May 4, 2011
PMX No. 555-3747-003 (05/02)

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

Re: March 2011 Groundwater Sampling Event, Newcastle Demolition Landfill

Dear Rick:

INTRODUCTION

This report summarizes the groundwater monitoring data collected in March 2011 at the Newcastle Demolition Landfill. Sample collection and data analyses were conducted in accordance with the Newcastle Demolition Landfill Post-Closure Plan (Parametrix 1998).

The Newcastle Demolition Landfill is located in an area historically mined for coal. 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.

MONITORING PROGRAM HISTORY

The downgradient monitoring wells on the golf course (MW-2, MW-3, and MW-4) were disturbed during golf course construction beginning in 1996. Some interim repairs were made during the golf course construction to allow groundwater monitoring to continue, although final completion of the well monuments did not occur until February 2000. At that time the wells were redeveloped, and were thought to be suitable for detecting potential impacts to groundwater quality from the former landfill. However, during the golf course construction period there may have been some impacts to groundwater quality in the monitoring wells due to surface water or soil intrusion. The history of activity associated with the wells during golf course construction was summarized in the November 1999 report (Parametrix 2000).

Damage to well MW-4 indicated by high turbidity was first noted in December 2000. Attempts to redevelop the well in February 2001 were unsuccessful. Well MW-4 was properly decommissioned and replaced in August 2001 with new monitoring well MW-5. MW-5 is located approximately 500 ft northwest of MW-4 (see Figures 1 and 2). The installation of well MW-5 was documented in a letter from Parametrix (Parametrix 2001).

From 1996 through 2000, the months when groundwater was sampled were varied according to a schedule established by the Seattle-King County Department of Public Health (Coal Creek Development Corporation 1996). However, the downgradient wells, particularly well MW-3, were frequently dry during much of the year. During the September 2001 sampling event, all the wells were dry except for upgradient well MW-1. Therefore, no samples were collected, and an alternative sampling schedule was proposed to the Health Department (now

known as Public Health – Seattle & King County). The proposed sampling schedule consisted of sampling in January and April, with water level measurements made during the summer and fall.

The current groundwater monitoring program for the closed Newcastle Demolition Landfill consists of sampling four groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-5) and two off-site surface water stations (SW-6 and SW-7). Well MW-1 is upgradient of the landfill, and the other stations are downgradient or downstream of the landfill. Surface water station SW-6 (Richmond Tunnel) is thought to be representative of groundwater intercepted by a network of mine workings beneath the site. Surface water station SW-7 is located along Coal Creek. The monitoring well locations are shown on Figures 1 and 2, and the surface water station locations are shown on Figure 3. The locations of the downgradient wells with respect to landfill and golf course features are shown on Figure 2.

In September 2006, recommendations were submitted by Landmarc Technologies, Inc. to Public Health for reducing the monitoring frequency and parameters at the Newcastle Demolition Landfill (Parametrix 2006). It was recommended that the frequency of groundwater monitoring be reduced to annual, and that analyses for the additional parameters volatile organic compounds, semivolatile organic compounds, and metals (except for arsenic) be discontinued. These parameters are not required by Chapter 173-304 WAC, and the historical data since landfill closure have not indicated any detections of these parameters associated with impacts from the landfill. Reduction in monitoring frequency and parameters based on consistent lack of contamination from the landfill is in accordance with the language of the Post-Closure Monitoring Plan. In anticipation of approval by Public Health, these recommendations were implemented beginning with the February 2007 event.

MARCH 2011 SAMPLING EVENT

Samples were collected on March 8 and March 11 (MW-2), 2011, by Parametrix personnel. The separation between sampling dates was due to bent piping at well MW-2 that required obtaining a device to manually operate the dedicated pump. Samples were collected from wells MW-1 and MW-2 using dedicated Hydrostar pumps, and from wells MW-3 and MW-5 using dedicated electrical submersible pumps. Samples were collected using low-flow purging methods. Samples to be tested for dissolved metals were field-filtered through 0.45-micron filters. A duplicate sample was collected at surface water station SW-7 (designated MW-7D). The samples were delivered directly to Analytical Resources, Inc. (ARI) in Seattle, Washington for analysis.

Samples were measured for field parameters (pH, specific conductivity, and temperature), and analyzed for chloride, nitrite, nitrate, ammonia, sulfate, hardness (calcium and magnesium), dissolved arsenic, dissolved iron, dissolved manganese, dissolved zinc, chemical oxygen demand (COD), total organic carbon (TOC), and total dissolved solids (TDS).

GROUNDWATER SAMPLING RESULTS

The analytical results for the wells and surface water stations are summarized in Table 1. The laboratory report and chain-of-custody forms are presented in Appendix A.

Data Validation

Parametrix conducted a Quality Assurance/Quality Control (QA/QC) review of the laboratory data. The QA/QC review included a complete check of holding times, field duplicate results, and blank results. The laboratory QA internal standard data were also reviewed including matrix spikes, matrix spike duplicates, surrogate recoveries, and laboratory control samples. Based on analysis beyond the recommending holding time, results for nitrate and nitrate-nitrite in well MW-2 were qualified “J” as estimated.

Data Analysis

Data analysis consisted of comparing groundwater data (wells and surface water station SW-6) to established state groundwater quality criteria (GWQSs; 173-200 WAC) and state maximum contaminant levels for drinking water (MCLs; 246-290 WAC), preparing time-series plots, and conducting Mann-Kendall trend analyses for selected analytes.

Comparison of Data to Groundwater Quality Standards

The following constituents were present at concentrations above secondary GWQSs and/or MCLs (established based on aesthetic characteristics such as taste, appearance, and/or staining):

- Specific conductivity in samples from wells MW-1 (upgradient), MW-2, and surface water station SW-6;
- Sulfate in well MW-1 (upgradient);
- Total dissolved solids in samples from well MW-1 (upgradient), and surface water station SW-6;
- Dissolved iron in samples from wells MW-1 (upgradient), MW-2, MW-3, MW-5, and surface water station SW-6;
- Dissolved manganese in samples from wells MW-1 (upgradient), MW-2, MW-5, and surface water stations SW-6 and SW-7.

Dissolved arsenic concentrations in samples from wells MW-1 (upgradient), MW-2, MW-3, MW-5, and surface water stations SW-6 and SW-7 exceeded the carcinogenic GWQS but not the MCL.

The presence of constituents above their GWQS and/or MCL upgradient from the landfill at MW-1 indicates that the poor aesthetic characteristics of groundwater in the landfill vicinity are a natural artifact of the local geochemistry.

Time-Series Plots

Groundwater and surface water time-series plots were prepared for ammonia, dissolved calcium, chloride, chemical oxygen demand (COD), hardness, dissolved iron, dissolved manganese, specific conductivity, sulfate, and total organic carbon (TOC). These constituents were selected for statistical analyses to include parameters that were elevated in leachate with respect to groundwater (Pacific Groundwater Group 1994a). These plots are presented in Appendix B and show data collected since 1994. Based on the time-series plots, the following observations can be made:

- Sulfate and hardness (and dissolved calcium) concentrations continued to be highest in upgradient well MW-1.
- In MW-2, concentrations of dissolved iron, dissolved manganese, and TOC concentrations continued to be lower than the relatively high concentrations measured between 1999 and 2000. Specific conductivity, and concentrations of chloride and hardness (and dissolved calcium) have increased during the past few years.
- In MW-3, concentrations of most parameters have remained stable or decreased over the last few years. Specific conductivity, and concentrations of ammonia, chloride, COD, hardness (and dissolved calcium), dissolved iron, dissolved manganese, and TOC continued to be lower compared to the relatively high values observed during 2002.
- In MW-5, stable or decreasing trends in most parameters have been observed in the last few years. Dissolved manganese concentrations are an exception, and have shown a slight increase since 2007.

Because this is a low-yield well, continuing development over several years is likely to occur, resulting in improving water quality.

- At SW-6, the dissolved manganese concentrations have steadily decreased since 1994.

Mann-Kendall Tests

The Mann-Kendall test for trends (Gilbert 1987, Gibbons 1994) was used to evaluate the Newcastle Demolition Landfill groundwater data (Pacific Groundwater Group 1994a,b,c). Trends in each well were evaluated separately because the upgradient well continues to show higher concentrations of some constituents than the downgradient wells. The trend analyses used all data collected between April 1988 and March 2011 (except for specific conductivity results for the second 1998 semi-annual monitoring event, which are suspected to be erroneously low due to an error in calibrating the meter). All non-detected values were given a value equal to the reporting limit (Gilbert 1987, Gibbons 1994).

The results of the trend analyses are summarized in Table 2. The Mann-Kendall tests indicate the following:

- MW-1: statistically significant increasing trends in chloride and dissolved iron, statistically significant decreasing trend in dissolved manganese, upgradient from the landfill;
- MW-2: statistically significant increasing trends in ammonia, dissolved calcium, chloride, hardness, dissolved iron, dissolved manganese, specific conductivity, and TOC;
- MW-3: statistically significant increasing trends in ammonia, COD, dissolved iron, specific conductivity, and TOC; statistically significant decreasing trends in chloride and dissolved manganese; and
- MW-5: statistically significant decreasing trends in dissolved calcium, COD, hardness, and sulfate.

GROUNDWATER LEVEL MONITORING RESULTS

Groundwater levels were measured at all four monitoring wells prior to sampling. The measurements are presented in Table 3 with calculated water levels.

DISCUSSION AND CONCLUSIONS

Analysis of the March 2011 groundwater data from the Newcastle Demolition Landfill indicates the following:

- Concentrations exceeding secondary GWQSs or MCLs (specific conductivity, sulfate, TDS, dissolved iron, and dissolved manganese) occurred in the upgradient well and in downgradient wells and surface water stations. Dissolved arsenic concentrations exceeded the carcinogenic GWQS in all wells (including the upgradient well) and surface water stations, but were all below the MCL. Statistically increasing trends in indicator parameters were also observed in both upgradient and downgradient wells. The differences in groundwater chemistry between monitoring wells suggest that the observed water chemistry is influenced by local geochemical conditions, and therefore do not clearly demonstrate landfill impacts.
- The March 2011 data for wells MW-2 and MW-3 indicate continuing lower concentrations for parameters that were elevated following the golf course construction period. In well MW-2 lower concentrations continued to be observed for dissolved iron, dissolved manganese, and TOC, although specific conductivity and concentrations of chloride and hardness have been higher in the past few years. In well MW-3, lower specific conductivity and concentrations of ammonia, chloride, COD, hardness (and

dissolved calcium), dissolved iron, dissolved manganese, and TOC continued to be observed. Some of the previously higher concentrations may have been related to changed geochemical conditions associated with golf course development activities.

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: Bill Lasby, Public Health– Seattle & King County (two copies)

REFERENCES

Coal Creek Development Corporation. 1996. Letter to Parametrix. February 2, 1996.

Gibbons, R.D. 1994. Statistical Methods for Groundwater Monitoring. John Wiley and Sons, Inc. New York

Gilbert, R.O. 1987. Statistical Methods for Environmental Pollution Monitoring. Van Nostrand Reinhold. New York

Pacific Groundwater Group. 1994a. Statistical Review, Newcastle Landfill. Prepared for Coal Creek Development Corporation. February 10, 1994.

Pacific Groundwater Group. 1994b. Statistical Review, Newcastle Landfill, First Quarter 1994. Prepared for Coal Creek Development Corporation. April 25, 1994.

Pacific Groundwater Group. 1994c. Statistical Review, Newcastle Landfill, Second Quarter 1994. Prepared for Coal Creek Development Corporation. December 14, 1994.

Parametrix, Inc. 1998. Newcastle Demolition Landfill Post-Closure Plan. Prepared for Preston, Gates & Ellis. October 1998.

Parametrix, Inc. 2000. Second 1999 Semi-annual Groundwater Sampling Event, Newcastle Demolition Landfill. Prepared for Landmark Technologies, Inc. May 25, 2000.

Parametrix, Inc. 2001. Newcastle Landfill Well and Gas Probe Activities. Draft letter prepared for Landmark Technologies, Inc. October 23, 2001.

Parametrix, Inc. 2006. Recommendations for Reduction in Groundwater Monitoring, Newcastle Demolition Landfill. Prepared for Landmark Technologies, Inc. September 7, 2006.

TABLES

Table 1. Newcastle Groundwater and Surface Water Data

				Groundwater				Surface Water		
				MW-1	MW-2	MW-3	MW-5	SW-6	SW-7	SW-7D
Parameter	**Units**	**GWQS**	**MCL**	3/8/2011	3/11/2011	3/8/2011	3/8/2011	3/8/2011	3/8/2011	3/8/2011
Field Data										
Temperature	°C			9.64	9.82	11.02	11.36	11.80	7.86	- -
pH	standard	6.5-8.5 **		7.17	7.29	7.54	6.53	7.64	8.38	- -
Specific Conductivity	uS/cm		700 **	**725**	**744**	691	548	**851**	272	- -
Conventionals										
Ammonia	mg-N/L			0.092	0.510	0.426	0.091	0.148	0.055	0.062
Chemical Oxygen Demand	mg/L			5.00 U	5.00 U	11.0	5.00 U	5.00 U	7.46	5.00 U
Chloride	mg/L	250 **	250 **	2.9	14.6	7.5	5.4	4.6	6.8	6.8
Dissolved Hardness	mg/L CaCO3			480	320	100	300	360	100	100
Nitrate	mg-N/L	10 *	10 *	0.010 U	0.064 J	0.021	0.050 U	0.061	1.15	1.22
Nitrate + Nitrite	mg-N/L			0.010 U	0.064 J	0.021	0.050 U	0.061	1.15	1.22
Nitrite	mg-N/L		1 *	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Sulfate	mg/L	250 **	250 **	**273**	21.1	36.4	63.8	153	48.8	48.5
Total Dissolved Solids	mg/L	500 **	500 **	**635**	479	466	374	**592**	192	201
Total Organic Carbon	mg/L			1.68	3.48	4.82	2.31	1.88	2.94	3.06
Dissolved Metals										
Arsenic	mg/L	0.00005 ***	0.01 *	**0.0006**	**0.0003**	**0.0027**	**0.0174**	**0.0044**	**0.0007**	**0.0008**
Calcium	mg/L			128	76.9	21.4	70.6	73.8	24.4	24.4
Iron	mg/L	0.3 **	0.3 **	**1.170**	**0.660**	**0.770**	**4.670**	**2.840**	0.100	0.100
Magnesium	mg/L			38.8	29.9	11.5	29.6	43.7	10.7	10.7
Manganese	mg/L	0.05 **	0.05 **	**0.090**	**0.124**	0.029	**0.682**	**0.329**	**0.053**	**0.053**
Zinc	mg/L	5 **	5 **	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U

Notes:

GWQS = Water Quality Standards for Ground Waters of the State of Washington (173-200 WAC)
MCL = Maximum Contaminant Level, Washington State Drinking Water Regulations (Chapter 246-290 WAC)
* = Primary contaminant criteria
** = Secondary contaminant criteria
*** = Carcinogenic contaminant criteria
= Exceeds GWQS or MCL
J = Estimated value
D = Duplicate sample
U = Compound undetected at the specified reporting limit

Table 2. Results of Mann-Kendall Tests for Trend, Newcastle Demolition Landfill, March 2011

Well ID	Analyte	n	S	Variance	Z	Trend
MW-1	Ammonia-N	51	228	15135.3	1.85	No Trend
	Calcium, Dissolved	48	-73	12635.0	-0.64	No Trend
	Chloride	**51**	**412**	**15066.7**	**3.35**	**Positive**
	COD	51	76	6642.0	0.92	No Trend
	Hardness	50	-84	14234.7	-0.70	No Trend
	Iron, Dissolved	**51**	**490**	**15136.0**	**3.97**	**Positive**
	Manganese, Dissolved	**51**	**-269**	**15137.7**	**-2.18**	**Negative**
	Specific Conductivity	50	-24	14290.7	-0.19	No Trend
	Sulfate	51	-51	15130.3	-0.41	No Trend
	TOC	51	111	13099.0	0.96	No Trend
MW-2	**Ammonia-N**	**45**	**227**	**10447.0**	**2.21**	**Positive**
	Calcium, Dissolved	**40**	**391**	**7365.7**	**4.54**	**Positive**
	Chloride	**45**	**619**	**10422.3**	**6.05**	**Positive**
	COD	45	140	10320.0	1.37	No Trend
	Hardness	**42**	**376**	**8461.3**	**4.08**	**Positive**
	Iron, Dissolved	**45**	**482**	**10443.3**	**4.71**	**Positive**
	Manganese, Dissolved	**44**	**254**	**9771.3**	**2.56**	**Positive**
	Specific Conductivity	**42**	**313**	**8514.3**	**3.38**	**Positive**
	Sulfate	44	11	9767.7	0.10	No Trend
	TOC	**45**	**319**	**10440.3**	**3.11**	**Positive**
MW-3	**Ammonia-N**	**31**	**149**	**3459.7**	**2.52**	**Positive**
	Calcium, Dissolved	28	3	2561.0	0.04	No Trend
	Chloride	**32**	**-184**	**3798.7**	**-2.97**	**Negative**
	COD	**32**	**134**	**3676.7**	**2.19**	**Positive**
	Hardness	29	-36	2830.0	-0.66	No Trend
	Iron, Dissolved	**32**	**157**	**3799.7**	**2.53**	**Positive**
	Manganese, Dissolved	**31**	**-178**	**3456.0**	**-3.01**	**Negative**
	Specific Conductivity	**32**	**201**	**3801.7**	**3.24**	**Positive**
	Sulfate	32	13	3799.7	0.19	No Trend
	TOC	**32**	**174**	**3798.7**	**2.81**	**Positive**

n = Sample size

S = Mann-Kendall test statistic. Positive number implies an increasing trend; negative number implies a decreasing trend.

Z = Approximate normal test statistic; calculated based on S and the estimated variance when the sample size is greater than 10.

The comparison level (critical value of Z) at 1.0 - (α/ 2) = (0.05 / 2) = 97.5% confidence level = 1.97737 for a two-tailed Mann-Kendall test.

If the absolute value of the calculated Z statistic (|Z|) > 1.97737, a significant trend is present in the data. There is no trend in the data when |Z| < 1.97737.

Trends significant at a confidence level of 97.5% are shown in bold type.

Table 2. Results of Mann-Kendall Tests for Trend, Newcastle Demolition Landfill, March 2011

Well ID	Analyte	n	S	Variance	Z	Trend
MW-5	Ammonia-N	13	-10	268.7	-0.55	No Trend
	Calcium, Dissolved	**13**	**-62**	**268.7**	**-3.72**	**Negative**
	Chloride	13	5	267.7	0.24	No Trend
	COD	**13**	**-43**	**265.0**	**-2.58**	**Negative**
	Hardness	**13**	**-64**	**264.0**	**-3.88**	**Negative**
	Iron, Dissolved	13	-4	268.7	-0.18	No Trend
	Manganese, Dissolved	13	13	267.7	0.73	No Trend
	Specific Conductivity	13	-23	267.7	-1.34	No Trend
	Sulfate	**13**	**-61**	**267.7**	**-3.67**	**Negative**
	TOC	13	-5	267.7	-0.24	No Trend

n = Sample size

S = Mann-Kendall test statistic. Positive number implies an increasing trend; negative number implies a decreasing trend.

Z = Approximate normal test statistic; calculated based on S and the estimated variance when the sample size is greater than 10.

The comparison level (critical value of Z) at 1.0 - (α/ 2) = (0.05 / 2) = 97.5% confidence level = 1.97737 for a two-tailed Mann-Kendall test.

If the absolute value of the calculated Z statistic (|Z|) > 1.97737, a significant trend is present in the data. There is no trend in the data when |Z| < 1.97737.

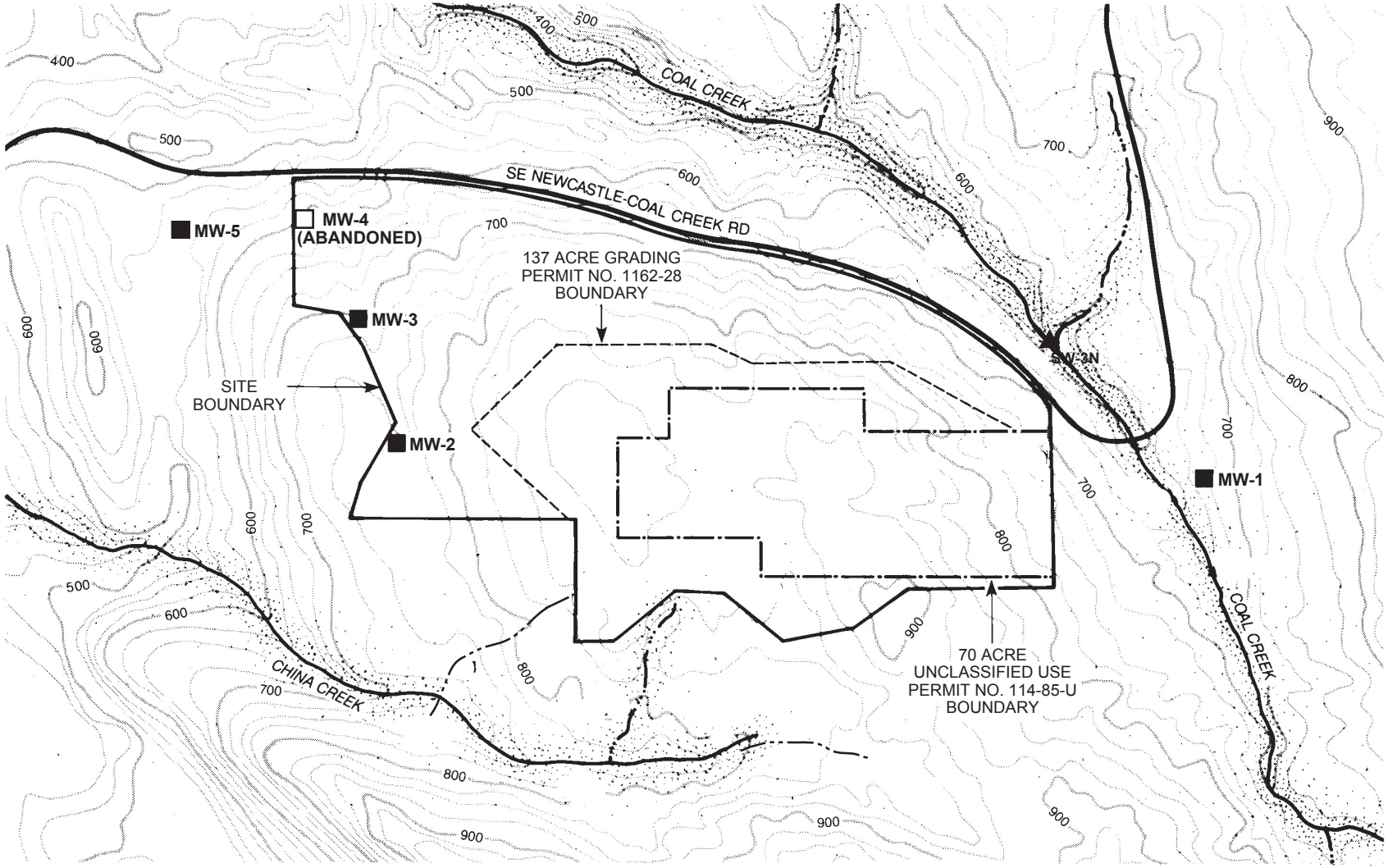
Trends significant at a confidence level of 97.5% are shown in bold type.

Table 3. Groundwater Elevations for Newcastle Landfill, March 2011

Well	Date	Reference Elevation[1]	Depth to Groundwater[2]	Groundwater Elevation[1]
MW-1	3/8/2011	649	52.12	596
MW-2	3/11/2011	753	23.72	729
MW-3	3/8/2011	716	143.29	572
MW-5	3/8/2011	542	57.00	485

Notes: [1]Reference Elevation and Groundwater Elevation approximate
[2]Depth to groundwater measured from well seal

FIGURES



Parametrix 555-3747-001/01(01) 5/09 (B)

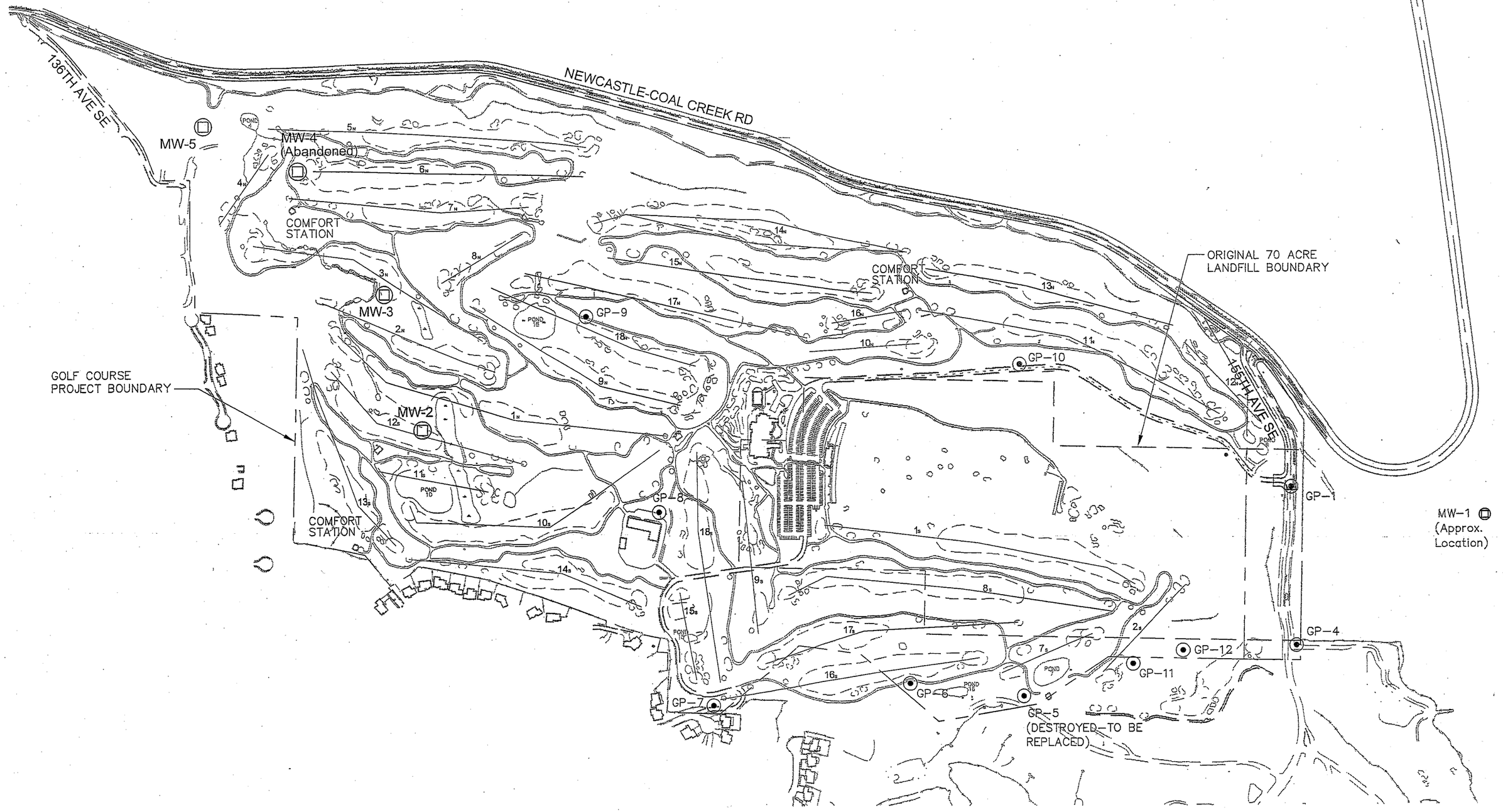
N

0 1,000

SCALE IN FEET

MW-1 Groundwater Monitoring Well

Figure 1
Groundwater Monitoring Locations in Site Vicinity
Newcastle Demolition Landfill



FILE: K3747001P01T01-F02
DATE: 04/10/03

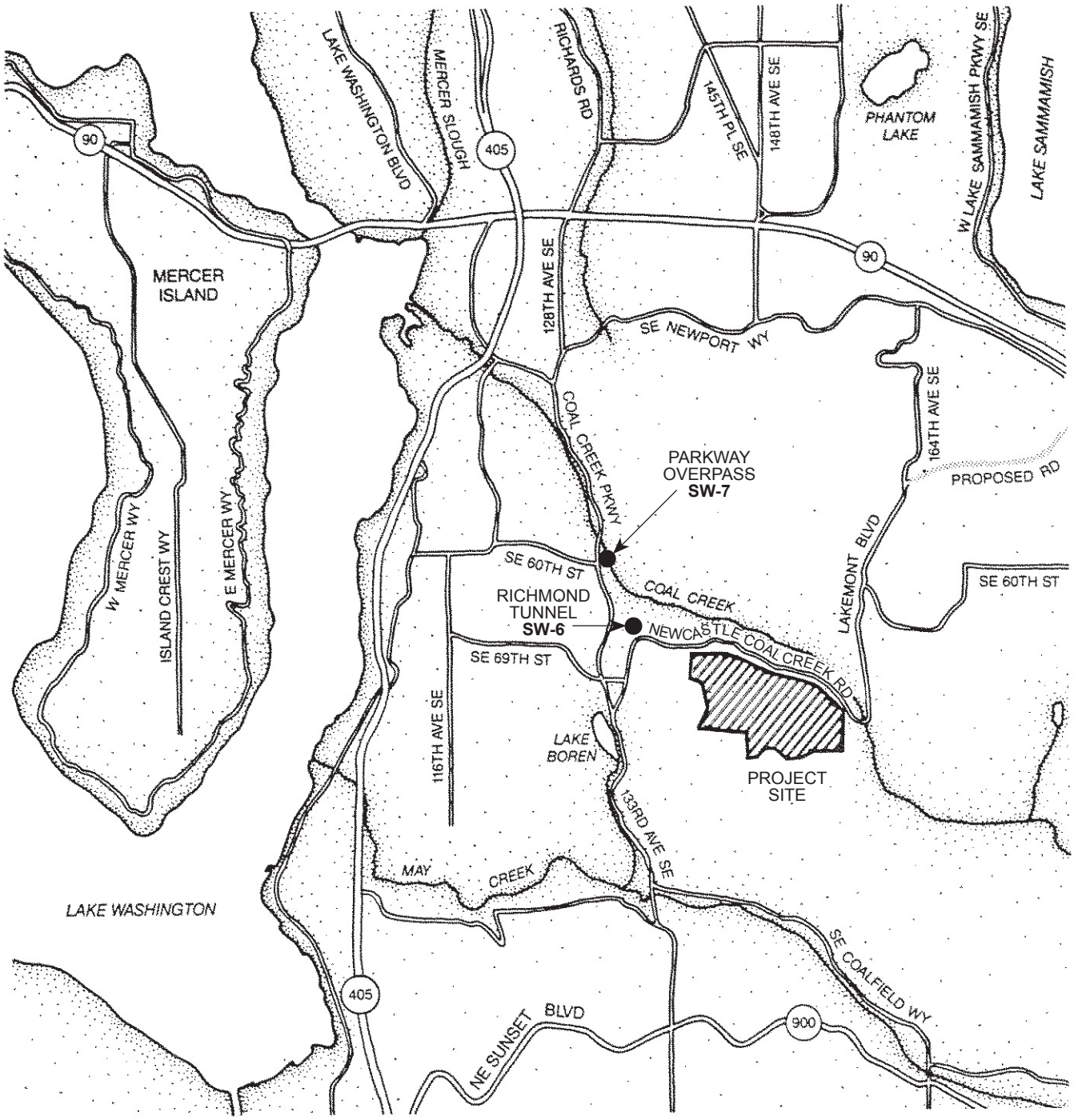
0 250 500
SCALE IN FEET

N

LEGEND

- MW-2 — Groundwater Monitoring Well (Field Located 10/22/01)
- GP-1 — Gas Probe Location (Field Located 10/22/01)
- COMFORT STATION — Comfort Station (Restroom)
- Pond and "Creek" System
- Storm Drainage Control Facility
- Golf Cart Path
- 14s — Golf Course Fairway Alignment and Number

Figure 2
Groundwater Monitoring Well Locations and Golf Course Features, Newcastle Demolition Landfill Area



Parametrix 555-3747-001/01(01) 5/09 (B)

N

0 1

SCALE IN MILES

● Surface Water Monitoring Site

Figure 3
Off-site Monitoring Locations
Newcastle Demolition Landfill

APPENDIX A

LABORATORY REPORT AND CHAIN-OF-CUSTODY FORMS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

24 March 2011

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

RE: Project No. Newcastle LF, 555-3747-003
ARI Job No: SM13

Dear Lisa:

Please find enclosed the original Chain-of-Custody documentation and the final reports for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted six water samples in good condition on March 9, 2010. The samples were analyzed for dissolved 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.
Elyseberh Joshi
for
Mark D. Harris
Project Manager
206/695-6210
<markh@arilabs.com>

Enclosures

cc: File SM13

MDH/esj

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: SM13	Turn-around Requested:	Page: 1	of 1
ARI Client Company: PARAMETRIX	Phone: 425-458-6200	Date: 3/9/11	Ice Present? Yes
Client Contact: LISA GILBERT		No. of Coolers: 1	Cooler Temps: 7.4
Client Project Name: NEWCASTLE LANDFILL			
Client Project #: 555-3747-003	Samplers: CRAIG BUITRAGO, JESSE BENNETT		

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	Analysis Requested: Metals	Cl, SO4, NO2, NO3, TDS	TOC, COD NH3						Notes/Comments
MW-3	3/8/11	1023	W	3	X	X	X						Nitrite & Nitrate need to be processed w/ 48hrs of sample time.
MW-1	3/8/11	1430	W	3	X	X	X						
MW-5	3/8/11	1600	W	3	X	X	X						
SW-6	3/8/11	1624	W	3	X	X	X						
SW-7	3/8/11	1636	W	3	X	X	X						
SW-7D	3/8/11	1636	W	3	X	X	X						

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: CRAIG BUITRAGO	Printed Name: MIKKA MYLUMBA	Printed Name:	Printed Name:
	Company: PARAMETRIX	Company: ARI	Company:	Company:
	Date & Time: 3/9/2011 0720	Date & Time: 3/9/11 0720	Date & Time:	Date & Time:

SM13:50002

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 Landfill

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: SM13

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): 7.4

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 90941619

Cooler Accepted by: MM Date: 3/9/11 Time: 0720

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
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: Equipment: Split by:

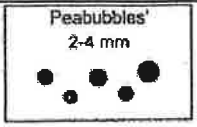
Samples Logged by: MM Date: 3/9/11 Time: 0820

***** 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:

By: Date:

Small Air Bubbles ~2mm	Peabubbles' 2-4 mm	LARGE Air Bubbles > 4 mm
		

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

Cooler#: 1 Temperature(°C): 7.4

Sample ID	Bottle Count	Bottle Type
ALL SAMPLES OUT OF TEMP COMPLIANCE	3	(YOJ, 8oz AG, 500ml HDPE

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: MMM Date: 3/9/11 Time: 0820

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: SM13
Client: Parametrix, Inc.
Project Event: 55-3747-003
Project Name: NewCastle

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-3	SM13A	11-4895	Water	03/08/11 10:23	03/09/11 07:20
2.	MW-1	SM13B	11-4896	Water	03/08/11 14:30	03/09/11 07:20
3.	MW-5	SM13C	11-4897	Water	03/08/11 16:00	03/09/11 07:20
4.	SW-6	SM13D	11-4898	Water	03/08/11 16:24	03/09/11 07:20
5.	SW-7	SM13E	11-4899	Water	03/08/11 16:36	03/09/11 07:20
6.	SW-7D	SM13F	11-4900	Water	03/08/11 16:36	03/09/11 07:20

Printed 03/09/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: Total Dissolved Solids-EPA 160.1

Matrix: Water

Holding Time: 7 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/10/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/10/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/10/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/10/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/10/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/10/11
Method Blank	MB031011	N/A	N/A	N/A	03/10/11
Lab Control	LCS031011	N/A	N/A	N/A	03/10/11
MW-3	SM13ADP	03/08/11	03/09/11	N/A	03/10/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: Chloride-EPA 325.2

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/22/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/21/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/21/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/21/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/21/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/21/11
Method Blank	MB032111	N/A	N/A	N/A	03/21/11
Method Blank	MB032211	N/A	N/A	N/A	03/22/11
Standard Ref.	SRM032111	N/A	N/A	N/A	03/21/11
Standard Ref.	SRM032211	N/A	N/A	N/A	03/22/11
MW-3	SM13ADP	03/08/11	03/09/11	N/A	03/22/11
MW-3	SM13AMS	03/08/11	03/09/11	N/A	03/22/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: N-Ammonia-EPA 350.1M

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/09/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/09/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/09/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/09/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/09/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/09/11
Method Blank	MB030911	N/A	N/A	N/A	03/09/11
Standard Ref.	SRM030911	N/A	N/A	N/A	03/09/11
MW-3	SM13ADP	03/08/11	03/09/11	N/A	03/09/11
MW-3	SM13AMS	03/08/11	03/09/11	N/A	03/09/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: N-Nitrate-Calculated

Matrix: Water

Holding Time: 48 Hours

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/09/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/09/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/09/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/09/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/09/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/09/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: N-Nitrite-EPA 353.2

Matrix: Water

Holding Time: 48 Hours

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/09/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/09/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/09/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/09/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/09/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/09/11
Method Blank	MB030911	N/A	N/A	N/A	03/09/11
Standard Ref.	SRM030911	N/A	N/A	N/A	03/09/11
MW-3	SM13ADP	03/08/11	03/09/11	N/A	03/09/11
MW-3	SM13AMS	03/08/11	03/09/11	N/A	03/09/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: Nitrate + Nitrite-EPA 353.2

Matrix: Water

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

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/09/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/09/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/09/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/09/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/09/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/09/11
Method Blank	MB030911	N/A	N/A	N/A	03/09/11
Standard Ref.	SRM030911	N/A	N/A	N/A	03/09/11
MW-3	SM13ADP	03/08/11	03/09/11	N/A	03/09/11
MW-3	SM13AMS	03/08/11	03/09/11	N/A	03/09/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: Sulfate-EPA 375.2

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/15/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/15/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/15/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/15/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/15/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/15/11
Method Blank	MB031511	N/A	N/A	N/A	03/15/11
Standard Ref.	SRM031511	N/A	N/A	N/A	03/15/11
MW-3	SM13ADP	03/08/11	03/09/11	N/A	03/15/11
MW-3	SM13AMS	03/08/11	03/09/11	N/A	03/15/11

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: Chemical Oxygen Demand-EPA 410.4

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/10/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/10/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/10/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/10/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/10/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/10/11
Method Blank	MB031011	N/A	N/A	N/A	03/10/11
Standard Ref.	SRM031011	N/A	N/A	N/A	03/10/11
MW-3	SM13ADP	03/08/11	03/09/11	N/A	03/10/11
MW-3	SM13AMS	03/08/11	03/09/11	N/A	03/10/11

Preparation Summary Table

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: Total Organic Carbon-EPA 415.1

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	N/A	03/10/11
MW-1	SM13B	03/08/11	03/09/11	N/A	03/09/11
MW-5	SM13C	03/08/11	03/09/11	N/A	03/09/11
SW-6	SM13D	03/08/11	03/09/11	N/A	03/09/11
SW-7	SM13E	03/08/11	03/09/11	N/A	03/09/11
SW-7D	SM13F	03/08/11	03/09/11	N/A	03/09/11
Method Blank	MB030911	N/A	N/A	N/A	03/09/11
Method Blank	MB031011	N/A	N/A	N/A	03/10/11
Standard Ref.	SRM030911	N/A	N/A	N/A	03/09/11
Standard Ref.	SRM031011	N/A	N/A	N/A	03/10/11
MW-3	SM13ADP	03/08/11	03/09/11	N/A	03/10/11
MW-3	SM13AMS	03/08/11	03/09/11	N/A	03/10/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, NewCastle

ARI Job No: SM13

Parameter: ICP Dissolved Metals-6010B

Matrix: Water

Holding Time: 6 Months

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-3	SM13A	03/08/11	03/09/11	03/09/11	03/14/11
MW-1	SM13B	03/08/11	03/09/11	03/09/11	03/14/11
MW-5	SM13C	03/08/11	03/09/11	03/09/11	03/14/11
SW-6	SM13D	03/08/11	03/09/11	03/09/11	03/14/11
SW-7	SM13E	03/08/11	03/09/11	03/09/11	03/14/11
SW-7D	SM13F	03/08/11	03/09/11	03/09/11	03/14/11
Method Blank	MB030911	N/A	N/A	03/09/11	03/14/11
Lab Control	LCS030911	N/A	N/A	03/09/11	03/14/11
MW-3	SM13ADP	03/08/11	03/09/11	03/09/11	03/14/11
MW-3	SM13AMS	03/08/11	03/09/11	03/09/11	03/14/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

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
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.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

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
NR	Spiked compound recovery is not reported due to chromatographic interference
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
M2	The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
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
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: METHOD BLANK

Lab Sample ID: SM13MB
LIMS ID: 11-4896
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/10/11	200.8	03/11/11	7440-38-2	Arsenic	0.2	0.2	U
6010B	03/09/11	6010B	03/14/11	7440-70-2	Calcium	50	50	U
6010B	03/09/11	6010B	03/14/11	7439-89-6	Iron	50	50	U
6010B	03/09/11	6010B	03/14/11	7439-95-4	Magnesium	50	50	U
6010B	03/09/11	6010B	03/14/11	7439-96-5	Manganese	1	1	U
6010B	03/09/11	6010B	03/14/11	7440-66-6	Zinc	10	10	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-3
SAMPLE

Lab Sample ID: SM13A
LIMS ID: 11-4895
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/10/11	200.8	03/11/11	**7440-38-2**	**Arsenic**	0.2	**2.7**	
6010B	03/09/11	6010B	03/14/11	**7440-70-2**	**Calcium**	50	**21,400**	
6010B	03/09/11	6010B	03/14/11	**7439-89-6**	**Iron**	50	**770**	
6010B	03/09/11	6010B	03/14/11	**7439-95-4**	**Magnesium**	50	**11,500**	
6010B	03/09/11	6010B	03/14/11	**7439-96-5**	**Manganese**	1	**29**	
6010B	03/09/11	6010B	03/14/11	7440-66-6	Zinc	10	10	U

Calculated Dissolved Hardness (mg-CaCO3/L): 100

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-3
DUPLICATE

Lab Sample ID: SM13A
LIMS ID: 11-4895
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	2.7	2.7	0.0%	+/- 20%	
Calcium	6010B	21,400	21,000	1.9%	+/- 20%	
Iron	6010B	770	760	1.3%	+/- 20%	
Magnesium	6010B	11,500	11,400	0.9%	+/- 20%	
Manganese	6010B	29	29	0.0%	+/- 20%	
Zinc	6010B	10 U	10 U	0.0%	+/- 10	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-3
MATRIX SPIKE

Lab Sample ID: SM13A
LIMS ID: 11-4895
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	2.71	28.8	25.0	104%	
Calcium	6010B	21,400	31,400	10,000	100%	
Iron	6010B	774	2,630	2,000	92.8%	
Magnesium	6010B	11,500	21,600	10,000	101%	
Manganese	6010B	29.0	487	500	91.6%	
Zinc	6010B	10.0 U	494	500	98.8%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1
SAMPLE

Lab Sample ID: SM13B
LIMS ID: 11-4896
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/10/11	200.8	03/11/11	**7440-38-2**	**Arsenic**	0.2	**0.6**	
6010B	03/09/11	6010B	03/14/11	**7440-70-2**	**Calcium**	50	**128,000**	
6010B	03/09/11	6010B	03/14/11	**7439-89-6**	**Iron**	50	**1,170**	
6010B	03/09/11	6010B	03/14/11	**7439-95-4**	**Magnesium**	50	**38,800**	
6010B	03/09/11	6010B	03/14/11	**7439-96-5**	**Manganese**	1	**90**	
6010B	03/09/11	6010B	03/14/11	7440-66-6	Zinc	10	10	U

Calculated Dissolved Hardness (mg-CaCO3/L): 480

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-5
SAMPLE

Lab Sample ID: SM13C
LIMS ID: 11-4897
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/10/11	200.8	03/11/11	**7440-38-2**	**Arsenic**	0.2	**17.4**	
6010B	03/09/11	6010B	03/14/11	**7440-70-2**	**Calcium**	50	**70,600**	
6010B	03/09/11	6010B	03/14/11	**7439-89-6**	**Iron**	50	**4,670**	
6010B	03/09/11	6010B	03/14/11	**7439-95-4**	**Magnesium**	50	**29,600**	
6010B	03/09/11	6010B	03/14/11	**7439-96-5**	**Manganese**	1	**682**	
6010B	03/09/11	6010B	03/14/11	7440-66-6	Zinc	10	10	U

Calculated Dissolved Hardness (mg-CaCO3/L): 300

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-6
SAMPLE

Lab Sample ID: SM13D
LIMS ID: 11-4898
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/10/11	200.8	03/11/11	**7440-38-2**	**Arsenic**	0.2	**4.4**	
6010B	03/09/11	6010B	03/14/11	**7440-70-2**	**Calcium**	50	**73,800**	
6010B	03/09/11	6010B	03/14/11	**7439-89-6**	**Iron**	50	**2,840**	
6010B	03/09/11	6010B	03/14/11	**7439-95-4**	**Magnesium**	50	**43,700**	
6010B	03/09/11	6010B	03/14/11	**7439-96-5**	**Manganese**	1	**329**	
6010B	03/09/11	6010B	03/14/11	7440-66-6	Zinc	10	10	U

Calculated Dissolved Hardness (mg-CaCO3/L): 360

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: SW-7
SAMPLE

Lab Sample ID: SM13E
LIMS ID: 11-4899
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/10/11	200.8	03/11/11	**7440-38-2**	**Arsenic**	0.2	**0.7**	
6010B	03/09/11	6010B	03/14/11	**7440-70-2**	**Calcium**	50	**24,400**	
6010B	03/09/11	6010B	03/14/11	**7439-89-6**	**Iron**	50	**100**	
6010B	03/09/11	6010B	03/14/11	**7439-95-4**	**Magnesium**	50	**10,700**	
6010B	03/09/11	6010B	03/14/11	**7439-96-5**	**Manganese**	1	**53**	
6010B	03/09/11	6010B	03/14/11	7440-66-6	Zinc	10	10	U

Calculated Dissolved Hardness (mg-CaCO3/L): 100

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-7D
SAMPLE

Lab Sample ID: SM13F
LIMS ID: 11-4900
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/10/11	200.8	03/11/11	**7440-38-2**	**Arsenic**	0.2	**0.8**	
6010B	03/09/11	6010B	03/14/11	**7440-70-2**	**Calcium**	50	**24,400**	
6010B	03/09/11	6010B	03/14/11	**7439-89-6**	**Iron**	50	**100**	
6010B	03/09/11	6010B	03/14/11	**7439-95-4**	**Magnesium**	50	**10,700**	
6010B	03/09/11	6010B	03/14/11	**7439-96-5**	**Manganese**	1	**53**	
6010B	03/09/11	6010B	03/14/11	7440-66-6	Zinc	10	10	U

Calculated Dissolved Hardness (mg-CaCO3/L): 100

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: LAB CONTROL

Lab Sample ID: SM13LCS
LIMS ID: 11-4896
Matrix: Water
Data Release Authorized:
Reported: 03/15/11

QC Report No: SM13-Parametrix, Inc.
Project: NewCastle
555-3747-003
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	25.7	25.0	103%	
Calcium	6010B	9800	10000	98.0%	
Iron	6010B	1940	2000	97.0%	
Magnesium	6010B	10100	10000	101%	
Manganese	6010B	468	500	93.6%	
Zinc	6010B	500	500	100%	

Reported in µg/L

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

METHOD BLANK RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Total Dissolved Solids	EPA 160.1	03/10/11	mg/L	< 5.0 U	
Chloride	EPA 325.2	03/21/11	mg/L	< 1.0 U	FB
		03/22/11		< 1.0 U	FB
N-Ammonia	EPA 350.1M	03/09/11	mg-N/L	< 0.010 U	FB
N-Nitrite	EPA 353.2	03/09/11	mg-N/L	< 0.010 U	FB
Nitrate + Nitrite	EPA 353.2	03/09/11	mg-N/L	< 0.010 U	FB
Sulfate	EPA 375.2	03/15/11	mg/L	< 2.0 U	FB
Chemical Oxygen Demand	EPA 410.4	03/10/11	mg/L	< 5.00 U	
Total Organic Carbon	EPA 415.1	03/09/11	mg/L	< 1.50 U	
		03/10/11		< 1.50 U	

FB Filtration Blank

SAMPLE RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Client ID: MW-3
ARI ID: 11-4895 SM13A

Analyte	Date Batch	Method	Units	RL	Sample
Total Dissolved Solids	03/10/11 031011#1	EPA 160.1	mg/L	10.0	466
Chloride	03/22/11 032211#1	EPA 325.2	mg/L	1.0	7.5
N-Ammonia	03/09/11 030911#1	EPA 350.1M	mg-N/L	0.010	0.426
N-Nitrate	03/09/11	Calculated	mg-N/L	0.010	0.021
N-Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	0.021
Sulfate	03/15/11 031511#1	EPA 375.2	mg/L	2.0	36.4
Chemical Oxygen Demand	03/10/11 031011#1	EPA 410.4	mg/L	5.00	11.0
Total Organic Carbon	03/10/11 031011#1	EPA 415.1	mg/L	1.50	4.82

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Client ID: MW-1
ARI ID: 11-4896 SM13B

Analyte	Date Batch	Method	Units	RL	Sample
Total Dissolved Solids	03/10/11 031011#1	EPA 160.1	mg/L	10.0	635
Chloride	03/21/11 032111#1	EPA 325.2	mg/L	1.0	2.9
N-Ammonia	03/09/11 030911#1	EPA 350.1M	mg-N/L	0.010	0.092
N-Nitrate	03/09/11	Calculated	mg-N/L	0.010	< 0.010 U
N-Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Sulfate	03/15/11 031511#1	EPA 375.2	mg/L	20.0	273
Chemical Oxygen Demand	03/10/11 031011#1	EPA 410.4	mg/L	5.00	< 5.00 U
Total Organic Carbon	03/09/11 030911#1	EPA 415.1	mg/L	1.50	1.68

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Client ID: MW-5
ARI ID: 11-4897 SM13C

Analyte	Date Batch	Method	Units	RL	Sample
Total Dissolved Solids	03/10/11 031011#1	EPA 160.1	mg/L	10.0	374
Chloride	03/21/11 032111#1	EPA 325.2	mg/L	1.0	5.4
N-Ammonia	03/09/11 030911#1	EPA 350.1M	mg-N/L	0.010	0.091
N-Nitrate	03/09/11	Calculated	mg-N/L	0.050	< 0.050 U
N-Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.050	< 0.050 U
Sulfate	03/15/11 031511#1	EPA 375.2	mg/L	10.0	63.8
Chemical Oxygen Demand	03/10/11 031011#1	EPA 410.4	mg/L	5.00	< 5.00 U
Total Organic Carbon	03/09/11 030911#1	EPA 415.1	mg/L	1.50	2.31

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Client ID: SW-6
ARI ID: 11-4898 SM13D

Analyte	Date Batch	Method	Units	RL	Sample
Total Dissolved Solids	03/10/11 031011#1	EPA 160.1	mg/L	10.0	592
Chloride	03/21/11 032111#1	EPA 325.2	mg/L	1.0	4.6
N-Ammonia	03/09/11 030911#1	EPA 350.1M	mg-N/L	0.010	0.148
N-Nitrate	03/09/11	Calculated	mg-N/L	0.010	0.061
N-Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	0.061
Sulfate	03/15/11 031511#1	EPA 375.2	mg/L	40.0	153
Chemical Oxygen Demand	03/10/11 031011#1	EPA 410.4	mg/L	5.00	< 5.00 U
Total Organic Carbon	03/09/11 030911#1	EPA 415.1	mg/L	1.50	1.88

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Client ID: SW-7
ARI ID: 11-4899 SM13E

Analyte	Date Batch	Method	Units	RL	Sample
Total Dissolved Solids	03/10/11 031011#1	EPA 160.1	mg/L	5.0	192
Chloride	03/21/11 032111#1	EPA 325.2	mg/L	1.0	6.8
N-Ammonia	03/09/11 030911#1	EPA 350.1M	mg-N/L	0.010	0.055
N-Nitrate	03/09/11	Calculated	mg-N/L	0.050	1.15
N-Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.050	1.15
Sulfate	03/15/11 031511#1	EPA 375.2	mg/L	4.0	48.8
Chemical Oxygen Demand	03/10/11 031011#1	EPA 410.4	mg/L	5.00	7.46
Total Organic Carbon	03/09/11 030911#1	EPA 415.1	mg/L	1.50	2.94

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Client ID: SW-7D
ARI ID: 11-4900 SM13F

Analyte	Date Batch	Method	Units	RL	Sample
Total Dissolved Solids	03/10/11 031011#1	EPA 160.1	mg/L	5.0	201
Chloride	03/21/11 032111#1	EPA 325.2	mg/L	1.0	6.8
N-Ammonia	03/09/11 030911#1	EPA 350.1M	mg-N/L	0.010	0.062
N-Nitrate	03/09/11	Calculated	mg-N/L	0.020	1.22
N-Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	03/09/11 030911#1	EPA 353.2	mg-N/L	0.020	1.22
Sulfate	03/15/11 031511#1	EPA 375.2	mg/L	4.0	48.5
Chemical Oxygen Demand	03/10/11 031011#1	EPA 410.4	mg/L	5.00	< 5.00 U
Total Organic Carbon	03/09/11 030911#1	EPA 415.1	mg/L	1.50	3.06

RL Analytical reporting limit
U Undetected at reported detection limit

LAB CONTROL RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Dissolved Solids EPA 160.1	ICVL	03/10/11	mg/L	476	500	95.2%

STANDARD REFERENCE RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Chloride	EPA 325.2	03/21/11	mg/L	4.9	5.0	98.0%
ERA #38084		03/22/11		4.9	5.0	98.0%
N-Ammonia	EPA 350.1M	03/09/11	mg-N/L	0.530	0.500	106.0%
ERA #15125						
N-Nitrite	EPA 353.2	03/09/11	mg-N/L	0.528	0.500	105.6%
ERA #23034						
Nitrate + Nitrite	EPA 353.2	03/09/11	mg-N/L	0.499	0.500	99.8%
ERA #20034						
Sulfate	EPA 375.2	03/15/11	mg/L	25.9	25.0	103.6%
ERA #37065						
Chemical Oxygen Demand	EPA 410.4	03/10/11	mg/L	84.4	90.0	93.8%
Thermo Orion #I01						
Total Organic Carbon	EPA 415.1	03/09/11	mg/L	21.3	20.0	106.5%
ERA 0513-10-06		03/10/11		20.7	20.0	103.5%

REPLICATE RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: SM13A Client ID: MW-3						
Total Dissolved Solids	EPA 160.1	03/10/11	mg/L	466	477	2.3%
Chloride	EPA 325.2	03/22/11	mg/L	7.5	7.4	1.3%
N-Ammonia	EPA 350.1M	03/09/11	mg-N/L	0.426	0.435	2.1%
N-Nitrite	EPA 353.2	03/09/11	mg-N/L	< 0.010	< 0.010	NA
Nitrate + Nitrite	EPA 353.2	03/09/11	mg-N/L	0.021	0.021	0.0%
Sulfate	EPA 375.2	03/15/11	mg/L	36.4	37.2	2.2%
Chemical Oxygen Demand	EPA 410.4	03/10/11	mg/L	11.0	11.4	3.6%
Total Organic Carbon	EPA 415.1	03/10/11	mg/L	4.82	4.33	10.7%

MS/MSD RESULTS-CONVENTIONALS
SM13-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: NewCastle
Event: 555-3747-003
Date Sampled: 03/08/11
Date Received: 03/09/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: SM13A Client ID: MW-3							
Chloride	EPA 325.2	03/22/11	mg/L	7.5	32.9	25.0	101.6%
N-Ammonia	EPA 350.1M	03/09/11	mg-N/L	0.426	0.935	0.500	101.8%
N-Nitrite	EPA 353.2	03/09/11	mg-N/L	< 0.010	0.512	0.500	102.4%
Nitrate + Nitrite	EPA 353.2	03/09/11	mg-N/L	0.021	0.515	0.500	98.8%
Sulfate	EPA 375.2	03/15/11	mg/L	36.4	154	100	117.6%
Chemical Oxygen Demand	EPA 410.4	03/10/11	mg/L	11.0	105	91.0	103.3%
Total Organic Carbon	EPA 415.1	03/10/11	mg/L	4.82	24.1	20.0	96.4%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

24 March 2011

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

RE: Project No. Newcastle LF, 555-3747-003
ARI Job No: SM95

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 March11, 2010. The sample was analyzed for dissolved metals, hardness and conventional parameters as requested.

TDS was detected in the method blank associated with the TDS analysis. As the sample associated with this blank contained greater than 10 times the amount found in the blank, no corrective action was necessary.

No further 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.
Elysebeth Josh
for
Mark D. Harris
Project Manager
206/695-6210
<markh@arilabs.com>

Enclosures

cc: File SM95

MDH/esj

page 1 of 27

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: SM95	Turn-around Requested:	Page: 1 of 1	
ARI Client Company: PARAMETRIX, INC.	Phone: (425) 458-6200	Date: 3/11/11	Ice Present? Y
Client Contact: Lisa Gilbert (x-6320)		No. of Coolers: 1	Cooler Temps: 5.8
Client Project Name: Newcastle Landfill			
Client Project #: 555-3747-003	Samplers: J. Bennett / C. Buitrago		

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	Analysis Requested: Dissolved metals	Analysis Requested: NH_3, COD, TOC	Analysis Requested: NO_3, SO_4, TDS, Cl, Nitrite	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Notes/Comments
MW-2	3/11/11	0850	Water	3	X	X	X						

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: H. Jesse Bennett	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
	Company: Parametrix, Inc.	Company: ARI	Company:	Company:
	Date & Time: 3/11/11 4:09	Date & Time: 3/11/11 1609	Date & Time:	Date & Time:

SM95:9502

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 Landfill

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

Assigned ARI Job No: SM95 | 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)..... 5.8

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID#: 90941609

Cooler Accepted by: AV | Date: 3/11/11 | Time: 1609

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
Date VOC Trip Blank was made at ARI.....	(NA)		

Was Sample Split by ARI : (NA) YES Date/Time:_____ Equipment:_____ Split by:_____

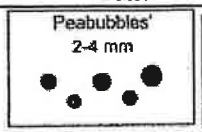
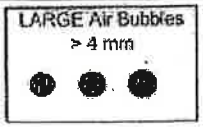
Samples Logged by: JM | Date: 3/11/11 | Time: 1652

***** 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:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

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

PRESERVATION VERIFICATION 03/11/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **SM95**

Inquiry Number: NONE
Analysis Requested: 03/14/11
Contact: Gilbert, Lisa
Client: Parametrix, Inc.
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Mark
VTSR: 03/11/11

Project #: 555-3747-003
Project: Newcastle Landfill
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	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-5451 **SM95A**	MW-2			pass	pass		DIS pass					pass										

SM95 00001

Checked By JM Date 3/11/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: SM95
Client: Parametrix, Inc.
Project Event: 555-3747-003
Project Name: Newcastle Landfill

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-2	SM95A	11-5451	Water	03/11/11 08:50	03/11/11 16:09

Printed 03/11/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: Total Dissolved Solids-EPA 160.1

Matrix: Water

Holding Time: 7 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/14/11
Method Blank	MB031411	N/A	N/A	N/A	03/14/11
Lab Control	LCS031411	N/A	N/A	N/A	03/14/11
MW-2	SM95ADP	03/11/11	03/11/11	N/A	03/14/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: Chloride-EPA 325.2

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/22/11
Method Blank	MB032211	N/A	N/A	N/A	03/22/11
Standard Ref.	SRM032211	N/A	N/A	N/A	03/22/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: N-Ammonia-EPA 350.1M

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/14/11
Method Blank	MB031411	N/A	N/A	N/A	03/14/11
Standard Ref.	SRM031411	N/A	N/A	N/A	03/14/11
MW-2	SM95ADP	03/11/11	03/11/11	N/A	03/14/11
MW-2	SM95AMS	03/11/11	03/11/11	N/A	03/14/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: N-Nitrate-Calculated

Matrix: Water

Holding Time: 48 Hours

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/16/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: N-Nitrite-EPA 353.2

Matrix: Water

Holding Time: 48 Hours

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/11/11
Method Blank	MB031111	N/A	N/A	N/A	03/11/11
Standard Ref.	SRM031111	N/A	N/A	N/A	03/11/11
MW-2	SM95ADP	03/11/11	03/11/11	N/A	03/11/11
MW-2	SM95AMS	03/11/11	03/11/11	N/A	03/11/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: Nitrate + Nitrite-EPA 353.2

Matrix: Water

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

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/16/11
Method Blank	MB031611	N/A	N/A	N/A	03/16/11
Standard Ref.	SRM031611	N/A	N/A	N/A	03/16/11
MW-2	SM95ADP	03/11/11	03/11/11	N/A	03/16/11
MW-2	SM95AMS	03/11/11	03/11/11	N/A	03/16/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: Sulfate-EPA 375.2

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/15/11
Method Blank	MB031511	N/A	N/A	N/A	03/15/11
Standard Ref.	SRM031511	N/A	N/A	N/A	03/15/11
MW-2	SM95ADP	03/11/11	03/11/11	N/A	03/15/11
MW-2	SM95AMS	03/11/11	03/11/11	N/A	03/15/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: Chemical Oxygen Demand-EPA 410.4

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/17/11
Method Blank	MB031711	N/A	N/A	N/A	03/17/11
Standard Ref.	SRM031711	N/A	N/A	N/A	03/17/11
MW-2	SM95ADP	03/11/11	03/11/11	N/A	03/17/11
MW-2	SM95AMS	03/11/11	03/11/11	N/A	03/17/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: Total Organic Carbon-EPA 415.1

Matrix: Water

Holding Time: 28 Days

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	N/A	03/14/11
Method Blank	MB031411	N/A	N/A	N/A	03/14/11
Standard Ref.	SRM031411	N/A	N/A	N/A	03/14/11
MW-2	SM95ADP	03/11/11	03/11/11	N/A	03/14/11
MW-2	SM95AMS	03/11/11	03/11/11	N/A	03/14/11

ANALYTICAL RESOURCES INCORPORATED

Client Project ID: 555-3747-003, Newcastle Landfill

ARI Job No: SM95

Parameter: ICP Dissolved Metals-6010B

Matrix: Water

Holding Time: 6 Months

Date Reported: 03/24/11

Client Sample ID	ARI Sample ID	Date Sampled	Date Received	Date Extracted	Date Analyzed
MW-2	SM95A	03/11/11	03/11/11	03/14/11	03/18/11
Method Blank	MB031411	N/A	N/A	03/14/11	03/18/11
Lab Control	LCS031411	N/A	N/A	03/14/11	03/18/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

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
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.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

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
NR	Spiked compound recovery is not reported due to chromatographic interference
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
M2	The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
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
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: SM95MB
LIMS ID: 11-5451
Matrix: Water
Data Release Authorized:
Reported: 03/21/11

QC Report No: SM95-Parametrix, Inc.
Project: Newcastle Landfill
555-3747-003
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/15/11	200.8	03/18/11	7440-38-2	Arsenic	0.2	0.2	U
6010B	03/14/11	6010B	03/18/11	7440-70-2	Calcium	50	50	U
6010B	03/14/11	6010B	03/18/11	7439-89-6	Iron	50	50	U
6010B	03/14/11	6010B	03/18/11	7439-95-4	Magnesium	50	50	U
6010B	03/14/11	6010B	03/18/11	7439-96-5	Manganese	1	1	U
6010B	03/14/11	6010B	03/18/11	7440-66-6	Zinc	10	10	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-2
SAMPLE

Lab Sample ID: SM95A
LIMS ID: 11-5451
Matrix: Water
Data Release Authorized:
Reported: 03/21/11

QC Report No: SM95-Parametrix, Inc.
Project: Newcastle Landfill
555-3747-003
Date Sampled: 03/11/11
Date Received: 03/11/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	03/15/11	200.8	03/18/11	**7440-38-2**	**Arsenic**	0.2	**0.3**	
6010B	03/14/11	6010B	03/18/11	**7440-70-2**	**Calcium**	50	**76,900**	
6010B	03/14/11	6010B	03/18/11	**7439-89-6**	**Iron**	50	**660**	
6010B	03/14/11	6010B	03/18/11	**7439-95-4**	**Magnesium**	50	**29,900**	
6010B	03/14/11	6010B	03/18/11	**7439-96-5**	**Manganese**	1	**124**	
6010B	03/14/11	6010B	03/18/11	7440-66-6	Zinc	10	10	U

Calculated Dissolved Hardness (mg-CaCO3/L): 320

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: LAB CONTROL

Lab Sample ID: SM95LCS
LIMS ID: 11-5451
Matrix: Water
Data Release Authorized:
Reported: 03/21/11

QC Report No: SM95-Parametrix, Inc.
Project: Newcastle Landfill
555-3747-003
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	26.0	25.0	104%	
Calcium	6010B	9500	10000	95.0%	
Iron	6010B	1920	2000	96.0%	
Magnesium	6010B	9920	10000	99.2%	
Manganese	6010B	465	500	93.0%	
Zinc	6010B	490	500	98.0%	

Reported in µg/L

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

METHOD BLANK RESULTS-CONVENTIONALS
SM95-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: Newcastle Landfill
Event: 555-3747-003
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Total Dissolved Solids	EPA 160.1	03/14/11	mg/L	5.5	
Chloride	EPA 325.2	03/22/11	mg/L	< 1.0 U	FB
N-Ammonia	EPA 350.1M	03/14/11	mg-N/L	< 0.010 U	FB
N-Nitrite	EPA 353.2	03/11/11	mg-N/L	< 0.010 U	FB
Nitrate + Nitrite	EPA 353.2	03/16/11	mg-N/L	< 0.010 U	FB
Sulfate	EPA 375.2	03/15/11	mg/L	< 2.0 U	FB
Chemical Oxygen Demand	EPA 410.4	03/17/11	mg/L	< 5.00 U	
Total Organic Carbon	EPA 415.1	03/14/11	mg/L	< 1.50 U	

FB Filtration Blank

SAMPLE RESULTS-CONVENTIONALS
SM95-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: Newcastle Landfill
Event: 555-3747-003
Date Sampled: 03/11/11
Date Received: 03/11/11

Client ID: MW-2
ARI ID: 11-5451 SM95A

Analyte	Date Batch	Method	Units	RL	Sample
Total Dissolved Solids	03/14/11 031411#1	EPA 160.1	mg/L	10.0	479
Chloride	03/22/11 032211#1	EPA 325.2	mg/L	2.0	14.6
N-Ammonia	03/14/11 031411#1	EPA 350.1M	mg-N/L	0.010	0.510
N-Nitrate	03/16/11	Calculated	mg-N/L	0.010	0.064
N-Nitrite	03/11/11 031111#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	03/16/11 031611#1	EPA 353.2	mg-N/L	0.010	0.064
Sulfate	03/15/11 031511#1	EPA 375.2	mg/L	2.0	21.1
Chemical Oxygen Demand	03/17/11 031711#1	EPA 410.4	mg/L	5.00	< 5.00 U
Total Organic Carbon	03/14/11 031411#1	EPA 415.1	mg/L	1.50	3.48

RL Analytical reporting limit
U Undetected at reported detection limit

LAB CONTROL RESULTS-CONVENTIONALS
SM95-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: Newcastle Landfill
Event: 555-3747-003
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Dissolved Solids EPA 160.1	ICVL	03/14/11	mg/L	443	500	88.6%

STANDARD REFERENCE RESULTS-CONVENTIONALS
SM95-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: Newcastle Landfill
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	03/22/11	mg/L	4.9	5.0	98.0%
N-Ammonia ERA #15125	EPA 350.1M	03/14/11	mg-N/L	0.523	0.500	104.6%
N-Nitrite ERA #23034	EPA 353.2	03/11/11	mg-N/L	0.508	0.500	101.6%
Nitrate + Nitrite ERA #20034	EPA 353.2	03/16/11	mg-N/L	0.526	0.500	105.2%
Sulfate ERA #37065	EPA 375.2	03/15/11	mg/L	25.9	25.0	103.6%
Chemical Oxygen Demand Thermo Orion #I01	EPA 410.4	03/17/11	mg/L	82.3	90.0	91.4%
Total Organic Carbon ERA 0513-10-06	EPA 415.1	03/14/11	mg/L	21.2	20.0	106.0%

REPLICATE RESULTS-CONVENTIONALS
SM95-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

Project: Newcastle Landfill
Event: 555-3747-003
Date Sampled: 03/11/11
Date Received: 03/11/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: SM95A Client ID: MW-2						
Total Dissolved Solids	EPA 160.1	03/14/11	mg/L	479	473	1.3%
N-Ammonia	EPA 350.1M	03/14/11	mg-N/L	0.510	0.540	5.7%
N-Nitrite	EPA 353.2	03/11/11	mg-N/L	< 0.010	< 0.010	NA
Nitrate + Nitrite	EPA 353.2	03/16/11	mg-N/L	0.064	0.066	3.1%
Sulfate	EPA 375.2	03/15/11	mg/L	21.1	20.5	2.9%
Chemical Oxygen Demand	EPA 410.4	03/17/11	mg/L	< 5.00	< 5.00	NA
Total Organic Carbon	EPA 415.1	03/14/11	mg/L	3.48	3.52	1.1%

MS/MSD RESULTS-CONVENTIONALS
SM95-Parametrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 03/24/11

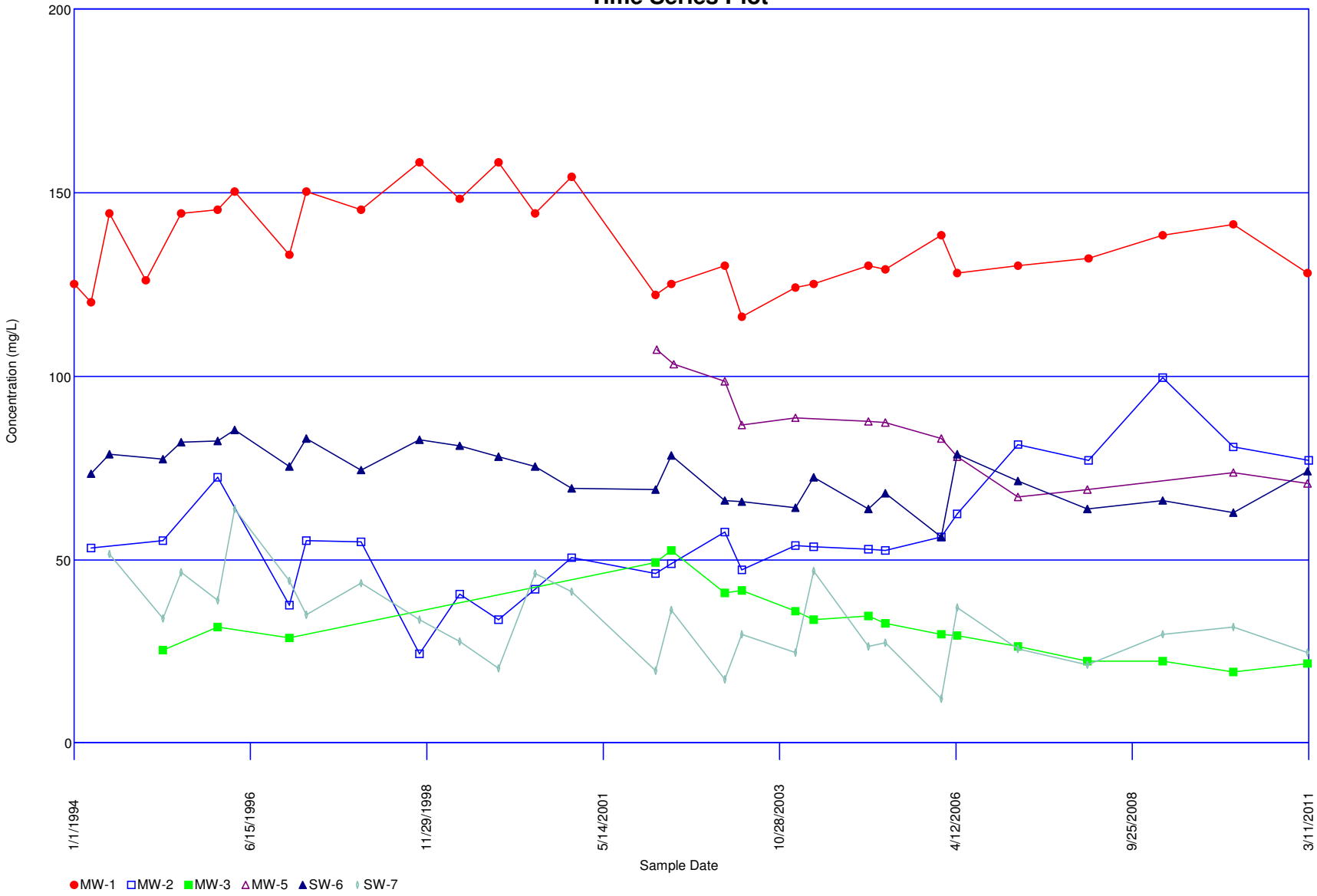
Project: Newcastle Landfill
Event: 555-3747-003
Date Sampled: 03/11/11
Date Received: 03/11/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: SM95A Client ID: MW-2							
N-Ammonia	EPA 350.1M	03/14/11	mg-N/L	0.510	0.965	0.500	91.0%
N-Nitrite	EPA 353.2	03/11/11	mg-N/L	< 0.010	0.503	0.500	100.6%
Nitrate + Nitrite	EPA 353.2	03/16/11	mg-N/L	0.064	0.552	0.500	97.6%
Sulfate	EPA 375.2	03/15/11	mg/L	21.1	39.6	20.0	92.5%
Chemical Oxygen Demand	EPA 410.4	03/17/11	mg/L	< 5.00	106	91.0	116.5%
Total Organic Carbon	EPA 415.1	03/14/11	mg/L	3.48	24.2	20.0	103.6%

APPENDIX B

TIME-SERIES PLOTS

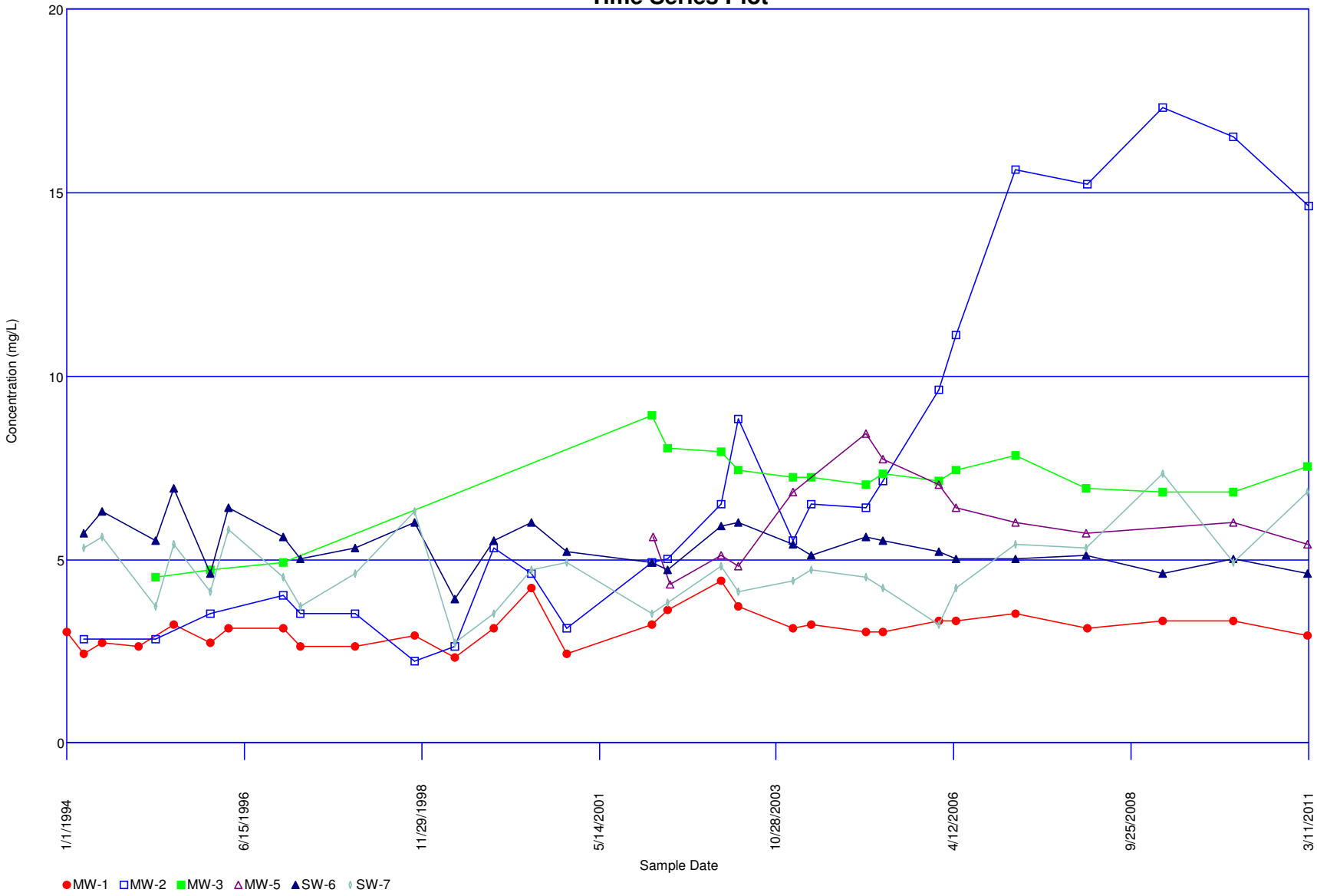
Newcastle Landfill
Time Series Plot



Calcium, Dissolved

Non-Detects Replaced with 1/2 DL

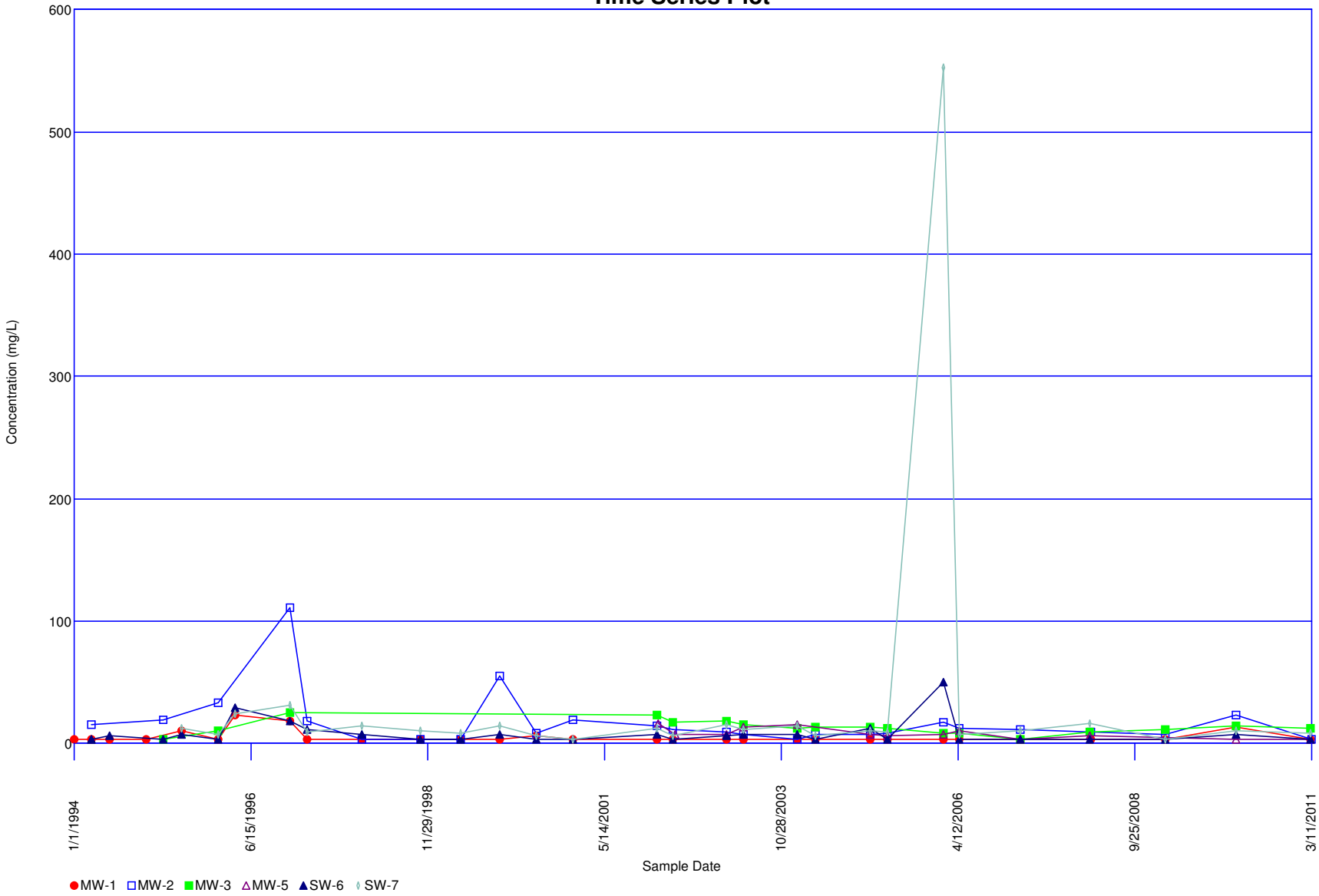
Newcastle Landfill
Time Series Plot



Chloride

Non-Detects Replaced with 1/2 DL

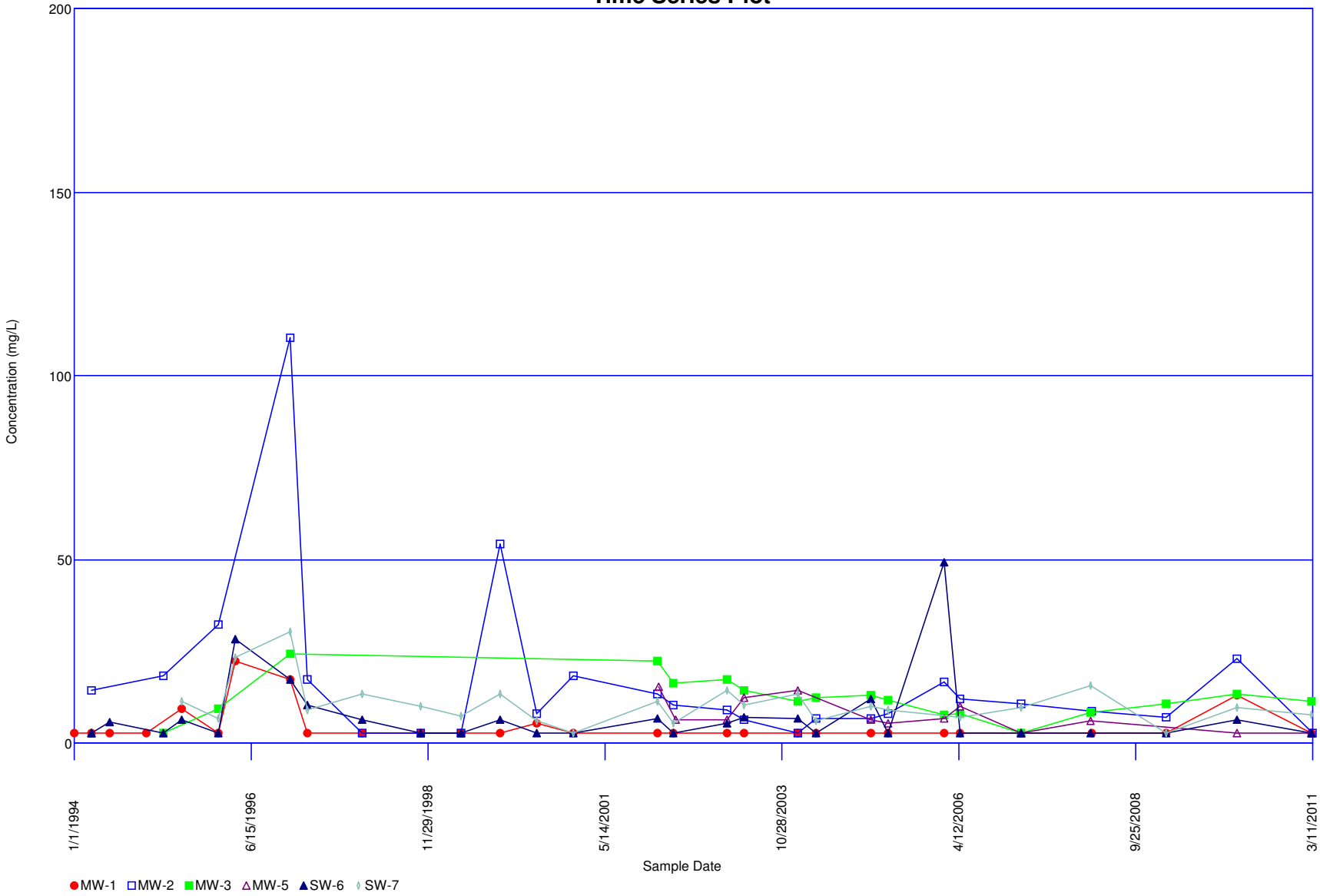
Newcastle Landfill
Time Series Plot



COD

Non-Detects Replaced with 1/2 DL

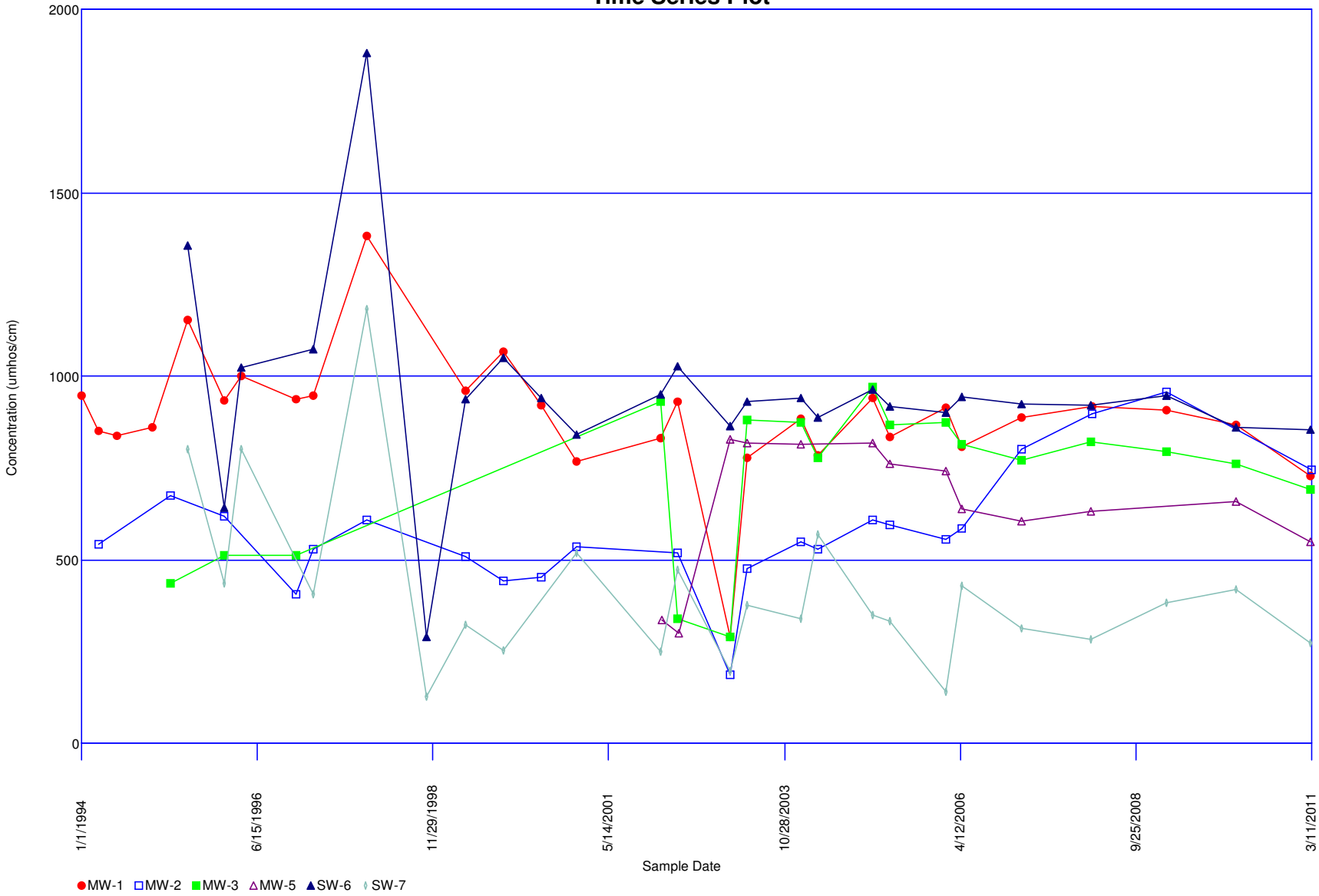
Newcastle Landfill
Time Series Plot



COD

Non-Detects Replaced with 1/2 DL

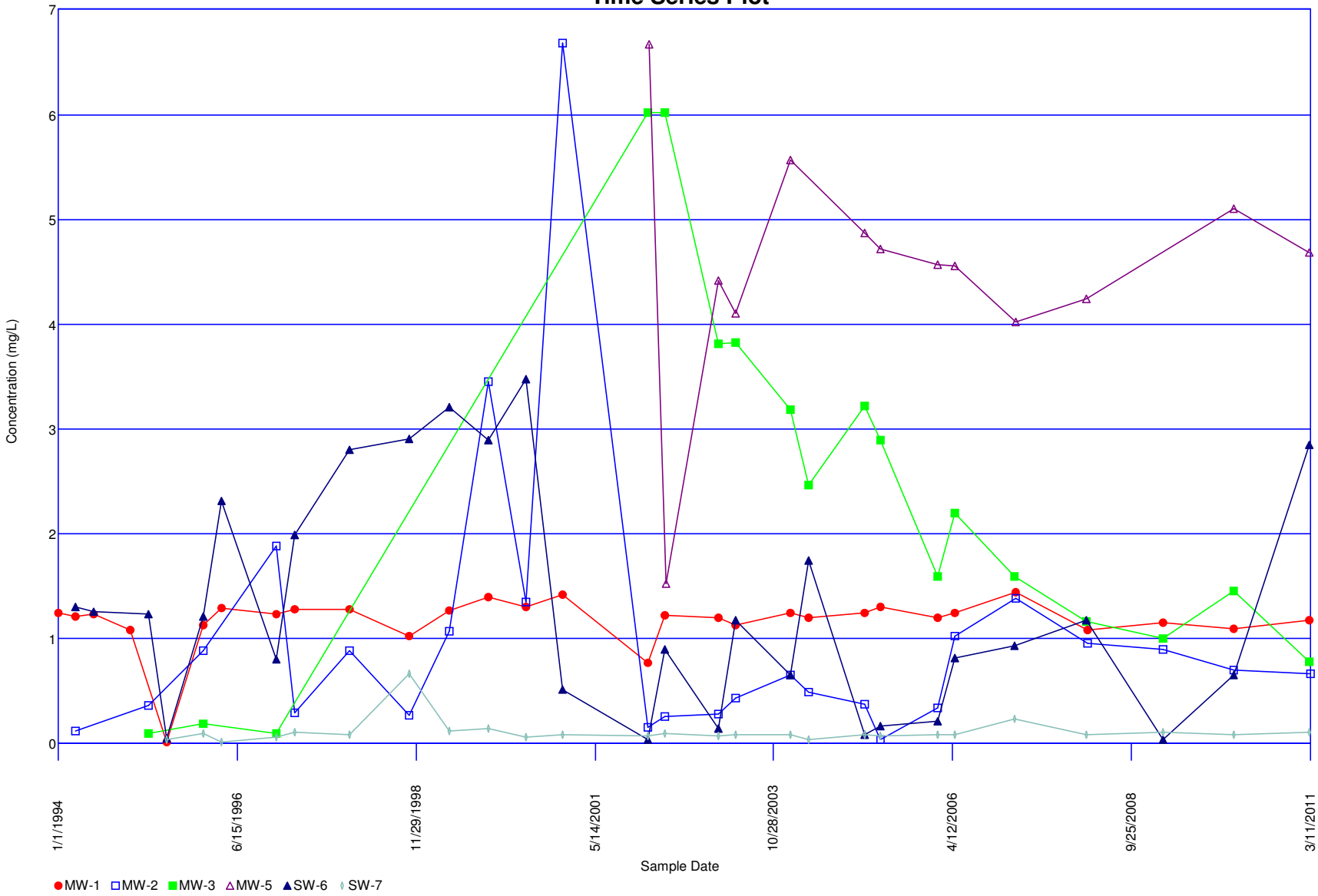
Newcastle Landfill
Time Series Plot



Specific Conductivity

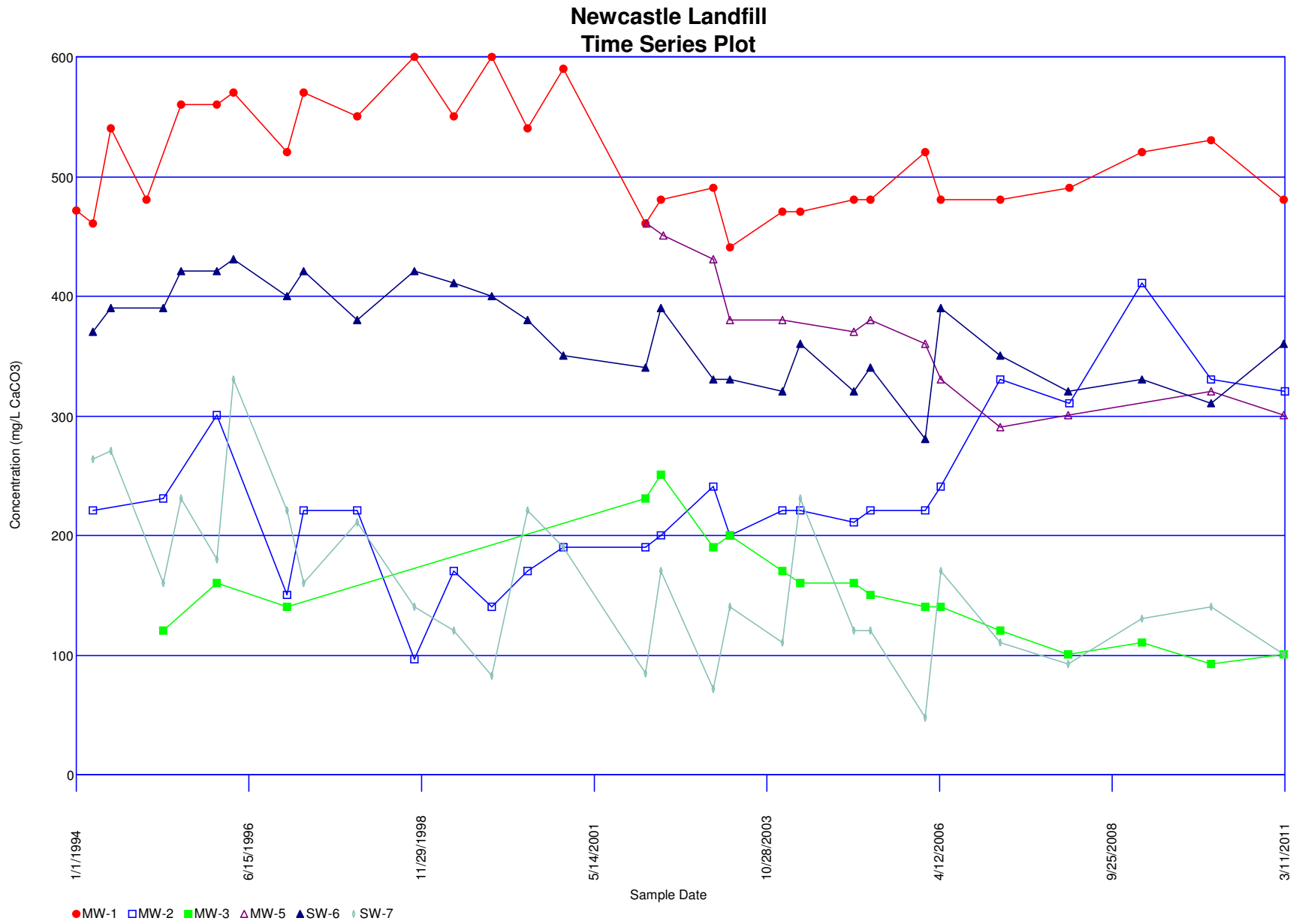
Non-Detects Replaced with 1/2 DL

Newcastle Landfill
Time Series Plot



Iron, Dissolved

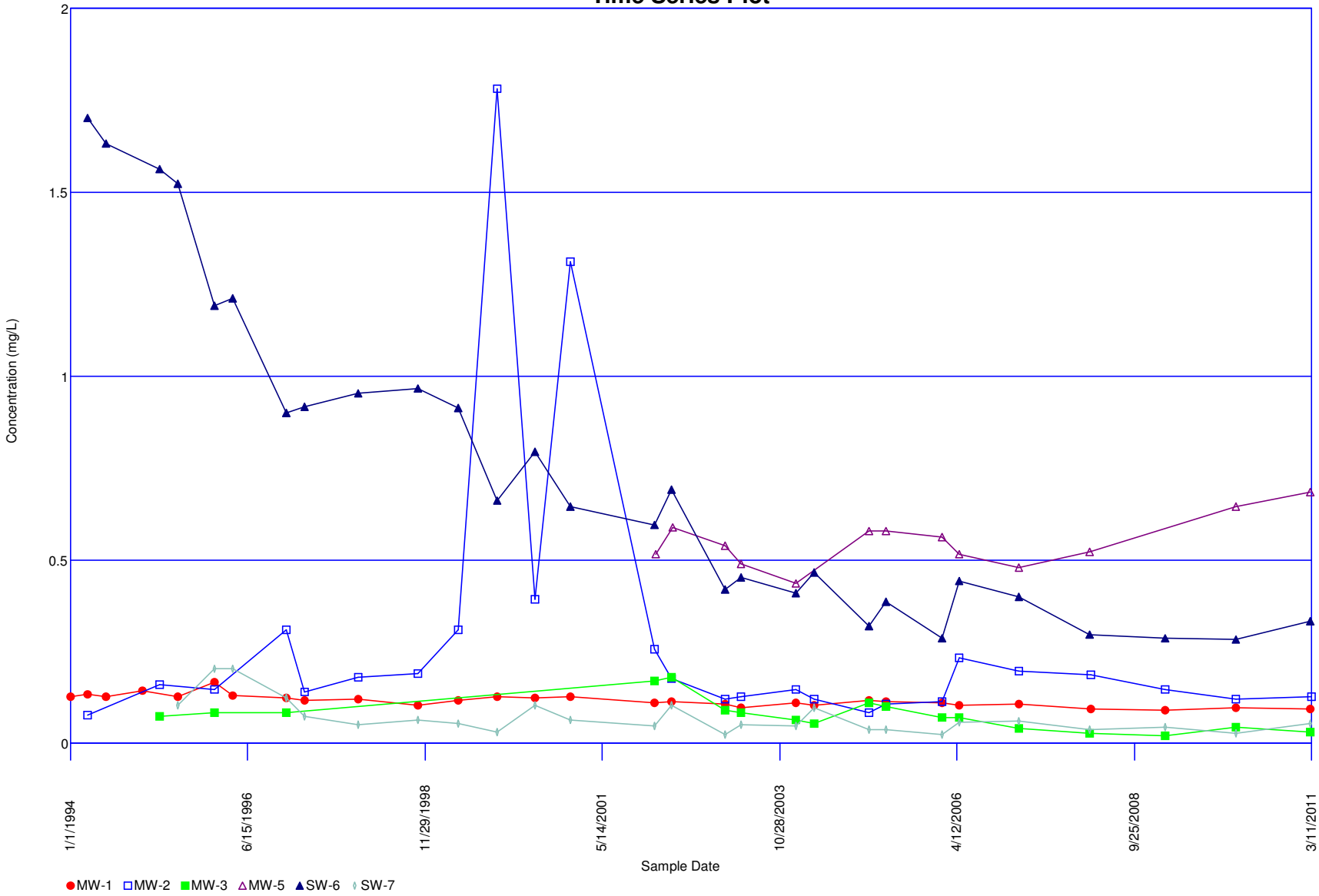
Non-Detects Replaced with 1/2 DL



Hardness

Non-Detects Replaced with 1/2 DL

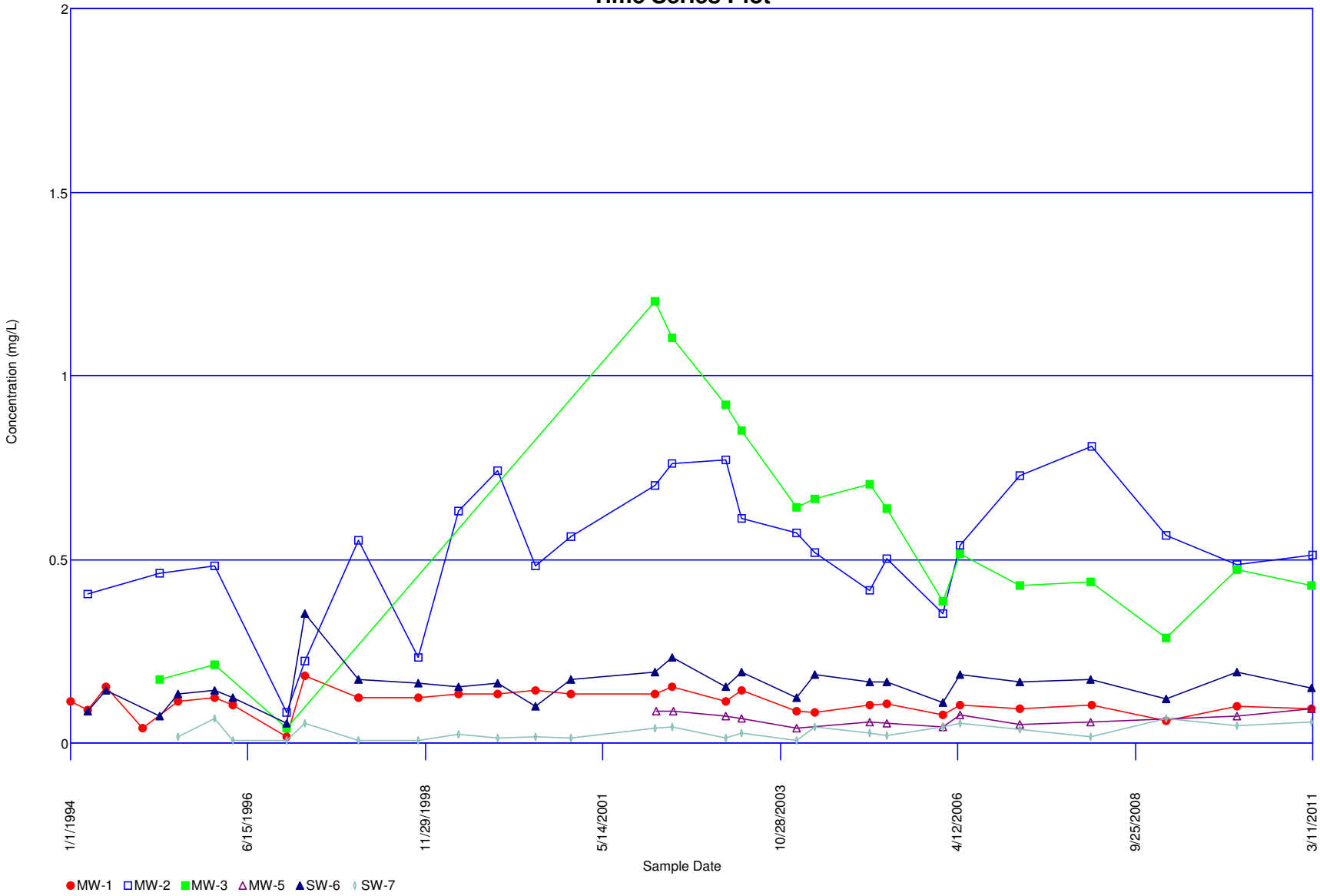
Newcastle Landfill
Time Series Plot



Manganese, Dissolved

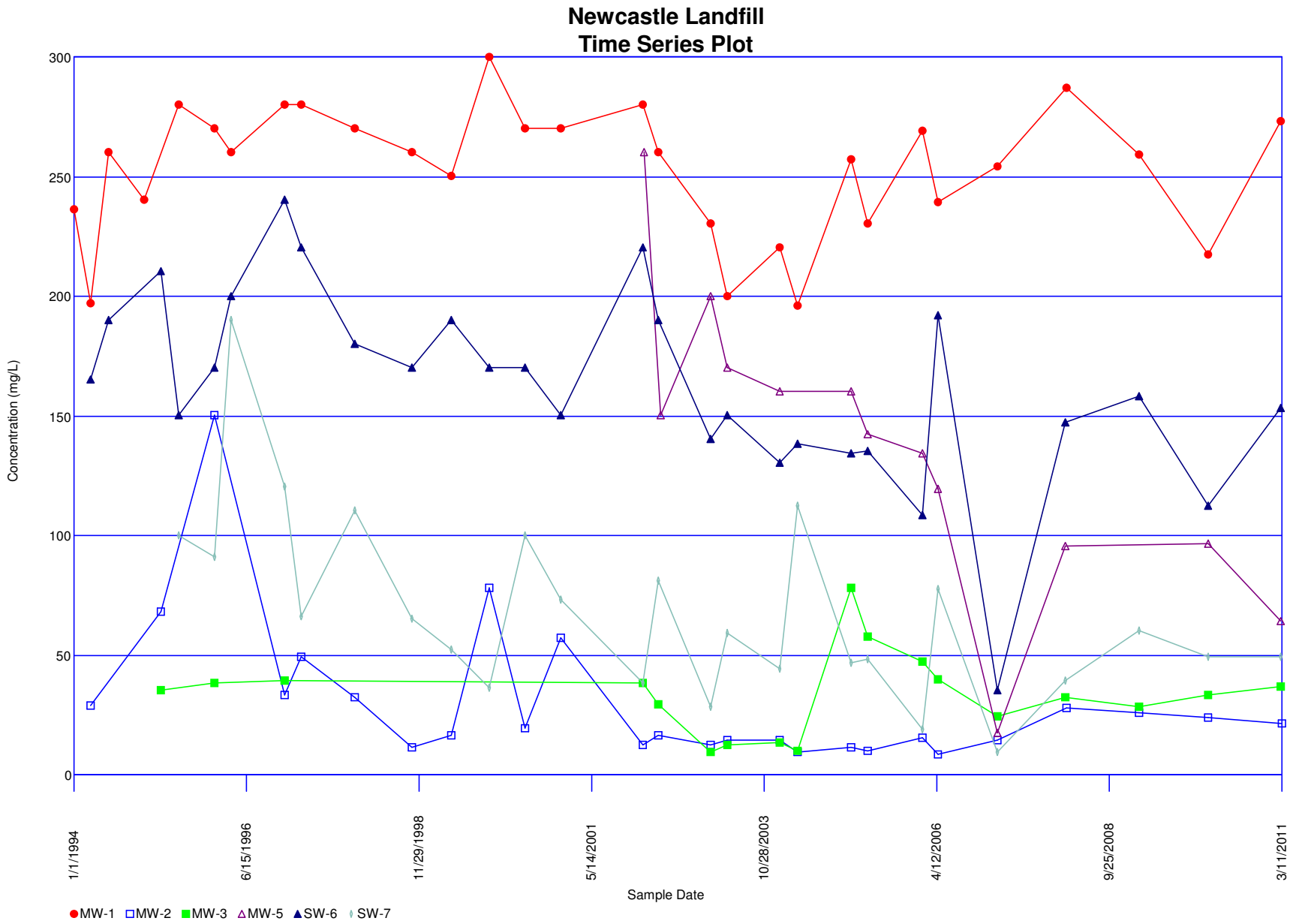
Non-Detects Replaced with 1/2 DL

Newcastle Landfill
Time Series Plot



Ammonia-N

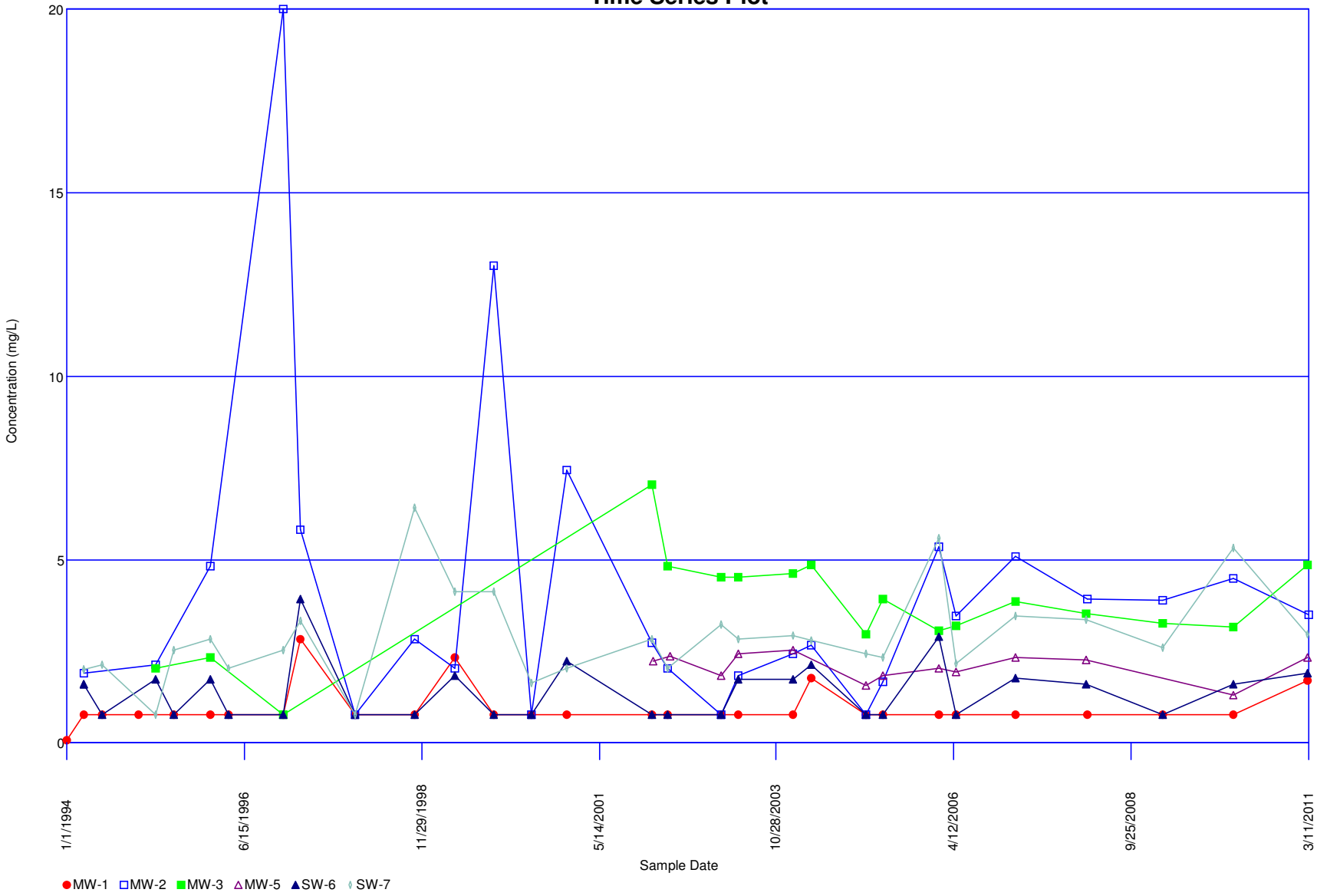
Non-Detects Replaced with 1/2 DL



Sulfate

Non-Detects Replaced with 1/2 DL

Newcastle Landfill
Time Series Plot



TOC

Non-Detects Replaced with 1/2 DL