<1.00	98	0	86 - 110	20
Sulfate	¹⁰ 2317.60	¹¹ 2290.08	mg/L	1	1250	1190	90	2	71 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC11676

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00106	0.00106	mg/L	1	0.001	<0.0002	106	0	84 - 127	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC11723

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	107	98.6	mg/L	1	100	19.5	87	10	75 - 125	20
Dissolved Calcium	107	98.6	mg/L	1	100	19.5	87	10	75 - 125	20
Dissolved Magnesium	82.9	76.8	mg/L	1	100	2.28	80	7	75 - 125	20
Dissolved Magnesium	82.9	76.8	mg/L	1	100	2.28	80	7	75 - 125	20
Dissolved Potassium	188	188	mg/L	1	100	93.4	94	0	75 - 125	20
Dissolved Potassium	188	188	mg/L	1	100	93.4	94	0	75 - 125	20
Dissolved Sodium	783	825	mg/L	1	100	728	55	55	75 - 125	20
Dissolved Sodium	783	825	mg/L	1	100	728	55	55	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

⁴I spiked the *100 dilution for 172336, but reported the *50 dilution. The correct %EA = 80.⁵I spiked the *100 dilution for 172336, but reported the *50 dilution.⁶I spiked the *100 dilution for 172336, but reported the *5 dilution. The correct %EA = 89.⁷I spiked the *100 dilution for 172336, but reported the *5 dilution.⁸I spiked the *100 dilution for 172336, but reported the *5 dilution.⁹I spiked the *100 dilution for 172336, but reported the *5 dilution.¹⁰I spiked the *100 dilution for 172336, but reported the *50 dilution. The correct %EA = 92.¹¹I spiked the *100 dilution for 172336, but reported the *50 dilution.

Report Date: June 21, 2001

Order Number: A01060116

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N/A

Evaporation Ponds

Artesia

Quality Control Report

Continuing Calibration Verification Standards

CCV (1) QCBatch: QC11635

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.37	94	90 - 110	6/1/01
CL		mg/L	12.50	11.57	92	90 - 110	6/1/01
Fluoride		mg/L	2.50	2.39	95	90 - 110	6/1/01
Nitrate-N		mg/L	2.50	2.37	94	90 - 110	6/1/01
Sulfate		mg/L	12.50	11.57	92	90 - 110	6/1/01

ICV (1) QCBatch: QC11635

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.44	97	90 - 110	6/1/01
CL		mg/L	12.50	11.56	92	90 - 110	6/1/01
Fluoride		mg/L	2.50	2.43	97	90 - 110	6/1/01
Nitrate-N		mg/L	2.50	2.36	94	90 - 110	6/1/01
Sulfate		mg/L	12.50	11.44	91	90 - 110	6/1/01

CCV (1) QCBatch: QC11636

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.45	98	90 - 110	6/1/01
CL		mg/L	12.50	11.54	92	90 - 110	6/1/01
Fluoride		mg/L	2.50	2.42	96	90 - 110	6/1/01
Nitrate-N		mg/L	2.50	2.38	95	90 - 110	6/1/01
Sulfate		mg/L	12.50	11.74	93	90 - 110	6/1/01

ICV (1) QCBatch: QC11636

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.37	94	90 - 110	6/1/01
CL		mg/L	12.50	11.57	92	90 - 110	6/1/01
Fluoride		mg/L	2.50	2.39	95	90 - 110	6/1/01
Nitrate-N		mg/L	2.50	2.37	94	90 - 110	6/1/01
Sulfate		mg/L	12.50	11.57	92	90 - 110	6/1/01

Report Date: June 21, 2001
N/AOrder Number: A01080116
Evaporation PondsPage Number: 16 of 18
Artesia

CCV (1) QCBatch: QC11676

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	6/5/01

ICV (1) QCBatch: QC11676

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.0011	110	80 - 120	6/5/01

CCV (1) QCBatch: QC11714

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	6/5/01
Carbonate Alkalinity		mg/L as CaCo3	0	228	0	90 - 110	6/5/01
Bicarbonate Alkalinity		mg/L as CaCo3	0	18	0	90 - 110	6/5/01
Total Alkalinity		mg/L as CaCo3	250	246	98	90 - 110	6/5/01

ICV (1) QCBatch: QC11714

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	6/5/01
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	6/5/01
Bicarbonate Alkalinity		mg/L as CaCo3	0	12	0	90 - 110	6/5/01
Total Alkalinity		mg/L as CaCo3	250	244	97	90 - 110	6/5/01

CCV (1) QCBatch: QC11723

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	90 - 110	6/5/01
Dissolved Calcium		mg/L	25	25.1	100	90 - 110	6/5/01
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	6/5/01
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	6/5/01
Dissolved Potassium		mg/L	25	24.4	97	90 - 110	6/5/01
Dissolved Potassium		mg/L	25	24.4	97	90 - 110	6/5/01
Dissolved Sodium		mg/L	25	23.5	94	90 - 110	6/5/01
Dissolved Sodium		mg/L	25	23.5	94	90 - 110	6/5/01

Report Date: June 21, 2001

Order Number: A01060116

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Evaporation Ponds

Artesia

ICV (1) QCBatch: QC11723

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.8	99	95 - 105	6/5/01
Dissolved Calcium		mg/L	25	24.8	99	95 - 105	6/5/01
Dissolved Magnesium		mg/L	25	24.5	98	95 - 105	6/5/01
Dissolved Magnesium		mg/L	25	24.5	98	95 - 105	6/5/01
Dissolved Potassium		mg/L	25	24.3	97	95 - 105	6/5/01
Dissolved Potassium		mg/L	25	24.3	97	95 - 105	6/5/01
Dissolved Sodium		mg/L	25	24.6	98	95 - 105	6/5/01
Dissolved Sodium		mg/L	25	24.6	98	95 - 105	6/5/01

CCV (1) QCBatch: QC11761

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0967	96	85 - 115	6/6/01
Benzene		mg/L	0.10	0.1	100	85 - 115	6/6/01
Toluene		mg/L	0.10	0.1	100	85 - 115	6/6/01
Ethylbenzene		mg/L	0.10	0.101	101	85 - 115	6/6/01
M,P,O-Xylene		mg/L	0.30	0.29	96	85 - 115	6/6/01

CCV (2) QCBatch: QC11761

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0931	93	85 - 115	6/6/01
Benzene		mg/L	0.10	0.0955	95	85 - 115	6/6/01
Toluene		mg/L	0.10	0.0957	95	85 - 115	6/6/01
Ethylbenzene		mg/L	0.10	0.0958	95	85 - 115	6/6/01
M,P,O-Xylene		mg/L	0.30	0.276	92	85 - 115	6/6/01

ICV (1) QCBatch: QC11761

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.111	111	85 - 115	6/6/01
Benzene		mg/L	0.10	0.102	102	85 - 115	6/6/01
Toluene		mg/L	0.10	0.102	102	85 - 115	6/6/01
Ethylbenzene		mg/L	0.10	0.103	103	85 - 115	6/6/01
M,P,O-Xylene		mg/L	0.30	0.296	98	85 - 115	6/6/01

CCV (1) QCBatch: QC12089

Report Date: June 21, 2001

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Evaporation Ponds

Artesia

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60	51.86	86	80 - 120	6/13/01
1-Methylnaphthalene		mg/L	60	50.47	84	80 - 120	6/13/01
2-Methylnaphthalene		mg/L	60	50.48	84	80 - 120	6/13/01
Acenaphthene		mg/L	60	51.41	85	80 - 120	6/13/01
Pyrene		mg/L	60	62.91	104	80 - 120	6/13/01
2-Fluorophenol		mg/L	60	55.87	93	80 - 120	6/13/01
Phenol-d5		mg/L	60	52.86	88	80 - 120	6/13/01
Nitrobenzene-d5		mg/L	60	53.88	89	80 - 120	6/13/01
2-Fluorobiphenyl		mg/L	60	51.09	85	80 - 120	6/13/01
2,4,6-Tribromophenol		mg/L	60	49.91	83	80 - 120	6/13/01
Terphenyl-d14		mg/L	60	62.71	104	80 - 120	6/13/01

TraceAnalysis, Inc.

6701 Aberdeen Ave., Suite 9

Lubbock, TX 79424-1515

(806) 794-1296

Report Date: June 21, 2001 Order Number: A01060116

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N/A

Evaporation Ponds

Artesia

Sample 172331 continued ...

Param	Flag	Result	Units
Dissolved Sodium		96.5	mg/L

Sample: 172332 - OCD-3

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCO3
Carbonate Alkalinity		<1.0	mg/L as CaCO3
Bicarbonate Alkalinity		198	mg/L as CaCO3
Total Alkalinity		198	mg/L as CaCO3
Total Mercury		<0.0002	mg/L
CL		1120	mg/L
Fluoride		1.87	mg/L
Nitrate-N		<1.00	mg/L
Sulfate		1860	mg/L
Dissolved Calcium		465	mg/L
Dissolved Magnesium		191	mg/L
Dissolved Potassium		31.8	mg/L
Dissolved Sodium		702	mg/L

Sample: 172333 - OCD-1

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCO3
Carbonate Alkalinity		<1.0	mg/L as CaCO3
Bicarbonate Alkalinity		586	mg/L as CaCO3
Total Alkalinity		586	mg/L as CaCO3
Total Mercury		<0.0002	mg/L
CL		2390	mg/L
Fluoride		10.4	mg/L
Nitrate-N		<1.00	mg/L
Sulfate		3540	mg/L
Dissolved Calcium		512	mg/L
Dissolved Magnesium		118	mg/L
Dissolved Potassium		18.8	mg/L
Dissolved Sodium		1957	mg/L

Sample: 172334 - OCD-5

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCO3
Carbonate Alkalinity		<1.0	mg/L as CaCO3
Bicarbonate Alkalinity		198	mg/L as CaCO3
Total Alkalinity		198	mg/L as CaCO3
Total Mercury		<0.0002	mg/L
CL		4790	mg/L
Fluoride		2.02	mg/L
Nitrate-N		<1.00	mg/L
Sulfate		3030	mg/L

Continued on next page ...

TraceAnalysis, Inc.

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Report Date: July 9, 2001 Order Number: A01060516
N/A Evaporation Ponds

Page Number: 1 of 2
Artesia

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: July 9, 2001

Order ID Number: A01060516

Project Number: N/A
Project Name: Evaporation Ponds
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
172533	MW-4	Water	6/4/01	10:30	6/5/01
172534	MW-7	Water	6/4/01	10:10	6/5/01
172535	OCD-7	Water	6/4/01	10:00	6/5/01

This report consists of a total of 2 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample - Field Code	BTEX				
	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	M,P,O-Xylene (mg/L)	Total BTEX (mg/L)
172533 - MW-4	<0.005	<0.005	<0.005	<0.005	<0.005
172534 - MW-7	<0.005	<0.005	<0.005	<0.005	<0.005
172535 - OCD-7	<0.005	<0.005	<0.005	<0.005	<0.005

Sample: 172533 - MW-4

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃
Bicarbonate Alkalinity		584	mg/L as CaCO ₃
Total Alkalinity		584	mg/L as CaCO ₃
Total Mercury		<0.0002	mg/L
CL		2060	mg/L
Fluoride		13.9	mg/L
Nitrate-N		<1.00	mg/L
Sulfate		3030	mg/L
Dissolved Calcium		485	mg/L
Dissolved Magnesium		89.5	mg/L
Dissolved Potassium		18.4	mg/L
Dissolved Sodium		1884	mg/L

Sample: 172534 - MW-7

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃

Continued on next page ...

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Report Date: July 9, 2001Order Number: A01060516

Page Number: 2 of 2

N/A Evaporation Ponds

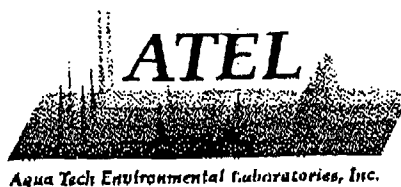
Artesia

Sample 172534 continued ...

Param	Flag	Result	Units
Bicarbonate Alkalinity		638	mg/L as CaCo3
Total Alkalinity		638	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
CL		2530	mg/L
Fluoride		5.61	mg/L
Nitrate-N		<1.00	mg/L
Sulfate		3720	mg/L
Dissolved Calcium		541	mg/L
Dissolved Magnesium		176	mg/L
Dissolved Potassium		29.7	mg/L
Dissolved Sodium		2303	mg/L

Sample: 172535 - OCD-7

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		471	mg/L as CaCo3
Total Alkalinity		471	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
CL		2060	mg/L
Fluoride		5.67	mg/L
Nitrate-N		1.00	mg/L
Sulfate		3130	mg/L
Dissolved Calcium		624	mg/L
Dissolved Magnesium		182	mg/L
Dissolved Potassium		14.6	mg/L
Dissolved Sodium		1719	mg/L

**- CERTIFICATE OF ANALYSIS -**

Client #: 12565

Report Date: 14-Jun-01

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

Attn: Nell Green

Our Lab #: MAR01-12364

Your Sample ID: 172533

Date Logged-In: 6/7/01

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

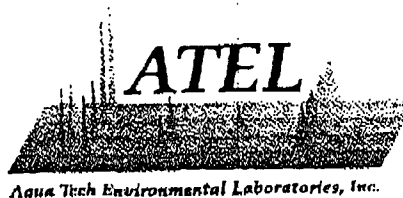
Project #:

Date Submitted to Lab: 6/6/2001

- COLLECTION INFORMATION -

Date/Time/By: 6/4/01

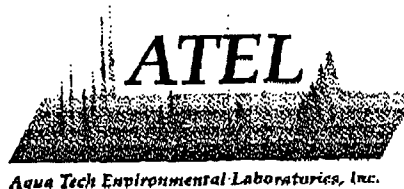
Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	160 (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	298 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	18 (10)	UG/L	6/8/01	M/RJ	26065
B-MS	200.8/6020	Boron, B	370 (50)	UG/L	6/8/01	RCM	26073
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	ND (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	4600 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganese, Mn	2410 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	ND (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	ND (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	ND (30)	UG/L	6/8/01	RCM	26073
CD-GFAA	3113B/7131	Cadmium, Cd	ND (0.5)	UG/L	6/12/01	PM/R	26117



Note: The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

Report Approved By: Deborah K. Johnson ^{End of Report}
Deborah K. Johnson

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory. The results presented on this Certificate only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s).



- CERTIFICATE OF ANALYSIS -

Client #: 12565

Report Date: 14-Jun-01

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

Attn: Nell Green

Our Lab #: MAR01-12365

Your Sample ID: 172534

Date Logged-In: 6/7/01

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 6/6/2001

- COLLECTION INFORMATION -

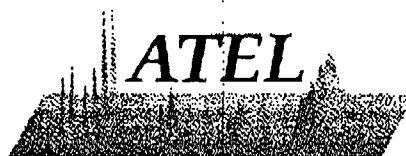
Date/Time/By: 6/4/01

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	170 (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	195 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	16 (10)	UG/L	6/8/01	M/RJ	26065
B-MS	200.8/6020	Boron, B	610 (50)	UG/L	6/8/01	RCM	26073
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	ND (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	10000 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganese, Mn	2250 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	ND (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	ND (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	ND (30)	UG/L	6/8/01	RCM	26073
CD-GFAA	3113B/7131	Cadmium, Cd	ND (0.5)	UG/L	6/12/01	PM/R	26117

CERTIFICATIONS: NCDWQ263,NCDEH39700,AZ0071,OH4053,NY11071,A2LA102325

Lab Number MAR01-12365 Page 1

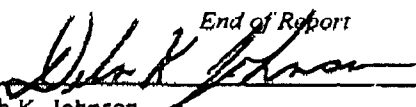
1776 MARION-WALDO RD. • P.O. BOX 436 • MARION, OH 43301-0436
 PHONE 740-389-5991 • 1-800-873-2635 • FAX 740-389-1481



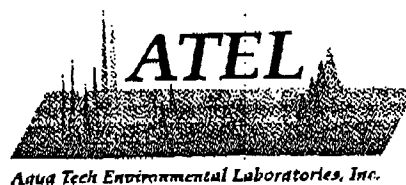
Aqua Tech Environmental Laboratories, Inc.

Note: The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

Report Approved By:

End of Report

Deborah K. Johnson

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- CERTIFICATE OF ANALYSIS -

Client #: 12565

Report Date: 14-Jun-01

Trace Analysis

6701 Aberdeen Suite 9

Lubbock, TX 79424-

Phone: (806) 794-1296 Ext:

FAX: (806) 794-1298

Attn: Nell Green

Our Lab #: MAR01-12366

Your Sample ID: 172535

Date Logged-In: 6/7/01

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 6/6/2001

- COLLECTION INFORMATION -

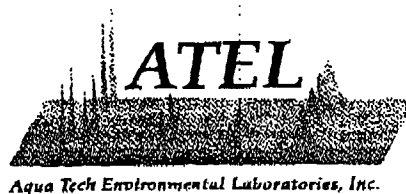
Date/Time/By: 6/4/01

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
AL-ICP	200.7/6010B	Aluminum, Al	300 (100)	UG/L	6/8/01	M/RJ	26065
AS-MS	200.8/6020	Arsenic, As	207 (3.0)	UG/L	6/8/01	RCM	26073
BE-MS	200.8/6020	Beryllium, Be	ND (0.5)	UG/L	6/8/01	RCM	26073
BA-ICP	200.7/6010B	Barium, Ba	12 (10)	UG/L	6/8/01	M/RJ	26065
B-MS	200.8/6020	Boron, B	1500 (50)	UG/L	6/8/01	RCM	26073
CR-ICP	200.7/6010B	Chromium, Cr	ND (20)	UG/L	6/8/01	M/RJ	26065
CO-ICP	200.7/6010B	Cobalt, Co	ND (10)	UG/L	6/8/01	M/RJ	26065
CU-ICP	200.7/6010B	Copper, Cu	ND (10)	UG/L	6/8/01	M/RJ	26065
FE-ICP	200.7/6010B	Iron, Fe	8100 (40)	UG/L	6/8/01	M/RJ	26065
MN-ICP	200.7/6010B	Manganese, Mn	1370 (10)	UG/L	6/8/01	M/RJ	26065
PB-MS	200.8/6020	Lead, Pb	ND (2.0)	UG/L	6/8/01	RCM	26073
NI-ICP	200.7/6010B	Nickel, Ni	62 (20)	UG/L	6/8/01	M/RJ	26065
SE-GFAA	3113B/7740	Selenium, Se	ND (50)	UG/L	6/8/01	PM/R	26072
AG-ICP	200.7/6010B	Silver, Ag	ND (10)	UG/L	6/8/01	M/RJ	26065
V-ICP	200.7/6010B	Vanadium, V	ND (20)	UG/L	6/8/01	M/RJ	26065
ZN-ICP	200.7/6010B	Zinc, Zn	ND (10)	UG/L	6/8/01	M/RJ	26065
U-MS	6020	Uranium, U	ND (20.0)	UG/L	6/8/01	RCM	26073
MO-MS	200.8	Molybdenum, Mo	40 (30)	UG/L	6/8/01	RCM	26073
CD-GFAA	3113B/7131	Cadmium, Cd	ND (0.5)	UG/L	6/12/01	PM/R	26117

CERTIFICATIONS: NCDWQ263, NCDEH39700, AZ0071, OH4053, NY11071, A2LA102325

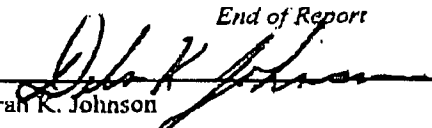
Lab Number MAR01-12366 Page 1

1776 MARION-WALDO RD. • P.O. BOX 436 • MARION, OH 43301-0436
PHONE 740-389-5991 • 1-800-873-2836 • FAX 740-389-1481



Note: The Practical Quantitation Limit (PQL) for Selenium is elevated due to matrix interferences that required serial dilution of the sample.

Report Approved By:

End of Report

Deborah K. Johnson

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TRACEANALYSIS, INC

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E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: July 9, 2001

Order ID Number: A01060516

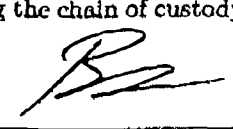
Project Number: N/A
Project Name: Evaporation Ponds
Project Location: Artesia

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
172533	MW-4	Water	6/4/01	10:30	6/5/01
172534	MW-7	Water	6/4/01	10:10	6/5/01
172535	OCD-7	Water	6/4/01	10:00	6/5/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 12 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.


Dr. Blair Leftwich, Director

Report Date: July 9, 2001
N/A

Order Number: A01060516
Evaporation Ponds

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Artesia

Analytical Report

Sample: 172533 - MW-4

Analysis: Alkalinity Analytical Method: E 310.1
Analyst: RS Preparation Method: N/A

QC Batch: QC11752 Date Analyzed: 6/6/01
Prep Batch: PB10054 Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		584	mg/L as CaCo3	1	1
Total Alkalinity		584	mg/L as CaCo3	1	1

Sample: 172533 - MW-4

Analysis: BTEX Analytical Method: S 8021B
Analyst: CG Preparation Method: E 5030B

QC Batch: QC11792 Date Analyzed: 6/7/01
Prep Batch: PB10086 Date Prepared: 6/7/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.424	mg/L	5	0.10	84	72 - 128
4-BFB	1	0.764	mg/L	5	0.10	152	72 - 128

Sample: 172533 - MW-4

Analysis: Hg, Total Analytical Method: E 245.2
Analyst: SSC Preparation Method: N/A

QC Batch: QC11898 Date Analyzed: 6/12/01
Prep Batch: PB10177 Date Prepared: 6/12/01

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172533 - MW-4

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC11766 Date Analyzed: 6/5/01
Analyst: JS Preparation Method: N/A Prep Batch: PB10065 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
CL		2060	mg/L	50	0.50
Fluoride		13.9	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate		3030	mg/L	100	0.50

¹SURROGATE OUT OF LIMITS DUE TO PEAK INTERFERENCE

Report Date: July 9, 2001
N/A

Order Number: A01060516
Evaporation Ponds

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Sample: 172533 - MW-4

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC12079 Date Analyzed: 6/20/01
Analyst: LDB Preparation Method: E 3005 A Prep Batch: PB10067 Date Prepared: 6/7/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		485	mg/L	1	0.50
Dissolved Magnesium		89.5	mg/L	1	0.50
Dissolved Potassium		18.4	mg/L	1	0.50
Dissolved Sodium		1884	mg/L	1	0.50

Sample: 172534 - MW-7

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC11752 Date Analyzed: 6/6/01
Analyst: RS Preparation Method: N/A Prep Batch: PB10054 Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃	1	1
Bicarbonate Alkalinity		638	mg/L as CaCO ₃	1	1
Total Alkalinity		638	mg/L as CaCO ₃	1	1

Sample: 172534 - MW-7

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC11792 Date Analyzed: 6/7/01
Analyst: CG Preparation Method: E 5030B Prep Batch: PB10086 Date Prepared: 6/7/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.402	mg/L	5	0.10	80	72 - 128
4-BFB		0.497	mg/L	5	0.10	99	72 - 128

Sample: 172534 - MW-7

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC11898 Date Analyzed: 6/12/01
Analyst: SSC Preparation Method: N/A Prep Batch: PB10177 Date Prepared: 6/12/01

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172534 - MW-7

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC11766 Date Analyzed: 6/5/01
Analyst: JS Preparation Method: N/A Prep Batch: PB10065 Date Prepared: 6/5/01

Report Date: July 9, 2001
N/A

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Param	Flag	Result	Units	Dilution	RDL
CL		2530	mg/L	100	0.50
Fluoride		5.61	mg/L	5	0.20
Nitrate-N		<1.00	mg/L	5	0.20
Sulfate		3720	mg/L	100	0.50

Sample: 172534 - MW-7

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC12079 Date Analyzed: 6/20/01
Analyst: LDB Preparation Method: E 3005 A Prep Batch: PB10067 Date Prepared: 6/7/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		541	mg/L	1	0.50
Dissolved Magnesium		176	mg/L	1	0.50
Dissolved Potassium		29.7	mg/L	1	0.50
Dissolved Sodium		2303	mg/L	1	0.50

Sample: 172535 - OCD-7

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC11752 Date Analyzed: 6/6/01
Analyst: RS Preparation Method: N/A Prep Batch: PB10054 Date Prepared: 6/6/01

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		471	mg/L as CaCo3	1	1
Total Alkalinity		471	mg/L as CaCo3	1	1

Sample: 172535 - OCD-7

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC11792 Date Analyzed: 6/7/01
Analyst: CG Preparation Method: E 5030B Prep Batch: PB10086 Date Prepared: 6/7/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.37	mg/L	5	0.10	74	72 - 128
4-BFB		0.635	mg/L	5	0.10	127	72 - 128

Sample: 172535 - OCD-7

Analysis: Hg, Total Analytical Method: E 245.2 QC Batch: QC11898 Date Analyzed: 6/12/01
Analyst: SSC Preparation Method: N/A Prep Batch: PB10177 Date Prepared: 6/12/01

Continued ...

Report Date: July 9, 2001
N/A

Order Number: A01060516
Evaporation Ponds

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Artesia

... Continued Sample: 172535 Analysis: Hg, Total					
Param	Flag	Result	Units	Dilution	RDL
Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 172535 - OCD-7

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC11766 Date Analyzed: 6/5/01
Analyst: JS Preparation Method: N/A Prep Batch: PB10065 Date Prepared: 6/5/01

Param	Flag	Result	Units	Dilution	RDL
CL		2060	mg/L	100	0.50
Fluoride		5.67	mg/L	5	0.20
Nitrate-N		1.00	mg/L	5	0.20
Sulfate		3130	mg/L	100	0.50

Sample: 172535 - OCD-7

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC11952 Date Analyzed: 6/13/01
Analyst: LDB Preparation Method: E 3005 A Prep Batch: PB10333 Date Prepared: 6/1/01

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		624	mg/L	1	0.50
Dissolved Magnesium		182	mg/L	1	0.50
Dissolved Potassium		14.6	mg/L	1	0.50
Dissolved Sodium		1719	mg/L	1	0.50

Report Date: July 9, 2001
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ArtesiaQuality Control Report
Method Blank

Method Blank QCBatch: QC11752

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCO ₃	1
Carbonate Alkalinity		<1.0	mg/L as CaCO ₃	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCO ₃	1
Total Alkalinity		<4.0	mg/L as CaCO ₃	1

Method Blank QCBatch: QC11766

Param	Flag	Results	Units	Reporting Limit
CL		<2.0	mg/L	0.50
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<2.0	mg/L	0.50

Method Blank QCBatch: QC11792

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0948	mg/L	1	0.10	94	72 - 128
4-BFB		0.0783	mg/L	1	0.10	78	72 - 128

Method Blank QCBatch: QC11898

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC11952

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Artesia

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		0.5	mg/L	0.50
Dissolved Sodium		0.6	mg/L	0.50

Method Blank

QCBatch: QC12079

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		0.6	mg/L	0.50
Dissolved Sodium		0.6	mg/L	0.50

Quality Control Report Duplicate Samples

Duplicate

QCBatch: QC11752

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0		mg/L as CaCo3	1	0	7
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Bicarbonate Alkalinity		30.0	32.0	mg/L as CaCo3	1	6	7
Total Alkalinity		30.0	32.0	mg/L as CaCo3	1	6	7

Quality Control Report Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC11766

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
CL	11.76	11.72	mg/L	1	12.50	<2.0	94	0	90 - 110	20
Fluoride	2.35	2.43	mg/L	1	2.50	<0.2	94	3	90 - 110	20
Nitrate-N	2.44	2.39	mg/L	1	2.50	<0.2	97	2	90 - 110	20
Sulfate	11.85	11.94	mg/L	1	12.50	<2.0	94	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC11792

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.0826	0.0892	mg/L	1	0.10	<0.001	92	3	80 - 120	20

Continued ...

Report Date: July 9, 2001
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... Continued

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Benzene	0.095	0.0932	mg/L	1	0.10	<0.001	95	1	80 - 120	20
Toluene	0.0985	0.0985	mg/L	1	0.10	<0.001	98	2	80 - 120	20
Ethylbenzene	0.0995	0.0982	mg/L	1	0.10	<0.001	99	1	80 - 120	20
M,P,O-Xylene	0.285	0.281	mg/L	1	0.30	<0.001	95	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.0981	0.0978	mg/L	1	0.10	98	97	72 - 128
4-BFB	0.0973	0.0969	mg/L	1	0.10	97	96	72 - 128

Laboratory Control Spikes

QCBatch: QC11898

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00108	0.00108	mg/L	1	0.001	<0.0002	108	1	84 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC11952

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	107	99.5	mg/L	1	100	<0.5	107	7	75 - 125	20
Dissolved Magnesium	101	91.2	mg/L	1	100	<0.5	101	10	75 - 125	20
Dissolved Potassium	99	93	mg/L	1	100	0.6	99	6	75 - 125	20
Dissolved Sodium	94.8	95.4	mg/L	1	100	0.6	94	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC12079

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	90.5	87.8	mg/L	1	100	<0.5	90	3	75 - 125	20
Dissolved Magnesium	86.3	82.3	mg/L	1	100	<0.5	86	4	75 - 125	20
Dissolved Potassium	91.3	88.1	mg/L	1	100	0.6	91	3	75 - 125	20
Dissolved Sodium	88.6	85.4	mg/L	1	100	0.6	88	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report

Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC11766

Report Date: July 9, 2001

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N/A

Evaporation Ponds

Artesia

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
CL	3218.53	3209.77	mg/L	1	1250	2060	92	0	52 - 131	20
Fluoride	² 253.51	³ 244.34	mg/L	1	250	5.67	99	3	80 - 113	20
Nitrate-N	⁴ 259.83	⁵ 251.30	mg/L	1	250	1.00	103	3	86 - 110	20
Sulfate	4227.94	4353.94	mg/L	1	1250	3130	87	10	71 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC11898

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00119	0.00114	mg/L	1	0.001	<0.0002	119	4	84 - 127	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC11952

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	918	831	mg/L	1	100	756	162	73	75 - 125	20
Dissolved Magnesium	311	297	mg/L	1	100	218	93	16	75 - 125	20
Dissolved Potassium	114	109	mg/L	1	100	6.98	107	4	75 - 125	20
Dissolved Sodium	228	216	mg/L	1	100	134	94	13	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC12079

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	677	655	mg/L	1	100	541	136	17	75 - 125	20
Dissolved Magnesium	358	308	mg/L	1	100	176	182	31	75 - 125	20
Dissolved Potassium	190	168	mg/L	1	100	29.7	160	14	75 - 125	20
Dissolved Sodium	2437	2309	mg/L	1	100	2303	134	182	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report Continuing Calibration Verification Standards

CCV (1) QCBatch: QC11752

² I spiked the *100 dilution for 172535, but reported the *5 dilution. The correct %EA = 94.³ I spiked the *100 dilution for 172535, but reported the *5 dilution.⁴ I spiked the *100 dilution for 172535, but reported the *5 dilution. The correct %EA = 97.⁵ I spiked the *100 dilution for 172535, but reported the *5 dilution.

Report Date: July 9, 2001
N/AOrder Number: A01060516
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Artesia

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Carbonate Alkalinity		mg/L as CaCo3	0	216	0	90 - 110	6/6/01
Bicarbonate Alkalinity		mg/L as CaCo3	0	26.0	0	90 - 110	6/6/01
Total Alkalinity		mg/L as CaCo3	250	242	96	90 - 110	6/6/01

ICV (1) QCBatch: QC11752

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Carbonate Alkalinity		mg/L as CaCo3	0	212	0	90 - 110	6/6/01
Bicarbonate Alkalinity		mg/L as CaCo3	0	28.0	0	90 - 110	6/6/01
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	6/6/01

CCV (1) QCBatch: QC11766

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.55	102	90 - 110	6/5/01
CL		mg/L	12.50	11.80	94	90 - 110	6/5/01
Fluoride		mg/L	2.50	2.56	102	90 - 110	6/5/01
Nitrate-N		mg/L	2.50	2.43	97	90 - 110	6/5/01
Sulfate		mg/L	12.50	12.14	97	90 - 110	6/5/01

ICV (1) QCBatch: QC11766

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.47	98	90 - 110	6/5/01
CL		mg/L	12.50	11.69	93	90 - 110	6/5/01
Fluoride		mg/L	2.50	2.50	100	90 - 110	6/5/01
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	6/5/01
Sulfate		mg/L	12.50	11.83	94	90 - 110	6/5/01

CCV (1) QCBatch: QC11792

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.086	86	85 - 115	6/7/01
Benzene		mg/L	0.10	0.093	93	85 - 115	6/7/01
Toluene		mg/L	0.10	0.0957	95	85 - 115	6/7/01
Ethylbenzene		mg/L	0.10	0.0965	96	85 - 115	6/7/01
M,P,O-Xylene		mg/L	0.30	0.276	92	85 - 115	6/7/01

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CCV (2) QCBatch: QC11792

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0842	84	85 - 115	6/7/01
Benzene		mg/L	0.10	0.0916	91	85 - 115	6/7/01
Toluene		mg/L	0.10	0.0945	94	85 - 115	6/7/01
Ethylbenzene		mg/L	0.10	0.0955	95	85 - 115	6/7/01
M,P,O-Xylenc		mg/L	0.30	0.274	91	85 - 115	6/7/01

ICV (1) QCBatch: QC11792

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.094	94	85 - 115	6/7/01
Benzene		mg/L	0.10	0.0967	96	85 - 115	6/7/01
Toluene		mg/L	0.10	0.1	100	85 - 115	6/7/01
Ethylbenzene		mg/L	0.10	0.103	103	85 - 115	6/7/01
M,P,O-Xylene		mg/L	0.30	0.295	98	85 - 115	6/7/01

CCV (1) QCBatch: QC11898

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	6/12/01

ICV (1) QCBatch: QC11898

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00102	102	80 - 120	6/12/01

CCV (1) QCBatch: QC11952

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	27.2	108	90 - 110	6/13/01
Dissolved Magnesium		mg/L	25	26.7	106	90 - 110	6/13/01
Dissolved Potassium		mg/L	25	25.8	103	90 - 110	6/13/01
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	6/13/01

Report Date: July 9, 2001
N/AOrder Number: A01060516
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Artesia

ICV (1) QCBatch: QC11952

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.2	100	95 - 105	6/13/01
Dissolved Magnesium		mg/L	25	24.3	97	95 - 105	6/13/01
Dissolved Potassium		mg/L	25	24.4	97	95 - 105	6/13/01
Dissolved Sodium		mg/L	25	24.8	99	95 - 105	6/13/01

CCV (1) QCBatch: QC12079

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25	100	90 - 110	6/20/01
Dissolved Magnesium		mg/L	25	23.8	95	90 - 110	6/20/01
Dissolved Potassium		mg/L	25	25.3	101	90 - 110	6/20/01
Dissolved Sodium		mg/L	25	25.1	100	90 - 110	6/20/01

ICV (1) QCBatch: QC12079

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.5	102	95 - 105	6/20/01
Dissolved Magnesium		mg/L	25	24.5	98	95 - 105	6/20/01
Dissolved Potassium		mg/L	25	24.4	97	95 - 105	6/20/01
Dissolved Sodium		mg/L	25	24.5	98	95 - 105	6/20/01

M2533-35

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order to: **PO000516**

Company Name:

NAPVATO

Phone #:

5057483311

Address:

(Street, City, Zip)

501 E Main

Fax #:

5057465421

Contact Person:

Invoice to:
(If different from above)

Project #:

Project Name:

Evap Ponds

Project Location:

Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX				PRESERVATIVE METHOD						SAMPLING			
				WATER	SOIL	AIR	SLUDGE	HCl	HNO ₃	H ₂ SO ₄	NaOH	ICE	NONE	DATE	TIME		
172533	MW4	1	1L	X						X		X	X		6/4/01	1030	
	"	1	500ml	X						X			X	X		6/4/01	1030
	"	2	400ml	X						X			X	X		6/4/01	1030
172534	MW7	1	1L	X							X		X	X		6/4/01	1010
	"	1	500ml	X							X		X	X		6/4/01	1010
	"	2	400ml	X						X			X	X		6/4/01	1010
72535	OC0-7	1	1L	X								X	X	X		6/4/01	1000
	"	1	500ml	X							X		X	X		6/4/01	1000
	"	2	400ml	X						X			X	X		6/4/01	1000

Relinquished to:	Date:	Time:	Received by:	Date:	Time:
	6/4/01	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST

(Circle or Specify Method No.)

MTBE 8021B/602	
TPH 418.1/IX1005	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
TCLP Pesticides	
RCI	
GC/MS Vol. B260B/624	
GC/MS Semi. Vol. B270C/626	
PCBs 8082/608	
Pesticides 8081A/B08	
BOD, TSS, pH	
Turn Around Time if different from standard	

See List

REMARKS:

no bottle for semi-vol. m.w. 4
16/01

LAB USE ONLY

Initials: *CVN*
Preparation: *CVN*
Tent: *NA*
Length: *NA*

☐ Check If Special Reporting Units Are Needed
Carrier: *FDX* *W* *301.5334* *202*