Parametrix

ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

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July 24, 2009
PMX No. 555-3747-003 (03/02)

Mr. Richard H. Morck, P.E.
Landmarc Technologies, Inc.
14816 439th Place SE
North Bend, WA 98045-9248

Re: December 2008 and March 2009 Leachate Sampling Results, Newcastle Demolition Landfill

Dear Rick:

This report summarizes the results of the leachate sampling conducted on December 30, 2008 and March 16, 2009 at the Newcastle Demolition Landfill. The landfill was formerly owned and operated by Coal Creek Development Corporation, and accepted demolition and inert waste until 1992. It was formally closed in June 1993 and has since been developed as a golf course by Newcastle Golf LLC.

Sampling of leachate from the pump station was conducted per the request of the Health Department to evaluate potential impacts of an overflow event that occurred in the December 2007 to January 2008 timeframe. There are two inflows into the pump station. One is the original leachate collection pipe that was installed around 1987 to control leachate seeps on King Co. Parks property to the east. The flow from this system is seasonal, low to non-existent in summer, higher in winter and spring. The second inflow to this system was added in 2001 when the golf course development occurred. The drainage behind the new retaining wall along 155th Ave. SE. was directed into the leachate manhole because of the concern that this drainage might be impacted by percolation through waste in-place along that boundary. At the time, this was expected to be a very small flow just relieving pore pressure behind the short retaining wall. It is this second inflow that, unexpectedly, substantially increased flows into the manhole. This flow is very sensitive to precipitation, therefore the two leachate sampling events were selected to approximate the seasonal flow conditions when retaining wall inflow is present similar to when the overflow occurred. The December 30, 2008 sampling was not linked to a particular rainfall event. The March 16, 2009 sample was collected after one inch of rainfall had been recorded in the preceding three days at the SeaTac airport.

Samples were collected by Parametrix personnel from the leachate vault directly into containers provided by the laboratory. The samples were delivered directly to Analytical Resources, Inc. (ARI) in Seattle, Washington for analysis. Samples were analyzed for volatile organic compounds, semivolatile organic compounds, chloride, nitrite, nitrate, ammonia, sulfate, hardness (calcium and magnesium), dissolved iron, dissolved manganese, dissolved zinc, chemical oxygen demand (COD), total organic carbon (TOC), and total dissolved solids (TDS).

The analytical results for the leachate samples are summarized in Table 1. The laboratory reports and chain-of-custody forms are presented in Attachment A.

Please contact me at (425) 458-6320 or lgilbert@parametrix.com if you have questions regarding this report.

Sincerely,

PARAMETRIX

Lisa A. Gilbert, LHG
Project Hydrogeologist

cc: Yolanda Pon, Public Health– Seattle & King County (two copies)
Bob Jaffe, Preston Gates and Ellis

TABLES

Leachate Results, 2008 - 2009, Newcastle Demolition Landfill

Analyte	Units	Leachate 12/30/08	Trip Blank 12/30/08	Leachate 3/16/09
Conventionals				
Total Dissolved Solids	mg/L	1190	- -	953
Chloride	mg/L	48.3	- -	21.2
N-Ammonia	mg-N/L	4.75	- -	4.86
N-Nitrate	mg-N/L	0.179	- -	0.428
N-Nitrite	mg-N/L	0.010 U	- -	0.010 U
Nitrate + Nitrite	mg-N/L	0.179	- -	0.428
Sulfate	mg/L	98.0	- -	77.9
Chemical Oxygen Demand	mg/L	64.0	- -	48.3
Total Organic Carbon	mg/L	21.2	- -	19.1
Hardness	mg/L CaCO3	890	- -	760
Total Metals				
Antimony	µg/L	2 U	- -	2 U
Arsenic	µg/L	1	- -	1 U
Beryllium	µg/L	1 U	- -	1 U
Cadmium	µg/L	2 U	- -	2 U
Calcium	µg/L	285000	- -	239000
Chromium	µg/L	5 U	- -	5 U
Copper	µg/L	3	- -	3
Iron	µg/L	4440	- -	3290
Lead	µg/L	5	- -	2
Magnesium	µg/L	44000	- -	39900
Manganese	µg/L	1220	- -	1000
Mercury	µg/L	0.1 U	- -	0.1 U
Nickel	µg/L	10 U	- -	10 U
Selenium	µg/L	2 U	- -	2 U
Silver	µg/L	3 U	- -	3 U
Thallium	mg/L	1 U	- -	1 U
Zinc	µg/L	10 U	- -	10 U
Volatile Organics				
Chloromethane	µg/L	0.2 U	0.2 U	1.0 U
Bromomethane	µg/L	0.5 U	0.5 U	1.0 U
Vinyl Chloride	µg/L	0.2 U	0.2 U	0.2 U
Chloroethane	µg/L	0.2 U	0.2 U	**0.2**
Methylene Chloride	µg/L	0.5 U	0.5 U	0.5 U
Acetone	µg/L	3.0 U	3.0 U	5.0 U
Carbon Disulfide	µg/L	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	µg/L	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U
Chloroform	µg/L	0.2 U	0.2 U	0.2 U
1,2-Dichloroethane	µg/L	0.2 U	0.2 U	0.2 U
2-Butanone	µg/L	2.5 U	2.5 U	5.0 U
1,1,1-Trichloroethane	µg/L	0.2 U	0.2 U	0.2 U
Carbon Tetrachloride	µg/L	0.2 U	0.2 U	0.2 U
Vinyl Acetate	µg/L	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	µg/L	0.2 U	0.2 U	0.2 U
cis-1,3-Dichloropropene	µg/L	0.2 U	0.2 U	0.2 U
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U

Leachate Results, 2008 - 2009, Newcastle Demolition Landfill

Analyte	Units	Leachate 12/30/08	Trip Blank 12/30/08	Leachate 3/16/09
Dibromochloromethane	µg/L	0.2 U	0.2 U	0.2 U
Volatile Organics (continued)				
1,1,2-Trichloroethane	µg/L	0.2 U	0.2 U	0.2 U
Benzene	µg/L	0.2 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	µg/L	0.2 U	0.2 U	0.2 U
2-Chloroethylvinylether	µg/L	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	0.2 U	0.2 U	0.2 U
4-Methyl-2-Pentanone (MIBK)	µg/L	2.5 U	2.5 U	5.0 U
2-Hexanone	µg/L	2.5 U	2.5 U	5.0 U
Tetrachloroethene	µg/L	0.2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	µg/L	0.2 U	0.2 U	0.2 U
Toluene	µg/L	0.2 U	0.2 U	0.2 U
Chlorobenzene	µg/L	**1.1**	0.2 U	**1.6**
Ethylbenzene	µg/L	0.2 U	0.2 U	0.2 U
Styrene	µg/L	0.2 U	**1.6**	0.2 U
Trichlorofluoromethane	µg/L	0.2 U	0.2 U	0.2 U
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	0.2 U	0.2 U	0.2 U
m,p-Xylene	µg/L	0.4 U	0.4 U	0.4 U
o-Xylene	µg/L	0.2 U	0.2 U	0.2 U

U = Compound undetected at the specified detection limit
Bold values for detections of volatiles only.

ATTACHMENT A

LABORATORY REPORTS AND CHAIN-OF-CUSTODY FORMS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

1 April 2009

Lisa Gilbert
Parametrix, Inc.
411 108th Avenue NE
Bellevue, WA 98004-5571

RE: Project No. Newcastle LF
ARI Job No: OQ84

Dear Lisa:

Please find enclosed the original Chain-of-Custody documentation and the final reports for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one water sample in good condition on March 16, 2009. The sample was analyzed for dissolved VOAs total metals, hardness and conventional parameters as requested.

No analytical complications were noted.

As always, a copy of this report and all raw data will remain on file at ARI. If you have questions, or require further information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
<markh@arilabs.com>

enclosures

cc: File OQ84

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 0Q84	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Parametrix	Phone:	Date: 3/16/09	Ice Present? Y
Client Contact: Lisa Gilbert		No. of Coolers: 1	Cooler Temps: 8.8
Client Project Name: Newcastle LF			
Client Project #: 555-3747-003	Samplers: R. Simmons		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	VOC	Chloride	Sulfate	Nitrite	Nitrate	TDS	Ammonia	COD	TOC	metals to do: Fe, Mn, Zn, Sb, As, Be, Ag, Tl, Cd, Cr, Cu, Pb, Ni, Se	Hardness	metals: Hg	Notes/Comments
leachate	3/16/09	1100	water	6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Analysis Requested

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Ron Simmons	Printed Name: Mikka Mulumba	Printed Name:	Printed Name:
	Company: Parametrix	Company: ARI	Company:	Company:
	Date & Time: 3/16/09, 1330	Date & Time: 3/16/09 1330	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Parametrix | Project Name: Newcastle LF

COC No(s): _____ (NA) | Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 0084 | Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)....: 8.8

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID#: 101886

Cooler Accepted by: MM | Date: 3/16/09 | Time: 1330

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ...	(Bubble Wrap) Wet Ice Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		YES	(NO)
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	(YES)	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO

Samples Logged by: MM | Date: 3/16/09 | Time: 1357

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

COC reads No. Containers as 6, but 9 containers were found in cooler.

By: MM Date: 3/16/2009

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

PRESERVATION VERIFICATION 03/16/09
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: OQ84

Inquiry Number: NONE
Analysis Requested: 03/16/09
Contact: Gilbert, Lisa
Client: Parametrix, Inc.
Logged by: MM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Mark
VTSR: 03/16/09

Project #: 555-3747-003
Project: NEWCASTLE LF
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
09-6682 OQ84A	LEACHATE			yes	yes		TOT yes				no	yes								

Checked By MM Date 3/16/2009

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: Volatiles-SW8260B

Matrix: Water

Holding Time: 14 Days Preserved, 7 Days Unpreserved

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	03/16/09	03/16/09
Method Blank	MB031609	N/A	N/A	03/16/09	03/16/09
Lab Control	LCS031609	N/A	N/A	03/16/09	03/16/09
Lab Control Dup	LCSD031609	N/A	N/A	03/16/09	03/16/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: Total Dissolved Solids-EPA 160.1

Matrix: Water

Holding Time: 7 Days

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/23/09
Method Blank	MB032309	N/A	N/A	N/A	03/23/09
Lab Control	LCS032309	N/A	N/A	N/A	03/23/09
LEACHATE	OQ84ADP	03/16/09	03/16/09	N/A	03/23/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: Chloride-EPA 325.2

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/27/09
Method Blank	MB032709	N/A	N/A	N/A	03/27/09
Standard Ref.	SRM032709	N/A	N/A	N/A	03/27/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: N-Ammonia-EPA 350.1M

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/30/09
Method Blank	MB033009	N/A	N/A	N/A	03/30/09
Standard Ref.	SRM033009	N/A	N/A	N/A	03/30/09
LEACHATE	OQ84ADP	03/16/09	03/16/09	N/A	03/30/09
LEACHATE	OQ84AMS	03/16/09	03/16/09	N/A	03/30/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: N-Nitrate-Calculated

Matrix: Water

Holding Time: 48 Hours

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/18/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: N-Nitrite-EPA 353.2

Matrix: Water

Holding Time: 48 Hours

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/18/09
Method Blank	MB031809	N/A	N/A	N/A	03/18/09
Standard Ref.	SRM031809	N/A	N/A	N/A	03/18/09
LEACHATE	OQ84ADP	03/16/09	03/16/09	N/A	03/18/09
LEACHATE	OQ84AMS	03/16/09	03/16/09	N/A	03/18/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: Nitrate + Nitrite-EPA 353.2

Matrix: Water

Holding Time: 48 Hours (unpreserved)
28 Days (preserved)

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/18/09
Method Blank	MB031809	N/A	N/A	N/A	03/18/09
Standard Ref.	SRM031809	N/A	N/A	N/A	03/18/09
LEACHATE	OQ84ADP	03/16/09	03/16/09	N/A	03/18/09
LEACHATE	OQ84AMS	03/16/09	03/16/09	N/A	03/18/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: Sulfate-EPA 375.2

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/19/09
Method Blank	MB031909	N/A	N/A	N/A	03/19/09
Standard Ref.	SRM031909	N/A	N/A	N/A	03/19/09
LEACHATE	OQ84ADP	03/16/09	03/16/09	N/A	03/19/09
LEACHATE	OQ84AMS	03/16/09	03/16/09	N/A	03/19/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: Chemical Oxygen Demand-EPA 410.4

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/18/09
Method Blank	MB031809	N/A	N/A	N/A	03/18/09
Standard Ref.	SRM031809	N/A	N/A	N/A	03/18/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: Total Organic Carbon-EPA 415.1

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	N/A	03/19/09
Method Blank	MB031909	N/A	N/A	N/A	03/19/09
Standard Ref.	SRM031909	N/A	N/A	N/A	03/19/09
LEACHATE	OQ84ADP	03/16/09	03/16/09	N/A	03/19/09
LEACHATE	OQ84AMS	03/16/09	03/16/09	N/A	03/19/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: ICP Total Metals-6010B

Matrix: Water

Holding Time: 6 Months

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	03/17/09	03/24/09
Method Blank	MB031709	N/A	N/A	03/17/09	03/24/09
Lab Control	LCS031709	N/A	N/A	03/17/09	03/24/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: GFA Total Antimony-7041

Matrix: Water

Holding Time: 6 Months

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	03/17/09	03/24/09
Method Blank	MB031709	N/A	N/A	03/17/09	03/24/09
Lab Control	LCS031709	N/A	N/A	03/17/09	03/24/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: GFA Total Arsenic-7060A

Matrix: Water

Holding Time: 6 Months

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	03/17/09	03/24/09
Method Blank	MB031709	N/A	N/A	03/17/09	03/24/09
Lab Control	LCS031709	N/A	N/A	03/17/09	03/24/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: GFA Total Lead-7421

Matrix: Water

Holding Time: 6 Months

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	03/17/09	03/23/09
Method Blank	MB031709	N/A	N/A	03/17/09	03/23/09
Lab Control	LCS031709	N/A	N/A	03/17/09	03/23/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: GFA Total Selenium-7740

Matrix: Water

Holding Time: 6 Months

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	03/17/09	03/25/09
Method Blank	MB031709	N/A	N/A	03/17/09	03/25/09
Lab Control	LCS031709	N/A	N/A	03/17/09	03/25/09

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NEWCASTLE LF

ARI Job No: OQ84

Parameter: GFA Total Thallium-7841

Matrix: Water

Holding Time: 6 Months

Date Reported: 03/31/09

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
LEACHATE	OQ84A	03/16/09	03/16/09	03/17/09	03/23/09
Method Blank	MB031709	N/A	N/A	03/17/09	03/23/09
Lab Control	LCS031709	N/A	N/A	03/17/09	03/23/09

Preparation Summary Table

ARI Data Reporting Qualifiers

Effective 11/22/04

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
NR	Spiked compound recovery is not reported due to chromatographic interference
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte reporting limit is raised due to a positive chromatographic interference. The compound is not detected above the raised limit but may be present at or below the limit
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B
Page 1 of 1

Sample ID: MB-031609
METHOD BLANK

Lab Sample ID: MB-031609
LIMS ID: 09-6682
Matrix: Water
Data Release Authorized:
Reported: 03/18/09

QC Report No: OQ84-Parametrix, Inc.
Project: NEWCASTLE LF
555-3747-003
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT10/JZ
Date Analyzed: 03/16/09 14:52

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.2	< 0.2	U
74-83-9	Bromomethane	0.5	< 0.5	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	Chloroethane	0.2	< 0.2	U
75-09-2	Methylene Chloride	0.5	< 0.5	U
67-64-1	Acetone	2.5	< 2.5	U
75-15-0	Carbon Disulfide	0.2	< 0.2	U
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	cis-1,2-Dichloroethene	0.2	< 0.2	U
67-66-3	Chloroform	0.2	< 0.2	U
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	2.5	< 2.5	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	2.5	< 2.5	U
591-78-6	2-Hexanone	2.5	< 2.5	U
127-18-4	Tetrachloroethene	0.2	< 0.2	U
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	Chlorobenzene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
108-38-3	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	92.3%
d8-Toluene	100%
Bromofluorobenzene	109%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B
Page 1 of 1

Sample ID: LEACHATE SAMPLE

Lab Sample ID: OQ84A
LIMS ID: 09-6682
Matrix: Water
Data Release Authorized:
Reported: 03/18/09

QC Report No: OQ84-Parametrix, Inc.
Project: NEWCASTLE LF
555-3747-003
Date Sampled: 03/16/09
Date Received: 03/16/09

Instrument/Analyst: NT10/JZ
Date Analyzed: 03/16/09 16:22

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.2	< 0.2	U
74-83-9	Bromomethane	0.5	< 0.5	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	**Chloroethane**	**0.2**	**0.2**	
75-09-2	Methylene Chloride	0.5	< 0.5	U
67-64-1	**Acetone**	**2.5**	**2.8**	
75-15-0	Carbon Disulfide	0.2	< 0.2	U
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	cis-1,2-Dichloroethene	0.2	< 0.2	U
67-66-3	Chloroform	0.2	< 0.2	U
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	2.5	< 2.5	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	2.5	< 2.5	U
591-78-6	2-Hexanone	2.5	< 2.5	U
127-18-4	Tetrachloroethene	0.2	< 0.2	U
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	**Chlorobenzene**	**0.2**	**1.6**	
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
108-38-3	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.4%
d8-Toluene	101%
Bromofluorobenzene	111%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: LCS-031609**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-031609
LIMS ID: 09-6682
Matrix: Water
Data Release Authorized:
Reported: 03/18/09

QC Report No: OQ84-Parametrix, Inc.
Project: NEWCASTLE LF
555-3747-003
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT10/JZ
LCSD: NT10/JZ
Date Analyzed LCS: 03/16/09 13:52
LCSD: 03/16/09 14:22

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	10.2	10.0	102%	10.0	10.0	100%	2.0%
Bromomethane	10.0	10.0	100%	10.1	10.0	101%	1.0%
Vinyl Chloride	10.1	10.0	101%	10.0	10.0	100%	1.0%
Chloroethane	10.3	10.0	103%	10.1	10.0	101%	2.0%
Methylene Chloride	9.4	10.0	94.0%	9.5	10.0	95.0%	1.1%
Acetone	49.6	50.0	99.2%	49.4	50.0	98.8%	0.4%
Carbon Disulfide	11.1	10.0	111%	11.0	10.0	110%	0.9%
1,1-Dichloroethene	9.9	10.0	99.0%	9.8	10.0	98.0%	1.0%
1,1-Dichloroethane	9.4	10.0	94.0%	9.5	10.0	95.0%	1.1%
trans-1,2-Dichloroethene	9.9	10.0	99.0%	9.8	10.0	98.0%	1.0%
cis-1,2-Dichloroethene	9.5	10.0	95.0%	9.5	10.0	95.0%	0.0%
Chloroform	9.3	10.0	93.0%	9.4	10.0	94.0%	1.1%
1,2-Dichloroethane	8.8	10.0	88.0%	9.1	10.0	91.0%	3.4%
2-Butanone	48.2	50.0	96.4%	50.3	50.0	101%	4.3%
1,1,1-Trichloroethane	9.9	10.0	99.0%	9.8	10.0	98.0%	1.0%
Carbon Tetrachloride	10.2	10.0	102%	10.1	10.0	101%	1.0%
Vinyl Acetate	9.5	10.0	95.0%	9.6	10.0	96.0%	1.0%
Bromodichloromethane	9.4	10.0	94.0%	9.2	10.0	92.0%	2.2%
1,2-Dichloropropane	9.4	10.0	94.0%	9.3	10.0	93.0%	1.1%
cis-1,3-Dichloropropene	9.2	10.0	92.0%	9.1	10.0	91.0%	1.1%
Trichloroethene	10.0	10.0	100%	9.4	10.0	94.0%	6.2%
Dibromochloromethane	8.7	10.0	87.0%	9.0	10.0	90.0%	3.4%
1,1,2-Trichloroethane	9.2	10.0	92.0%	9.1	10.0	91.0%	1.1%
Benzene	9.4	10.0	94.0%	9.3	10.0	93.0%	1.1%
trans-1,3-Dichloropropene	9.3	10.0	93.0%	9.1	10.0	91.0%	2.2%
2-Chloroethylvinylether	10.2	10.0	102%	10.0	10.0	100%	2.0%
Bromoform	8.5	10.0	85.0%	8.8	10.0	88.0%	3.5%
4-Methyl-2-Pentanone (MIBK)	51.2	50.0	102%	50.2	50.0	100%	2.0%
2-Hexanone	46.5	50.0	93.0%	47.9	50.0	95.8%	3.0%
Tetrachloroethene	9.0	10.0	90.0%	9.1	10.0	91.0%	1.1%
1,1,2,2-Tetrachloroethane	8.8	10.0	88.0%	9.0	10.0	90.0%	2.2%
Toluene	9.2	10.0	92.0%	9.3	10.0	93.0%	1.1%
Chlorobenzene	9.2	10.0	92.0%	9.2	10.0	92.0%	0.0%
Ethylbenzene	9.1	10.0	91.0%	9.3	10.0	93.0%	2.2%
Styrene	9.2	10.0	92.0%	9.4	10.0	94.0%	2.2%
Trichlorofluoromethane	9.9	10.0	99.0%	10.0	10.0	100%	1.0%
1,1,2-Trichloro-1,2,2-trifluoroetha	11.0	10.0	110%	11.3	10.0	113%	2.7%
m,p-Xylene	18.7	20.0	93.5%	19.0	20.0	95.0%	1.6%
o-Xylene	9.4	10.0	94.0%	9.6	10.0	96.0%	2.1%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B

Sample ID: LCS-031609
LAB CONTROL SAMPLE

Lab Sample ID: LCS-031609
LIMS ID: 09-6682
Matrix: Water

QC Report No: OQ84-Parametrix, Inc.
Project: NEWCASTLE LF
555-3747-003

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
d4-1,2-Dichloroethane			98.1%	89.0%			
d8-Toluene			103%	98.7%			
Bromofluorobenzene			102%	101%			
d4-1,2-Dichlorobenzene			99.6%	98.9%			

METHOD BLANK RESULTS-CONVENTIONALS
OQ84-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/31/09

Project: NEWCASTLE LF
Event: 555-3747-003
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank
Total Dissolved Solids	EPA 160.1	03/23/09	mg/L	< 5.0 U
Chloride	EPA 325.2	03/27/09	mg/L	< 1.0 U
N-Ammonia	EPA 350.1M	03/30/09	mg-N/L	< 0.010 U
N-Nitrite	EPA 353.2	03/18/09	mg-N/L	< 0.010 U
Nitrate + Nitrite	EPA 353.2	03/18/09	mg-N/L	< 0.010 U
Sulfate	EPA 375.2	03/19/09	mg/L	< 2.0 U
Chemical Oxygen Demand	EPA 410.4	03/18/09	mg/L	< 5.00 U
Total Organic Carbon	EPA 415.1	03/19/09	mg/L	< 1.50 U

SAMPLE RESULTS-CONVENTIONALS
OQ84-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/31/09

Project: NEWCASTLE LF
Event: 555-3747-003
Date Sampled: 03/16/09
Date Received: 03/16/09

Client ID: LEACHATE
ARI ID: 09-6682 OQ84A

Analyte	Date Batch	Method	Units	RL	Sample
Total Dissolved Solids	03/23/09 032309#1	EPA 160.1	mg/L	13.3	953
Chloride	03/27/09 032709#1	EPA 325.2	mg/L	5.0	21.2
N-Ammonia	03/30/09 033009#1	EPA 350.1M	mg-N/L	0.050	4.86
N-Nitrate	03/18/09	Calculated	mg-N/L	0.010	0.428
N-Nitrite	03/18/09 031809#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	03/18/09 031809#1	EPA 353.2	mg-N/L	0.010	0.428
Sulfate	03/19/09 031909#1	EPA 375.2	mg/L	10.0	77.9
Chemical Oxygen Demand	03/18/09 031809#1	EPA 410.4	mg/L	5.00	48.3
Total Organic Carbon	03/19/09 031909#1	EPA 415.1	mg/L	6.00	19.1

RL Analytical reporting limit
U Undetected at reported detection limit

REPLICATE RESULTS-CONVENTIONALS
OQ84-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/31/09

Project: NEWCASTLE LF
Event: 555-3747-003
Date Sampled: 03/16/09
Date Received: 03/16/09

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: OQ84A Client ID: LEACHATE						
Total Dissolved Solids	EPA 160.1	03/23/09	mg/L	953	905	5.2%
N-Ammonia	EPA 350.1M	03/30/09	mg-N/L	4.86	4.85	0.2%
N-Nitrite	EPA 353.2	03/18/09	mg-N/L	< 0.010	< 0.010	NA
Nitrate + Nitrite	EPA 353.2	03/18/09	mg-N/L	0.428	0.428	0.0%
Sulfate	EPA 375.2	03/19/09	mg/L	77.9	77.4	0.6%
Total Organic Carbon	EPA 415.1	03/19/09	mg/L	19.1	18.3	4.3%

MS/MSD RESULTS-CONVENTIONALS
OQ84-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/31/09

Project: NEWCASTLE LF
Event: 555-3747-003
Date Sampled: 03/16/09
Date Received: 03/16/09

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: OQ84A Client ID: LEACHATE							
N-Ammonia	EPA 350.1M	03/30/09	mg-N/L	4.86	10.1	5.00	104.8%
N-Nitrite	EPA 353.2	03/18/09	mg-N/L	< 0.010	0.511	0.500	102.2%
Nitrate + Nitrite	EPA 353.2	03/18/09	mg-N/L	0.428	0.925	0.500	99.4%
Sulfate	EPA 375.2	03/19/09	mg/L	77.9	307	200	114.6%
Total Organic Carbon	EPA 415.1	03/19/09	mg/L	19.1	106	80.0	108.6%

LAB CONTROL RESULTS-CONVENTIONALS
OQ84-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/31/09

Project: NEWCASTLE LF
Event: 555-3747-003
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	LCS	Spike Added	Recovery
Total Dissolved Solids	EPA 160.1	03/23/09	mg/L	477	500	95.4%

STANDARD REFERENCE RESULTS-CONVENTIONALS
OQ84-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/31/09

Project: NEWCASTLE LF
Event: 555-3747-003
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Chloride ERA #38084	EPA 325.2	03/27/09	mg/L	5.4	5.0	108.0%
N-Ammonia ERA #15125	EPA 350.1M	03/30/09	mg-N/L	0.511	0.500	102.2%
N-Nitrite ERA #23034	EPA 353.2	03/18/09	mg-N/L	0.504	0.500	100.8%
Nitrate + Nitrite ERA #20034	EPA 353.2	03/18/09	mg-N/L	0.531	0.500	106.2%
Sulfate ERA #37065	EPA 375.2	03/19/09	mg/L	26.7	25.0	106.8%
Chemical Oxygen Demand Thermo Orion #I01	EPA 410.4	03/18/09	mg/L	85.7	90.0	95.2%
Total Organic Carbon ERA #0528-08-02	EPA 415.1	03/19/09	mg/L	20.4	20.0	102.0%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: OQ84MB
LIMS ID: 09-6682
Matrix: Water
Data Release Authorized:
Reported: 03/26/09

QC Report No: OQ84-Parametrix, Inc.
Project: NEWCASTLE LF
555-3747-003
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
3005A	03/17/09	7041	03/24/09	7440-36-0	Antimony	2	2	U
7060A	03/17/09	7060A	03/24/09	7440-38-2	Arsenic	1	1	U
3010A	03/17/09	6010B	03/24/09	7440-41-7	Beryllium	1	1	U
3010A	03/17/09	6010B	03/24/09	7440-43-9	Cadmium	2	2	U
3010A	03/17/09	6010B	03/24/09	7440-70-2	Calcium	50	50	U
3010A	03/17/09	6010B	03/24/09	7440-47-3	Chromium	5	5	U
3010A	03/17/09	6010B	03/24/09	7440-50-8	Copper	2	2	U
3010A	03/17/09	6010B	03/24/09	7439-89-6	Iron	50	50	U
3020A	03/17/09	7421	03/23/09	7439-92-1	Lead	1	1	U
3010A	03/17/09	6010B	03/24/09	7439-95-4	Magnesium	50	50	U
3010A	03/17/09	6010B	03/24/09	7439-96-5	Manganese	1	1	U
7470A	03/17/09	7470A	03/17/09	7439-97-6	Mercury	0.1	0.1	U
3010A	03/17/09	6010B	03/24/09	7440-02-0	Nickel	10	10	U
7740	03/17/09	7740	03/25/09	7782-49-2	Selenium	2	2	U
3010A	03/17/09	6010B	03/24/09	7440-22-4	Silver	3	3	U
3020A	03/17/09	7841	03/23/09	7440-28-0	Thallium	1	1	U
3010A	03/17/09	6010B	03/24/09	7440-66-6	Zinc	10	10	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LEACHATE SAMPLE

Lab Sample ID: OQ84A
LIMS ID: 09-6682
Matrix: Water
Data Release Authorized:
Reported: 03/26/09

QC Report No: OQ84-Parametrix, Inc.
Project: NEWCASTLE LF
555-3747-003
Date Sampled: 03/16/09
Date Received: 03/16/09

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
3005A	03/17/09	7041	03/24/09	7440-36-0	Antimony	2	2	U
7060A	03/17/09	7060A	03/24/09	7440-38-2	Arsenic	1	1	U
3010A	03/17/09	6010B	03/24/09	7440-41-7	Beryllium	1	1	U
3010A	03/17/09	6010B	03/24/09	7440-43-9	Cadmium	2	2	U
3010A	03/17/09	6010B	03/24/09	**7440-70-2**	**Calcium**	50	239,000	
3010A	03/17/09	6010B	03/24/09	7440-47-3	Chromium	5	5	U
3010A	03/17/09	6010B	03/24/09	**7440-50-8**	**Copper**	2	3	
3010A	03/17/09	6010B	03/24/09	**7439-89-6**	**Iron**	50	3,290	
3020A	03/17/09	7421	03/23/09	**7439-92-1**	**Lead**	1	2	
3010A	03/17/09	6010B	03/24/09	**7439-95-4**	**Magnesium**	50	39,900	
3010A	03/17/09	6010B	03/24/09	**7439-96-5**	**Manganese**	1	1,000	
7470A	03/17/09	7470A	03/17/09	7439-97-6	Mercury	0.1	0.1	U
3010A	03/17/09	6010B	03/24/09	7440-02-0	Nickel	10	10	U
7740	03/17/09	7740	03/25/09	7782-49-2	Selenium	2	2	U
3010A	03/17/09	6010B	03/24/09	7440-22-4	Silver	3	3	U
3020A	03/17/09	7841	03/23/09	7440-28-0	Thallium	1	1	U
3010A	03/17/09	6010B	03/24/09	7440-66-6	Zinc	10	10	U

Calculated Hardness (mg-CaCO3/L): 760

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: OQ84LCS
LIMS ID: 09-6682
Matrix: Water
Data Release Authorized:
Reported: 03/26/09

QC Report No: OQ84-Parametrix, Inc.
Project: NEWCASTLE LF
555-3747-003
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	7041	100	100	100%	
Arsenic	7060A	102	100	102%	
Beryllium	6010B	542	500	108%	
Cadmium	6010B	526	500	105%	
Calcium	6010B	10800	10000	108%	
Chromium	6010B	517	500	103%	
Copper	6010B	519	500	104%	
Iron	6010B	2150	2000	108%	
Lead	7421	99	100	99.0%	
Magnesium	6010B	11000	10000	110%	
Manganese	6010B	528	500	106%	
Mercury	7470A	1.9	2.0	95.0%	
Nickel	6010B	520	500	104%	
Selenium	7740	100	100	100%	
Silver	6010B	500	500	100%	
Thallium	7841	100	100	100%	
Zinc	6010B	510	500	102%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%