WASTE MANAGEMENT

WASTE MANAGEMENT
1000 Parkwood Circle
Suite 700
Atlanta, GA 30339

July 26, 2010

NC Department of Environment and Natural Resources
Division of Waste Management – Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646
Attn: Ms. Jaclynne Drummond

Re: Alternate Source Demonstration - Chromium
Piedmont Landfill & Recycling Center, Kernersville, NC
Permit Number 34-06

Dear Ms. Drummond:

Please find enclosed one electronic copy (.pdf) of an Alternate Source Demonstration (ASD) for the closed Piedmont Landfill and Recycling Center (Permit 34-06). The enclosed CD includes the ASD Report and an electronic data file for the soil laboratory data. An Environmental Monitoring Reporting Form is also enclosed.

This ASD demonstrates that the source of chromium detected above the NC 2L groundwater standard in monitoring well MW-03 during the first semiannual sampling event of 2010 was not a release from the landfill. The data indicates that chromium is naturally occurring in the soil and groundwater of this site.

We recommend that the recent as well as any future detections of chromium in the groundwater or surface water at the Piedmont Landfill be considered naturally occurring and not exceedances of the groundwater standard. Piedmont Landfill will continue with routine detection monitoring for MW-03 and other wells not currently in assessment monitoring. If you have any questions or concerns regarding this report, please call me at (770) 805-3529 or Van Burbach at (336) 323-0092.

Sincerely,
Waste Management of Carolinas, Inc.

Alexander Lacsamana, P.E.
District Manager, Closed Sites

Enclosures
C: March Smith, WMCI (w/o enclosure)
Van Burbach, P.G. - JEI

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DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Waste Management

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:

Name: G. Van Ness Burbach, Ph.D., P.G. Phone: (336) 323-0092

E-mail: vburbach@joyceengineering.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Piedmont Landfill & Recycling Center	9900 Freeman Rd. Kernersville, NC	34-06	.1600	June 2, 2010

Environmental Status: (Check all that apply)

☐ Initial/Background Monitoring ☒ Detection Monitoring ☒ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☐ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☐ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify)
☒ Other(specify) Soil analytical data for ASD

Notification attached?

☒ No. No groundwater or surface water standards were exceeded.
☐ Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.
☐ Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Alexander Lacsamana, PE — Manager - Closed Sites — (770) 805-3366

Facility Representative Name (Print) — Title — (Area Code) Telephone Number

Alexander Lacsamana 7/26/2010 — Affix NC Licensed/ Professional Geologist Seal

Signature — Date

1000 Parkwood Circle, Suite 700 Atlanta, GA 30339

Facility Representative Address

NC PE Firm License Number (if applicable effective May 1, 2009)

Revised 6/2009

Prepared For:

Piedmont Landfill & Recycling Center
9900 Freeman Road
Kernersville, North Carolina 27284
Permit No. 34-06

Alternate Source Demonstration
for Chromium
Piedmont Landfill & Recycling Center
Permit No. 34-06

July 2010

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Alternate Source Demonstration
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Piedmont Landfill & Recycling Center
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July 2010

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JEI Project No. 392.1001.12, Task No. 09

NORTH CAROLINA LICENSED SEAL 1349 GEOLOGIST G. VAN NESS BURBACH

G. Van Ness Burbach, Ph.D., P.G.
NC License # 1349

Alternate Source Demonstration for Chromium
Piedmont Landfill and Recycling Center
Permit No. 34-06

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Alternate Source Demonstration for Chromium
Piedmont Landfill and Recycling Center
Permit 34-06

1.0 INTRODUCTION

This Alternate Source Demonstration (ASD) is being submitted to address a detection of chromium at a concentration in exceedance of the NCAC T15A.2L (NC2L) groundwater standard during the first semiannual sampling event of 2010 at the Piedmont Landfill and Recycling Center (PLRC), located in Forsyth County, North Carolina (*Figure 1*). The purpose of this ASD is to demonstrate that the source of the chromium detected in groundwater from monitoring well MW-03 in the March 2010 sampling event is natural and not a release from the landfill unit and that continued detection monitoring for MW-03 is warranted. This ASD was prepared in accordance with NCAC T15A.13B.1633.c.3.

2.0 SITE DESCRIPTION AND BACKGROUND

2.1 General Site Description

The PLRC is a closed municipal solid waste (MSW) landfill located on approximately 108 acres in Forsyth County, North Carolina, approximately 10 miles north of the city of Kernersville. The facility is permitted under North Carolina Solid Waste Permit Number 34-06. Waste Management of Carolinas, Inc. owns the facility, which opened in June 1990. Closure construction was completed October 29, 2004, and the closure was certified by the North Carolina Department of Environment and Natural Resources (NCDENR) on December 28, 2004. The location of the site is shown in *Figure 1* and the layout of the facility is shown in *Drawing 1*.

A composite liner system on the landfill base consisting of 18 inches compacted cohesive soil with a maximum hydraulic conductivity of $1x10^{-7}$ cm/sec overlain by a 60 mil high-density polyethylene (HDPE) geomembrane exists in Phase I, Modules 1 and 2. A double synthetic with primary and secondary leachate collection systems is incorporated in Phase I, Modules 3, 5 and 6 and Phase II, Modules 1 and 2. All liner systems in Phase I, II and III meet the requirements of the Solid Waste Management Regulations.

2.2 Site Geology and Hydrogeology

The PLRC is located in the Piedmont physiographic province of North Carolina and is underlain by intrusive granitic rocks of Pennsylvanian to Permian age which are part of the Charlotte Belt Geologic Unit. Granitic bedrock is overlain by approximately 10-40 feet of saprolitic soil and regolith consisting of gray to brown sandy silt to silty sand, which grades downward to weathered bedrock.

The uppermost aquifer is unconfined and includes both the saprolite and uppermost fractured bedrock, which are strongly connected. The groundwater level measurements taken during the March 2010 sampling event were used to construct the groundwater surface contour map attached to this report as *Drawing 1*. Groundwater flow at the site is generally west to northwest, which is consistent with surface topography.

Using the hydraulic gradients along the flow paths shown *on Drawing 1*, the linear flow velocity (***V***) was estimated using the modified Darcy equation: $\boldsymbol{V = i\,K/n}$ **.** The hydraulic gradients (***i***) ranged from 0.013 ft/ft to 0.027 ft/ft. An effective porosity value (***n***) of 41 percent was used in the equation based on an average of six laboratory-derived porosities as reported in the April 1994 *Design Hydrogeologic Study*, prepared by RUST Environment & Infrastructure. Hydraulic conductivities (***K***) were also taken from the *Design Hydrogeologic Study*, and were based on slug test data from piezometers located nearest the respective groundwater flow paths. The average calculated groundwater flow rate (***V***) for March 2010 was approximately 12.0 feet/year, which is consistent with previous data for this site. See the first semiannual groundwater monitoring report of 2010 for the facility (JEI, 2010) for details of these calculations.

2.3 Groundwater Monitoring History

The site entered into an Assessment Monitoring Program for background wells MW-1 and MW-6 and downgradient well MW-9 after volatile organic constituents were detected in MW-9 during the second semiannual event of 1996. Two organic compounds (chloroethane and 1,1-dichloroethane) were historically detected in monitoring well MW-9. Chloroethane exhibited a declining trend to the point where chloroethane was reported at less than the laboratory reporting limit during the January 1998 sampling event. The concentration of 1,1-dichloroethane in MW-9 also decreased below the laboratory reporting limit during the July 1998 sampling event. Following receipt of approval from the North Carolina Department of Environment and Natural Resources (DENR), all wells at the site reverted to the Detection Monitoring Program as of the second semiannual event in 1999, as allowed by 15A NCAC 13B.1634 (b).

Monitoring well MW-9 was replaced by well MW-9R in November 1999. No chloroethane concentration above the laboratory reporting limit or SWSL has been detected in MW-9R since the well was installed; however, 1,1-dichloroethane was detected in MW-9R at a concentration of 23 µg/L during the initial sampling event conducted in January 2000. The concentration of 1,1-dichlorothane has remained relatively consistent during recent events, ranging in concentration from 7 µg/L to 28 µg/L. The constituent cis-1,2-dichloroethene was detected in MW-9R above the laboratory reporting limit for the first time during the July 2002 event at a concentration of 6.5 µg/L, and has been detected at concentrations ranging from 5-28 µg/L since that time.

Due to the detection of 1,1-dichloroethane in MW-9R during the first semiannual event in 2000, the site performed Assessment Monitoring on wells MW-1, MW-6, and MW-9R through the second semiannual event of 2001. Following DENR approval of an August 20, 2001 request by Waste Management, MW-1 and MW-6 again reverted to Detection Monitoring. Monitoring well MW-9R will continue to be sampled for the NC Appendix I list of constituents plus detected

Appendix II constituents during the first semiannual event each year and NC Appendix II list of constituents during the second semiannual event each year as long as statistically significant increases continue to be present.

The presence of organic constituents in MW-9 and MW-9R is attributed to landfill gas (LFG). The landfill gas network was expanded in this area in January 2003, and the concentrations of organic constituents in this well are expected to decrease over time as a result.

In the September 2007 sampling event, benzene and vinyl chloride were detected in MW-02 at concentrations in exceedance of NC-2L groundwater standards. A resampling event confirmed the vinyl chloride, but not the benzene exceedance. An Alternate Source Demonstration (ASD) was submitted to DENR on March 14, 2008. The ASD demonstrated that the organic constituents detected in MW-02 are related to LFG impacts. In January 2008, improvements to the active LFG recovery system at the site were initiated to help mitigate these impacts. The ASD was accepted by DENR in a letter dated May 7, 2008 with the condition that if vinyl chloride and benzene concentrations in MW-02 are not sufficiently reduced by Spring 2009, MW-02 would enter Assessment Monitoring. Neither benzene nor vinyl chloride have had confirmed detections above the NC2L standards in MW-02 since September 2008, so MW-02 remains in detection monitoring.

2.4 March 2010 Sampling Event

Sampling for the first semiannual event of 2010 was performed on March 10th, 2010 by Pro-Tech. During this semiannual event, the site compliance wells and surface water monitoring points were sampled and analyzed for the NC Appendix I list of constituents.

Inorganic constituents with quantified detections above the SWSL in one or more groundwater or surface water samples included barium in MW-02, chromium in MW-03, MW-11D, MW-12, copper in MW-11D, and zinc in MW-06, MW-07, MW-11, and MW-11D. Chromium was detected above the NC2L in MW-03 and MW-12. The initial detection of chromium in MW-12 was considered a potential statistically significant increase (SSI) above background. No other Appendix I inorganic constituents were detected above the SWSL or the NC2L groundwater standards or groundwater protection standards (GWPS) in any detection monitoring well or surface water sample during the March 2010 sampling event. No Appendix I organic constituents were detected above the SWSL in any sampled from the March 2010 sampling event. The results of the March 2010 sampling event are summarized in *Table 1*.

A resampling event was conducted for chromium in MW-03 and MW-12 on April 16, 2010. The results of the resampling event for MW-12 did not confirm the exceedances of the NC2L or the SSI; therefore, the initial results are considered to be refuted. The results of the resampling event for MW-03 confirmed the exceedances of the NC2L; however, the results still do not represent an SSI. The results of the resampling event are included in *Table 1*.

The DENR Solid Waste Section was notified of the NC2L exceedance within 14 days of receipt of the confirmation results, in accordance with 15A NCAC 13B.1633.c.1. The notification indicated PLRC's intent to proceed with an ASD in accordance with 15A NCAC 13B.1634.c.3.

Results from these sampling events were presented in the First Semiannual Groundwater Report of 2010 for the PLRC dated May 12, 2010.

3.0 ASD FIELD ACTIVITIES

3.1 Soil Sampling

On June 2nd, 2010, JEI sampled the site soil in the vicinity of well MW-03. Three soil samples were collected from three hand-auger borings, each located within 20 feet of MW-03. The depths of the soil samples ranged from 4 to 5 feet below the ground surface. The three samples were composited on site and a single composite soil sample (CSS-1) was analyzed for total chromium. Brief descriptions of the three borings and soil samples are given below:

Boring	Boring Location Relative to MW-03	Depth of Soil Sample	Description of Soil Sample
1	Next to MW-03 (northwest)	5 ft.	Saprolitic sandy clay
2	15 ft. upgradient (southwest)	5 ft.	Saprolitic sandy clay
3	20 ft. downgradient (northeast)	4 ft.	Saprolitic sandy clay

Prior to collecting samples, all field equipment, including hand augers and compositing tools, which might come into contact with the samples were properly decontaminated using the following procedure:

- Wash with Alconox or Liquinox detergent solution,
- Rinse with distilled water,
- Rinse with weak nitric acid solution,
- Rinse with distilled water, and
- Air dry.

Field crew wore disposable latex gloves when handling the samples. Composite soil sample CSS-1 was placed in clean, laboratory-grade glassware in a cooler on ice and shipped under chain-of-custody control to Test America Laboratory in Avarda, Colorado for total chromium analysis.

4.0 SOURCE EVALUATION

4.1 Chromium is Naturally Occurring

Chromium, like most metals, is found in rocks, soil, and sediment of the North Carolina Piedmont (in fact, throughout the world) as a naturally occurring element. It commonly occurs as the minerals chromite ($FeCr_2O$), magnesiochromite ($MgCr_2O_4$), or various chromate (CrO_4^{2-}) or dichromate ($Cr_2O_7^{2-}$) minerals. Chromate can be dissolved into groundwater in contact with these minerals, or these minerals can be suspended in groundwater in particulate form. In either case, chromium will be detected through total metals analyses of a groundwater sample.

Appendix A shows a plate from *A Geochemical Atlas of North Carolina*, published by the North Carolina Geological Survey (Reid, 1993). The plate shows the occurrence of chromium in sediment samples from all over the state, include several samples within 10 miles of the Piedmont Landfill. More than 25% of the samples were found to contain chromium in excess of 12 parts per million (ppm, mg/kg). This data illustrates how ubiquitous naturally-occurring chromium is in this area.

The analytical results for the composite soil sample collected from the vicinity of MW-3 confirmed the presence of chromium. Soil Sample CSS-1 contained 23 ppm (mg/kg) chromium. This is nearly 2000 times the concentration of chromium detected in the groundwater from MW-03 (12.0-13.0 parts per billion (ppb, µg/L)). This strongly supports the contention that the chromium detected in the groundwater at the Piedmont Landfill is naturally occurring. The complete laboratory analytical report and chain-of-custody for soil sample CSS-1 are included as *Appendix B.*

4.2 Historical Data

Table 2 summarizes the historical analytical results for total chromium in both the groundwater and surface water of the site from 1990 to present. *Charts 1A* and *1B* depict total chromium concentrations plotted versus time for each monitoring well. These data show that chromium has been detected at every monitoring well and every surface water point on the site at concentrations that have fluctuated significantly from one event to another for at least the last 20 years. There are no obvious increasing trends in any of this data, as would be expected if the chromium detections were a result of a release from the landfill. These data support the contention that chromium in the groundwater at this site is naturally occurring.

The analytical results for chromium in MW-03 have been consistently 11.0-13.0 µg/L for the last several sampling events. Prior to January 2010, the NC2L standard for chromium was 50 µg/L. In January 2010, that standard was changed to 10 µg/L. The result for MW-03 from the March 2010 sampling event is considered a new exceedance of the NC2L because the standard changed, not because of a significant increase in the concentration of chromium found in that well.

4.3 Groundwater Statistics

As reported in the First Semiannual Groundwater Monitoring Report of 2010, the detections of chromium in MW-03, which were in exceedance of the NC2L, were not considered statistically significant increases above background. *Table 3* summarizes the results of intra-well statistical analyses from the March 2010 sampling event, which included the April 2010 resampling data. The complete statistical analysis report is included as *Appendix C.*

The results for chromium in MW-03 from the March 2010 sampling event and the April 2010 resampling event were 12.0 µg/L and 13.0 µg/L, respectively. The upper statistical limit (background) for MW-03 was 18.2 µg/L; therefore, neither the March nor the April sample results were considered SSI's. Furthermore, as shown in *Table 3*, the background determined for MW-03 is well below the average background calculated for the other wells at the site.

These statistical analyses clearly support the contention that the chromium detected in the groundwater at the Piedmont Landfill is naturally occurring.

4.4 No Leachate Impact

There is no evidence of leachate impact to the groundwater near MW-03. The analytical results from the March 2010 sampling event found no detectable concentration of any organic constituents in MW-03, nor were there any exceedances for other inorganic constituents. Similarly, the field parameters (temperature, pH, conductivity, etc.) were consistent with all of the other wells on site as well as with historical data for MW-03 and did not indicate leachate impact. Also, the volume of leachate being produced by the landfill has decreased significantly, reducing the potential for leachate impacts. The lack of any other evidence suggesting leachate impact to groundwater in this area supports the contention that the chromium detected in MW-03 was not due to a release from the landfill.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This *Alternate Source Demonstration* provides strong evidence that the chromium detected in the groundwater at the Piedmont Landfill is naturally occurring. Soil sampling data, historical groundwater data, and statistical background analyses all indicate a natural source. Furthermore, the lack of any organic exceedances or other evidence of leachate impact to MW-03 argues against leachate impact as the source of the chromium exceedance.

5.2 Recommendations

Based on the results of this demonstration, we recommend that the recent as well as any future detections of chromium in the groundwater or surface water at the Piedmont Landfill be considered naturally occurring and not exceedances of groundwater standards. Piedmont Landfill should continue with routine detection monitoring for MW-03 and the other wells not currently in assessment monitoring. Assessment monitoring of well MW-9R will also continue.

6.0 REFERENCES

Joyce Engineering, Inc. (JEI), 2010. First Semiannual Detection and Assessment Groundwater Monitoring Event for 2010 - Piedmont Landfill & Recycling Center - Permit # 34-06, May 2010.

Reid, Jeffrey C., 1993. A Geochemical Atlas of North Carolina. North Carolina Geological Survey, Bulletin 93, Raleigh NC. May 1991, Revised in 1993.

TABLES

TABLE 1:
Detected Constituents
March 10, 2010 Sampling Event

WELL ID	PARAMETER	RESULT	UNITS	SWSL	NC2L	LIMIT	SSI
MW-02	Barium	110	µg/L	100	700	1143	no
MW-06	Zinc	15	µg/L	10	1000	310	no
MW-11	Zinc	11	µg/L	10	1000	108	no
MW-11D	Copper	13	µg/L	10	1000	418	no
MW-11D	Chromium	10	µg/L	10	10	59.5	no
MW-11D	Zinc	15	µg/L	10	1000	181	no
MW-07	Zinc	12	µg/L	10	1000	50.0	no
MW-03	Chromium	12 (13)	µg/L	10	10	18.2	no (no)
MW-12	Chromium	14 (5.5 J)	µg/L	10	10	10.7	yes (no)

SWSL = NC DENR Solid Waste Section Limits
NC2L = 15A-NCAC-2L.0202 Groundwater Standards
LIMIT = Background limit based on intra-well statististics.
SSI = Apparent statistically-significant increase above background.
This table includes all NC Appendix I or II constituent detections that were quantified above the SWSL.
Estimated and blank-qualified detections are excluded (except for resampling results).
J = Estimated concentration below the SWSL.
Results in parentheses ( ) are from a resampling event conducted on April 16, 2010.
The only constituent detection considered to be an apparent SSI was chromium in MW-12,
which was refuted by the resampling results.
The only constituent considered to be potentially in exceedance of the NC2L were chromium in MW-03 and MW-12.
The MW-03 exceedance was confirmed by the resampling event, but the MW-12 exceedance was not.

TABLE 2: Historical Chromium Concentrations

Date	Units	RL	NC2L	MW-01	MW-02	MW-03	MW-04	MW-04D	MW-05	MW-06	MW-07	MW-08	MW-09R	MW-10	MW-11	MW-11D	MW-12	MW-12D	SO-1	S-02	S-03	S-04	S-05	T-01	Date
May-90	µg/L	10	50	8.1 J	8.1 J	8.1 J	8.1 J		8.1 J																May-90
Nov-90	µg/L	10	50	8.1 J	8.1 J	8.1 J	8.1 J		8.1 J										8.1 J	8.1 J	8.1 J	8.1 J	8.1 J		Nov-90
May-91	µg/L	10	50	8.1 J	8.1 J	8.1 J	8.1 J		8.1 J										10.7	19.0	12.4	20.0	11.8		May-91
Nov-91	µg/L	10	50	5.8 J	5.8 J	6.2 J	5.8 J		5.8 J											5.8 J	5.8 J	5.8 J	5.8 J		Nov-91
Dec-91	µg/L	10	50																5.8 J	5.8 J			5.8 J		Dec-91
Feb-92	µg/L	10	50	5.8 J	5.8 J	5.8 J	5.8 J		5.8 J										5.8 J	5.8 J	5.8 J	5.8 J	5.8 J		Feb-92
Aug-92	µg/L	10	50	5.8 J	5.8 J	5.8 J	5.8 J		5.8 J										5.8 J	5.8 J	5.8 J	5.8 J	5.8 J		Aug-92
Feb-93	µg/L	10	50	ND	ND	ND	ND		ND										ND	ND	ND	ND	ND		Feb-93
Jul-93	µg/L	10	50	5.8 J	5.8 J	5.8 J	5.8 J		6.6 J	5.8 J									5.8 J	5.9 J	5.8 J	5.8 J	5.8 J		Jul-93
Feb-94	µg/L	10	50	8.2 J	5.8 J	7.2 J	5.8 J		5.8 J	5.8 J									5.8 J	5.8 J	5.8 J	5.8 J	5.8 J		Feb-94
Apr-94	µg/L	10	50	5.8 J	5.8 J	5.8 J	5.8 J		6.2 J	5.8 J															Apr-94
Jun-94	µg/L	10	50	5.8 J	5.8 J	5.8 J	5.8 J		5.8 J	3.0 J															Jun-94
Sep-94	µg/L	10	50	3.0 J	3.0 J	3.6 J	3.0 J		4.2 J		7.6 J	5.4 J	3.0 J						3.0 J	3.0 J	3.0 J	3.0 J	3.0 J		Sep-94
Nov-94	µg/L	10	50								4.7 J	11.5		25.5			3.0 J	241.0							Nov-94
Dec-94	µg/L	10	50					3.0 J			6.8 J	3.0 J	14.7	9.5 J	6.1 J	33.1	3.0 J	230.0							Dec-94
Jan-95	µg/L	10	50					3.0 J			3.3 J	3.0 J	49.9	4.4 J	3.0 J	66.2	3.0 J	104.0	3.0 J	3.0 J	3.0 J	3.0 J	7.4 J		Jan-95
Jan-95	µg/L	10	50					3.0 J							3.0 J	31.7									Jan-95
Feb-95	µg/L	10	50	3.0 J	3.0 J	7.9 J	3.0 J	5.4 J	4.2 J	3.0 J			3.0 J	10.8	3.0 J	17.9	10.7	145.0							Feb-95
May-95	µg/L	10	50											4.0 J		7.5 J		198.0							May-95
Sep-95	µg/L	10	50	1.1 J	0.6 J	6.7 J	0.6 J		7.0 J	0.9 J	2.4 J	1.7 J							0.8 J	0.6 J	0.6 J	0.6 J	0.6 J		Sep-95
Mar-96	µg/L	10	50	0.6 J	0.6 J	5.0 J	0.6 J	5.8 J	5.1 J	2.0 J	0.6 J	2.5 J	5.1 J	2.9 J	0.6 J	7.6 J	0.8 J	11.6	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J		Mar-96
Sep-96	µg/L	10	50	1.4 J	0.6 J	5.7 J	0.6 J	3.3 J	5.4 J	0.7 J	1.1 J	1.8 J	1.2 J	6.0 J	0.7 J	6.5 J	2.1 J	87.5	0.8 J	0.6 J	0.9 J	0.6 J	0.6 J		Sep-96
Jan-97	µg/L	10	50	2.0 J					4.8 J	2.0 J			2.0 J							J					Jan-97
Mar-97	µg/L	10	50																1.0 J	1.2 J	1.0 J	0.8 J	0.8 J		Mar-97
Apr-97	µg/L	10	50		2.0 J	4.1 J	2.0 J	2.5 J			2.0 J	5.8 J		12.8	2.0 J	4.0 J	2.0 J	5.7 J						42.1	Apr-97
Jun-97	µg/L	10	50											2.5 J											Jun-97
Oct-97	µg/L	10	50	2.0 J	2.0 J	5.5 J	2.0 J	2.1 J	3.8 J	2.0 J	2.0 J	2.0 J		2.0 J	2.0 J	11.6	2.0 J	10.8	0.7 J	1.9 J	0.7 J	0.8 J	0.6 J	48.2	Oct-97
Jan-98	µg/L	10	50	2.0 J	2.0 J	4.6 J	2.0 J	9.6 J	2.0 J	4.0 J	2.0 J	2.0 J	4.3 J	3.3 J	2.0 J	24.0	2.0 J	7.7 J	1.7 J	2.7 J	2.9 J	5.0 J	2.3 J	15.6	Jan-98
Jul-98	µg/L	10	50	2.0 J	2.0 J	5.8 J	2.0 J	15.7	2.9 J	2.0 J	3.0 J	2.0 J	2.3 J	7.9 J	2.0 J	9.5 J	2.0 J	5.2 J	0.7 J	0.6	0.6 J	0.6 J	0.6 J		Jul-98
Jan-99	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12.7	ND	ND	ND	ND							Jan-99
Jul-99	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							Jul-99
Jan-00	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							Jan-00
Jul-00	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		Jul-00
Nov-00	µg/L	10	50	ND						ND			ND												Nov-00
Jan-01	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11.5	ND	ND	ND	ND	ND	ND	ND	100.0	Jan-01
Mar-01	µg/L	10	50													ND									Mar-01
Jul-01	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Jul-01
Jan-02	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14.3	Jan-02
Jul-02	µg/L	10	50	ND	ND	ND	ND	17.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.9	Jul-02
Jan-03	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.0	Jan-03
Jul-03	µg/L	10	50	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	60.0	Jul-03
Jan-04	µg/L	10	50	ND	ND	ND	ND	11.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	200.0	Jan-04
Jul-04	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	65.0	Jul-04
Jan-05	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		Jan-05
Jul-05	µg/L	10	50	ND	ND	ND	ND	12.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	49.0	Jul-05
Jan-06	µg/L	10	50	ND	ND	11.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19.0	Jan-06
Jul-06	µg/L	10	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	25.0	Jul-06
Jan-07	µg/L	10	50	ND	ND	11.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	260.0	Jan-07
Sep-07	µg/L	10	50	ND	ND	12.0	ND	ND	2.8 J	ND	ND	ND	ND	2.7 J	ND	6.0 J	8.4 J	3.9 J	ND	ND	ND	ND	ND	51.0	Sep-07
Mar-08	µg/L	10	50	ND	ND	13.0	ND	12.0	3.3 J	ND	ND	ND	ND	3.3 J	ND	7.6 J	4.0 J	ND	3.2 J	6.1 J	3.5 J	5.1 J	2.9 J	67.0	Mar-08
Sep-08	µg/L	10	50	2.7 J	ND	12.0	ND	15.0	3.1 J	1.2 J	ND	0.7 J		2.4 J	ND	7.4 J	4.7 J	3.2 J	ND	ND	1.0 J	ND	ND	78.0	Sep-08
Mar-09	µg/L	10	50	1.3 J	ND	12.0	ND	7.6 J	3.0 J	1.4 J	0.9 J	0.7 J	ND	3.8 J	ND	6.7 J	5.3 J	4.9 J	1.0 J	0.9 J	1.3 J	0.9 J	1.0 J	46.0	Mar-09
Sep-09	µg/L	10	50	1.0 J	ND	12.0	ND	4.3 J	2.5 J	ND	1.2 J	ND	3.5 J	12.0	ND	5.4 J	1.7 J	0.9 J	ND	0.9 J	0.7 J	ND	ND	39.0	Sep-09
Mar-10	µg/L	10	10	1.0 J	ND	12.0	ND	4.7 J	4.2 J	1.2 J	1.3 J	1.0 J	ND	2.1 J	ND	ND	14.0	1.9 J	1.5 J	1.2 J	1.2 J	1.1 J	1.2 J	140.0	Mar-10
Apr-10	µg/L	10	10			13.0											5.5 J								Apr-10

TABLE 3:
Statistical Background for Chromium

for the March 2010 Groundwater Sampling Event,
including the April 2010 resampling event.

Well	Background*	
MW-01	10	µg/L
MW-02	10	µg/L
MW-03	18.2133	µg/L
MW-04	10	µg/L
MW-04D	23	µg/L
MW-05	17.8435	µg/L
MW-06	10	µg/L
MW-07	21.1137	µg/L
MW-08	11.5	µg/L
MW-09R	49.9	µg/L
MW-10	25.2815	µg/L
MW-11	10	µg/L
MW-11D	59.4786	µg/L
MW-12	10	µg/L
MW-12D	315.3396	µg/L
Avg.	**40.1**	**µg/L**

* Background = Statistical Upper Limit

COMPILED FROM: Results of the Ground Water Statistics for Piedmont Landfill, First Semi-Annual Monitoring Event in 2010. April 2010. Prepared by: Jeffrey A. Holmgren, Otter Creek Environmental Services, L.L.C.

CHARTS

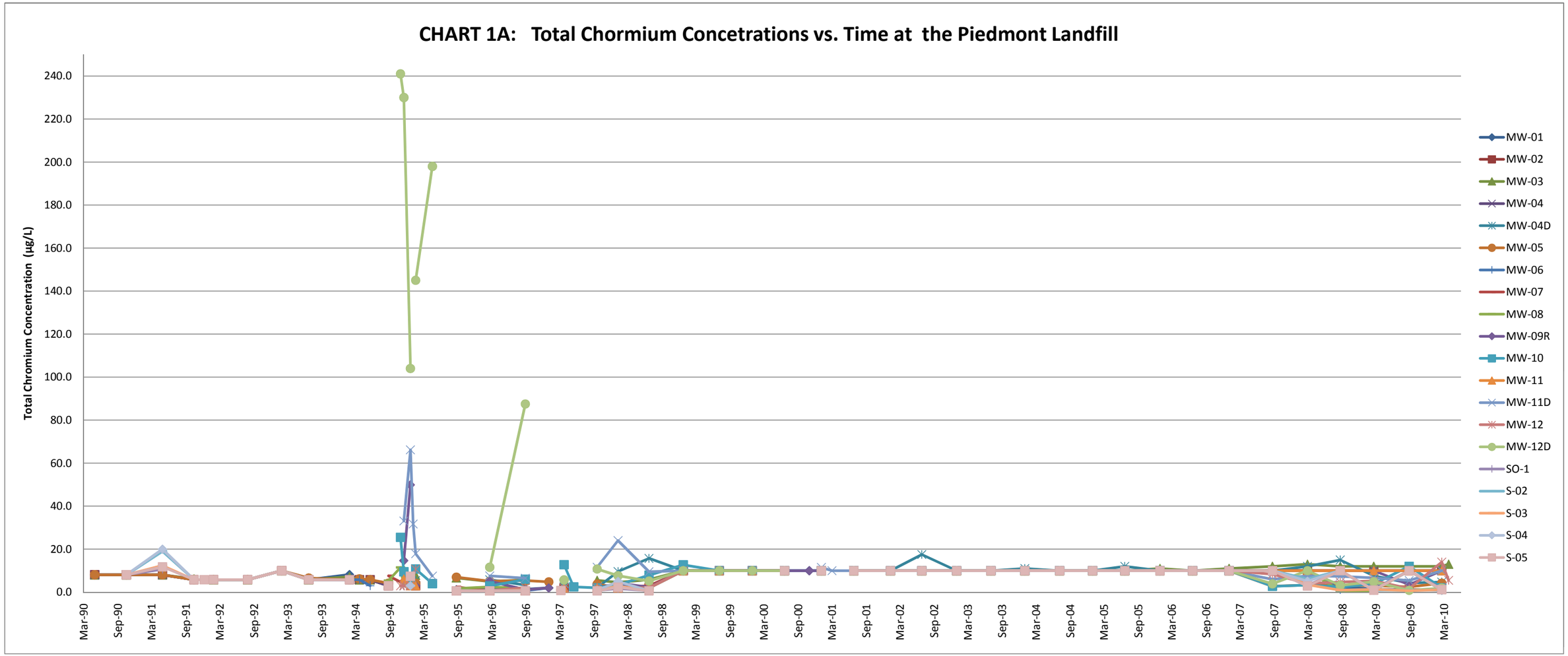


CHART 1A: Total Chormium Concetrations vs. Time at the Piedmont Landfill
Total Chromium Concentration (µg/L)
240.0
220.0
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Mar-90
Sep-90
Mar-91
Sep-91
Mar-92
Sep-92
Mar-93
Sep-93
Mar-94
Sep-94
Mar-95
Sep-95
Mar-96
Sep-96
Mar-97
Sep-97
Mar-98
Sep-98
Mar-99
Sep-99
Mar-00
Sep-00
Mar-01
Sep-01
Mar-02
Sep-02
Mar-03
Sep-03
Mar-04
Sep-04
Mar-05
Sep-05
Mar-06
Sep-06
Mar-07
Sep-07
Mar-08
Sep-08
Mar-09
Sep-09
Mar-10
MW-01
MW-02
MW-03
MW-04
MW-04D
MW-05
MW-06
MW-07
MW-08
MW-09R
MW-10
MW-11
MW-11D
MW-12
MW-12D
SO-1
S-02
S-03
S-04
S-05

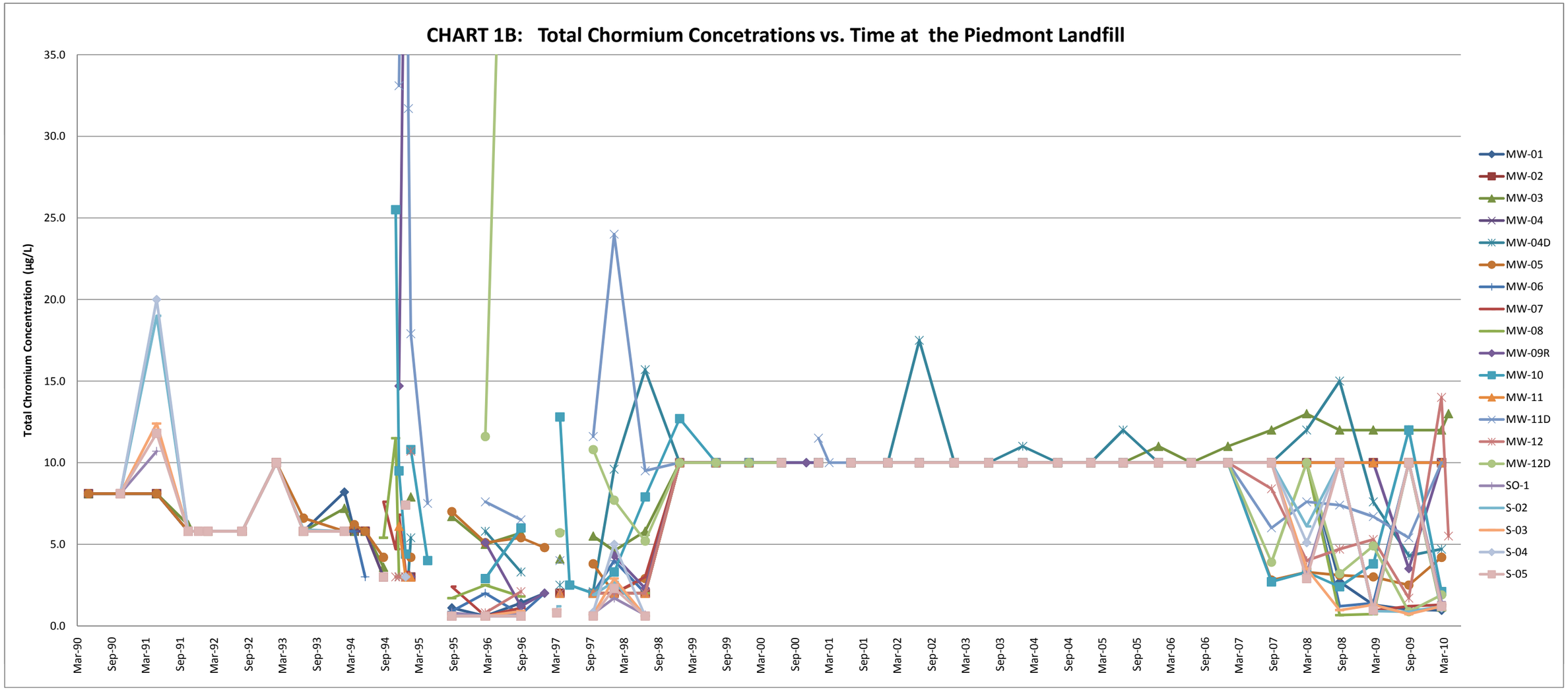
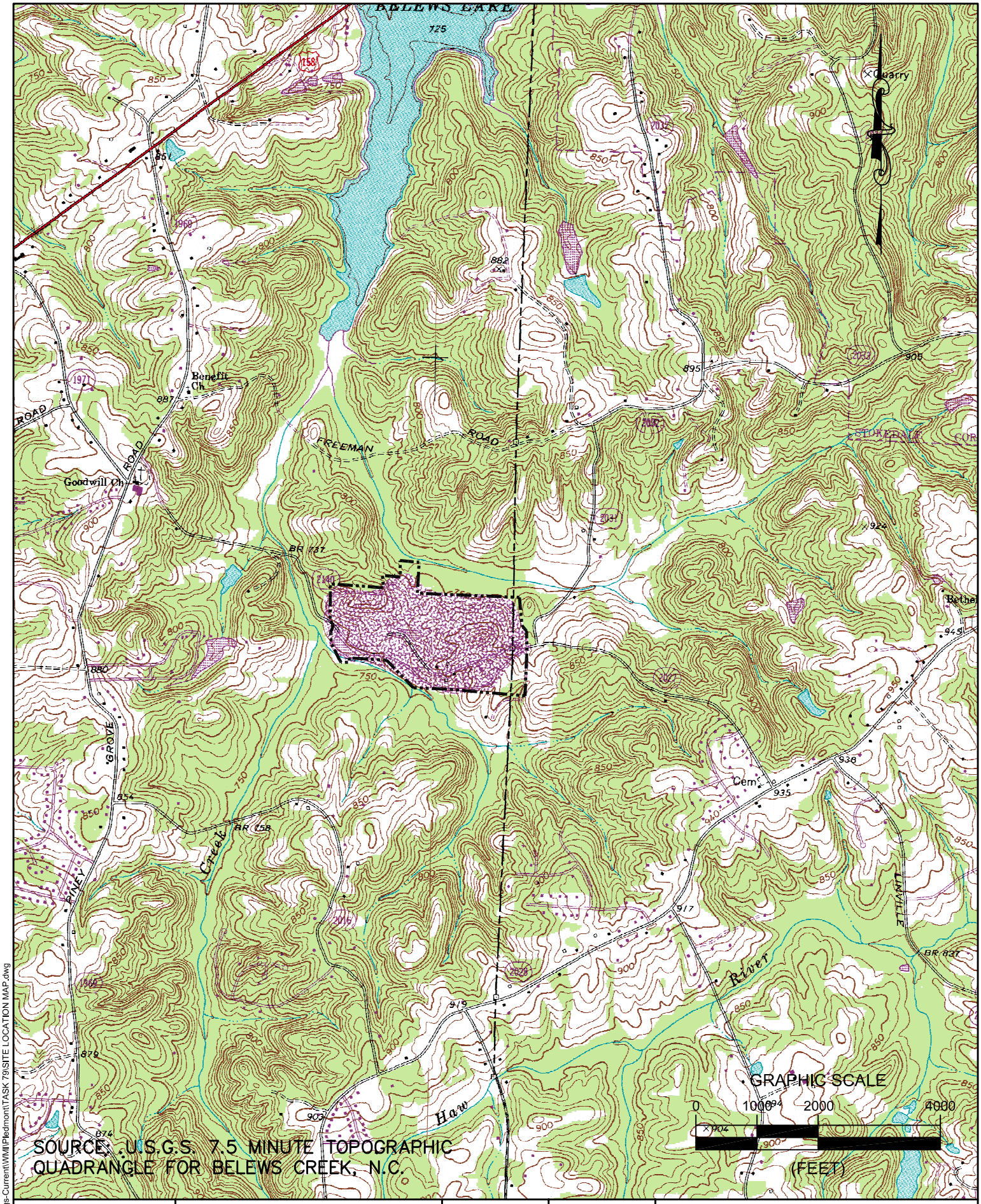


CHART 1B: Total Chormium Concetrations vs. Time at the Piedmont Landfill
Total Chromium Concentration (µg/L)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Mar-90
Sep-90
Mar-91
Sep-91
Mar-92
Sep-92
Mar-93
Sep-93
Mar-94
Sep-94
Mar-95
Sep-95
Mar-96
Sep-96
Mar-97
Sep-97
Mar-98
Sep-98
Mar-99
Sep-99
Mar-00
Sep-00
Mar-01
Sep-01
Mar-02
Sep-02
Mar-03
Sep-03
Mar-04
Sep-04
Mar-05
Sep-05
Mar-06
Sep-06
Mar-07
Sep-07
Mar-08
Sep-08
Mar-09
Sep-09
Mar-10
MW-01
MW-02
MW-03
MW-04
MW-04D
MW-05
MW-06
MW-07
MW-08
MW-09R
MW-10
MW-11
MW-11D
MW-12
MW-12D
SO-1
S-02
S-03
S-04
S-05

FIGURE



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE FOR BELEWS CREEK, N.C.

FIGURE NO. 1	JOYCE ENGINEERING, INC. 2211 WEST MEADOWVIEW ROAD GREENSBORO, N.C. 27407 PHONE: (336) 323-0092	SCALE 1"=2000'	PROJECT NO. 392.79	PIEDMONT LANDFILL KERNERSVILLE, NORTH CAROLINA SITE LOCATION MAP

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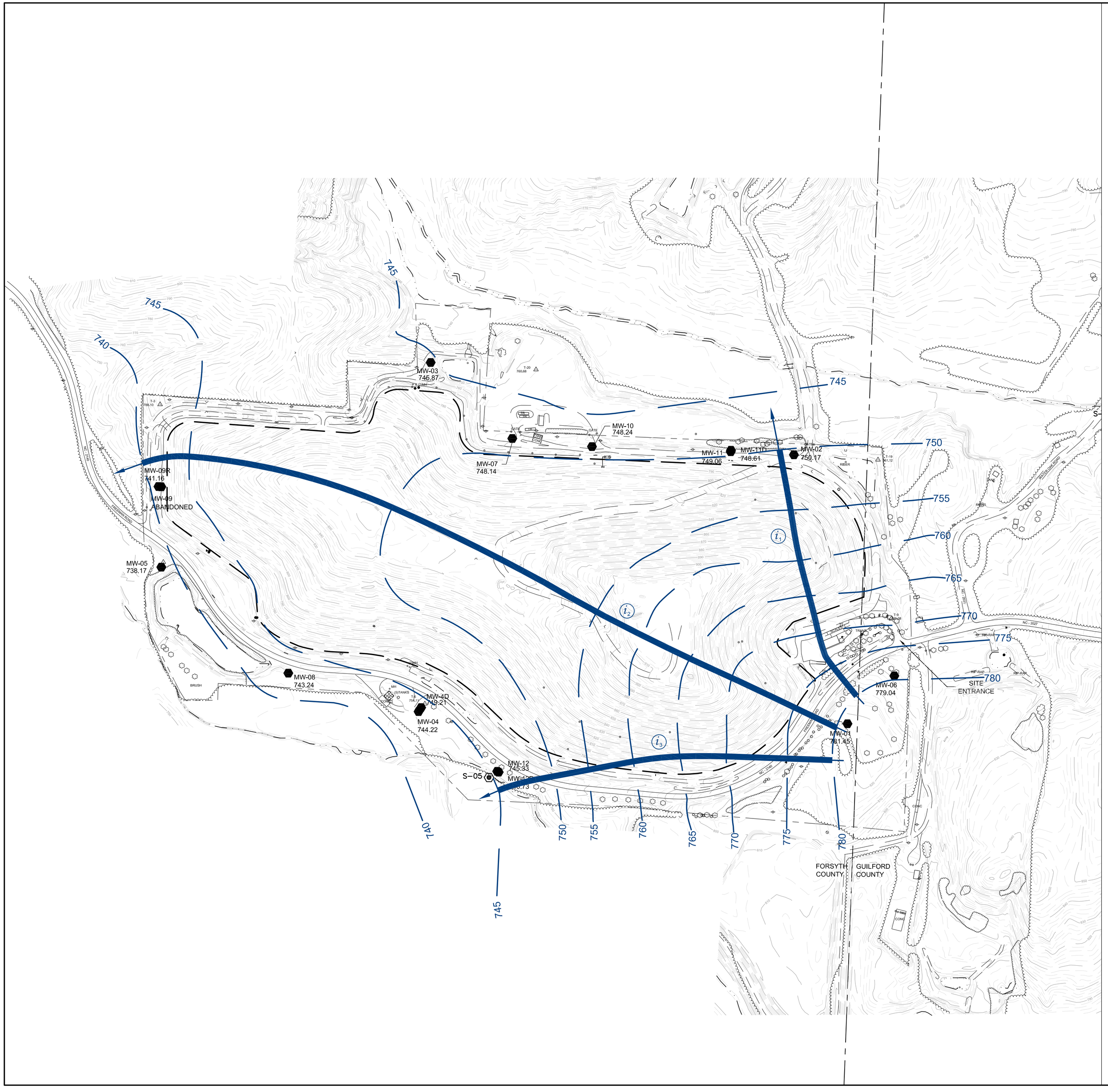
N:\Dwgs\Drawings-Current\WM\Piedmont\TASK 79\SITE LOCATION MAP.dwg

DRAWING



LEGEND

EXISTING 10' TOPOGRAPHIC CONTOUR	850
EXISTING 2' TOPOGRAPHIC CONTOUR	
APPROXIMATE LIMITS OF WASTE	
GROUNDWATER SURFACE CONTOUR [FEET ABOVE MEAN SEA LEVEL (AMSL)]	740
GROUNDWATER FLOW DIRECTION	
EXISTING ROAD	
CENTERLINE OF STREAM	
PROPERTY LINE	
GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION WITH STATIC WATER LEVEL ELEVATION (FEET AMSL)	MW-9R 738.35
SURFACE WATER MONITORING POINTS	S-03
SEGMENT USED FOR GRADIENT CALCULATIONS	i_1

NOTES:

1. TOPOGRAPHIC CONTOUR INTERVAL = 2 FEET.
2. GROUNDWATER SURFACE CONTOUR INTERVAL = 5 FEET.
3. STATIC WATER LEVELS MEASURED ON 09/16/09.
4. GROUNDWATER CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, TOPOGRAPHIC CONTOURS, AND KNOWN FIELD CONDITIONS. THEREFORE, GROUNDWATER CONTOURS MAY NOT REFLECT ACTUAL GROUNDWATER CONDITIONS.
5. TOPOGRAPHIC MAP AND SURVEYED WELL LOCATIONS PROVIDED TO JOYCE ENGINEERING, INC. BY PIEDMONT LANDFILL.
6. GROUNDWATER CONTOUR LINES SHOW THE WATER TABLE SHAPE AND ELEVATION. THESE CONTOURS ARE INFERRED LINES FOLLOWING THE GROUNDWATER SURFACE AT A CONSTANT ELEVATION ABOVE SEA LEVEL. THE GROUNDWATER FLOW DIRECTION IS GENERALLY PERPENDICULAR TO THE GROUNDWATER SURFACE CONTOURS, SIMILAR TO THE RELATIONSHIP BETWEEN SURFACE WATER FLOW AND TOPOGRAPHIC CONTOURS.
7. THE LOCATIONS OF SURFACE WATER MONITORING POINTS ARE APPROXIMATE AS SHOWN.

GRAPHIC SCALE

0 100 200 400

(FEET)

DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

DESIGNED ACE
DRAWN RWH
CHECKED VB
APPROVED VB
DATE 04/14/10

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JOYCE ENGINEERING, INC.
2211 W. MEADOWVIEW ROAD
GREENSBORO, NC 27407
PHONE: (336) 323-0092

PIEDMONT LANDFILL AND RECYCLING CENTER
KERNERSVILLE, NORTH CAROLINA

GROUNDWATER SURFACE MAP
MARCH 10, 2010
PERMIT NO. 34-06

PROJECT NO.
392.1001.12.01

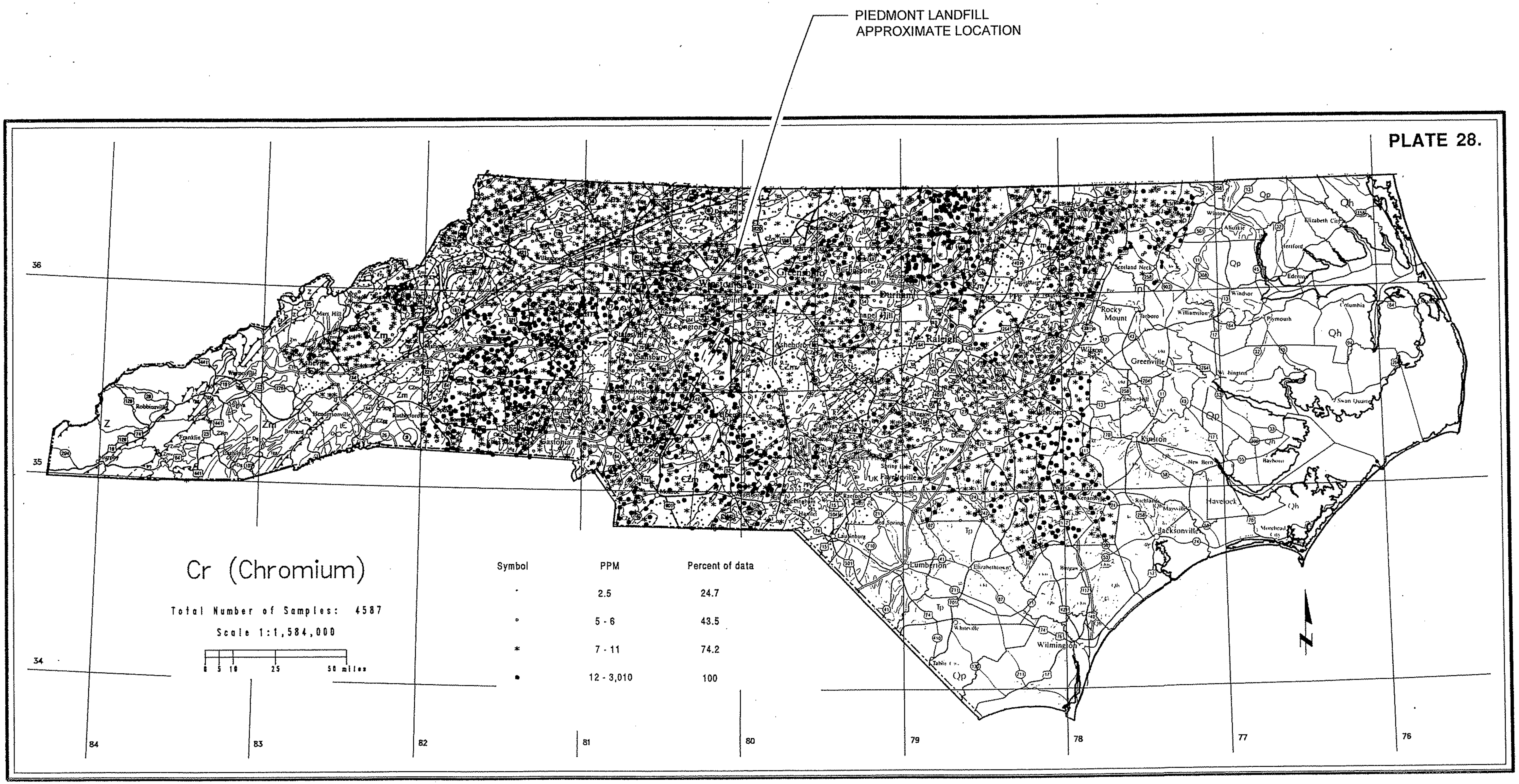
SCALE
AS NOTED

DRAWING NO.
1

N:\Dwgs\Drawings-Current\WMI\Piedmont\GW EVENT MAPS\GW EVENT 03-10.dwg LayoutLayout1

APPENDICES

Appendix A


PIEDMONT LANDFILL
APPROXIMATE LOCATION
PLATE 28.
Cr (Chromium)
Total Number of Samples: 4587
Scale 1:1,584,000
0 5 10 25 50 miles
Symbol
PPM
Percent of data
2.5
24.7
5 - 6
43.5
7 - 11
74.2
12 - 3,010
100
36
35
34
84
83
82
81
80
79
78
77
76
Winston-Salem
Greensboro
Durham
Chapel Hill
Raleigh
Rocky Mount
Greenville
Kinston
Fayetteville
Lumberton
Wilmington
Jacksonville
Asheville
Hendersonville
Salisbury
Gastonia
Qp
Qh
Tp
CZm
Zm

Appendix B

ANALYTICAL REPORT

Job Number: 280-4097-1

Job Description: 134|Piedmont Landfill

For:
Waste Management
1000 Parkwood Circle
Atlanta, GA 30339

Attention: Mr. Al Lacsamana

Approved for release.
Stephanie Sanders
Project Mgmt. Assistant
6/22/2010 10:00 AM

Designee for
Betsy A Sara
Project Manager II
betsy.sara@testamericainc.com
06/22/2010

cc: Mr. Van Burbach

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

TestAmerica Laboratories, Inc.
TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com

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CASE NARRATIVE

Client: Waste Management

Project: 134|Piedmont Landfill

Report Number: 280-4097-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The sample was received on 06/03/2010; the sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 4.0 C.

Holding Times

The holding times were within established control limits.

Method Blanks

Total Chromium Method 6010C was detected in the Method Blank below the project established reporting limit. No corrective action is taken for any values in Method Blanks that are below the requested reporting limits. The Method Blank data are included at the end of this report.

All other Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

The Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

All MS/MSD samples were within established control limits.

EXECUTIVE SUMMARY - Detections

Client: Waste Management

Job Number: 280-4097-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-4097-1	**CSS-1**					
Chromium		23	B	1.7	mg/Kg	6010C
Percent Moisture		19		0.10	%	Moisture

METHOD SUMMARY

Client: Waste Management

Job Number: 280-4097-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Metals (ICP)	TAL DEN	SW846 6010C	
Preparation, Metals	TAL DEN		SW846 3050B
Percent Moisture	TAL DEN	EPA Moisture	

Lab References:

TAL DEN = TestAmerica Denver

Method References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Waste Management

Job Number: 280-4097-1

Method	Analyst	Analyst ID
SW846 6010C	Harre, John K	JKH
EPA Moisture	Berry III, Paul B	PBB

SAMPLE SUMMARY

Client: Waste Management

Job Number: 280-4097-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-4097-1	CSS-1	Solid	06/02/2010 1213	06/03/2010 1030

SAMPLE RESULTS

Client: Waste Management

Job Number: 280-4097-1

Client Sample ID: **CSS-1**

Lab Sample ID: 280-4097-1

Client Matrix: Solid

% Moisture: 19.4

Date Sampled: 06/02/2010 1213

Date Received: 06/03/2010 1030

6010C Metals (ICP)

Method:	6010C	Analysis Batch: 280-18893		Instrument ID:	MT_025
Preparation:	3050B	Prep Batch: 280-18419		Lab File ID:	25A2061010.txt
Dilution:	1.0			Initial Weight/Volume:	1.07 g
Date Analyzed:	06/10/2010 1758			Final Weight/Volume:	100 mL
Date Prepared:	06/09/2010 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Chromium		23	B	0.067	1.7

General Chemistry

Client Sample ID: **CSS-1**

Lab Sample ID: 280-4097-1

Client Matrix: Solid

Date Sampled: 06/02/2010 1213

Date Received: 06/03/2010 1030

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	19		%	0.10	0.10	1.0	Moisture

Analysis Batch: 280-18060 Date Analyzed: 06/04/2010 0852 DryWt Corrected: N

DATA REPORTING QUALIFIERS

Client: Waste Management

Job Number: 280-4097-1

Lab Section	Qualifier	Description
Metals		
	B	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: Waste Management

Job Number: 280-4097-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-18419					
LCS 280-18419/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-18419/1-A	Method Blank	T	Solid	3050B	
280-4097-1	CSS-1	T	Solid	3050B	
280-4097-1MS	Matrix Spike	T	Solid	3050B	
280-4097-1MSD	Matrix Spike Duplicate	T	Solid	3050B	
Analysis Batch:280-18893					
LCS 280-18419/2-A	Lab Control Sample	T	Solid	6010C	280-18419
MB 280-18419/1-A	Method Blank	T	Solid	6010C	280-18419
280-4097-1	CSS-1	T	Solid	6010C	280-18419
280-4097-1MS	Matrix Spike	T	Solid	6010C	280-18419
280-4097-1MSD	Matrix Spike Duplicate	T	Solid	6010C	280-18419

Report Basis

T = Total

General Chemistry					
Analysis Batch:280-18060					
280-4097-1	CSS-1	T	Solid	Moisture	
280-4097-1DU	Duplicate	T	Solid	Moisture	

Report Basis

T = Total

Client: Waste Management

Job Number: 280-4097-1

Method Blank - Batch: 280-18419

Method: 6010C
Preparation: 3050B

Lab Sample ID: MB 280-18419/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/10/2010 1753
Date Prepared: 06/09/2010 0800

Analysis Batch: 280-18893
Prep Batch: 280-18419
Units: mg/Kg

Instrument ID: MT_025
Lab File ID: 25A2061010.txt
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 100 mL

Analyte	Result	Qual	MDL	RL
Chromium	0.169	J	0.058	1.5

Lab Control Sample - Batch: 280-18419

Method: 6010C
Preparation: 3050B

Lab Sample ID: LCS 280-18419/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/10/2010 1756
Date Prepared: 06/09/2010 0800

Analysis Batch: 280-18893
Prep Batch: 280-18419
Units: mg/Kg

Instrument ID: MT_025
Lab File ID: 25A2061010.txt
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 100 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chromium	20.0	19.6	98	84 - 114	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-18419

Method: 6010C
Preparation: 3050B

MS Lab Sample ID: 280-4097-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/10/2010 1802
Date Prepared: 06/09/2010 0800

Analysis Batch: 280-18893
Prep Batch: 280-18419

Instrument ID: MT_025
Lab File ID: 25A2061010.txt
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

MSD Lab Sample ID: 280-4097-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/10/2010 1804
Date Prepared: 06/09/2010 0800

Analysis Batch: 280-18893
Prep Batch: 280-18419

Instrument ID: MT_025
Lab File ID: 25A2061010.txt
Initial Weight/Volume: 1.04 g
Final Weight/Volume: 100 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chromium	100	95	70 - 200	1	40		

Client: Waste Management

Job Number: 280-4097-1

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-18419

Method: 6010C
Preparation: 3050B

MS Lab Sample ID:	280-4097-1	Units: mg/Kg	MSD Lab Sample ID:	280-4097-1
Client Matrix:	Solid		Client Matrix:	Solid
Dilution:	1.0		Dilution:	1.0
Date Analyzed:	06/10/2010 1802		Date Analyzed:	06/10/2010 1804
Date Prepared:	06/09/2010 0800		Date Prepared:	06/09/2010 0800

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chromium	23	22.4	23.9	45.7	46.0

Client: Waste Management

Job Number: 280-4097-1

Duplicate - Batch: 280-18060

Method: Moisture
Preparation: N/A

Lab Sample ID: 280-4097-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/04/2010 0852
Date Prepared: N/A

Analysis Batch: 280-18060
Prep Batch: N/A
Units: %

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	19	19	3	20	

Client: Waste Management

Job Number: 280-4097-1

Laboratory Chronicle

Lab ID: **280-4097-1** **Client ID:** **CSS-1**

Sample Date/Time: 06/02/2010 12:13 Received Date/Time: 06/03/2010 10:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	280-4097-A-1-A		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	280-4097-A-1-A		280-18893	280-18419	06/10/2010 17:58	1	TAL DEN	JKH
A:Moisture	280-4097-A-1		280-18060		06/04/2010 08:52	1	TAL DEN	PBB

Lab ID: **280-4097-1 MS** **Client ID:** **CSS-1**

Sample Date/Time: 06/02/2010 12:13 Received Date/Time: 06/03/2010 10:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	280-4097-A-1-B MS		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	280-4097-A-1-B MS		280-18893	280-18419	06/10/2010 18:02	1	TAL DEN	JKH

Lab ID: **280-4097-1 MSD** **Client ID:** **CSS-1**

Sample Date/Time: 06/02/2010 12:13 Received Date/Time: 06/03/2010 10:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	280-4097-A-1-C MSD		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	280-4097-A-1-C MSD		280-18893	280-18419	06/10/2010 18:04	1	TAL DEN	JKH

Lab ID: **280-4097-1 DU** **Client ID:** **CSS-1**

Sample Date/Time: 06/02/2010 12:13 Received Date/Time: 06/03/2010 10:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:Moisture	280-4097-A-1 DU		280-18060		06/04/2010 08:52	1	TAL DEN	PBB

Lab ID: **MB** **Client ID:** **N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	MB 280-18419/1-A		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	MB 280-18419/1-A		280-18893	280-18419	06/10/2010 17:53	1	TAL DEN	JKH

Client: Waste Management

Job Number: 280-4097-1

Laboratory Chronicle

Lab ID: **LCS** **Client ID:** **N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	LCS 280-18419/2-A		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	LCS 280-18419/2-A		280-18893	280-18419	06/10/2010 17:56	1	TAL DEN	JKH

Lab References:
TAL DEN = TestAmerica Denver

4.0
AB
JRZ
6/3/10

TestAmerica
ANALYTICAL TESTING CORPORATION

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Fax: 615-726-3404

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: Joyce Engineering Inc Client #: _____
Address: 2211 W. Meadowview Rd #101
City/State/Zip Code: Greensboro NC 27407
Project Manager: Van Burbach
Telephone Number: (336) 323-0092 Fax: _____
Sampler Name: (Print Name) Alex Everhart
Sampler Signature: [signature]

Project Name: Waste Management Piedmont landfill
Project #: 00392.1001.12 Task 09
Site/Location ID: _____ State: NC
Report To: Van Burbach
Invoice To: Leria Jones
Quote #: _____ PO#: _____

TAT
✓ Standard
___ Rush (surcharges may apply)
Date Needed: 10 Day
Fax Results: Y N

QC Deliverables
___ None
✓ Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other)	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: Total Chromium										REMARKS
GSS-1	6/2/10	12:13	G		S								1										

Special Instructions:

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp:
Custody Seals: Y N N/A
Bottles Supplied by Test America: Y N
Method of Shipment:

Relinquished By	Date	Time	Received By	Date	Time
Alex Everhart JEI	6/2/10	13:00	[signature]	6/3/10	1030

Login Sample Receipt Check List

Client: Waste Management

Job Number: 280-4097-1

Login Number: 4097

List Source: TestAmerica Denver

Creator: Green, Angel L

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

Appendix C

Results of the Ground Water Statistics for

Piedmont Landfill

First Semi-Annual Monitoring Event in 2010

Prepared for:
Piedmont Landfill and Recycling Center
Kernersville, North Carolina

Prepared by:
Jeffrey A. Holmgren
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40W565 Foxwick Court
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April 2010

Introduction

This report contains the results of the statistical analysis used to evaluate the ground water data obtained during the first semi-annual monitoring event in 2010 at Piedmont Landfill in Kernersville, North Carolina. The ground water at Piedmont Landfill is monitored semi-annually at MW01 (upgradient), MW02, MW03, MW04, MW04D, MW05, MW06 (upgradient), MW07, MW08, MW09R, MW10, MW11, MW11D, MW12, and MW12D. These ground water monitoring wells were sampled on March 10, 2010 and analyzed for the trace metals and volatile organic compounds (VOCs) listed below.

Trace Metals

Antimony, Total	Chromium, Total	Selenium, Total
Arsenic, Total	Cobalt, Total	Silver, Total
Barium, Total	Copper, Total	Thallium, Total
Beryllium, Total	Lead, Total	Vanadium, Total
Cadmium, Total	Nickel, Total	Zinc, Total

Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	Acetone	Dibromomethane
1,1,1-Trichloroethane	Acrylonitrile	Ethylbenzene
1,1,2,2-Tetrachloroethane	Benzene	Iodomethane
1,1,2-Trichloroethane	Bromochloromethane	Methylene chloride
1,1-Dichloroethane	Bromodichloromethane	Styrene
1,1-Dichloroethene	Bromoform	Tetrachloroethene
1,2,3-Trichloropropane	Bromomethane	Toluene
1,2-Dibromo-3-chloropropane	Carbon disulfide	*trans*-1,2-Dichloroethene
1,2-Dibromoethane	Carbon tetrachloride	*trans*-1,3-Dichloropropene
1,2-Dichlorobenzene	Chlorobenzene	*trans*-1,4-Dichloro-2-butene
1,2-Dichloroethane	Chloroethane	Trichloroethene
1,2-Dichloropropane	Chloroform	Trichlorofluoromethane
1,4-Dichlorobenzene	Chloromethane	Vinyl acetate
2-Butanone; Methyl ethyl ketone	*cis*-1,2-Dichloroethene	Vinyl chloride
2-Hexanone	*cis*-1,3-Dichloropropene	Xylenes (Total)
4-Methyl-2-pentanone	Dibromochloromethane	

The trace metals data were compared to historical background data using intrawell statistics. The statistical method used to evaluate the ground water data was prepared by Dr. Robert Gibbons in accordance with the EPA statistical guidance document (*"Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance"*, July 1992) and ASTM standard D6312-98 (*"Standard Guide for Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs").* The organic constituents were compared to maximum contaminant levels (MCLs) or practical quantitation limits (PQLs), in lieu of statistical comparisons to background concentrations.

Intrawell Comparisons

Intrawell comparisons are used to evaluate the ground water data at Piedmont Landfill in accordance with the site's statistical analysis plan. Intrawell statistics are appropriate for facilities where the upgradient wells do not accurately characterize the natural ground water conditions downgradient from the facility, due to different hydrogeological conditions where the wells are screened, having too few upgradient wells to account for the spatial variability, or the site exhibiting no definable hydraulic gradient. Intrawell statistics compare new measurements to the historical data at each ground water monitoring well independently.

The most useful technique for intrawell comparisons is the combined Shewhart-CUSUM control chart using the DUMPStat® program. This control chart procedure is useful because it will detect releases both in terms of the constituent concentration and cumulative increases. This method is also extremely sensitive to sudden and gradual releases. A requirement for constructing these control charts is that the parameter is detected at a frequency greater than or equal to 25%, otherwise the data variance is not properly defined.

The database is screened for outliers using the Dixon test. An erroneous data point, if not removed prior to the mean and variance computations would yield a larger control limit thus increasing the false negative rate. Anomalous data will still be plotted on the graphs but will not be included in the calculations. The background data is tested for existing trends using Sen's slope test. If contamination exists prior to completing the background, the control limits could be potentially high and this control chart method would not be able to detect an increasing trend unless the increase is severe.

The combined Shewhart-CUSUM control chart assumes that the data are independent and normally distributed with a fixed mean and a constant variance.

Many ground water monitoring parameters are not detected at a frequency great enough to generate the combined Shewhart-CUSUM control charts. For constituents that are detected less than 25% of the time monitored at a particular well, the data is plotted as a time series until a sufficient number of data points are available to provide a 99% confidence nonparametric prediction limit. The nonparametric prediction limit is the largest determination out of the data set collected for that well and parameter.

Results

The ground water data obtained during the first semi-annual monitoring event in 2010 are summarized in Attachment A. The trace metals data were compared to the historical background data at each well. The previously used background was established using the data obtained through 2003. Since there were no exceedances attributed to the landfill, the background was updated to include data obtained through 2008 for all wells.

The background range was tested for increasing trends using Sen's Test. There were increasing trends detected for barium at wells MW01, MW02, MW04, and MW05, however, these trends are attributed to the change in reporting limits and not the landfill.

A summary of the intrawell statistics is included in Attachment B, Table 1 "Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts." The control charts or time series graphs follow the summary table.

For the trace metals analyzed, there was a control limit exceedance detected for chromium at MW12. The chromium concentration determined at MW12 (14.0 μg/L) exceeded the nonparametric prediction limit of 10.7 μg/L. The chromium concentration of a filtered sample obtained from MW12 was 1.4 μg/L. Monitoring well MW12 was resampled on April 16, 2010 and analyzed for chromium. Chromium was not detected above the reporting limit of 10 mg/L on the resample. The initial chromium exceedance is not statistically significant since it was not substantiated by subsequent monitoring.

The site-wide false positive rate is 2% and the test becomes sensitive to 4.5 standard deviation units over background.

There were no VOCs detected in the ground water above the laboratory reporting limits during the March 2010 monitoring event. Historical VOC detections are summarized in Attachment C.

Attachment A

Summary of the Ground Water Data obtained during the First Semi-Annual Monitoring Event in 2010

Table 1

Analytical Data Summary for 3/10/2010

Constituents	Units	3406-MW01	3406-MW02	3406-MW03	3406-MW04	3406-MW04D	3406-MW05
1,1,1,2-tetrachloroethane	UG/L	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
1,1,1-trichloroethane	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,1,2,2-tetrachloroethane	UG/L	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
1,1,2-trichloroethane	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,1-dichloroethane	UG/L	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
1,1-dichloroethene	UG/L	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
1,2,3-trichloropropane	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,2-dibromo-3-chloropropane (dbcp)	UG/L	<13.0000	<13.0000	<13.0000	<13.0000	<13.0000	<13.0000
1,2-dibromoethane (edb)	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,2-dichlorobenzene	UG/L	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
1,2-dichloroethane	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,2-dichloropropane	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,4-dichlorobenzene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
2-hexanone	UG/L	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000
Acetone	UG/L	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Acrylonitrile	UG/L	<200.0000	<200.0000	<200.0000	<200.0000	<200.0000	<200.0000
Alkalinity, bicarbonate (as caco3)	MG/L						
Alkalinity, carbonate (as caco3)	MG/L						
Alkalinity, total (as caco3)	MG/L						
Ammonia	MG/L						
Antimony, dissolved	UG/L				<6.0000	<6.0000	
Antimony, total	UG/L	<6.0000	<6.0000	<6.0000	<6.0000	<6.0000	<6.0000
Arsenic, dissolved	UG/L				<10.0000	<10.0000	
Arsenic, total	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Barium, dissolved	UG/L				<100.0000	<100.0000	
Barium, total	UG/L	<100.0000	110.0000	<100.0000	<100.0000	<100.0000	<100.0000
Benzene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Beryllium, dissolved	UG/L				<1.0000	<1.0000	
Beryllium, total	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Biochemical oxygen demand	MG/L						
Bromochloromethane	UG/L	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
Bromoform	UG/L	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
Bromomethane	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Cadmium, dissolved	UG/L				<1.0000	<1.0000	
Cadmium, total	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Calcium, total recoverable	MG/L						
Carbon disulfide	UG/L	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Carbon tetrachloride	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Chemical oxygen demand	MG/L						
Chloride	MG/L						
Chlorobenzene	UG/L	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
Chloroethane	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Chloroform	UG/L	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Chloromethane	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Chromium, dissolved	UG/L				<10.0000	<10.0000	
Chromium, total	UG/L	<10.0000	<10.0000	12.0000	<10.0000	<10.0000	<10.0000
Cis-1,2-dichloroethene	UG/L	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Cis-1,3-dichloropropene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Cobalt, dissolved	UG/L				<10.0000	<10.0000	
Cobalt, total	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Copper, dissolved	UG/L				<10.0000	<10.0000	
Copper, total	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Dibromochloromethane	UG/L	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
Dibromomethane	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Dichlorobromomethane	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Do (field)	MG/L	3.3000	1.4000	4.3000	1.7000	2.7000	.8000
Eh/orp (field)	mV	152.2000	135.2000	227.4000	128.7000	87.5000	202.9000
Ethylbenzene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Groundwater elev.	FT MSL	781.5500	750.1700	745.8700	744.2200	744.2100	738.1700
Iodomethane	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Iron, total recoverable	UG/L						
Lead, dissolved	UG/L				<10.0000	<10.0000	
Lead, total	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Magnesium, total recoverable	MG/L						
Manganese, total recoverable	UG/L						
Mercury, total	UG/L						
Methyl ethyl ketone	UG/L	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Methyl isobutyl ketone	UG/L	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Methylene chloride	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Nickel, dissolved	UG/L				<50.0000	<50.0000	
Nickel, total	UG/L	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000
Nitrogen, nitrate	MG/L						
pH FIELD	PH UNITS	6.1300	5.2300	5.5700	5.5100	6.4400	6.0000
Phosphorous, total	MG/L						
Potassium, total	MG/L						
Selenium, dissolved	UG/L				<10.0000	<10.0000	
Selenium, total	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000

* - The displayed value is the arithmetic mean of multiple database matches.

Table 1

Analytical Data Summary for 3/10/2010

Constituents	3406-MW06	3406-MW07	3406-MW08	3406-MW09R	3406-MW10	3406-MW11	3406-MW11D
1,1,1,2-tetrachloroethane	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
1,1,1-trichloroethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,1,2,2-tetrachloroethane	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
1,1,2-trichloroethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,1-dichloroethane	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
1,1-dichloroethene	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
1,2,3-trichloropropane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,2-dibromo-3-chloropropane (dbcp)	<13.0000	<13.0000	<13.0000	<13.0000	<13.0000	<13.0000	<13.0000
1,2-dibromoethane (edb)	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,2-dichlorobenzene	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
1,2-dichloroethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,2-dichloropropane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
1,4-dichlorobenzene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
2-hexanone	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000
Acetone	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Acrylonitrile	<200.0000	<200.0000	<200.0000	<200.0000	<200.0000	<200.0000	<200.0000
Alkalinity, bicarbonate (as caco3)							
Alkalinity, carbonate (as caco3)							
Alkalinity, total (as caco3)							
Ammonia							
Antimony, dissolved			<6.0000				
Antimony, total	<6.0000	<6.0000	<6.0000	<6.0000	<6.0000	<6.0000	<6.0000
Arsenic, dissolved			<10.0000				
Arsenic, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Barium, dissolved			<100.0000				
Barium, total	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Benzene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Beryllium, dissolved			<1.0000				
Beryllium, total	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Biochemical oxygen demand							
Bromochloromethane	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
Bromoform	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
Bromomethane	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Cadmium, dissolved			<1.0000				
Cadmium, total	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Calcium, total recoverable							
Carbon disulfide	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Carbon tetrachloride	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Chemical oxygen demand							
Chloride							
Chlorobenzene	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
Chloroethane	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Chloroform	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Chloromethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Chromium, dissolved			<10.0000				
Chromium, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	10.0000
Cis-1,2-dichloroethene	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Cis-1,3-dichloropropene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Cobalt, dissolved			<10.0000				
Cobalt, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Copper, dissolved			<10.0000				
Copper, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	13.0000
Dibromochloromethane	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000
Dibromomethane	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Dichlorobromomethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Do (field)	3.3000	4.8000	1.2000	.8000	4.1000	2.3000	3.3000
Eh/orp (field)	206.1000	188.7000	73.5000	32.4000	191.3000	209.3000	176.7000
Ethylbenzene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Groundwater elev.	756.2600	748.1400	743.2400	741.1600	748.2400	749.0600	748.6100
Iodomethane	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Iron, total recoverable							
Lead, dissolved			<10.0000				
Lead, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Magnesium, total recoverable							
Manganese, total recoverable							
Mercury, total							
Methyl ethyl ketone	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Methyl isobutyl ketone	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Methylene chloride	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Nickel, dissolved			<50.0000				
Nickel, total	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000
Nitrogen, nitrate							
pH FIELD	5.0400	5.6500	5.4600	6.3300	5.7400	5.2500	6.1100
Phosphorous, total							
Potassium, total							
Selenium, dissolved			<10.0000				
Selenium, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000

* - The displayed value is the arithmetic mean of multiple database matches.

Table 1

Analytical Data Summary for 3/10/2010

Constituents	3406-MW12	3406-MW12D	3406-S01	3406-S02	3406-S03	3406-S04	3406-S05	3406-T01
1,1,1,2-tetrachloroethane	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<25.0000
1,1,1-trichloroethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<25.0000
1,1,2,2-tetrachloroethane	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<15.0000
1,1,2-trichloroethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<25.0000
1,1-dichloroethane	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<25.0000
1,1-dichloroethene	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<25.0000
1,2,3-trichloropropane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<40.0000
1,2-dibromo-3-chloropropane (dbcp)	<13.0000	<13.0000	<13.0000	<13.0000	<13.0000	<13.0000	<13.0000	<65.0000
1,2-dibromoethane (edb)	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<15.0000
1,2-dichlorobenzene	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<50.0000
1,2-dichloroethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<15.0000
1,2-dichloropropane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<15.0000
1,4-dichlorobenzene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<15.0000
2-hexanone	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<250.0000
Acetone	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	640.0000
Acrylonitrile	<200.0000	<200.0000	<200.0000	<200.0000	<200.0000	<200.0000	<200.0000	<1000.0000
Alkalinity, bicarbonate (as caco3)								<5.0000
Alkalinity, carbonate (as caco3)								<5.0000
Alkalinity, total (as caco3)								<5.0000
Ammonia								780.0000
Antimony, dissolved	<6.0000							
Antimony, total	<6.0000	<6.0000	<6.0000	<6.0000	<6.0000	<6.0000	<6.0000	<20.0000
Arsenic, dissolved	<10.0000							
Arsenic, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<50.0000
Barium, dissolved	<100.0000							
Barium, total	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	2300.0000
Benzene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<15.0000
Beryllium, dissolved	<1.0000							
Beryllium, total	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<10.0000
Biochemical oxygen demand								120.0000
Bromochloromethane	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<15.0000
Bromoform	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<15.0000
Bromomethane	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<50.0000
Cadmium, dissolved	<1.0000							
Cadmium, total	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<10.0000
Calcium, total recoverable								80.0000
Carbon disulfide	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<500.0000
Carbon tetrachloride	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<28.0000
Chemical oxygen demand								1200.0000
Chloride								1600.0000
Chlorobenzene	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<15.0000
Chloroethane	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<50.0000
Chloroform	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<25.0000
Chloromethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<28.0000
Chromium, dissolved	<10.0000							
Chromium, total	14.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	140.0000
Cis-1,2-dichloroethene	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<25.0000
Cis-1,3-dichloropropene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<28.0000
Cobalt, dissolved	<10.0000							
Cobalt, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	48.0000
Copper, dissolved	<10.0000							
Copper, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	180.0000
Dibromochloromethane	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<3.0000	<15.0000
Dibromomethane	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<50.0000
Dichlorobromomethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<15.0000
Do (field)	2.7000	2.0000	8.8000	8.9000	8.9000	8.3000	8.6000	1.6000
Eh/orp (field)	84.4000	82.7000	19.4000	54.8000	22.4000	63.3000	23.4000	
Ethylbenzene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<25.0000
Groundwater elev.	745.3300	746.1800						
Iodomethane	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<50.0000
Iron, total recoverable								24000.0000
Lead, dissolved	<10.0000							
Lead, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	13.0000
Magnesium, total recoverable								55.0000
Manganese, total recoverable								2100.0000
Mercury, total								<.2000
Methyl ethyl ketone	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<500.0000
Methyl isobutyl ketone	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<500.0000
Methylene chloride	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<28.0000
Nickel, dissolved	<50.0000							
Nickel, total	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	260.0000
Nitrogen, nitrate								<.5000
pH FIELD	5.6800	6.6400	6.7900	7.2400	7.6800	7.6800	7.3600	7.9900
Phosphorous, total								3.6000
Potassium, total								400.0000
Selenium, dissolved	<10.0000							
Selenium, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<15.0000

* - The displayed value is the arithmetic mean of multiple database matches.

Table 1

Analytical Data Summary for 3/10/2010

Constituents	Units	3406-MW01	3406-MW02	3406-MW03	3406-MW04	3406-MW04D	3406-MW05
Silver, dissolved	UG/L				<10.0000	<10.0000	
Silver, total	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Sodium, total	MG/L						
Specific conductance field	UMHOS/CM	93.0000	96.0000	161.0000	76.0000	81.0000	338.0000
Styrene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Sulfate	MG/L						
Tetrachloroethene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Thallium, dissolved	UG/L				<5.5000	<5.5000	
Thallium, total	UG/L	<5.5000	<5.5000	<5.5000	<5.5000	<5.5000	<5.5000
Toluene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Total dissolved solids	MG/L						
Total organic carbon	MG/L						
Total suspended solids	MG/L						
Total xylenes	UG/L	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Trans-1,2-dichloroethene	UG/L	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Trans-1,3-dichloropropene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Trans-1,4-dichloro-2-butene	UG/L	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Trichloroethene	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Trichlorofluoromethane	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Turbidity	NTU	.4000	.2000	.6000	1.2000	16.8000	.6000
Vanadium, dissolved	UG/L				<25.0000	<25.0000	
Vanadium, total	UG/L	<25.0000	<25.0000	<25.0000	<25.0000	<25.0000	<25.0000
Vinyl acetate	UG/L	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000
Vinyl chloride	UG/L	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Water temperature in deg. celsius field	DEGREES C	13.3000	15.5000	16.5000	14.0000	14.1000	13.0000
Zinc, dissolved	UG/L				<10.0000	<10.0000	
Zinc, total	UG/L	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000

* - The displayed value is the arithmetic mean of multiple database matches.

Table 1

Analytical Data Summary for 3/10/2010

Constituents	3406-MW06	3406-MW07	3406-MW08	3406-MW09R	3406-MW10	3406-MW11	3406-MW11D
Silver, dissolved			<10.0000				
Silver, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Sodium, total							
Specific conductance field	33.0000	155.0000	104.0000	340.0000	106.0000	163.0000	74.0000
Styrene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Sulfate							
Tetrachloroethene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Thallium, dissolved			<5.5000				
Thallium, total	<5.5000	<5.5000	<5.5000	<5.5000	<5.5000	<5.5000	<5.5000
Toluene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Total dissolved solids							
Total organic carbon							
Total suspended solids							
Total xylenes	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Trans-1,2-dichloroethene	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Trans-1,3-dichloropropene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Trans-1,4-dichloro-2-butene	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000
Trichloroethene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Trichlorofluoromethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Turbidity	1.2000	4.9000	12.3000	1.5000	2.2000	.7000	19.0000
Vanadium, dissolved			<25.0000				
Vanadium, total	<25.0000	<25.0000	<25.0000	<25.0000	<25.0000	<25.0000	<25.0000
Vinyl acetate	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000
Vinyl chloride	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Water temperature in deg. celsius field	13.3000	17.1000	11.2000	13.4000	16.6000	17.5000	15.8000
Zinc, dissolved			<10.0000				
Zinc, total	15.0000	12.0000	<10.0000	<10.0000	<10.0000	11.0000	15.0000

* - The displayed value is the arithmetic mean of multiple database matches.

Table 1

Analytical Data Summary for 3/10/2010

Constituents	3406-MW12	3406-MW12D	3406-S01	3406-S02	3406-S03	3406-S04	3406-S05	3406-T01
Silver, dissolved	<10.0000							
Silver, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000
Sodium, total								1400.0000
Specific conductance field	121.0000	207.0000	92.0000	95.0000	70.0000	83.0000	98.0000	11130.0000
Styrene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<50.0000
Sulfate								<25.0000
Tetrachloroethene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<15.0000
Thallium, dissolved	<5.5000							
Thallium, total	<5.5000	<5.5000	<5.5000	<5.5000	<5.5000	<5.5000	<5.5000	<10.0000
Toluene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<25.0000
Total dissolved solids								4700.0000
Total organic carbon								400.0000
Total suspended solids								200.0000
Total xylenes	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	24.0000
Trans-1,2-dichloroethene	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<25.0000
Trans-1,3-dichloropropene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<28.0000
Trans-1,4-dichloro-2-butene	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<100.0000	<500.0000
Trichloroethene	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<15.0000
Trichlorofluoromethane	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<25.0000
Turbidity	8.6000	6.9000	11.3000	4.7000	6.1000	3.5000	5.5000	35.6000
Vanadium, dissolved	<25.0000							
Vanadium, total	<25.0000	<25.0000	<25.0000	<25.0000	<25.0000	<25.0000	<25.0000	84.0000
Vinyl acetate	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<50.0000	<250.0000
Vinyl chloride	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<28.0000
Water temperature in deg. celsius field	12.1000	12.7000	13.0000	13.7000	13.3000	14.8000	13.6000	20.4000
Zinc, dissolved	<10.0000							
Zinc, total	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	<10.0000	110.0000

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for 4/16/2010

Constituents	Units	3406-MW01	3406-MW02	3406-MW03	3406-MW04	3406-MW04D	3406-MW05
1,1,1,2-tetrachloroethane	UG/L						
1,1,1-trichloroethane	UG/L						
1,1,2,2-tetrachloroethane	UG/L						
1,1,2-trichloroethane	UG/L						
1,1-dichloroethane	UG/L						
1,1-dichloroethene	UG/L						
1,2,3-trichloropropane	UG/L						
1,2-dibromo-3-chloropropane (dbcp)	UG/L						
1,2-dibromoethane (edb)	UG/L						
1,2-dichlorobenzene	UG/L						
1,2-dichloroethane	UG/L						
1,2-dichloropropane	UG/L						
1,4-dichlorobenzene	UG/L						
2-hexanone	UG/L						
Acetone	UG/L						
Acrylonitrile	UG/L						
Alkalinity, bicarbonate (as caco3)	MG/L						
Alkalinity, carbonate (as caco3)	MG/L						
Alkalinity, total (as caco3)	MG/L						
Ammonia	MG/L						
Antimony, dissolved	UG/L						
Antimony, total	UG/L						
Arsenic, dissolved	UG/L						
Arsenic, total	UG/L						
Barium, dissolved	UG/L						
Barium, total	UG/L						
Benzene	UG/L						
Beryllium, dissolved	UG/L						
Beryllium, total	UG/L						
Biochemical oxygen demand	MG/L						
Bromochloromethane	UG/L						
Bromoform	UG/L						
Bromomethane	UG/L						
Cadmium, dissolved	UG/L						
Cadmium, total	UG/L						
Calcium, total recoverable	MG/L						
Carbon disulfide	UG/L						
Carbon tetrachloride	UG/L						
Chemical oxygen demand	MG/L						
Chloride	MG/L						
Chlorobenzene	UG/L						
Chloroethane	UG/L						
Chloroform	UG/L						
Chloromethane	UG/L						
Chromium, dissolved	UG/L			12.0000			
Chromium, total	UG/L			13.0000			
Cis-1,2-dichloroethene	UG/L						
Cis-1,3-dichloropropene	UG/L						
Cobalt, dissolved	UG/L						
Cobalt, total	UG/L						
Copper, dissolved	UG/L						
Copper, total	UG/L						
Dibromochloromethane	UG/L						
Dibromomethane	UG/L						
Dichlorobromomethane	UG/L						
Do (field)	MG/L			7.1000			
Eh/orp (field)	mV			10.7000			
Ethylbenzene	UG/L						
Groundwater elev.	FT MSL			745.8700			
Iodomethane	UG/L						
Iron, total recoverable	UG/L						
Lead, dissolved	UG/L						
Lead, total	UG/L						
Magnesium, total recoverable	MG/L						
Manganese, total recoverable	UG/L						
Mercury, total	UG/L						
Methyl ethyl ketone	UG/L						
Methyl isobutyl ketone	UG/L						
Methylene chloride	UG/L						
Nickel, dissolved	UG/L						
Nickel, total	UG/L						
Nitrogen, nitrate	MG/L						
pH FIELD	PH UNITS			2.8600			
Phosphorous, total	MG/L						
Potassium, total	MG/L						
Selenium, dissolved	UG/L						
Selenium, total	UG/L						

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for 4/16/2010

Constituents	3406-MW12	3406-MW12D	3406-S01	3406-S02	3406-S03	3406-S04	3406-S05	3406-T01
1,1,1,2-tetrachloroethane								
1,1,1-trichloroethane								
1,1,2,2-tetrachloroethane								
1,1,2-trichloroethane								
1,1-dichloroethane								
1,1-dichloroethene								
1,2,3-trichloropropane								
1,2-dibromo-3-chloropropane (dbcp)								
1,2-dibromoethane (edb)								
1,2-dichlorobenzene								
1,2-dichloroethane								
1,2-dichloropropane								
1,4-dichlorobenzene								
2-hexanone								
Acetone								
Acrylonitrile								
Alkalinity, bicarbonate (as caco3)								
Alkalinity, carbonate (as caco3)								
Alkalinity, total (as caco3)								
Ammonia								
Antimony, dissolved								
Antimony, total								
Arsenic, dissolved								
Arsenic, total								
Barium, dissolved								
Barium, total								
Benzene								
Beryllium, dissolved								
Beryllium, total								
Biochemical oxygen demand								
Bromochloromethane								
Bromoform								
Bromomethane								
Cadmium, dissolved								
Cadmium, total								
Calcium, total recoverable								
Carbon disulfide								
Carbon tetrachloride								
Chemical oxygen demand								
Chloride								
Chlorobenzene								
Chloroethane								
Chloroform								
Chloromethane								
Chromium, dissolved	<10.0000							
Chromium, total	<10.0000							
Cis-1,2-dichloroethene								
Cis-1,3-dichloropropene								
Cobalt, dissolved								
Cobalt, total								
Copper, dissolved								
Copper, total								
Dibromochloromethane								
Dibromomethane								
Dichlorobromomethane								
Do (field)	3.9000							
Eh/orp (field)	<.0000							
Ethylbenzene								
Groundwater elev.	745.5000							
Iodomethane								
Iron, total recoverable								
Lead, dissolved								
Lead, total								
Magnesium, total recoverable								
Manganese, total recoverable								
Mercury, total								
Methyl ethyl ketone								
Methyl isobutyl ketone								
Methylene chloride								
Nickel, dissolved								
Nickel, total								
Nitrogen, nitrate								
pH FIELD	7.3100							
Phosphorous, total								
Potassium, total								
Selenium, dissolved								
Selenium, total								

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for 4/16/2010

Constituents	Units	3406-MW01	3406-MW02	3406-MW03	3406-MW04	3406-MW04D	3406-MW05
Silver, dissolved	UG/L						
Silver, total	UG/L						
Sodium, total	MG/L						
Specific conductance field	UMHOS/CM			136.0000			
Styrene	UG/L						
Sulfate	MG/L						
Tetrachloroethene	UG/L						
Thallium, dissolved	UG/L						
Thallium, total	UG/L						
Toluene	UG/L						
Total dissolved solids	MG/L						
Total organic carbon	MG/L						
Total suspended solids	MG/L						
Total xylenes	UG/L						
Trans-1,2-dichloroethene	UG/L						
Trans-1,3-dichloropropene	UG/L						
Trans-1,4-dichloro-2-butene	UG/L						
Trichloroethene	UG/L						
Trichlorofluoromethane	UG/L						
Turbidity	NTU			.2000			
Vanadium, dissolved	UG/L						
Vanadium, total	UG/L						
Vinyl acetate	UG/L						
Vinyl chloride	UG/L						
Water temperature in deg. celsius field	DEGREES C			16.3000			
Zinc, dissolved	UG/L						
Zinc, total	UG/L						

* - The displayed value is the arithmetic mean of multiple database matches.

Table 2

Analytical Data Summary for 4/16/2010

Constituents	3406-MW12	3406-MW12D	3406-S01	3406-S02	3406-S03	3406-S04	3406-S05	3406-T01
Silver, dissolved								
Silver, total								
Sodium, total								
Specific conductance field	118.0000							
Styrene								
Sulfate								
Tetrachloroethene								
Thallium, dissolved								
Thallium, total								
Toluene								
Total dissolved solids								
Total organic carbon								
Total suspended solids								
Total xylenes								
Trans-1,2-dichloroethene								
Trans-1,3-dichloropropene								
Trans-1,4-dichloro-2-butene								
Trichloroethene								
Trichlorofluoromethane								
Turbidity	55.0000							
Vanadium, dissolved								
Vanadium, total								
Vinyl acetate								
Vinyl chloride								
Water temperature in deg. celsius field	16.5000							
Zinc, dissolved								
Zinc, total								

* - The displayed value is the arithmetic mean of multiple database matches.

Attachment B

Summary Table and Graphs for the Intrawell Comparisons

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-Cusum Control Charts

Constituent	Units	Well	N	Mean	SD	S(i-1)	S(i)	Limit
Antimony, total	UG/L	3406-MW01	35					30.0000**
Arsenic, total	UG/L	3406-MW01	41					10.0000**
Barium, total	UG/L	3406-MW01	41	284.9293	223.5224	284.9293	284.9293	1179.0189
Beryllium, total	UG/L	3406-MW01	33					2.0000**
Cadmium, total	UG/L	3406-MW01	44					2.0000**
Chromium, total	UG/L	3406-MW01	41					10.0000**
Cobalt, total	UG/L	3406-MW01	33					10.0000**
Copper, total	UG/L	3406-MW01	41					200.0000**
Lead, total	UG/L	3406-MW01	41					10.0000**
Nickel, total	UG/L	3406-MW01	33					50.0000**
Selenium, total	UG/L	3406-MW01	41					20.0000**
Silver, total	UG/L	3406-MW01	41					10.0000**
Thallium, total	UG/L	3406-MW01	33					10.0000**
Vanadium, total	UG/L	3406-MW01	33					40.0000**
Zinc, total	UG/L	3406-MW01	41					65.4000**
Antimony, total	UG/L	3406-MW02	34					30.0000**
Arsenic, total	UG/L	3406-MW02	40					10.1000**
Barium, total	UG/L	3406-MW02	40	224.5875	229.6905	224.5875	224.5875	1143.3493
Beryllium, total	UG/L	3406-MW02	32					2.0000**
Cadmium, total	UG/L	3406-MW02	43					2.1000**
Chromium, total	UG/L	3406-MW02	40					10.0000**
Cobalt, total	UG/L	3406-MW02	32					10.0000**
Copper, total	UG/L	3406-MW02	40					200.0000**
Lead, total	UG/L	3406-MW02	40					10.0000**
Nickel, total	UG/L	3406-MW02	32					50.0000**
Selenium, total	UG/L	3406-MW02	40					20.0000**
Silver, total	UG/L	3406-MW02	40					10.0000**
Thallium, total	UG/L	3406-MW02	32					10.0000**
Vanadium, total	UG/L	3406-MW02	32					40.0000**
Zinc, total	UG/L	3406-MW02	40					50.0000**
Antimony, total	UG/L	3406-MW03	35					30.0000**
Arsenic, total	UG/L	3406-MW03	40					10.0000**
Barium, total	UG/L	3406-MW03	40	256.0825	247.0377	256.0825	256.0825	1244.2333
Beryllium, total	UG/L	3406-MW03	32					2.0000**
Cadmium, total	UG/L	3406-MW03	43					2.3000**
Chromium, total	UG/L	3406-MW03	40	9.0325	2.2952	11.5247	12.7708	18.2133
Cobalt, total	UG/L	3406-MW03	33					10.0000**
Copper, total	UG/L	3406-MW03	41					200.0000**
Lead, total	UG/L	3406-MW03	40					10.0000**
Nickel, total	UG/L	3406-MW03	32					50.0000**
Selenium, total	UG/L	3406-MW03	40					20.0000**
Silver, total	UG/L	3406-MW03	40					10.0000**
Thallium, total	UG/L	3406-MW03	32					10.0000**
Vanadium, total	UG/L	3406-MW03	33					40.0000**
Zinc, total	UG/L	3406-MW03	40					50.0000**
Antimony, total	UG/L	3406-MW04	34					30.0000**
Arsenic, total	UG/L	3406-MW04	40					10.0000**
Barium, total	UG/L	3406-MW04	40	265.0575	237.9422	265.0575	265.0575	1216.8263
Beryllium, total	UG/L	3406-MW04	32					2.0000**
Cadmium, total	UG/L	3406-MW04	43					1.8000**
Chromium, total	UG/L	3406-MW04	40					10.0000**
Cobalt, total	UG/L	3406-MW04	32					10.0000**
Copper, total	UG/L	3406-MW04	40					200.0000**
Lead, total	UG/L	3406-MW04	40					10.0000**
Nickel, total	UG/L	3406-MW04	32					50.0000**
Selenium, total	UG/L	3406-MW04	40					20.0000**
Silver, total	UG/L	3406-MW04	40					10.0000**
Thallium, total	UG/L	3406-MW04	32					10.0000**
Vanadium, total	UG/L	3406-MW04	32					40.0000**
Zinc, total	UG/L	3406-MW04	40					50.0000**
Antimony, total	UG/L	3406-MW04D	30					30.0000**
Arsenic, total	UG/L	3406-MW04D	30					10.0000**
Barium, total	UG/L	3406-MW04D	30	364.2000	201.5970	364.2000	364.2000	1170.5880
Beryllium, total	UG/L	3406-MW04D	30					8.0000**
Cadmium, total	UG/L	3406-MW04D	30					2.1000**
Chromium, total	UG/L	3406-MW04D	30	9.7300	3.3377	9.7300	9.7300	23.0807
Cobalt, total	UG/L	3406-MW04D	30					26.0000**
Copper, total	UG/L	3406-MW04D	30					200.0000**
Lead, total	UG/L	3406-MW04D	29					12.1000**
Nickel, total	UG/L	3406-MW04D	30					50.0000**
Selenium, total	UG/L	3406-MW04D	30					20.0000**
Silver, total	UG/L	3406-MW04D	30					10.0000**
Thallium, total	UG/L	3406-MW04D	30					10.0000**

* - Insufficient Data
** - Detection Frequency < 25%
*** - Zero Variance

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-Cusum Control Charts

Constituent	Units	Well	N	Mean	SD	S(i-1)	S(i)	Limit
Vanadium, total	UG/L	3406-MW04D	30					120.0000**
Zinc, total	UG/L	3406-MW04D	32	60.7188	41.9856	60.7188	60.7188	228.6613
Antimony, total	UG/L	3406-MW05	34					30.0000**
Arsenic, total	UG/L	3406-MW05	40					11.9000**
Barium, total	UG/L	3406-MW05	40	258.3725	244.7103	258.3725	258.3725	1237.2139
Beryllium, total	UG/L	3406-MW05	32					2.0000**
Cadmium, total	UG/L	3406-MW05	43					1.0000**
Chromium, total	UG/L	3406-MW05	40	8.7550	2.2721	8.7550	8.7550	17.8435
Cobalt, total	UG/L	3406-MW05	32					10.0000**
Copper, total	UG/L	3406-MW05	40					200.0000**
Lead, total	UG/L	3406-MW05	40					10.0000**
Nickel, total	UG/L	3406-MW05	32					50.0000**
Selenium, total	UG/L	3406-MW05	40					20.0000**
Silver, total	UG/L	3406-MW05	40					10.0000**
Thallium, total	UG/L	3406-MW05	32					10.0000**
Vanadium, total	UG/L	3406-MW05	32	32.4281	13.4890	32.4281	32.4281	86.3842
Zinc, total	UG/L	3406-MW05	40					110.0000**
Antimony, total	UG/L	3406-MW06	34					30.0000**
Arsenic, total	UG/L	3406-MW06	32					10.0000**
Barium, total	UG/L	3406-MW06	32	326.7875	227.2577	326.7875	326.7875	1235.8183
Beryllium, total	UG/L	3406-MW06	32					2.6000**
Cadmium, total	UG/L	3406-MW06	35					1.0000**
Chromium, total	UG/L	3406-MW06	32					10.0000**
Cobalt, total	UG/L	3406-MW06	32					10.0000**
Copper, total	UG/L	3406-MW06	32					200.0000**
Lead, total	UG/L	3406-MW06	32					10.0000**
Nickel, total	UG/L	3406-MW06	32					50.0000**
Selenium, total	UG/L	3406-MW06	32					20.0000**
Silver, total	UG/L	3406-MW06	32					10.0000**
Thallium, total	UG/L	3406-MW06	32					10.0000**
Vanadium, total	UG/L	3406-MW06	32					45.6000**
Zinc, total	UG/L	3406-MW06	32					310.0000**
Antimony, total	UG/L	3406-MW07	31					30.0000**
Arsenic, total	UG/L	3406-MW07	31					10.6000**
Barium, total	UG/L	3406-MW07	31	325.8484	238.7327	325.8484	325.8484	1280.7792
Beryllium, total	UG/L	3406-MW07	31					2.0000**
Cadmium, total	UG/L	3406-MW07	31					1.0000**
Chromium, total	UG/L	3406-MW07	31	8.1129	3.2502	8.1129	8.1129	21.1137
Cobalt, total	UG/L	3406-MW07	31					10.0000**
Copper, total	UG/L	3406-MW07	31					200.0000**
Lead, total	UG/L	3406-MW07	31					10.0000**
Nickel, total	UG/L	3406-MW07	31					50.0000**
Selenium, total	UG/L	3406-MW07	31					20.0000**
Silver, total	UG/L	3406-MW07	30					10.0000**
Thallium, total	UG/L	3406-MW07	31					10.0000**
Vanadium, total	UG/L	3406-MW07	31					40.0000**
Zinc, total	UG/L	3406-MW07	31					50.0000**
Antimony, total	UG/L	3406-MW08	32					30.0000**
Arsenic, total	UG/L	3406-MW08	32					11.3000**
Barium, total	UG/L	3406-MW08	31	351.3194	193.7703	351.3194	351.3194	1126.4007
Beryllium, total	UG/L	3406-MW08	31					2.0000**
Cadmium, total	UG/L	3406-MW08	32					1.3000**
Chromium, total	UG/L	3406-MW08	31					11.5000**
Cobalt, total	UG/L	3406-MW08	35	12.0286	3.7626	12.0286	12.0286	27.0791
Copper, total	UG/L	3406-MW08	31					200.0000**
Lead, total	UG/L	3406-MW08	30					10.0000**
Nickel, total	UG/L	3406-MW08	31					50.0000**
Selenium, total	UG/L	3406-MW08	31					20.0000**
Silver, total	UG/L	3406-MW08	31					11.6000**
Thallium, total	UG/L	3406-MW08	32					10.0000**
Vanadium, total	UG/L	3406-MW08	32					40.0000**
Zinc, total	UG/L	3406-MW08	31					79.1000**
Antimony, total	UG/L	3406-MW09R	29					30.0000**
Arsenic, total	UG/L	3406-MW09R	29					10.0000**
Barium, total	UG/L	3406-MW09R	29	354.6345	221.0560	354.6345	354.6345	1238.8583
Beryllium, total	UG/L	3406-MW09R	29					2.0000**
Cadmium, total	UG/L	3406-MW09R	29					1.0000**
Chromium, total	UG/L	3406-MW09R	29					49.9000**
Cobalt, total	UG/L	3406-MW09R	33					18.2000**
Copper, total	UG/L	3406-MW09R	29					200.0000**
Lead, total	UG/L	3406-MW09R	29					10.0000**
Nickel, total	UG/L	3406-MW09R	29					50.0000**
Selenium, total	UG/L	3406-MW09R	29					20.0000**

* - Insufficient Data
** - Detection Frequency < 25%
*** - Zero Variance

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-Cusum Control Charts

Constituent	Units	Well	N	Mean	SD	S(i-1)	S(i)	Limit
Silver, total	UG/L	3406-MW09R	29					10.0000**
Thallium, total	UG/L	3406-MW09R	29					10.0000**
Vanadium, total	UG/L	3406-MW09R	30					106.0000**
Zinc, total	UG/L	3406-MW09R	29					87.9000**
Antimony, total	UG/L	3406-MW10	30					30.0000**
Arsenic, total	UG/L	3406-MW10	30					10.0000**
Barium, total	UG/L	3406-MW10	30	337.1367	234.2942	337.1367	337.1367	1274.3136
Beryllium, total	UG/L	3406-MW10	30					2.0000**
Cadmium, total	UG/L	3406-MW10	30					1.0000**
Chromium, total	UG/L	3406-MW10	32	9.4469	3.9587	9.4469	9.4469	25.2815
Cobalt, total	UG/L	3406-MW10	30					13.3000**
Copper, total	UG/L	3406-MW10	30					200.0000**
Lead, total	UG/L	3406-MW10	30					10.0000**
Nickel, total	UG/L	3406-MW10	30					50.0000**
Selenium, total	UG/L	3406-MW10	30					20.0000**
Silver, total	UG/L	3406-MW10	30					10.0000**
Thallium, total	UG/L	3406-MW10	30					10.0000**
Vanadium, total	UG/L	3406-MW10	30					40.0000**
Zinc, total	UG/L	3406-MW10	30					50.0000**
Antimony, total	UG/L	3406-MW11	30					30.0000**
Arsenic, total	UG/L	3406-MW11	30					10.0000**
Barium, total	UG/L	3406-MW11	30	362.6900	213.5426	362.6900	362.6900	1216.8606
Beryllium, total	UG/L	3406-MW11	30					2.0000**
Cadmium, total	UG/L	3406-MW11	30					1.0000**
Chromium, total	UG/L	3406-MW11	30					10.0000**
Cobalt, total	UG/L	3406-MW11	30					10.0000**
Copper, total	UG/L	3406-MW11	30					200.0000**
Lead, total	UG/L	3406-MW11	30					10.0000**
Nickel, total	UG/L	3406-MW11	30					50.0000**
Selenium, total	UG/L	3406-MW11	30					20.0000**
Silver, total	UG/L	3406-MW11	30					10.0000**
Thallium, total	UG/L	3406-MW11	30					10.0000**
Vanadium, total	UG/L	3406-MW11	30					40.0000**
Zinc, total	UG/L	3406-MW11	30	38.9300	17.3048	38.9300	38.9300	108.1493
Antimony, total	UG/L	3406-MW11D	30					30.0000**
Arsenic, total	UG/L	3406-MW11D	30					10.0000**
Barium, total	UG/L	3406-MW11D	30	385.7000	181.2794	385.7000	385.7000	1110.8175
Beryllium, total	UG/L	3406-MW11D	30					2.4000**
Cadmium, total	UG/L	3406-MW11D	30					1.4000**
Chromium, total	UG/L	3406-MW11D	32	13.4719	11.5017	13.4719	13.4719	59.4786
Cobalt, total	UG/L	3406-MW11D	29					23.1000**
Copper, total	UG/L	3406-MW11D	31	176.7387	60.3438	176.7387	176.7387	418.1141
Lead, total	UG/L	3406-MW11D	30					12.7000**
Nickel, total	UG/L	3406-MW11D	30					50.0000**
Selenium, total	UG/L	3406-MW11D	30					20.0000**
Silver, total	UG/L	3406-MW11D	30					10.0000**
Thallium, total	UG/L	3406-MW11D	30					10.0000**
Vanadium, total	UG/L	3406-MW11D	31	50.2194	28.2430	50.2194	50.2194	163.1913
Zinc, total	UG/L	3406-MW11D	31	57.4968	30.7744	57.4968	57.4968	180.5944
Antimony, total	UG/L	3406-MW12	30					30.0000**
Arsenic, total	UG/L	3406-MW12	30					10.0000**
Barium, total	UG/L	3406-MW12	30	342.2200	227.3117	342.2200	342.2200	1251.4668
Beryllium, total	UG/L	3406-MW12	30					2.0000**
Cadmium, total	UG/L	3406-MW12	30					1.0000**
Chromium, total	UG/L	3406-MW12	30					10.7000**
Cobalt, total	UG/L	3406-MW12	30					11.0000**
Copper, total	UG/L	3406-MW12	30					200.0000**
Lead, total	UG/L	3406-MW12	31					25.0000**
Nickel, total	UG/L	3406-MW12	30					50.0000**
Selenium, total	UG/L	3406-MW12	30					20.0000**
Silver, total	UG/L	3406-MW12	30					10.0000**
Thallium, total	UG/L	3406-MW12	30					10.0000**
Vanadium, total	UG/L	3406-MW12	30					40.0000**
Zinc, total	UG/L	3406-MW12	30	61.3367	57.5341	61.3367	61.3367	291.4732
Antimony, total	UG/L	3406-MW12D	30					30.0000**
Arsenic, total	UG/L	3406-MW12D	30					10.0000**
Barium, total	UG/L	3406-MW12D	31	378.0581	189.4519	378.0581	378.0581	1135.8657
Beryllium, total	UG/L	3406-MW12D	30					2.6000**
Cadmium, total	UG/L	3406-MW12D	30					1.0000**
Chromium, total	UG/L	3406-MW12D	31	40.2097	68.7825	40.2097	40.2097	315.3396
Cobalt, total	UG/L	3406-MW12D	31	18.1032	21.7819	18.1032	18.1032	105.2307
Copper, total	UG/L	3406-MW12D	31	174.5032	57.9808	174.5032	174.5032	406.4263
Lead, total	UG/L	3406-MW12D	28					24.0000**

* - Insufficient Data
** - Detection Frequency < 25%
*** - Zero Variance

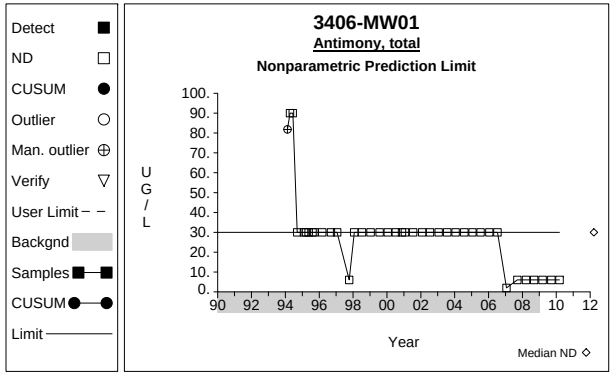
Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-Cusum Control Charts

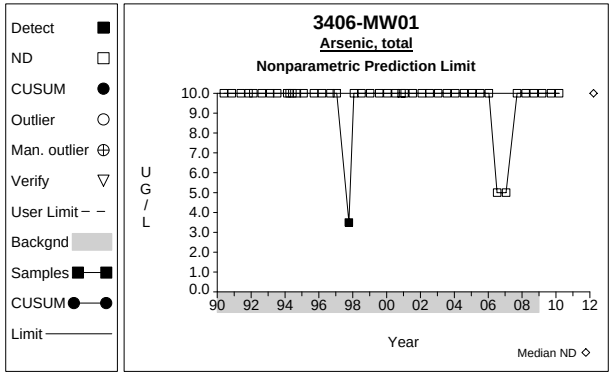
Constituent	Units	Well	N	Mean	SD	S(i-1)	S(i)	Limit
Nickel, total	UG/L	3406-MW12D	31					108.0000**
Selenium, total	UG/L	3406-MW12D	30					20.0000**
Silver, total	UG/L	3406-MW12D	30					10.0000**
Thallium, total	UG/L	3406-MW12D	30					10.0000**
Vanadium, total	UG/L	3406-MW12D	31	72.1000	84.8639	72.1000	72.1000	411.5556
Zinc, total	UG/L	3406-MW12D	31	91.9903	118.3152	91.9903	91.9903	565.2509

* - Insufficient Data
** - Detection Frequency < 25%
*** - Zero Variance

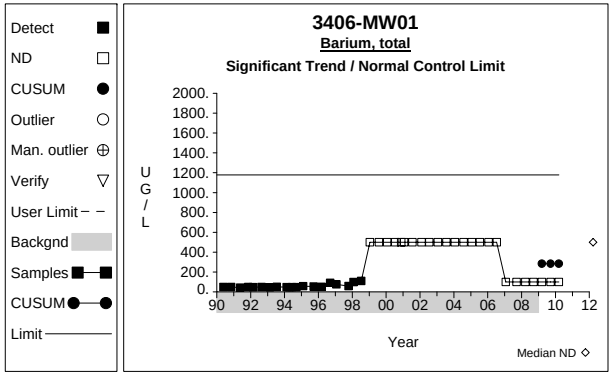
Intra-Well Control Charts



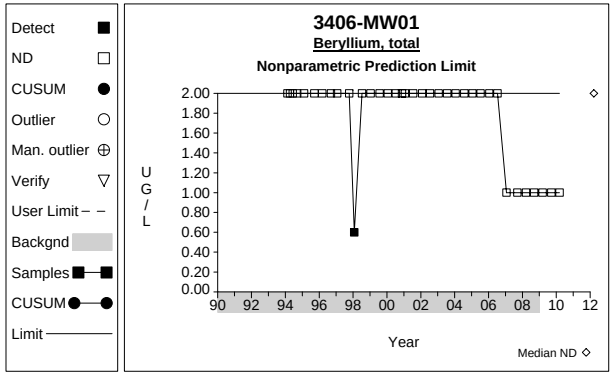
Graph 1



Graph 2



Graph 3



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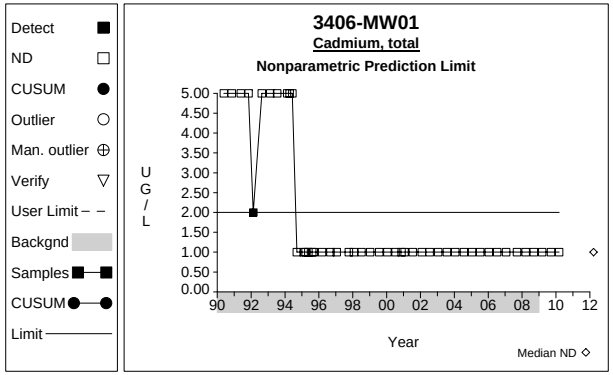

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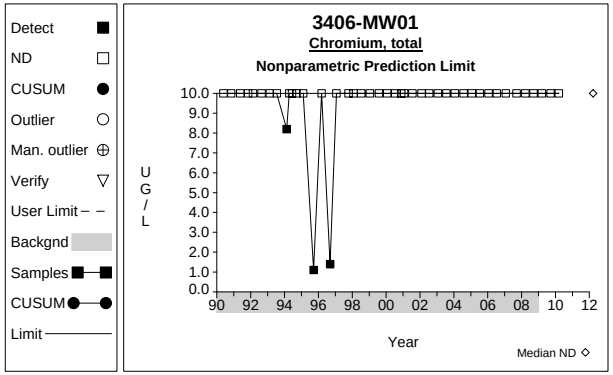

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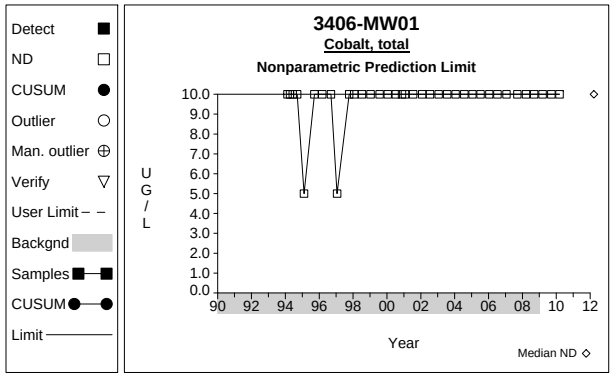

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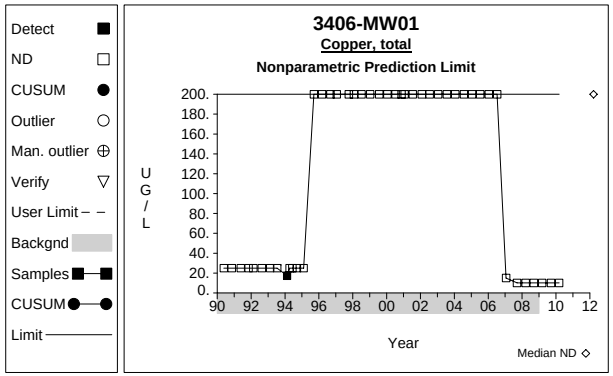
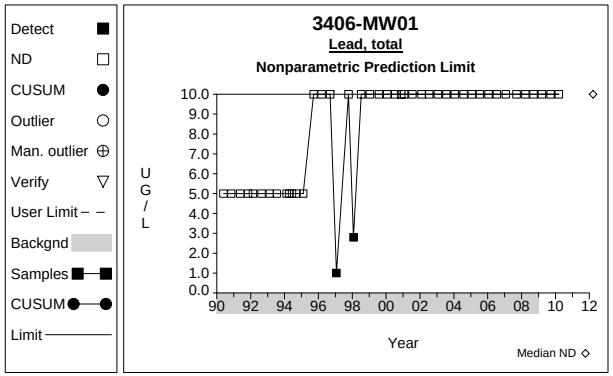


Graph 8



Graph 9

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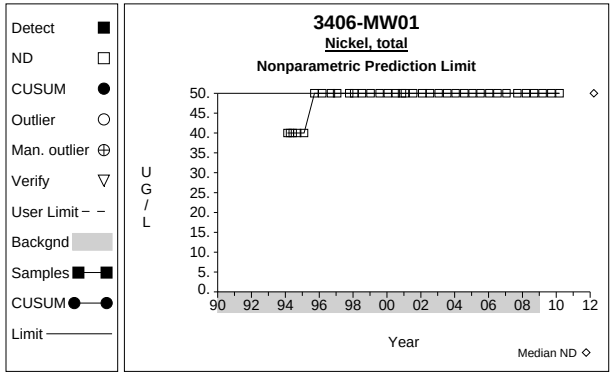
Intra-Well Control Charts



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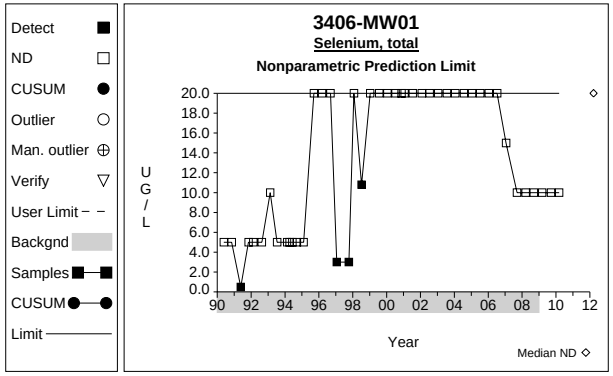

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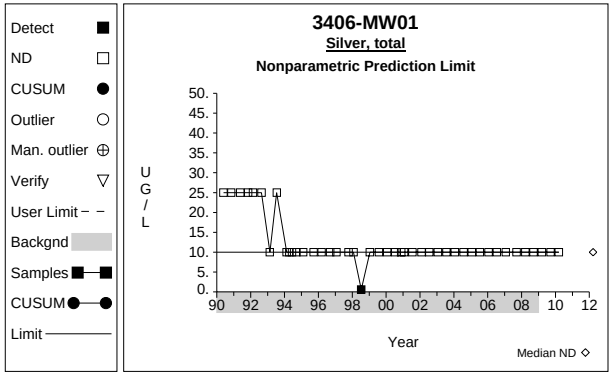

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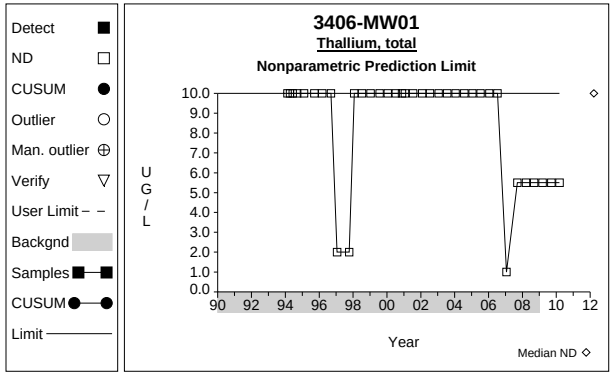

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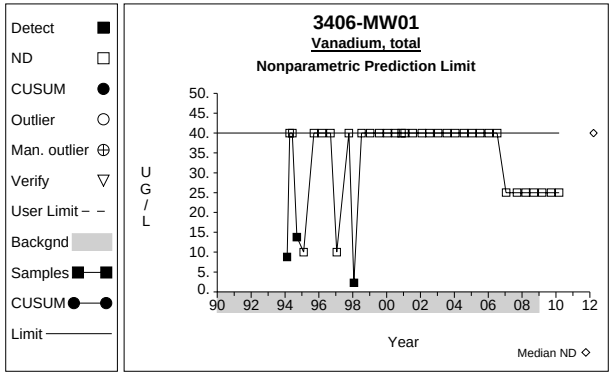

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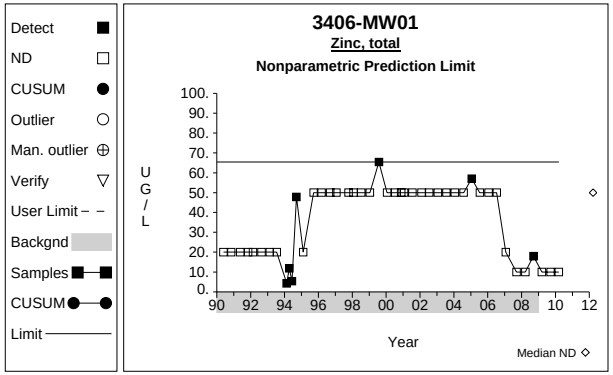
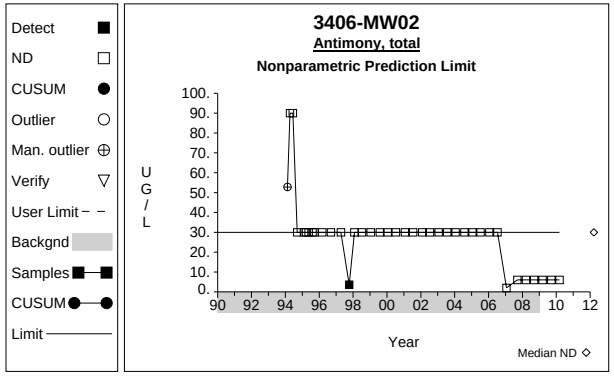


Graph 15

Intra-Well Control Charts



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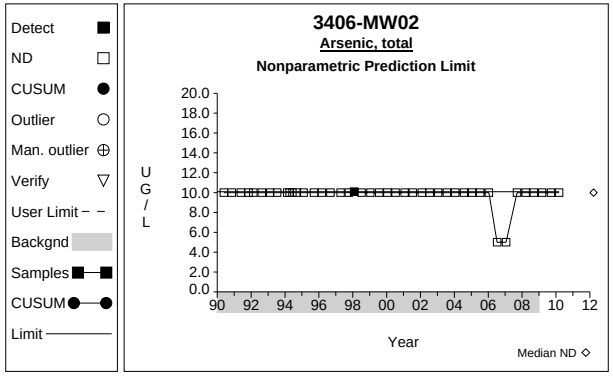
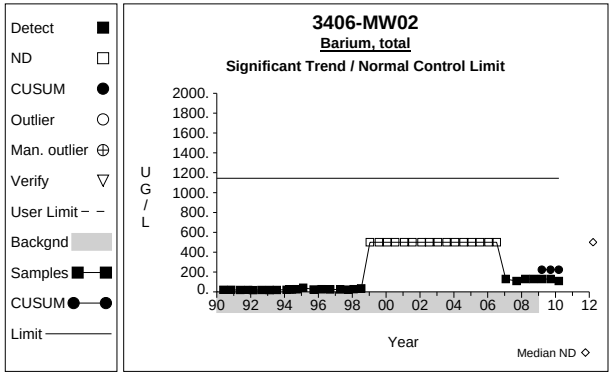
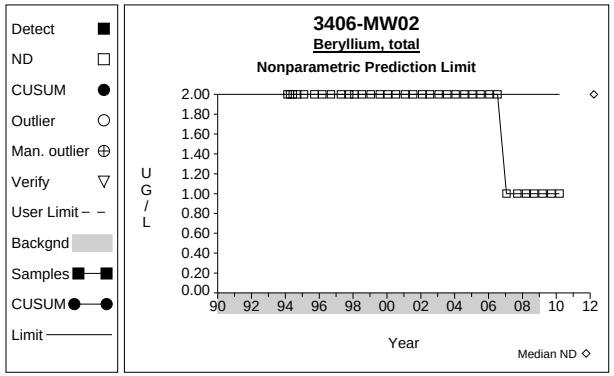


Graph 17



Graph 18



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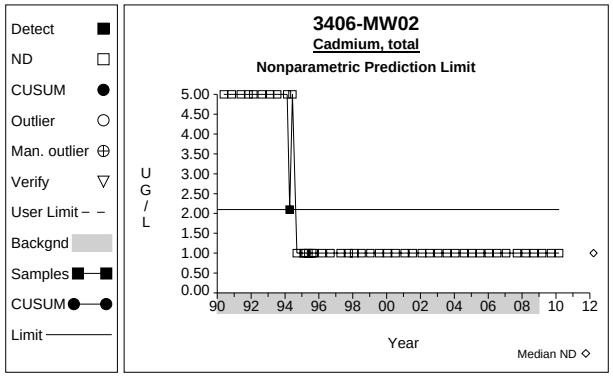

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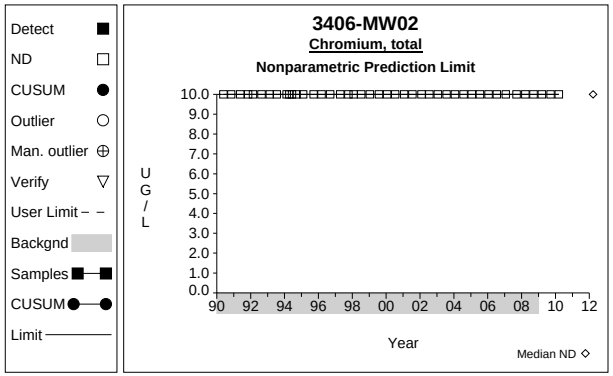

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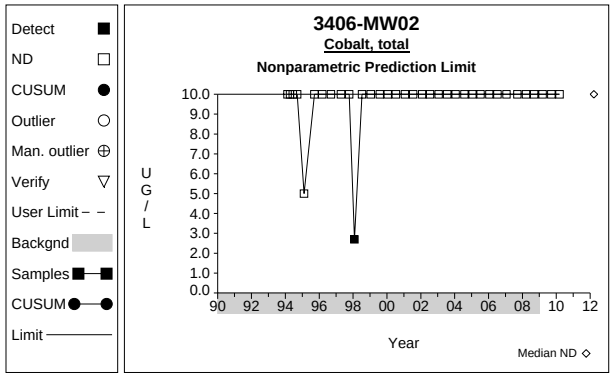

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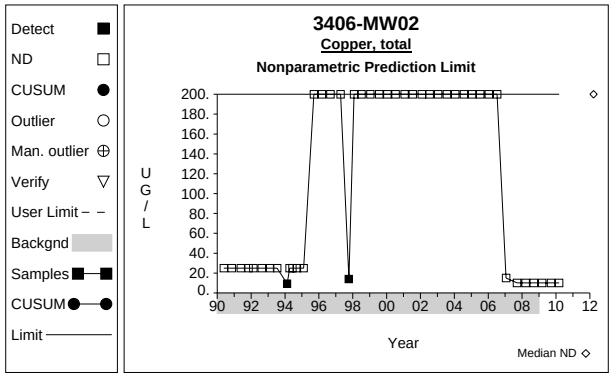

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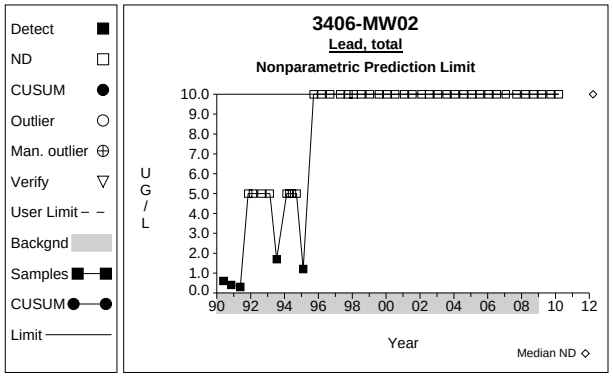

Graph 24

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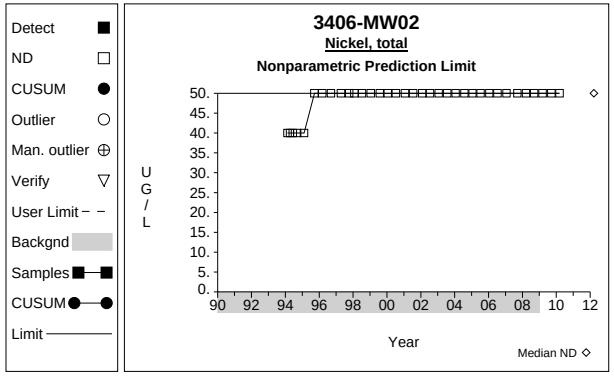
Intra-Well Control Charts



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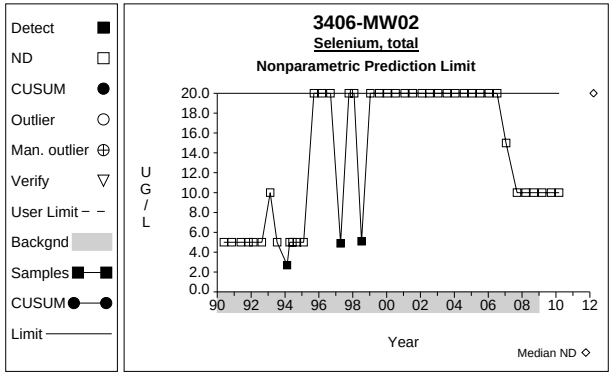

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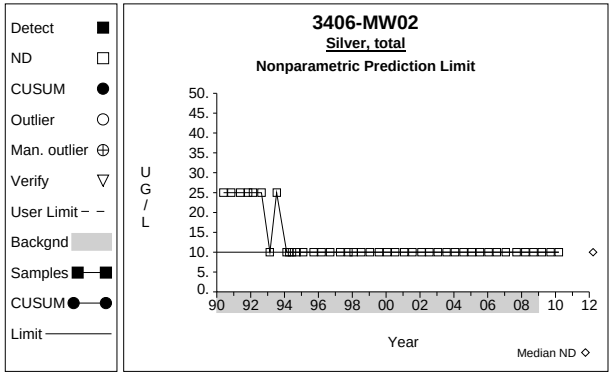

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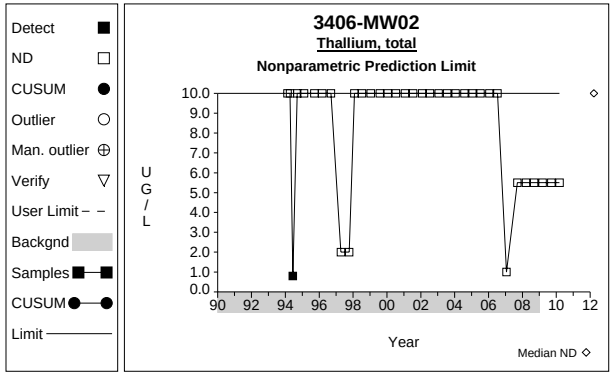

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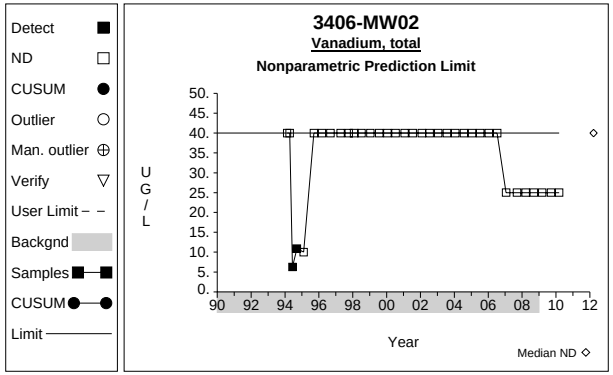

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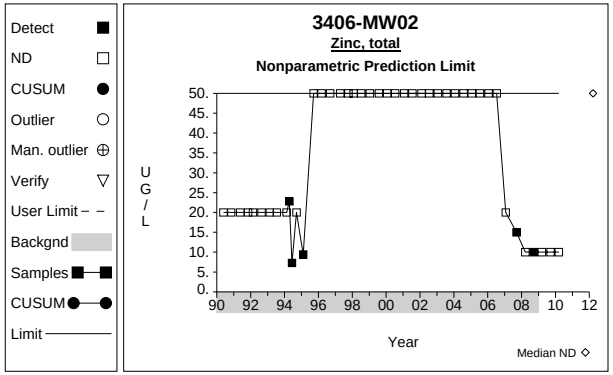
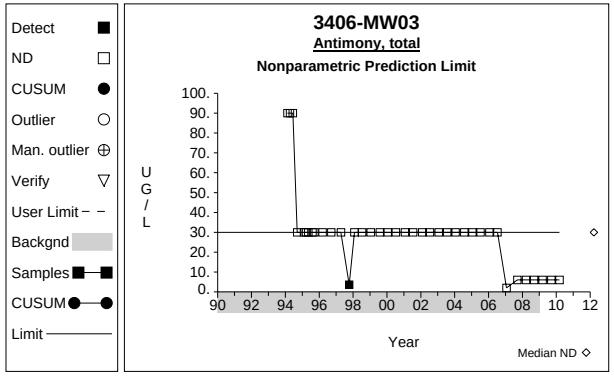


Graph 30

Intra-Well Control Charts



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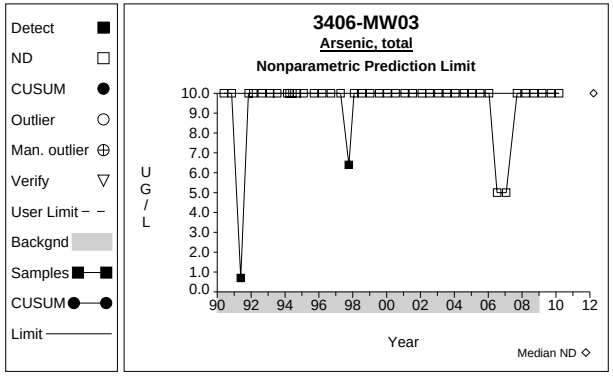

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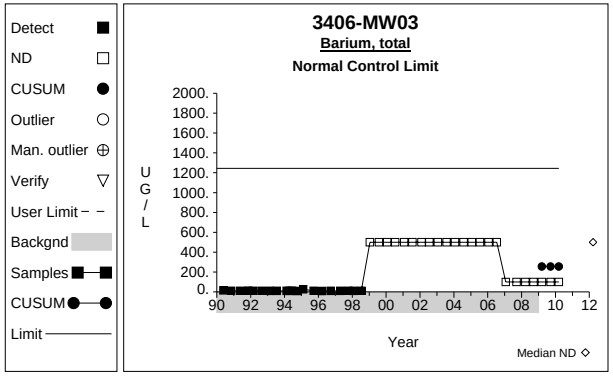

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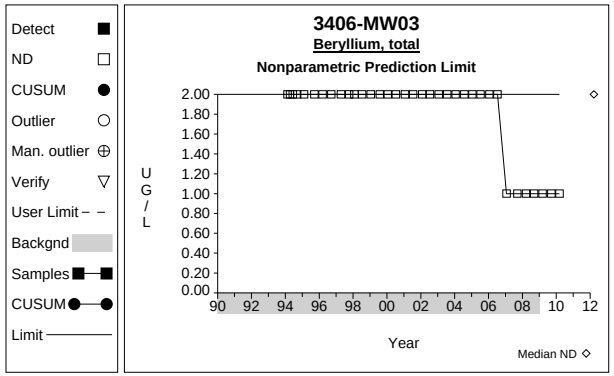

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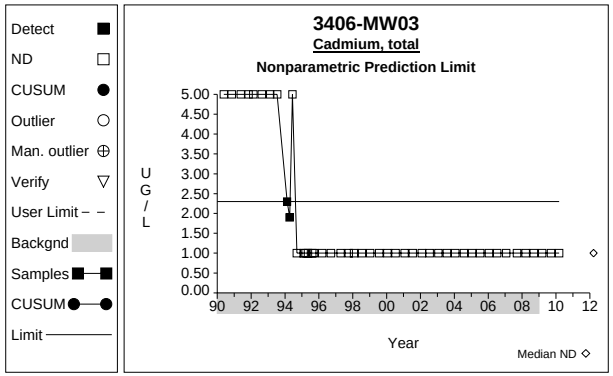

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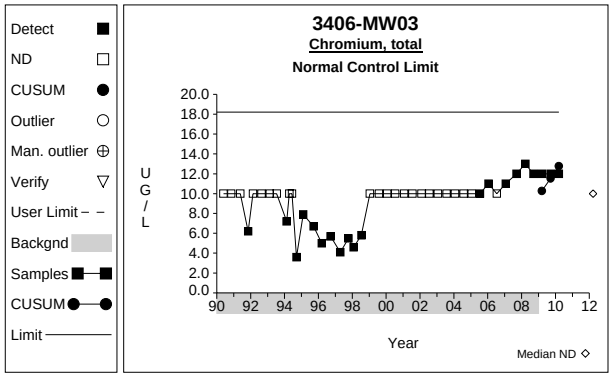

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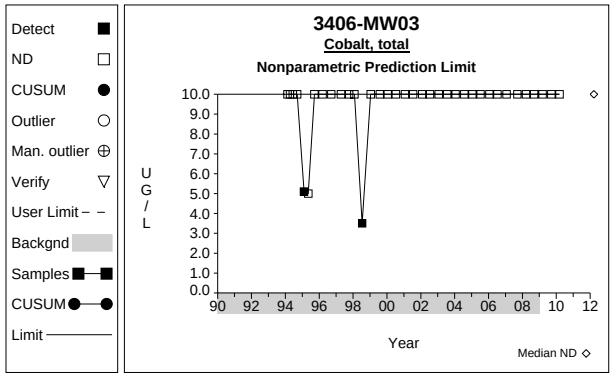

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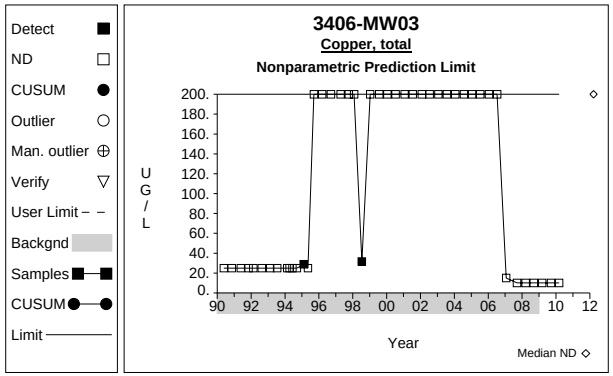

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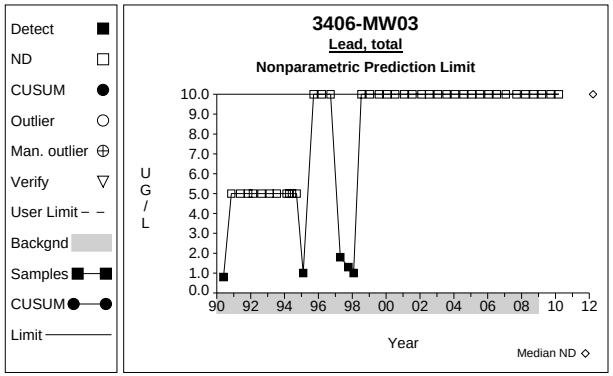
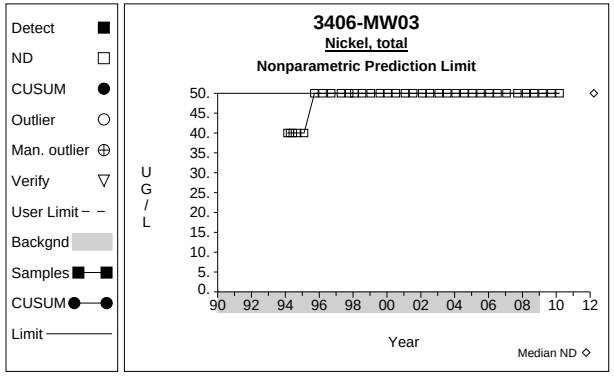


Graph 39

Intra-Well Control Charts



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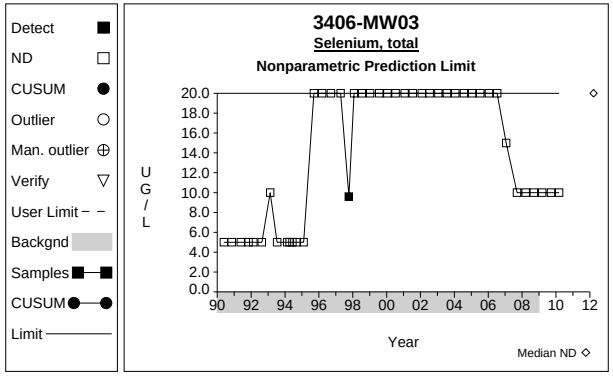

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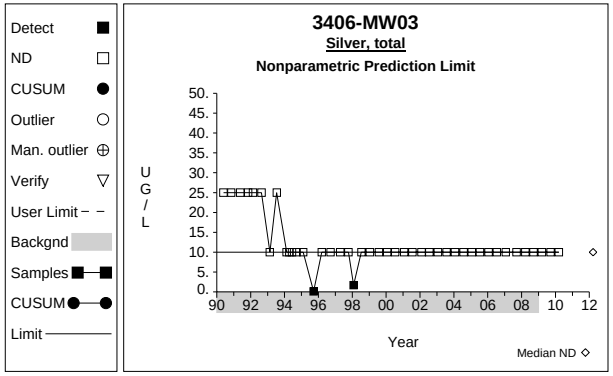

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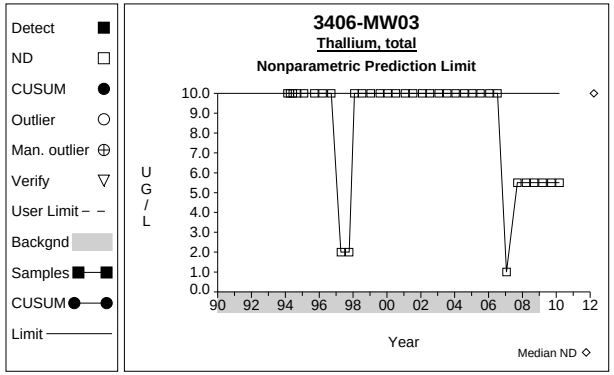

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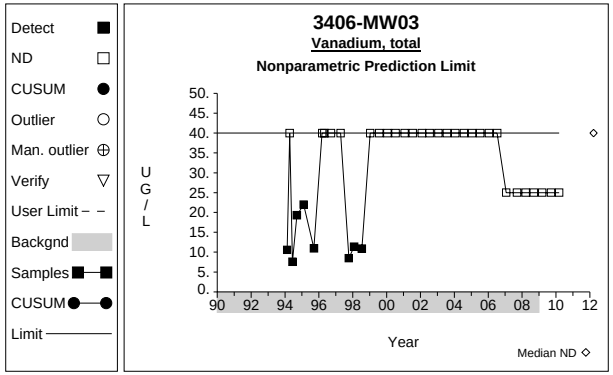

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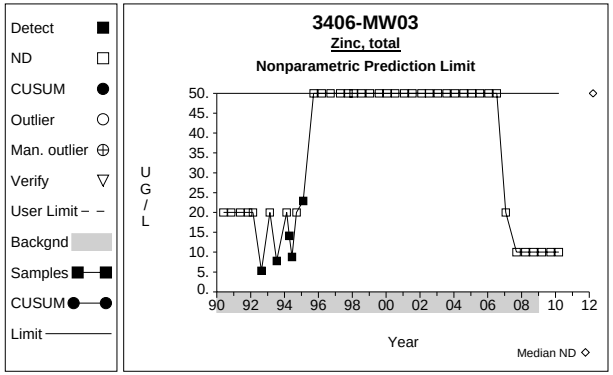
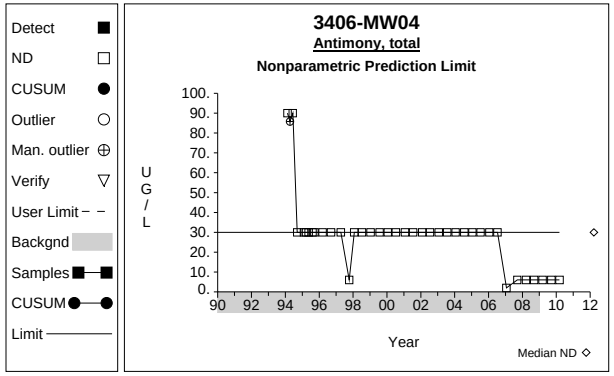


Graph 45

Intra-Well Control Charts



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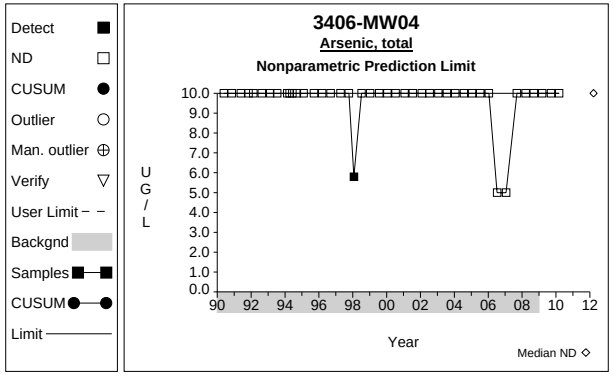

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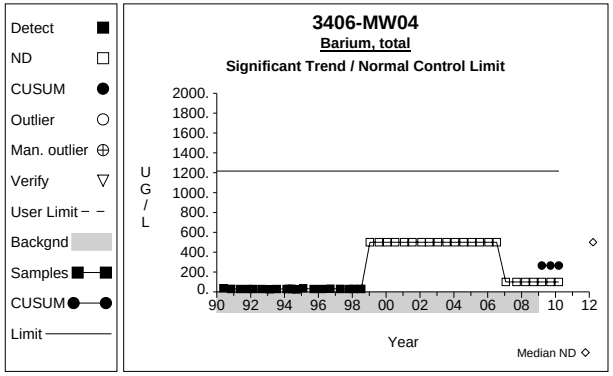

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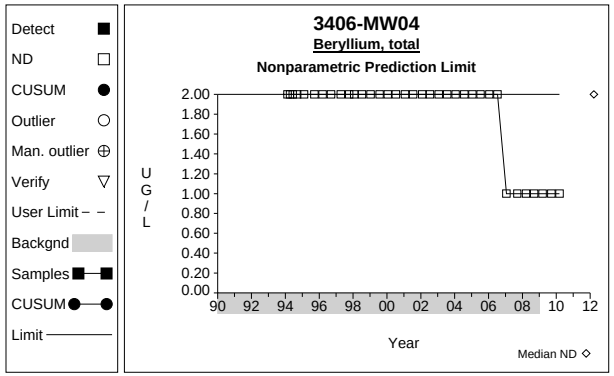

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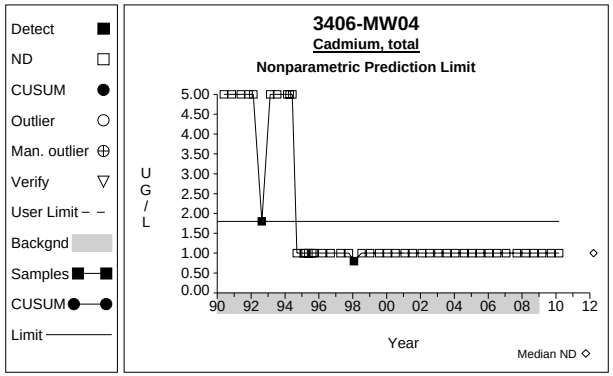

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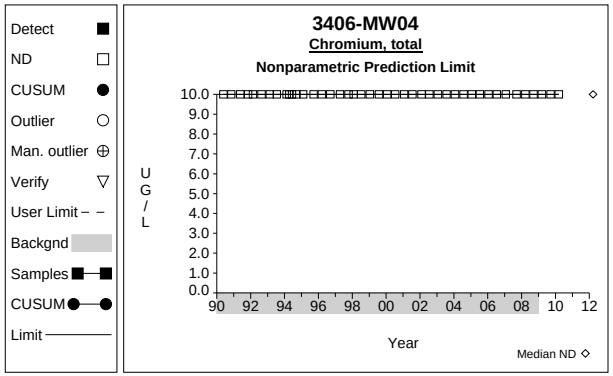

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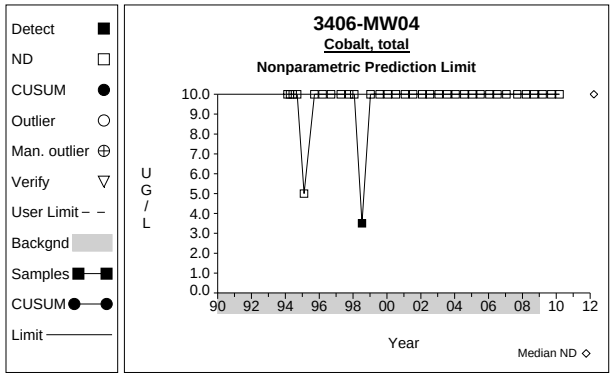

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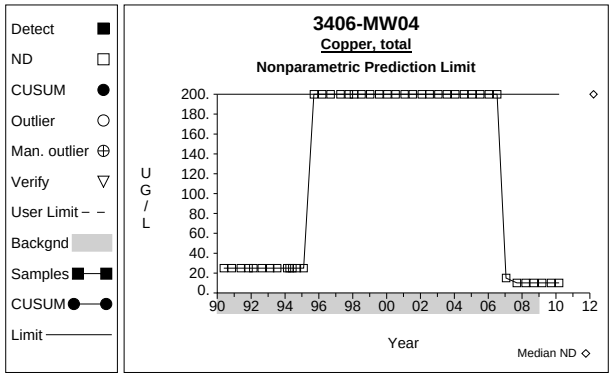

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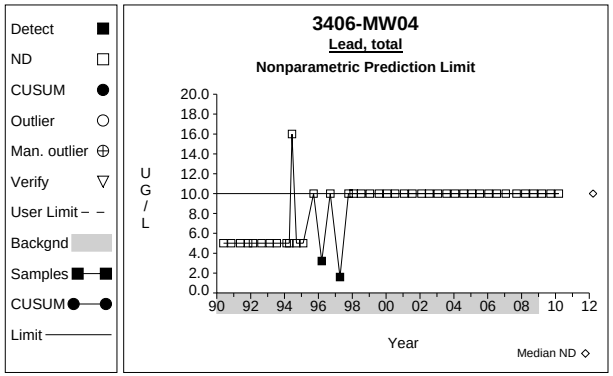
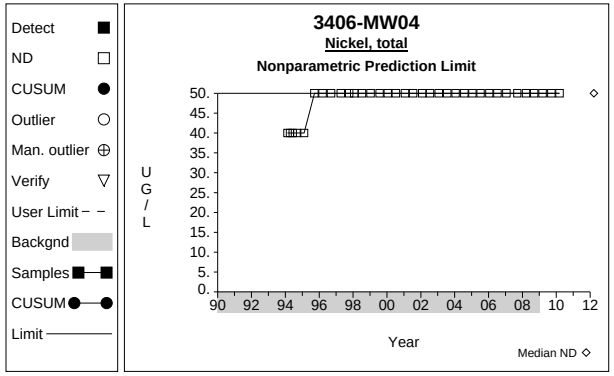
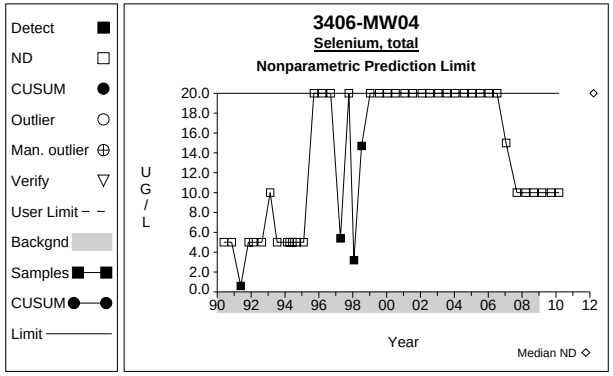


Graph 54

Intra-Well Control Charts



Graph 55



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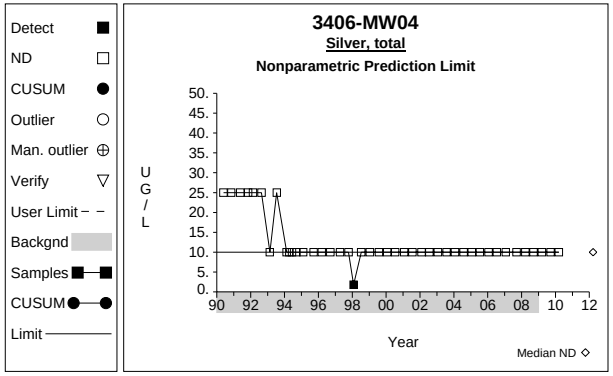

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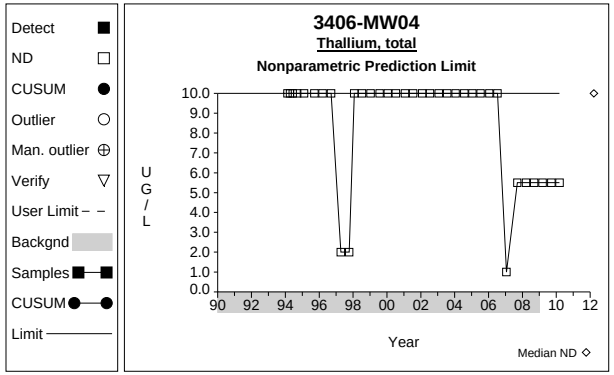

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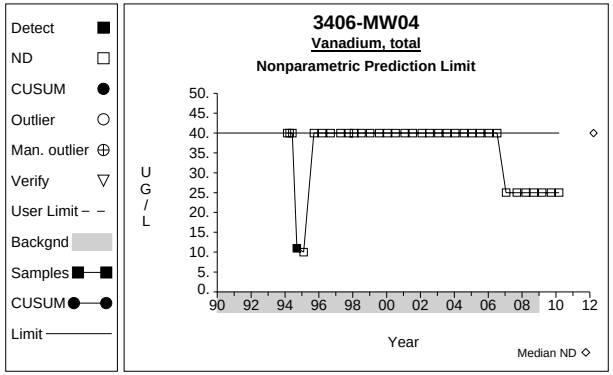

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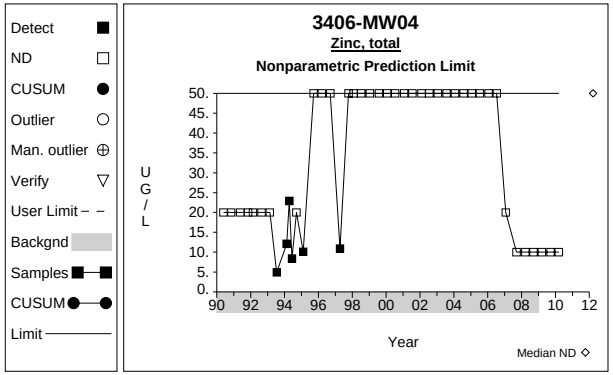
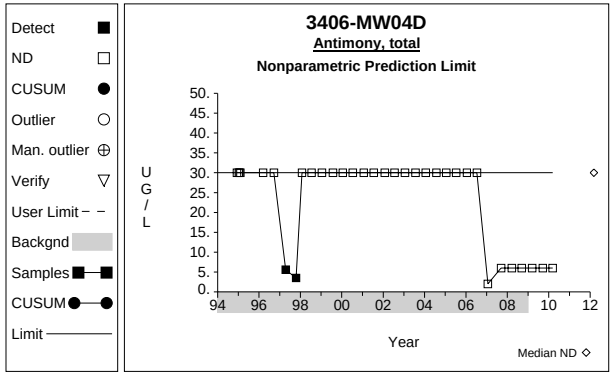
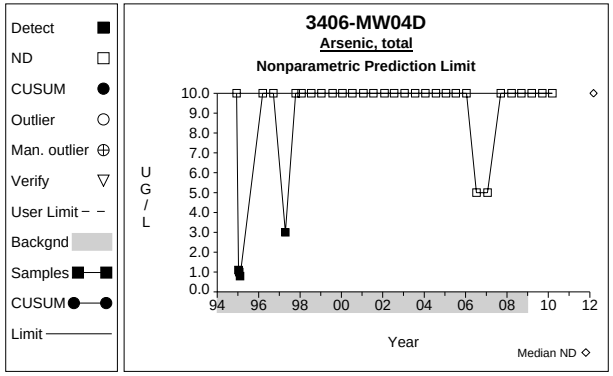


Graph 60

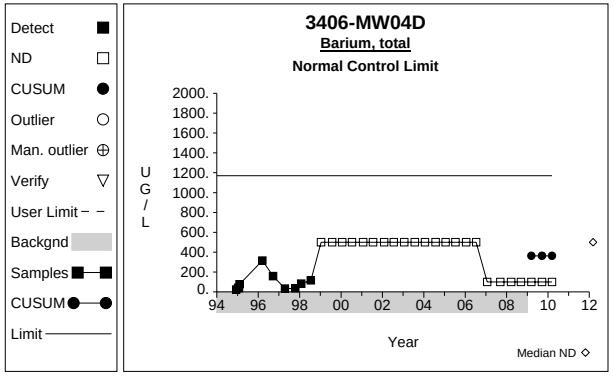
Intra-Well Control Charts



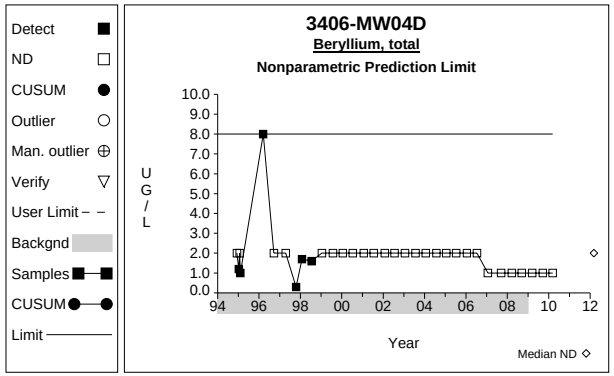
Graph 61



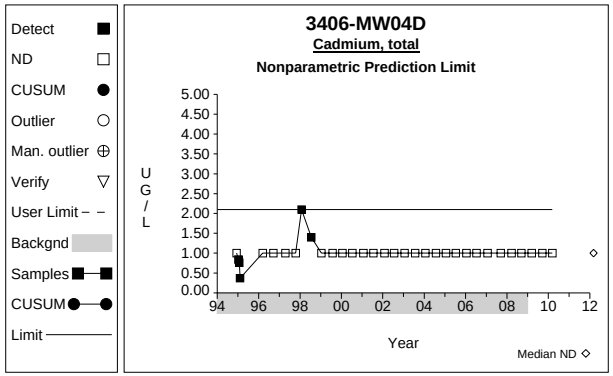
Graph 62



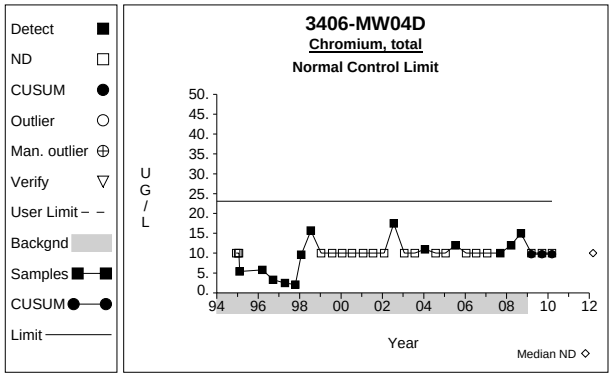
Graph 63



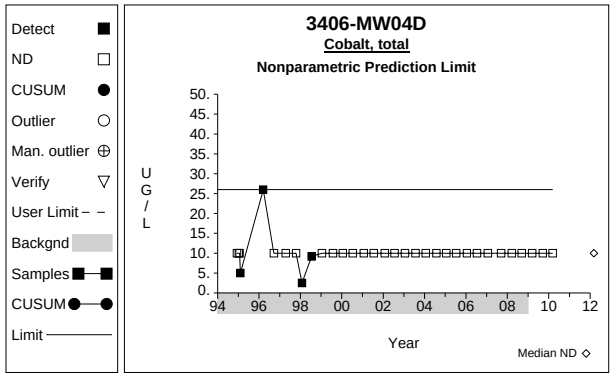
Graph 64



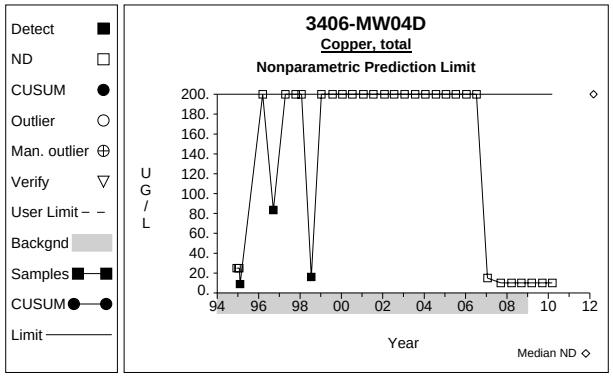
Graph 65



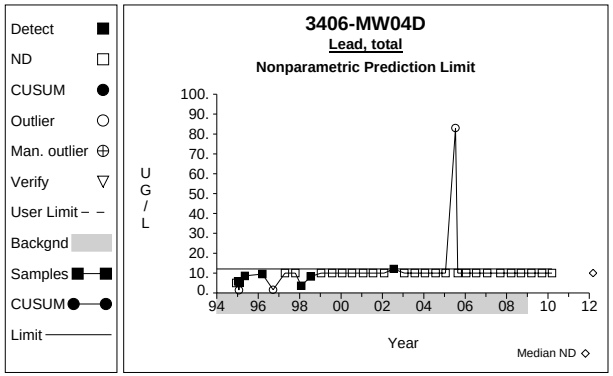
Graph 66



Graph 67



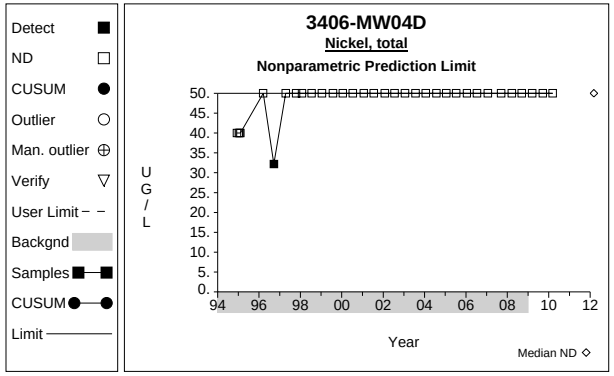
Graph 68



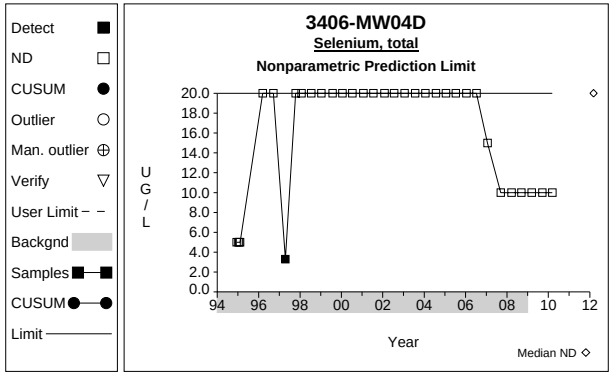
Graph 69

Prepared by: Otter Creek Environmental

Intra-Well Control Charts



Graph 70



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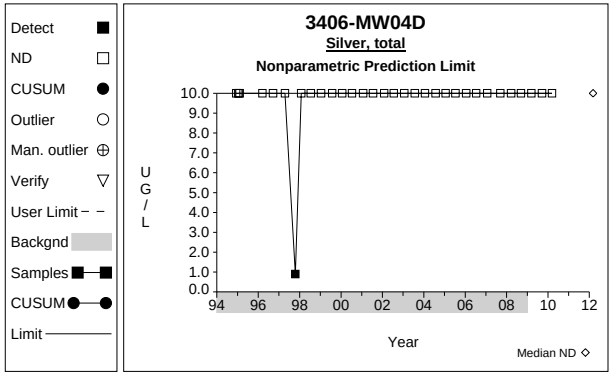
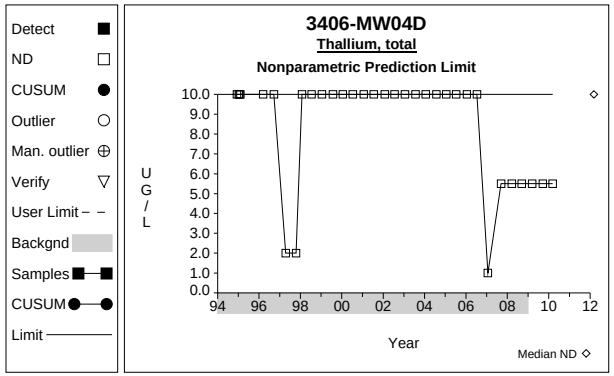
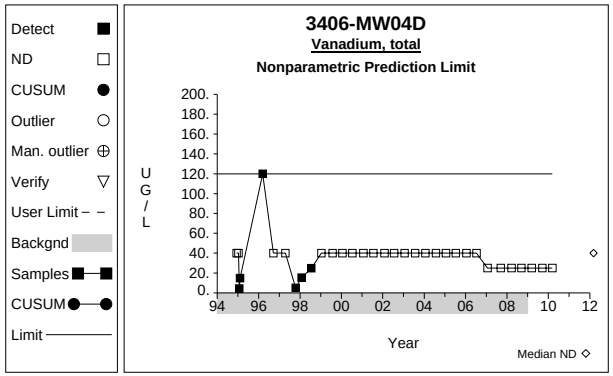


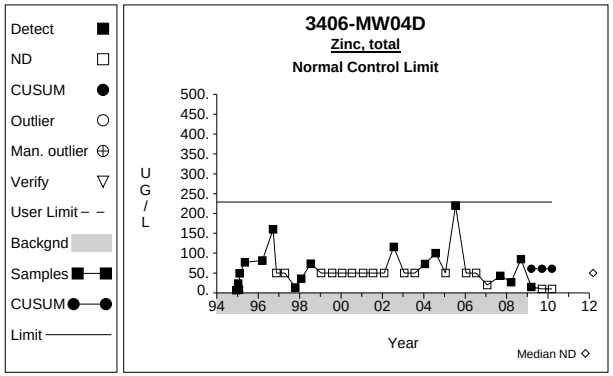
Graph 72



Graph 73

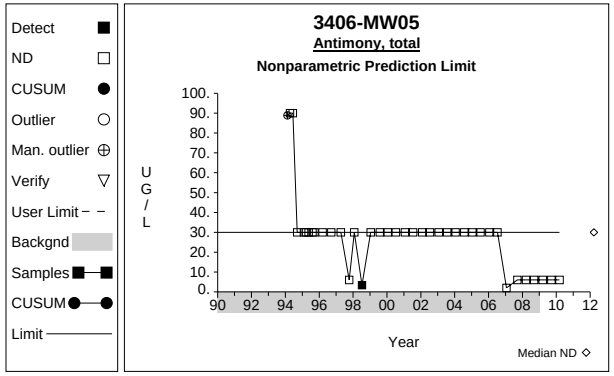


Graph 74

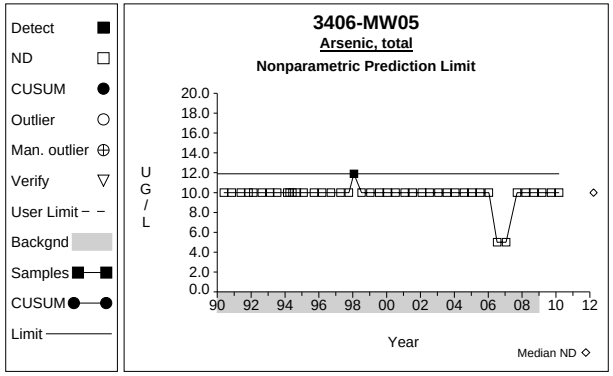


Graph 75

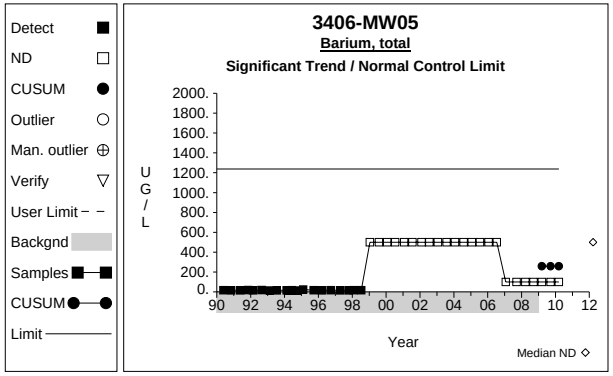
Intra-Well Control Charts



Graph 76



Graph 77



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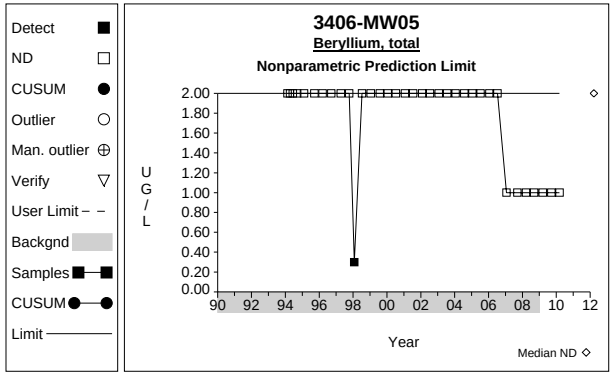

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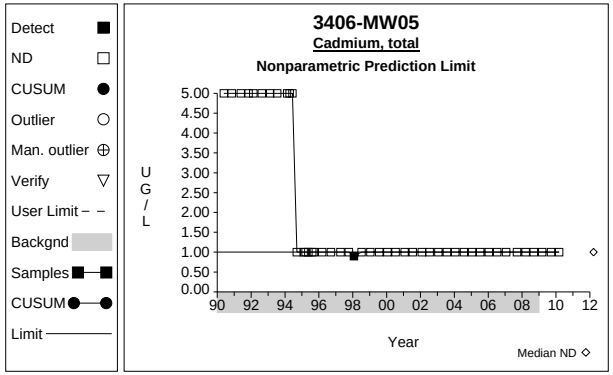

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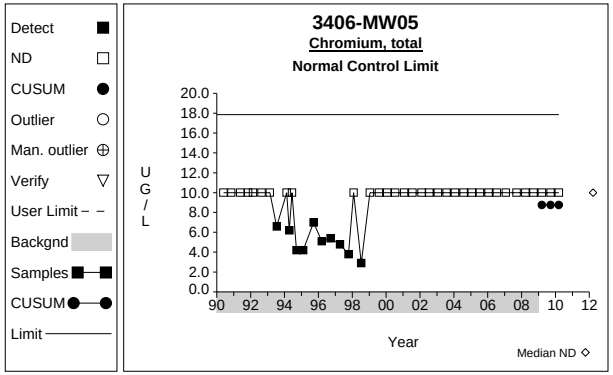

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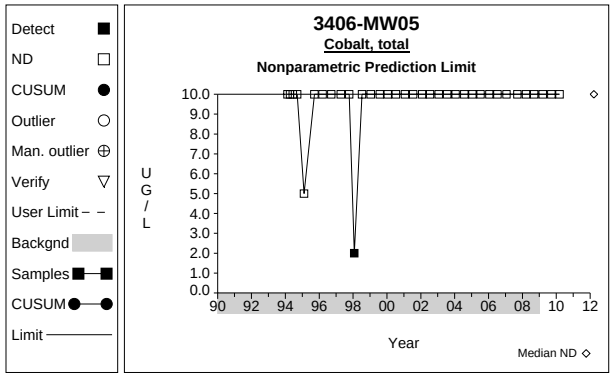

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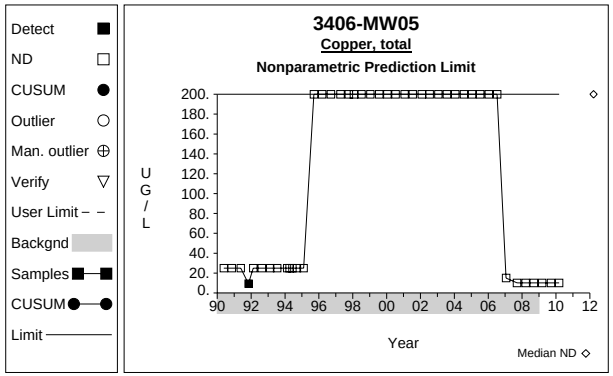

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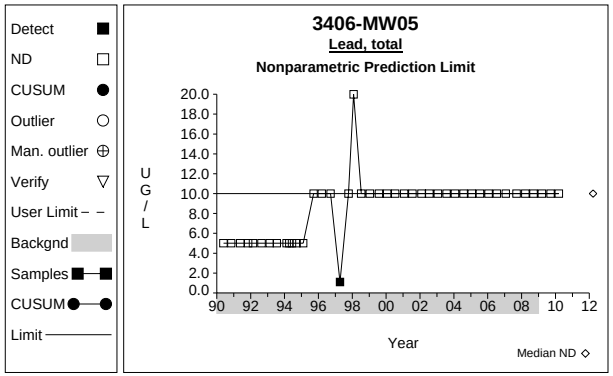
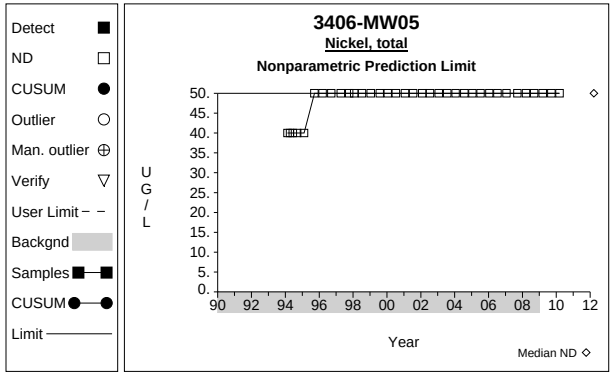
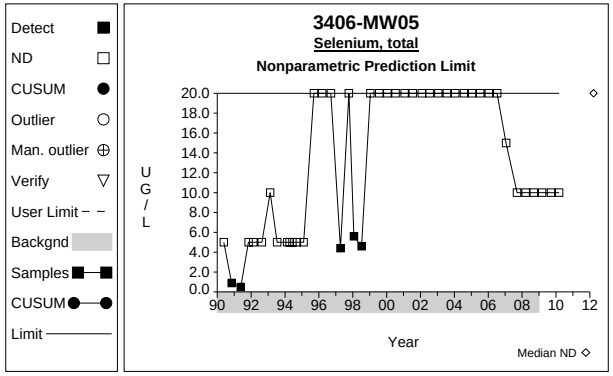


Graph 84

Intra-Well Control Charts



Graph 85



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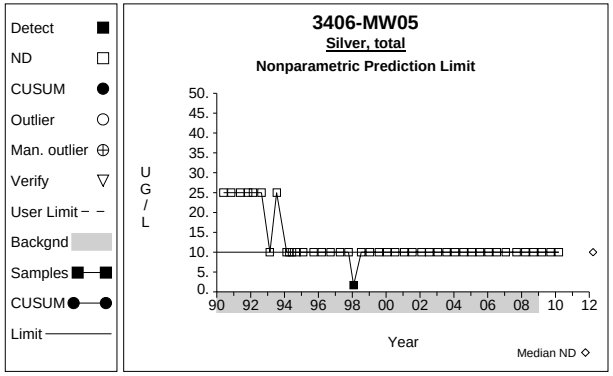

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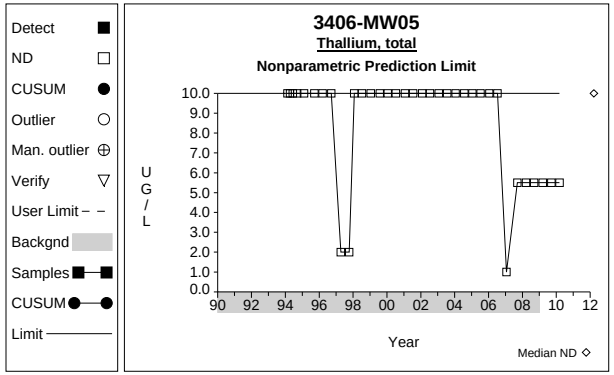

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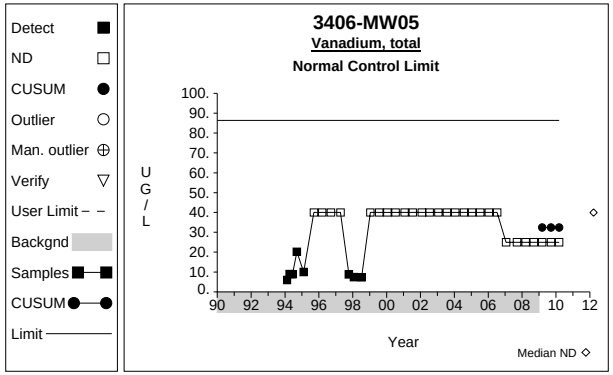

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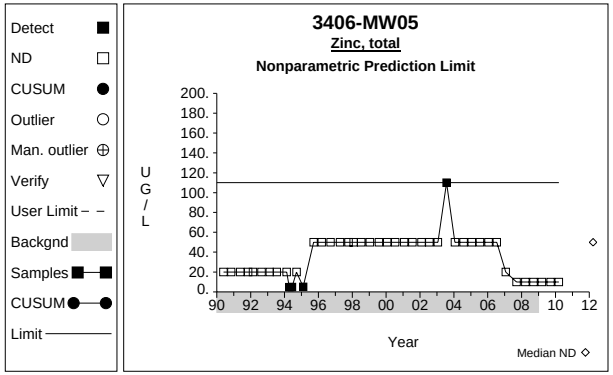
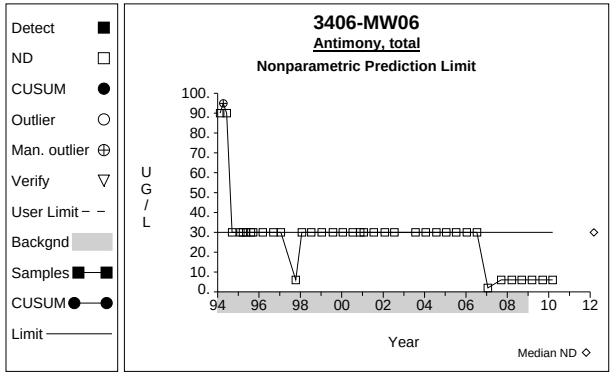
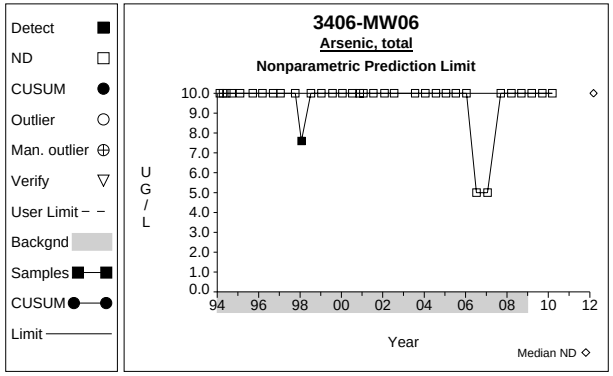


Graph 90

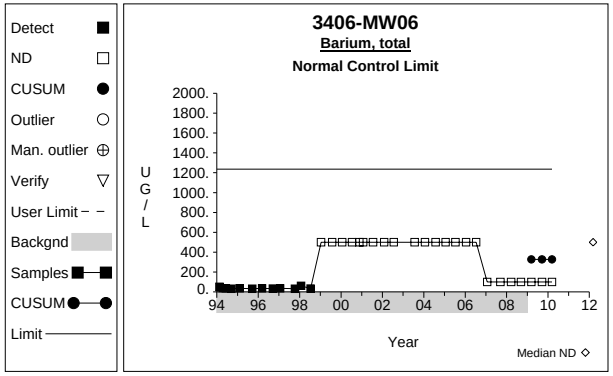
Intra-Well Control Charts



Graph 91



Graph 92



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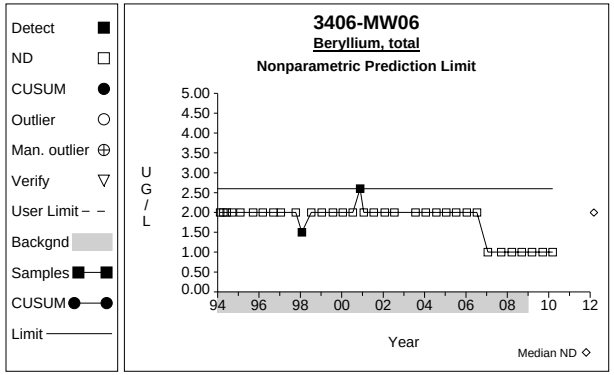

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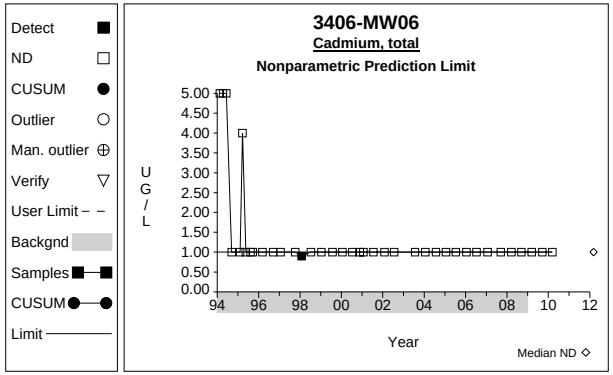

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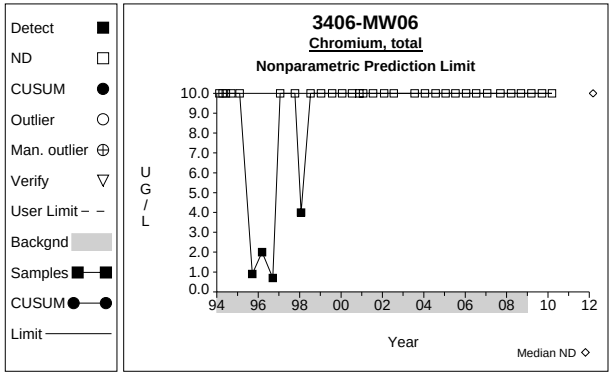
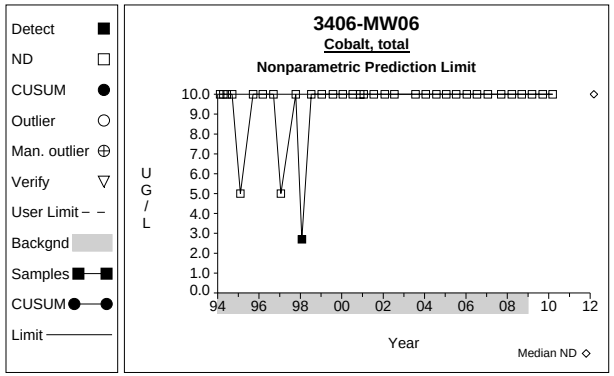
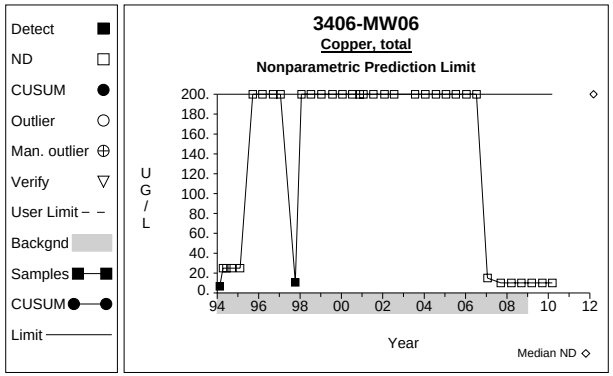


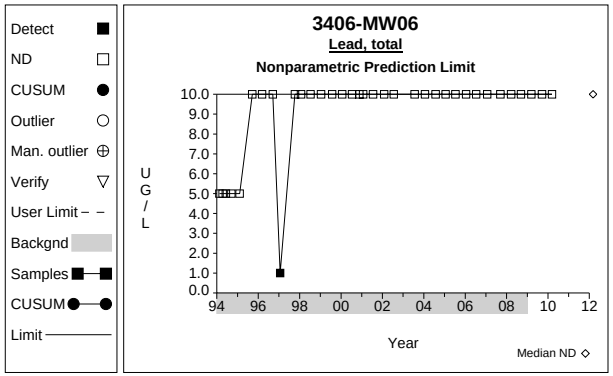
Graph 96



Graph 97

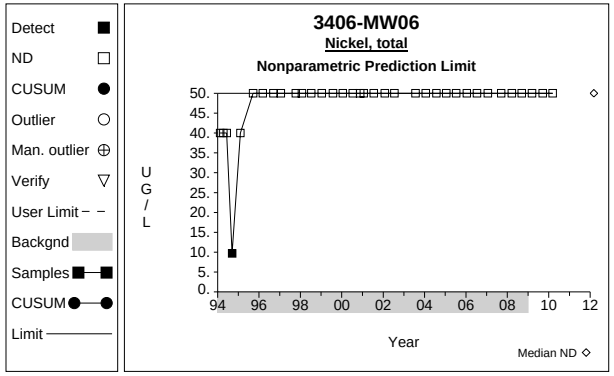


Graph 98

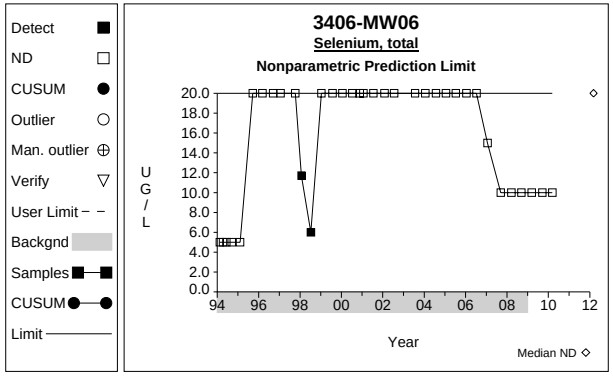


Graph 99

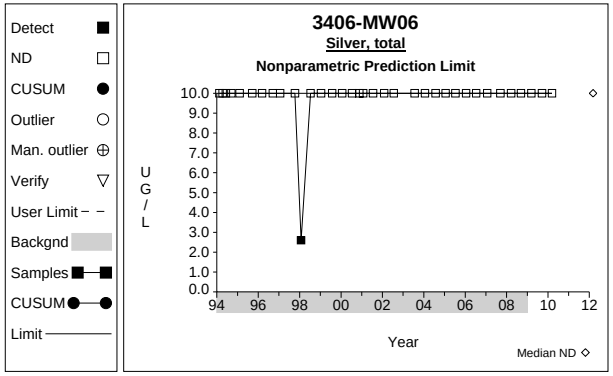
Intra-Well Control Charts



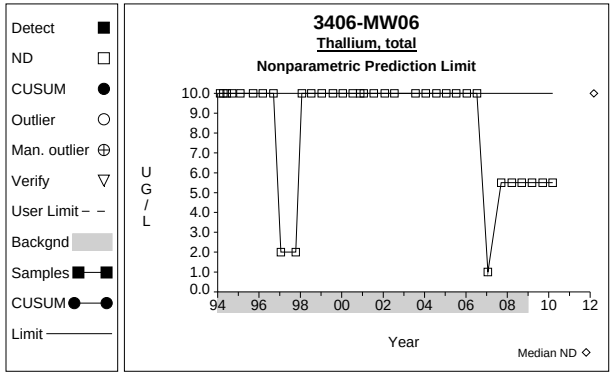
Graph 100



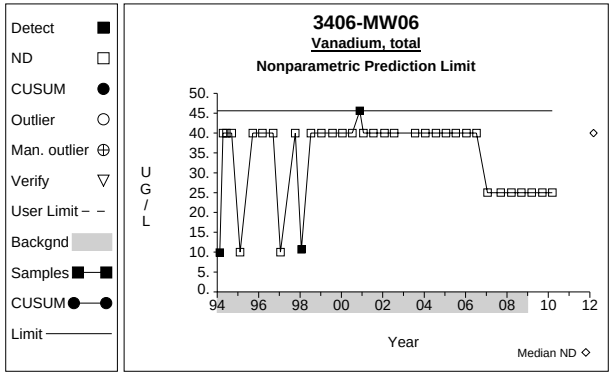
Graph 101



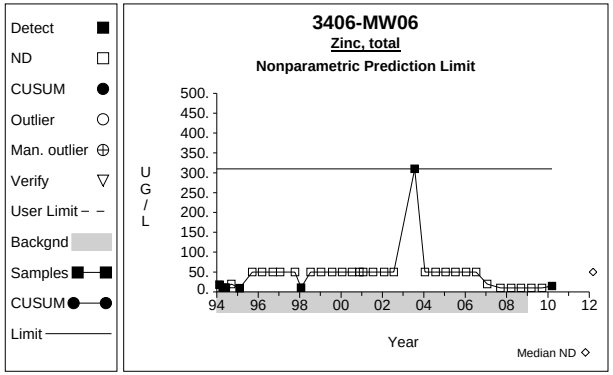
Graph 102



Graph 103

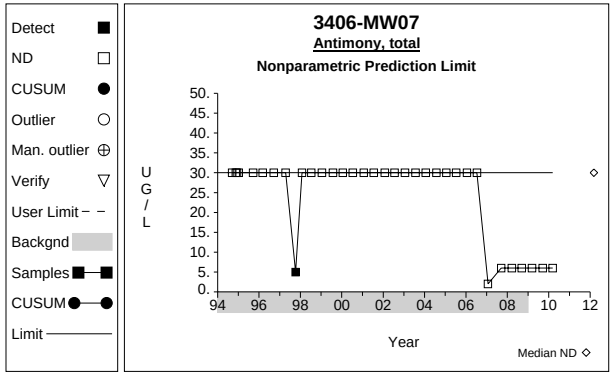


Graph 104

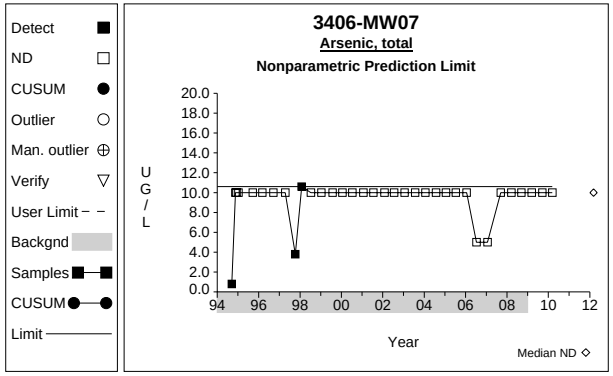


Graph 105

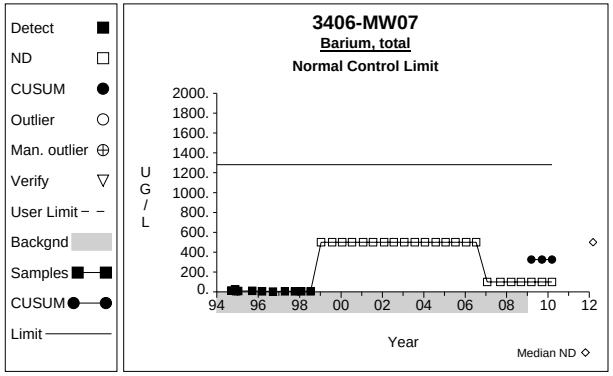
Intra-Well Control Charts



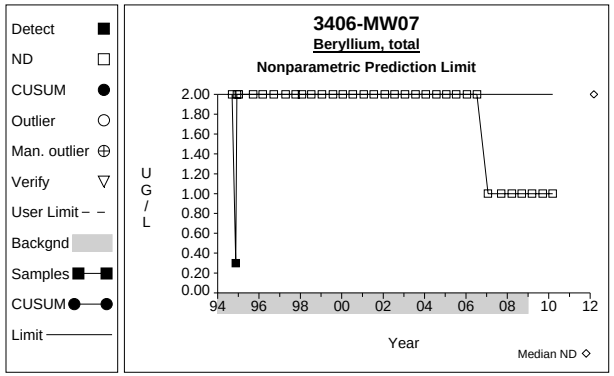
Graph 106



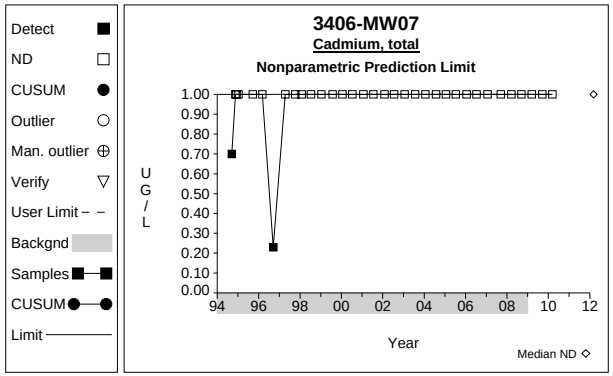
Graph 107



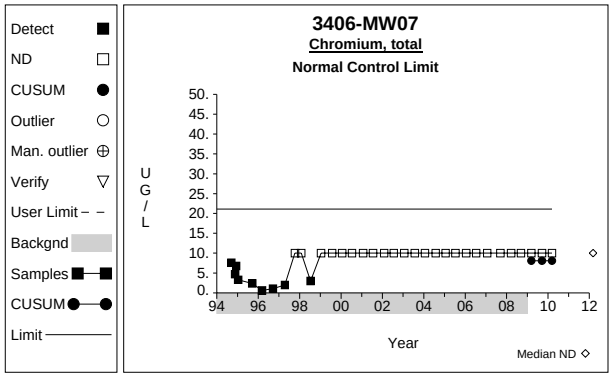
Graph 108



Graph 109



Graph 110



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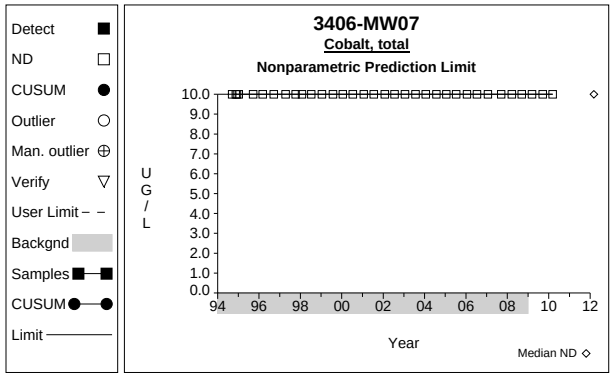
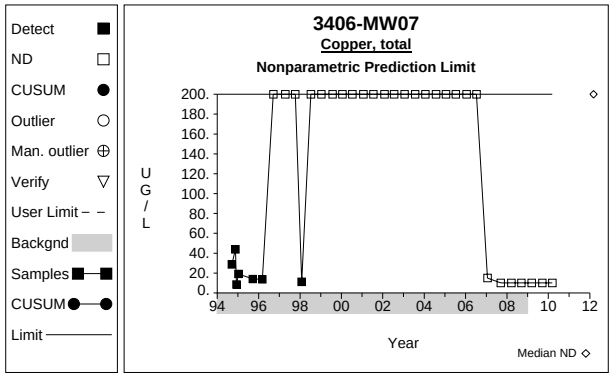
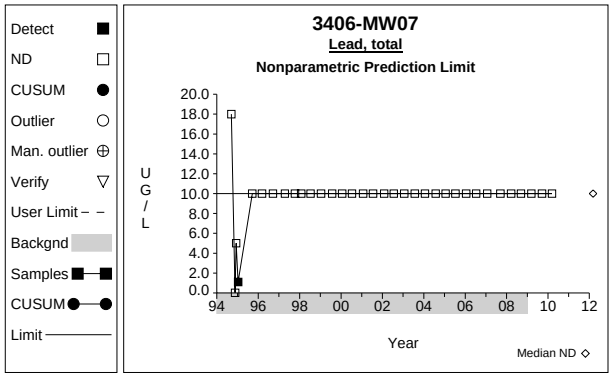


Graph 112

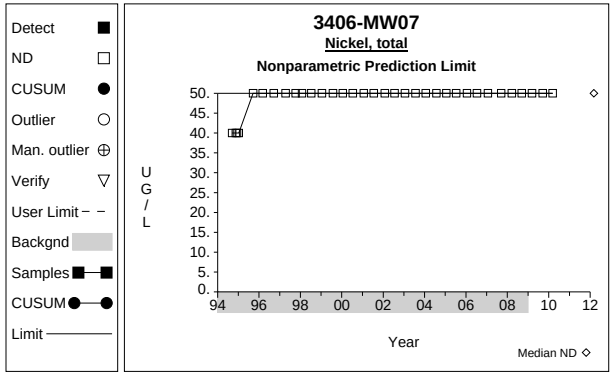


Graph 113

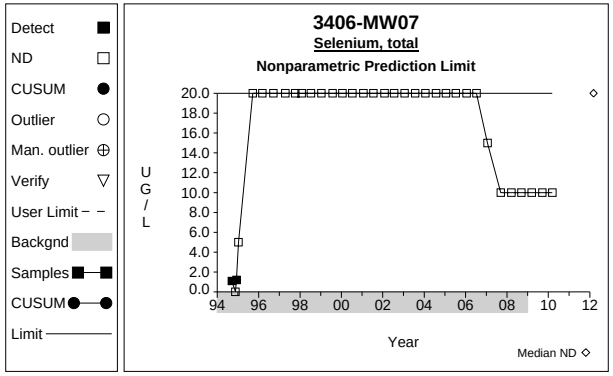


Graph 114

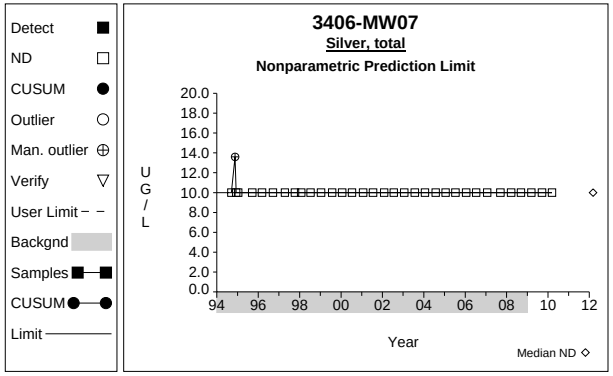
Intra-Well Control Charts



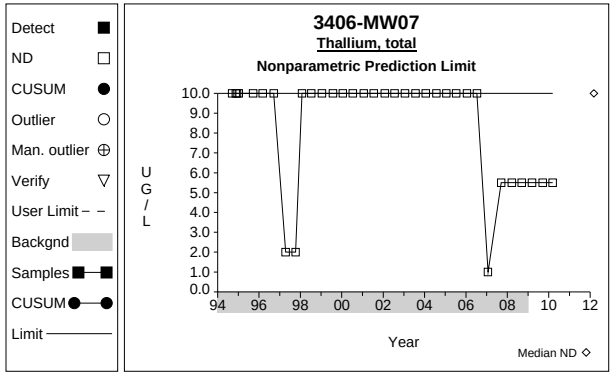
Graph 115



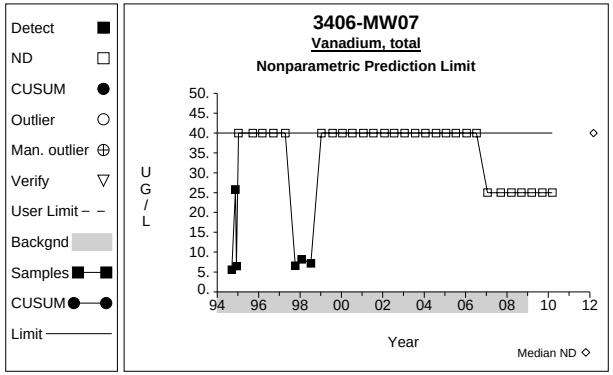
Graph 116



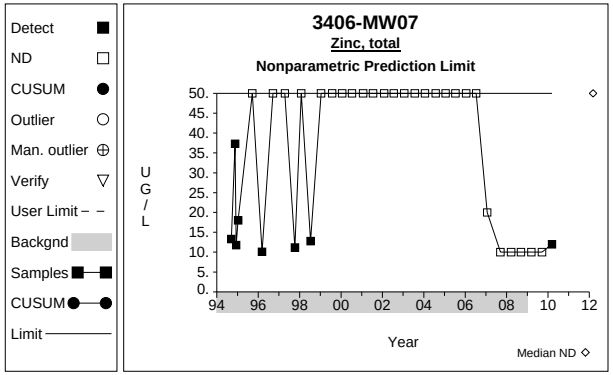
Graph 117



Graph 118

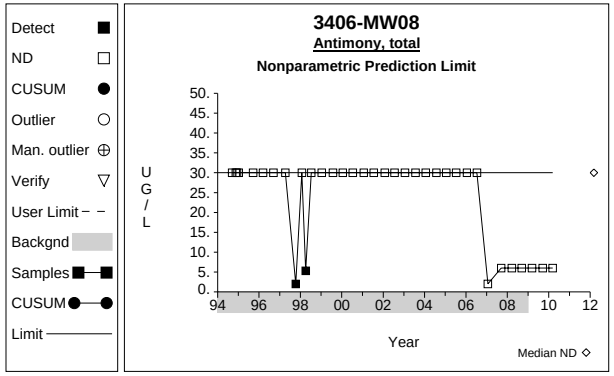


Graph 119

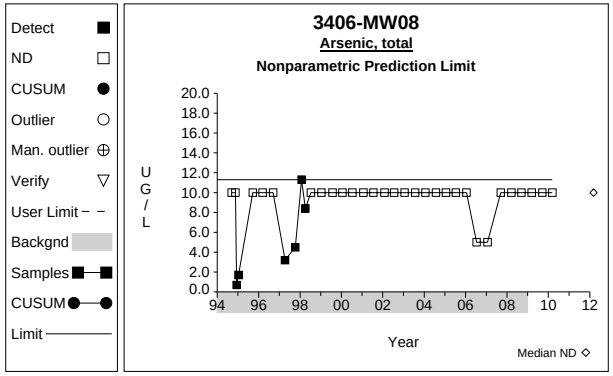


Graph 120

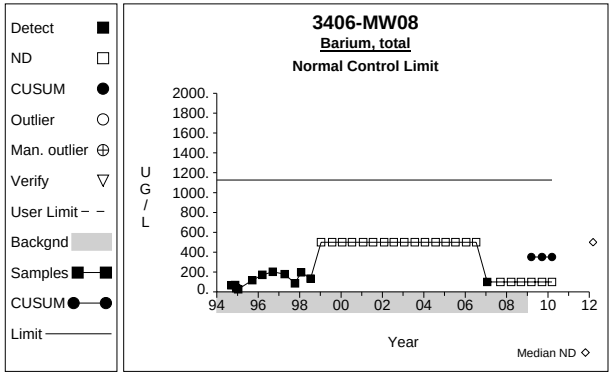
Intra-Well Control Charts



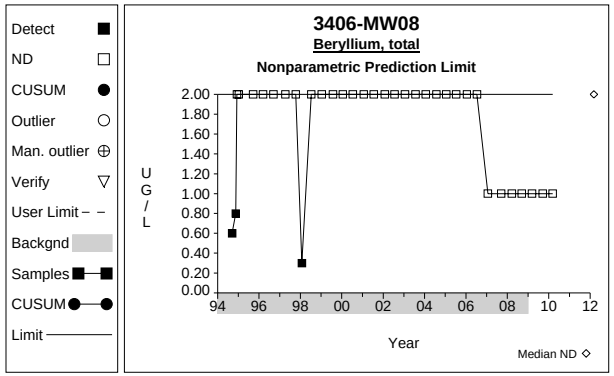
Graph 121



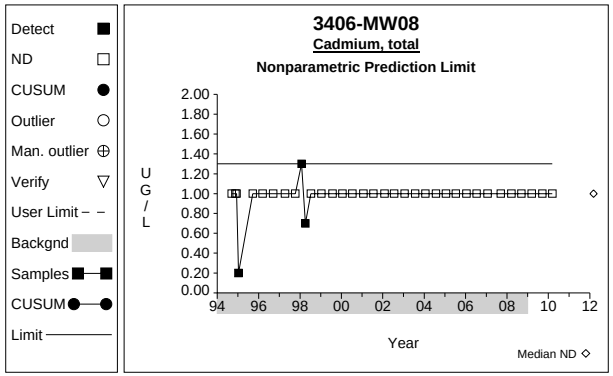
Graph 122



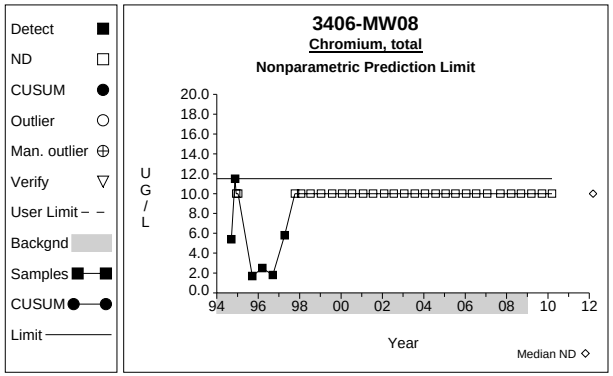
Graph 123



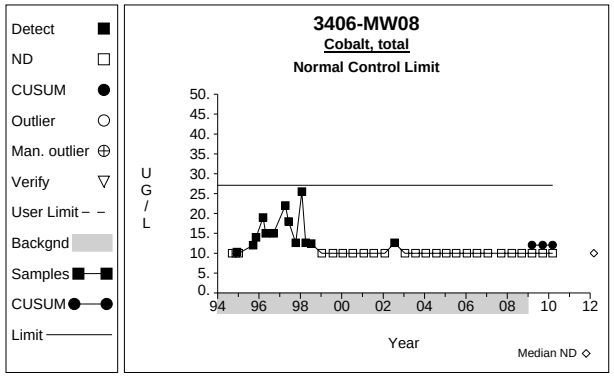
Graph 124



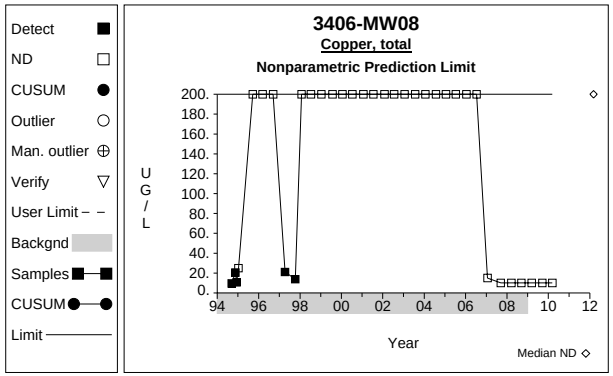
Graph 125



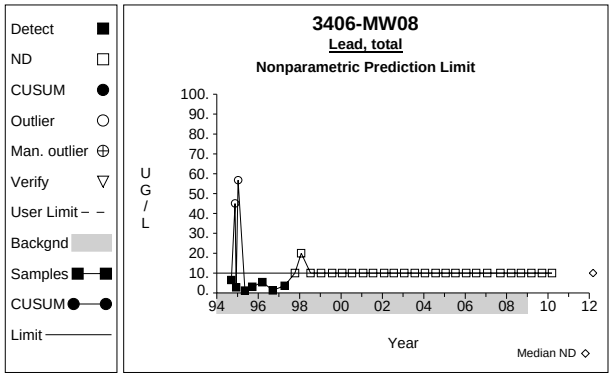
Graph 126



Graph 127

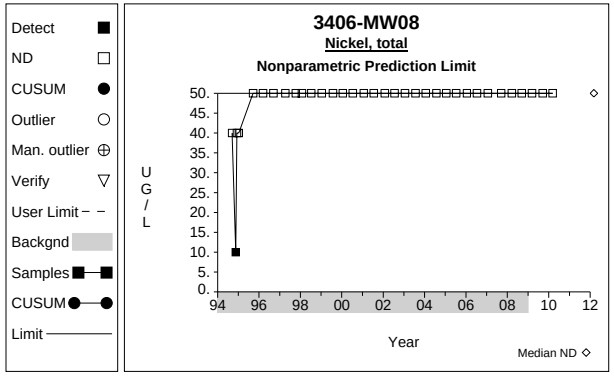


Graph 128

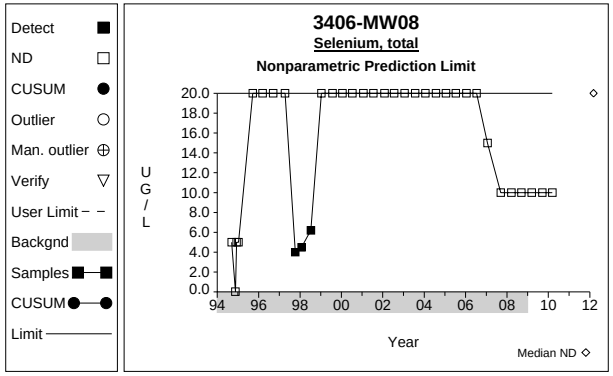


Graph 129

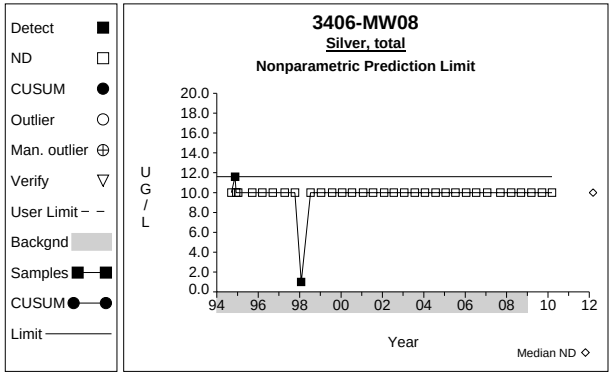
Intra-Well Control Charts



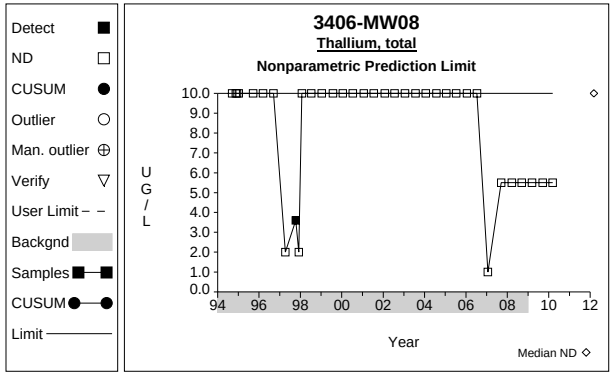
Graph 130



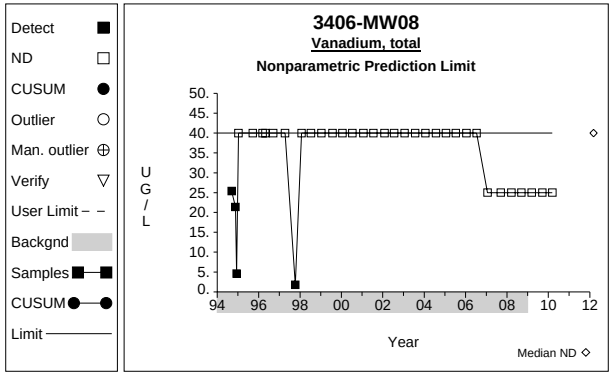
Graph 131



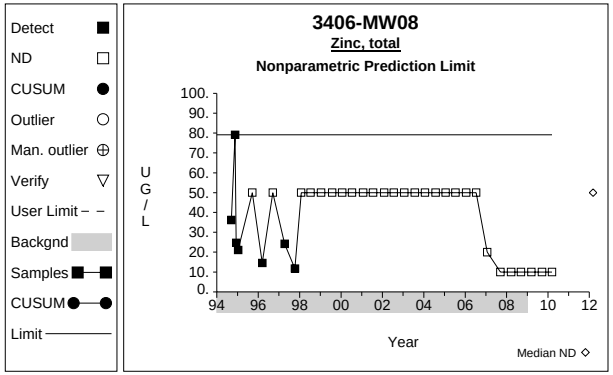
Graph 132



Graph 133

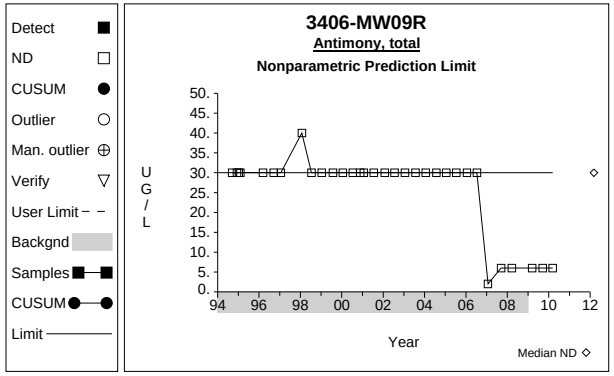


Graph 134

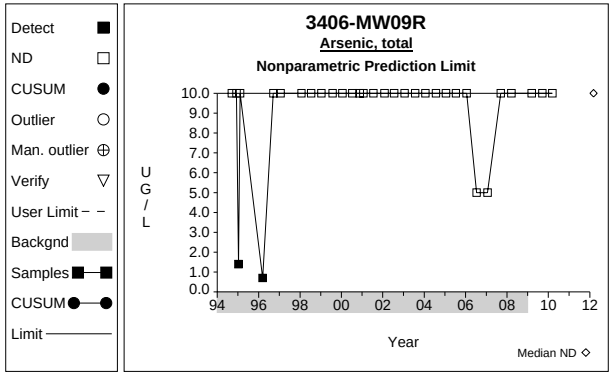


Graph 135

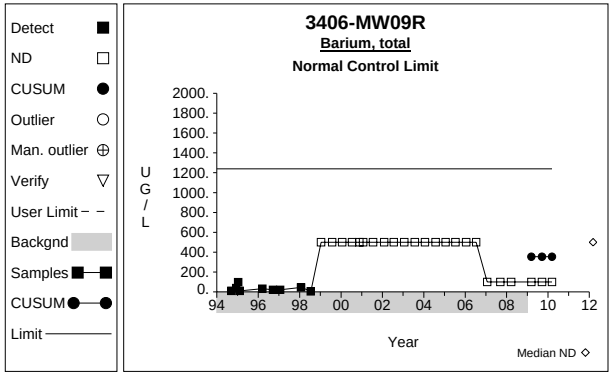
Intra-Well Control Charts



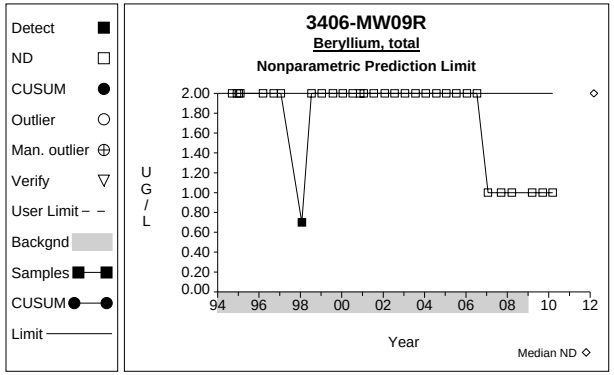
Graph 136



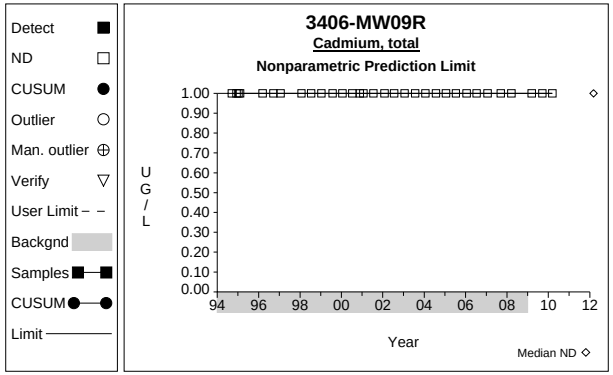
Graph 137



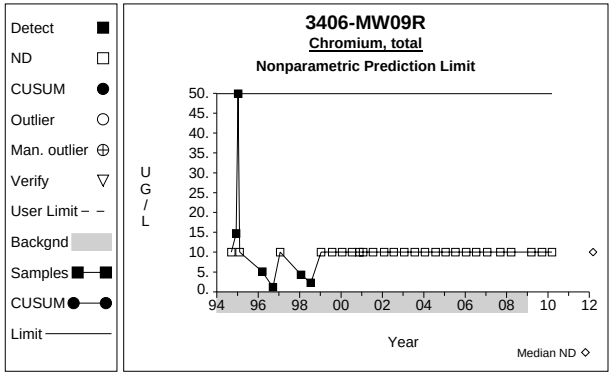
Graph 138



Graph 139



Graph 140



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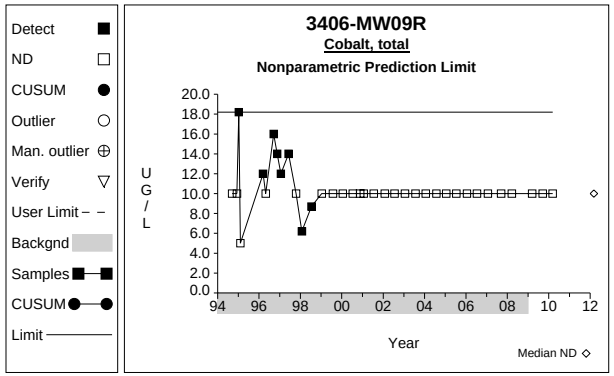
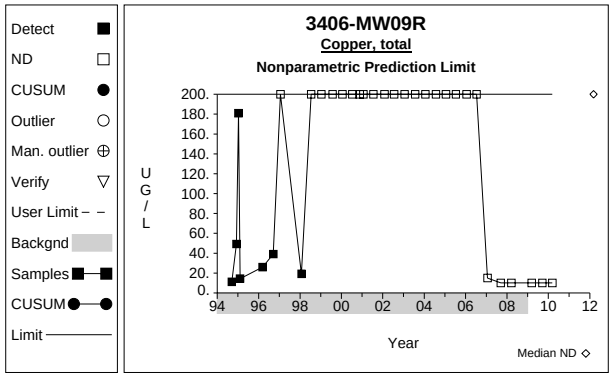


Graph 142



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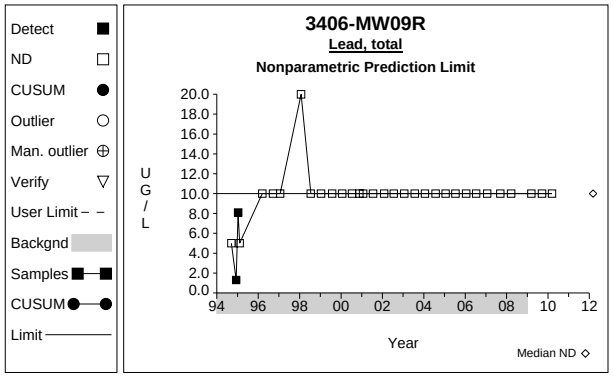
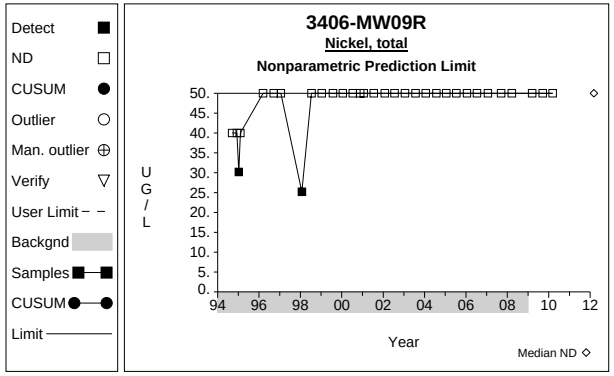


Graph 144

Intra-Well Control Charts



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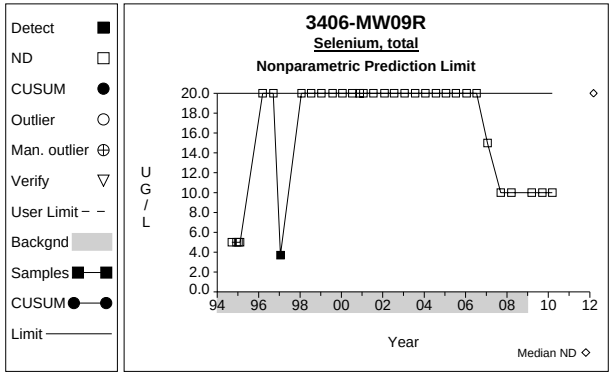

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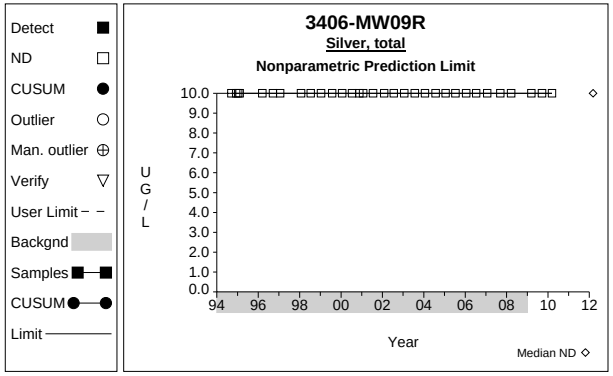

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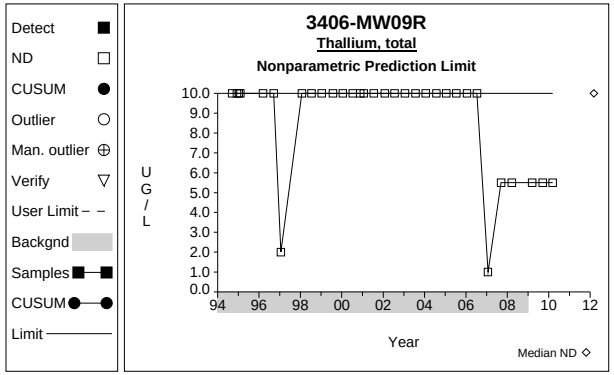
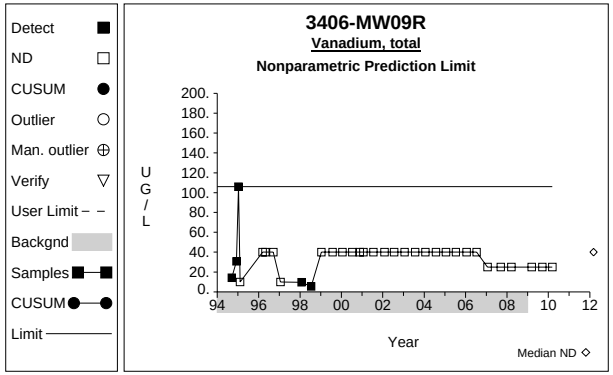
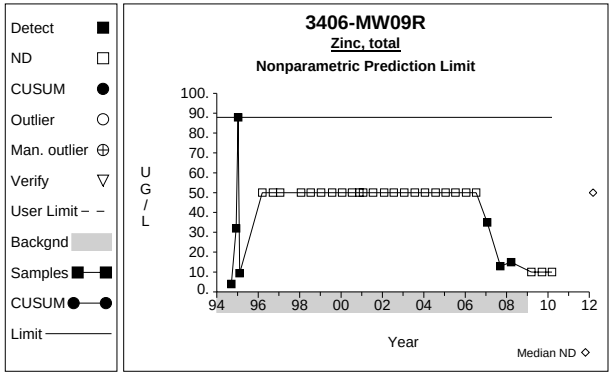


Graph 148

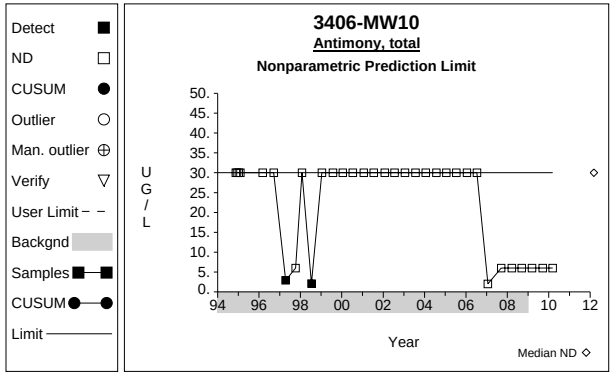


Graph 149

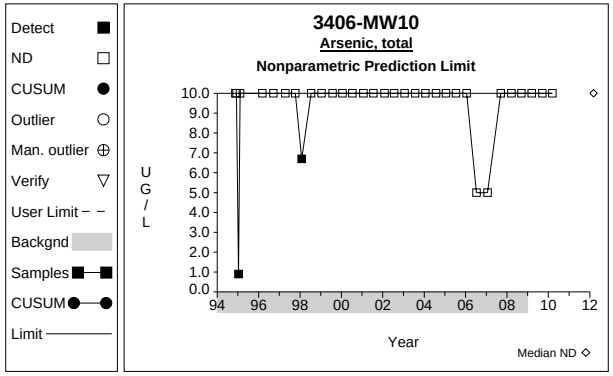


Graph 150

Intra-Well Control Charts



Graph 151



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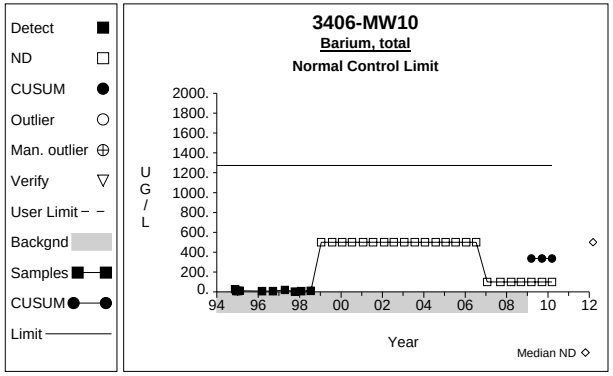

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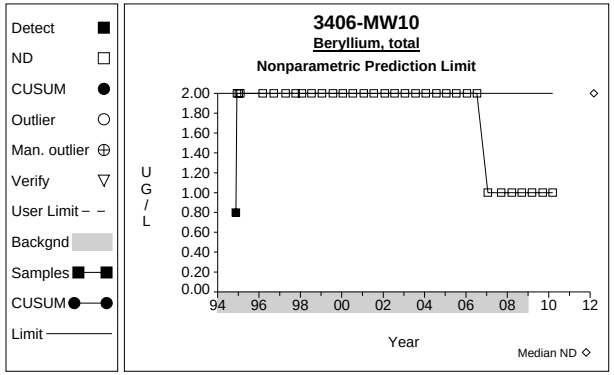
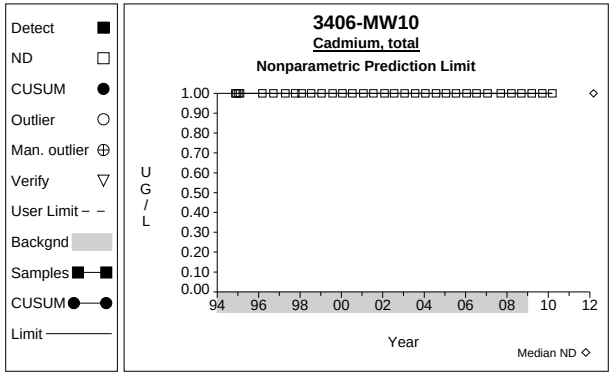


Graph 154



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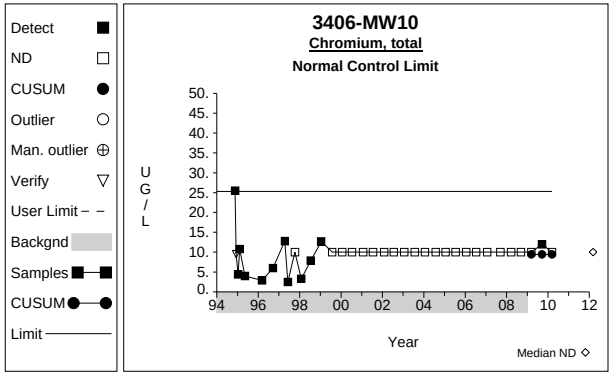
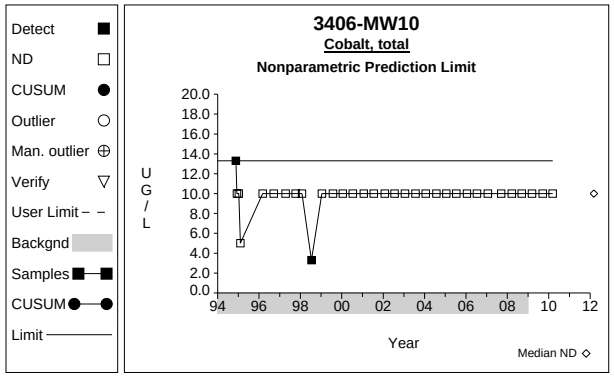
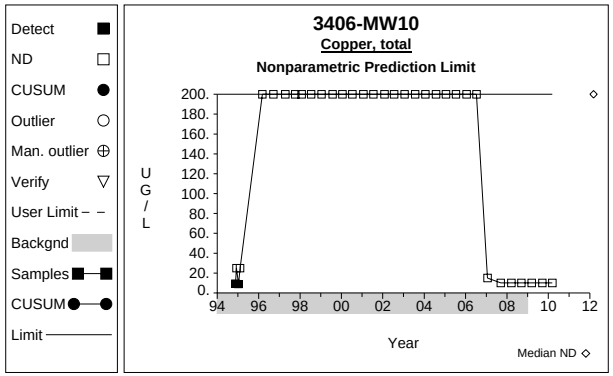


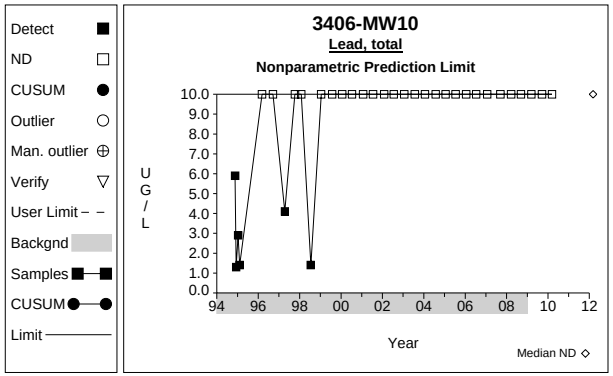
Graph 156



Graph 157

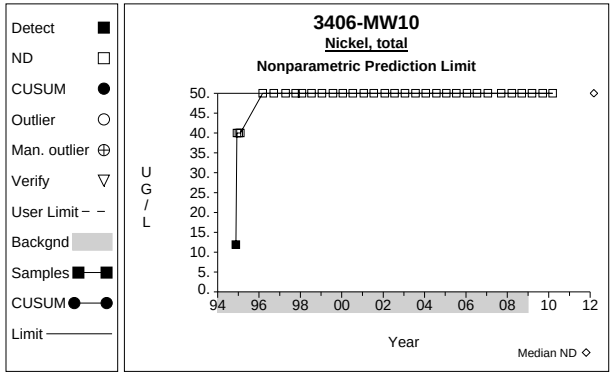


Graph 158

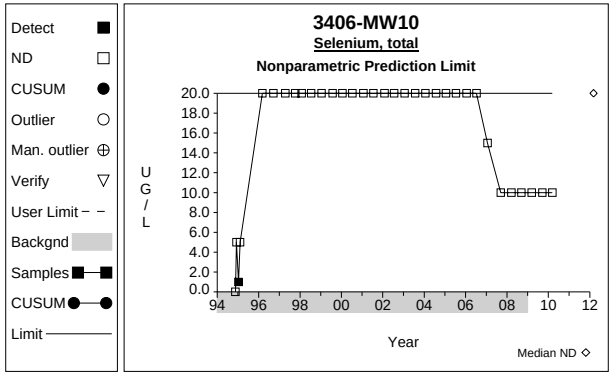


Graph 159

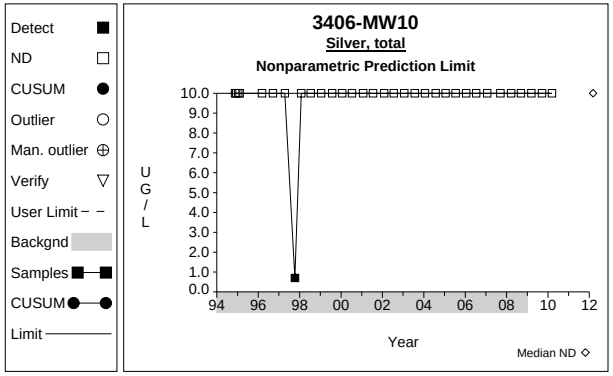
Intra-Well Control Charts



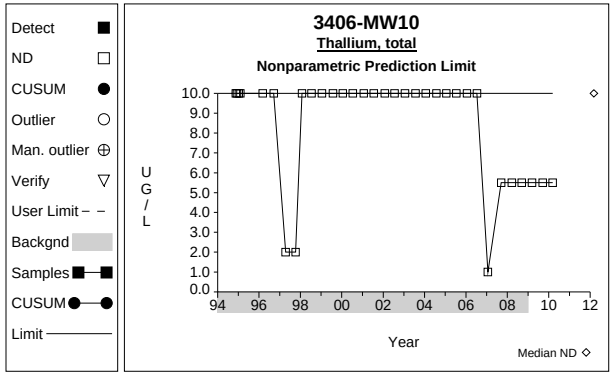
Graph 160



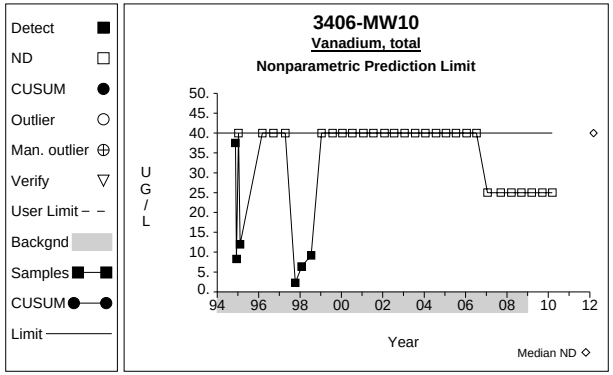
Graph 161



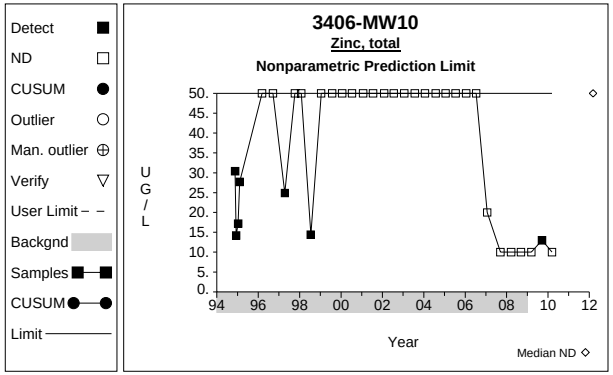
Graph 162



Graph 163

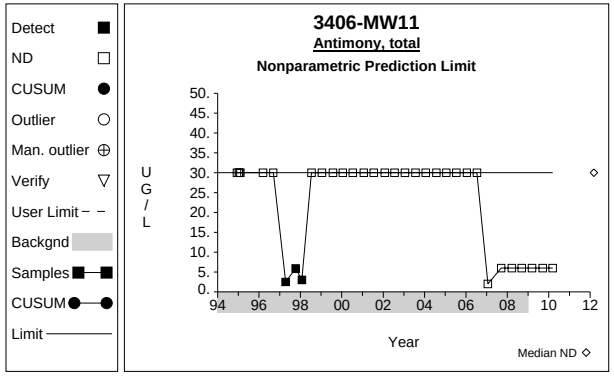


Graph 164

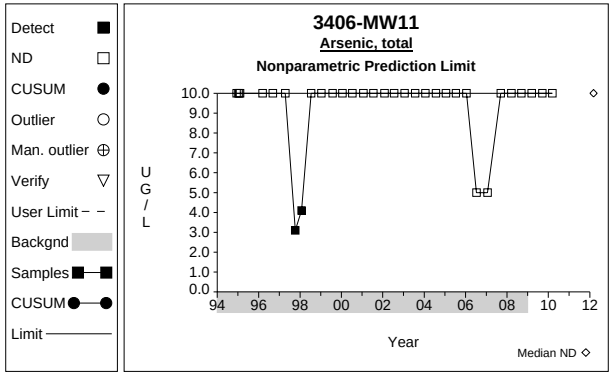


Graph 165

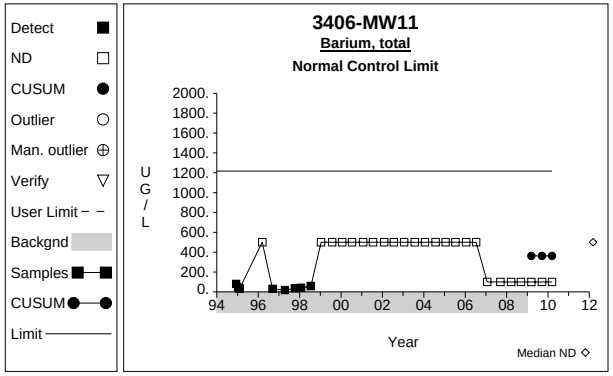
Intra-Well Control Charts



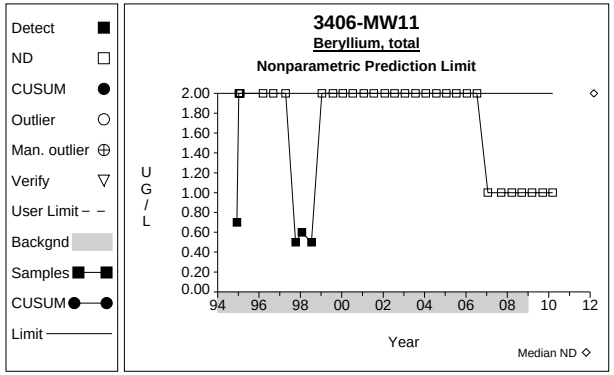
Graph 166



Graph 167



Graph 168



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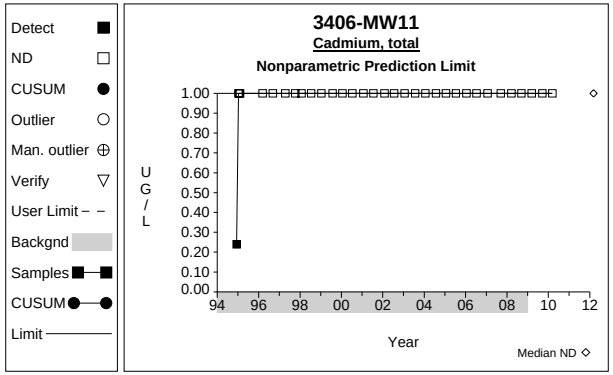

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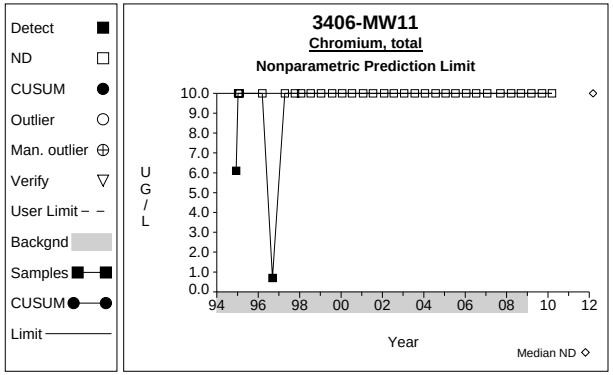

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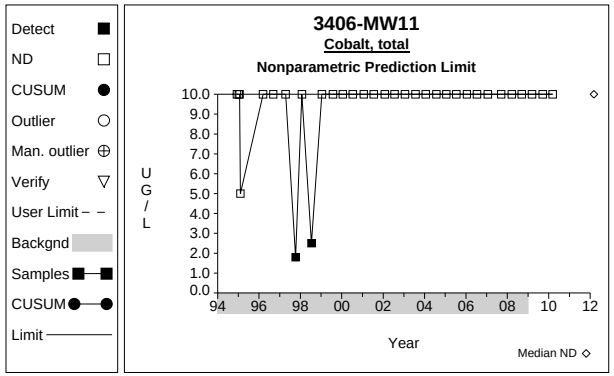
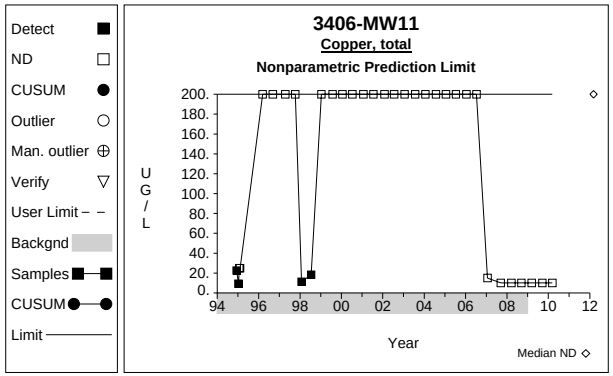
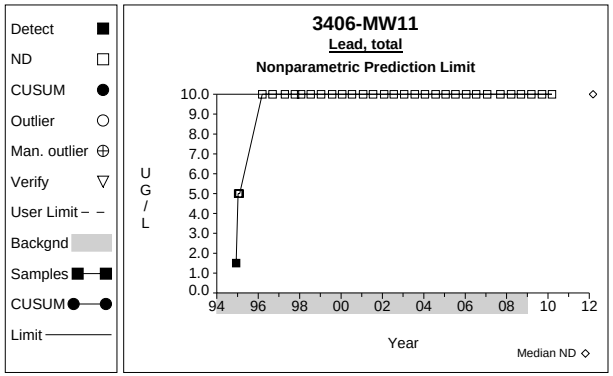


Graph 172

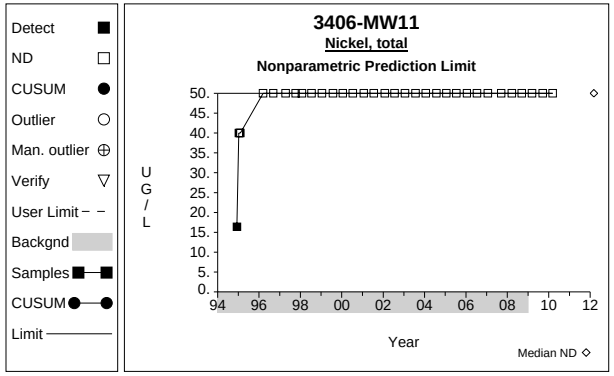


Graph 173

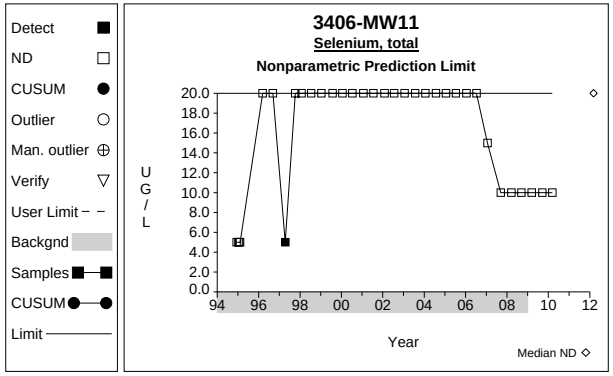


Graph 174

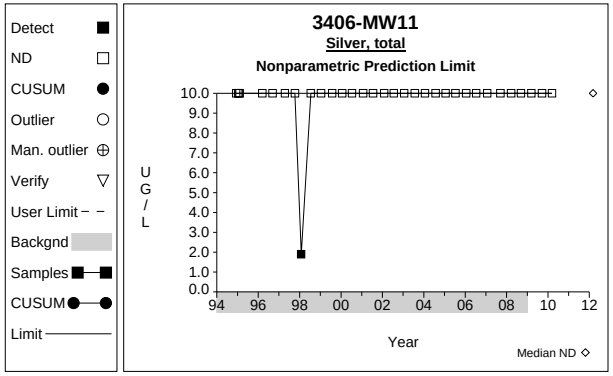
Intra-Well Control Charts



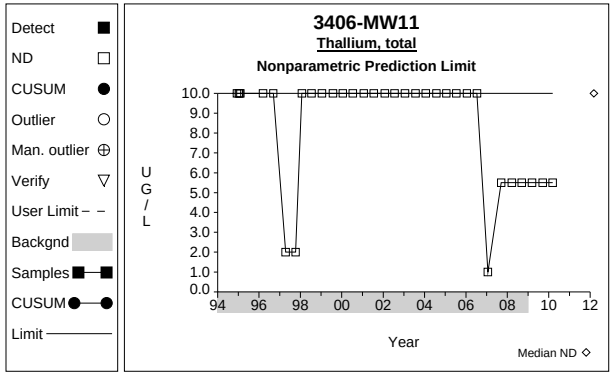
Graph 175



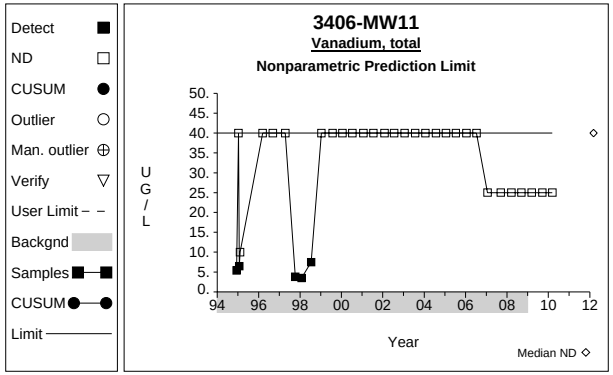
Graph 176



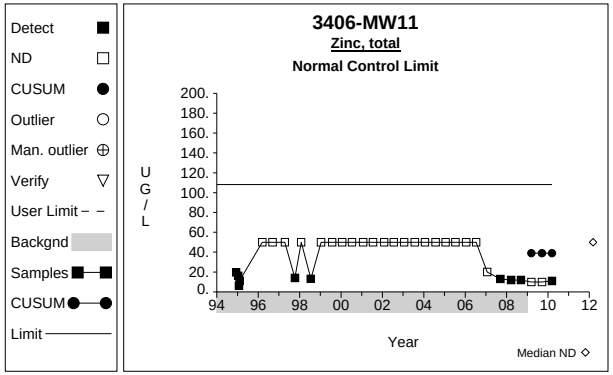
Graph 177



Graph 178

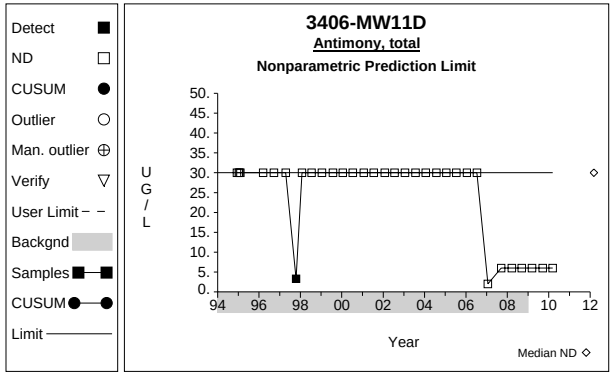


Graph 179

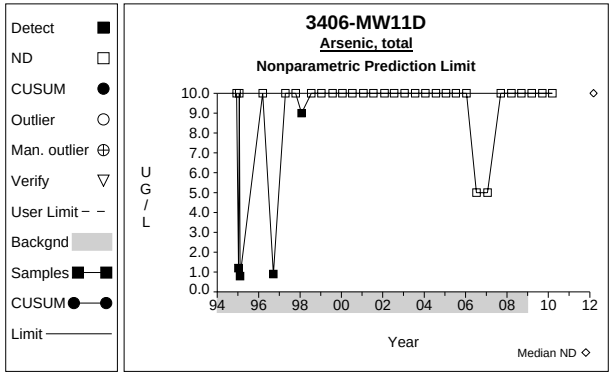


Graph 180

Intra-Well Control Charts



Graph 181



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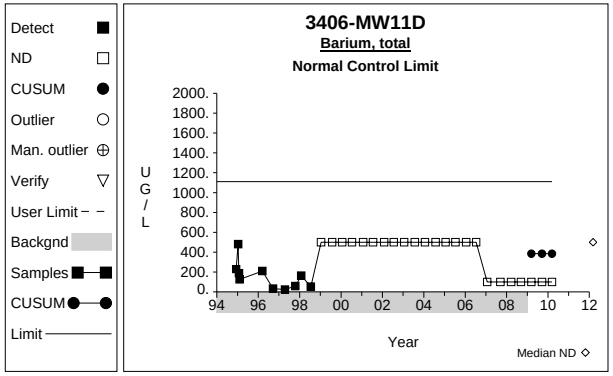

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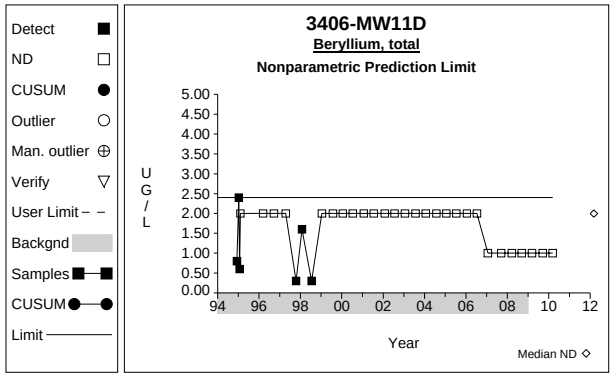

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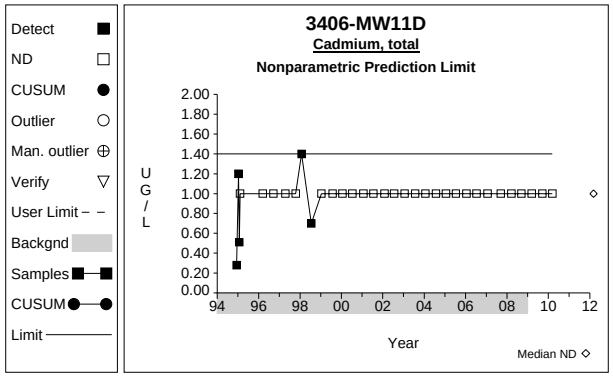

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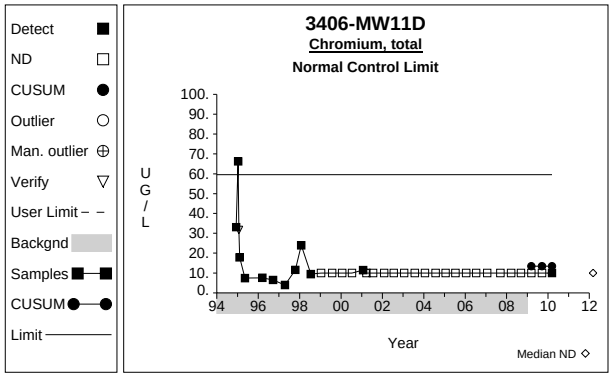
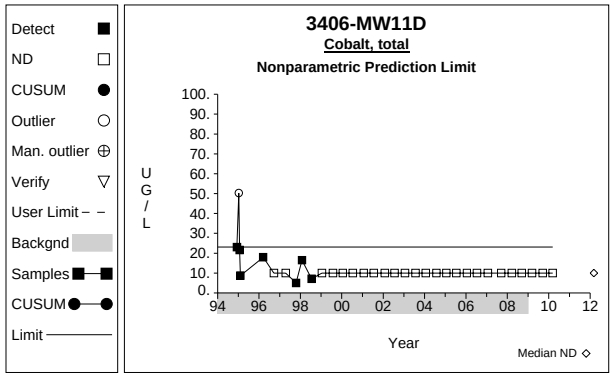
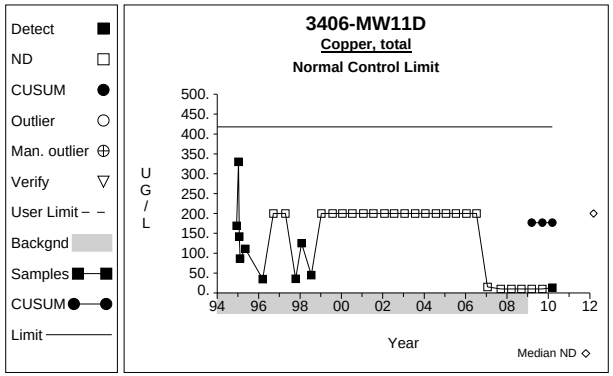


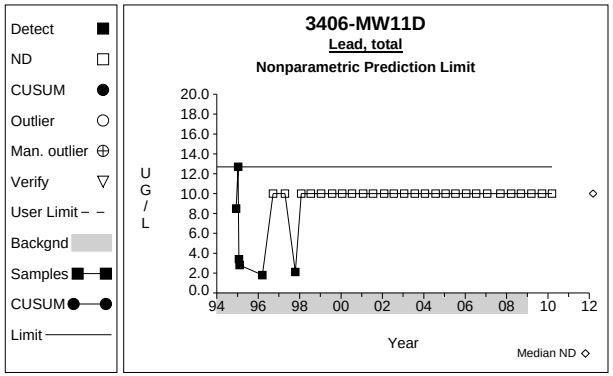
Graph 186



Graph 187



Graph 188



Graph 189

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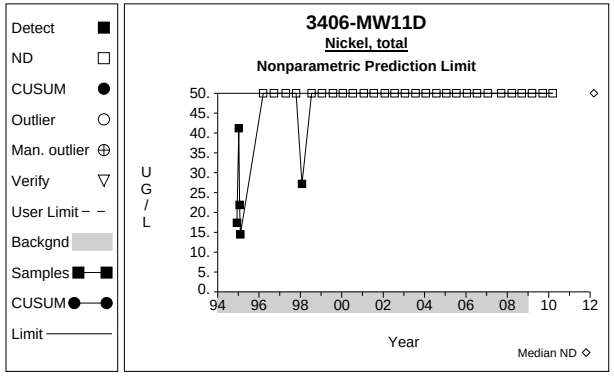
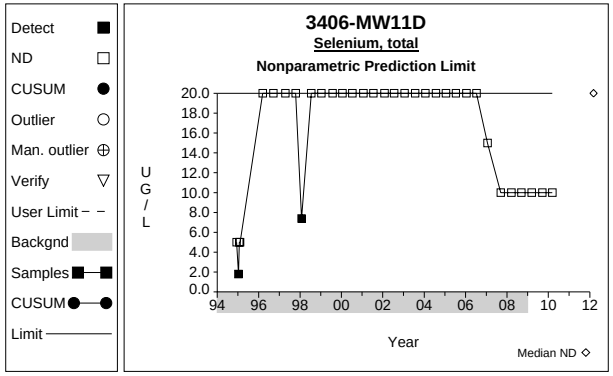
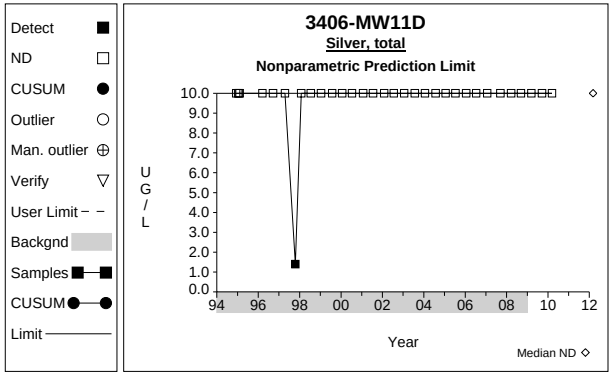
Intra-Well Control Charts



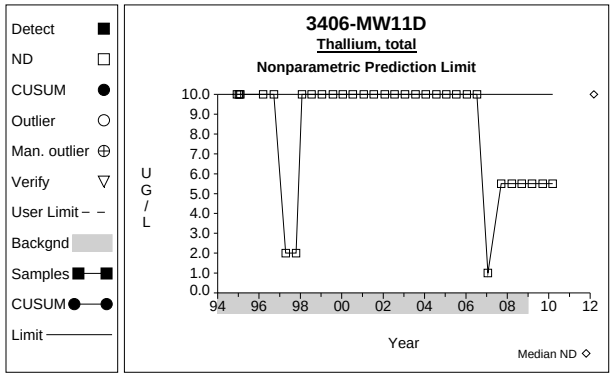
Graph 190



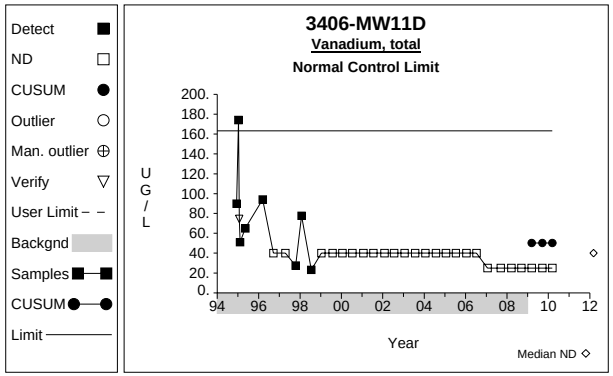
Graph 191



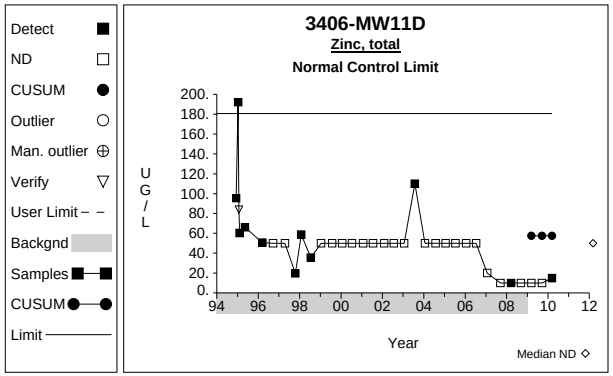
Graph 192



Graph 193

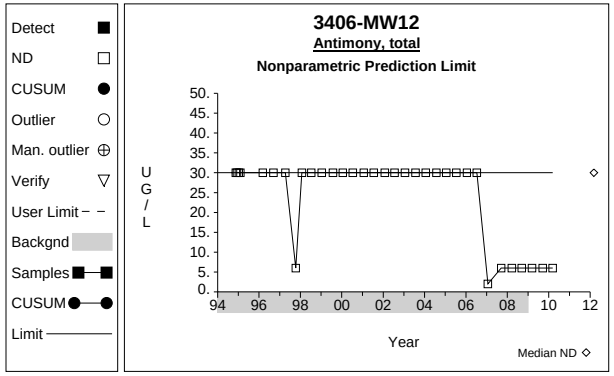


Graph 194

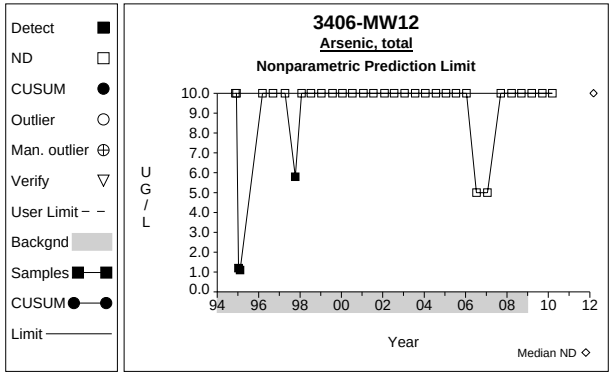


Graph 195

Intra-Well Control Charts



Graph 196



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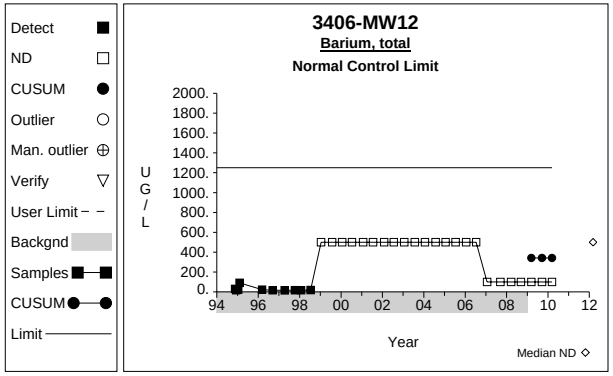
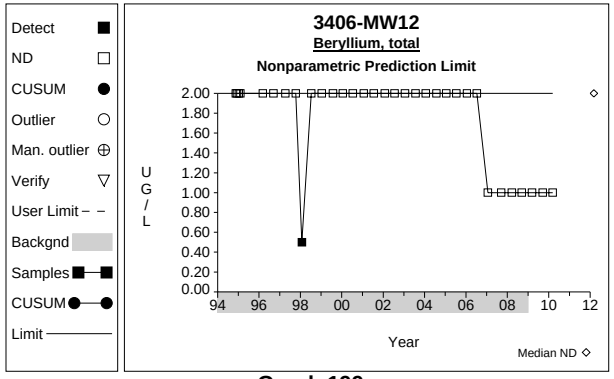


Graph 198



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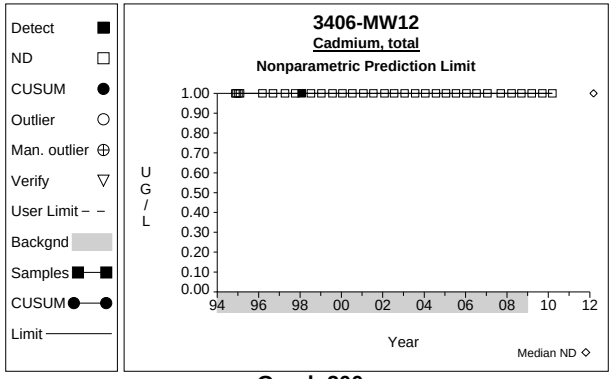

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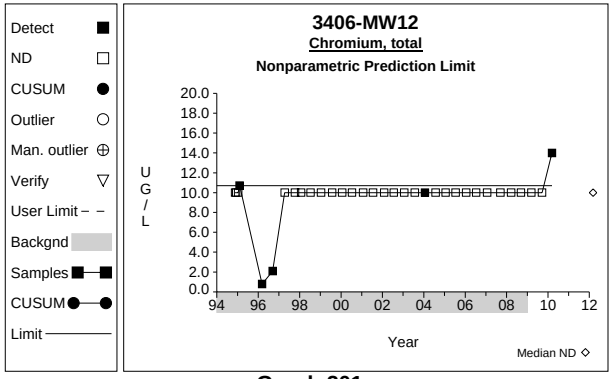
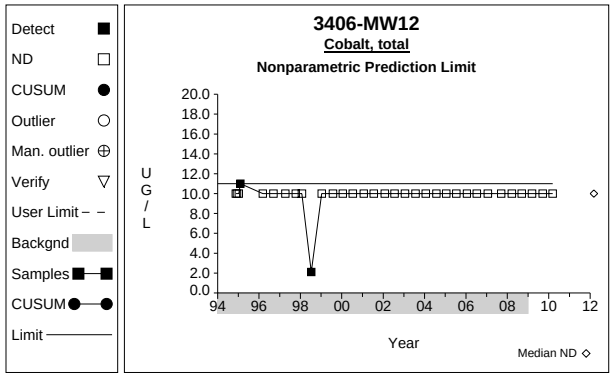
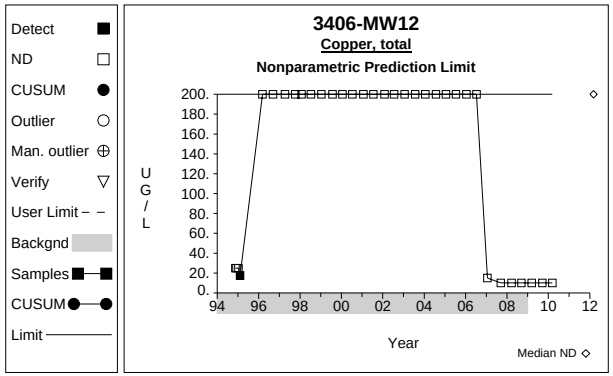


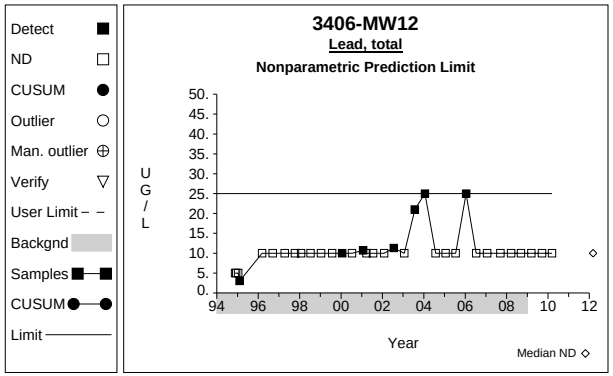
Graph 201



Graph 202



Graph 203



Graph 204

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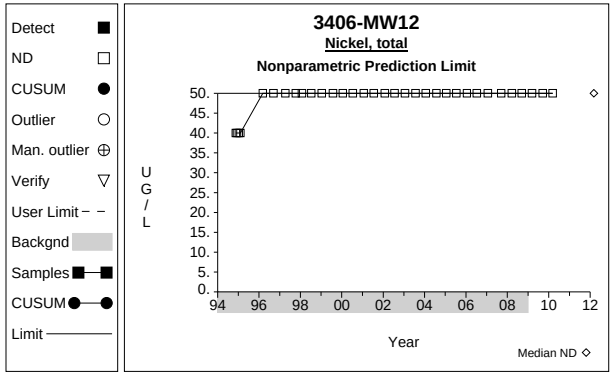
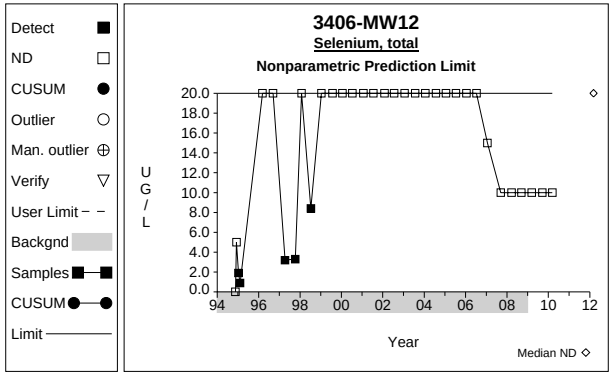
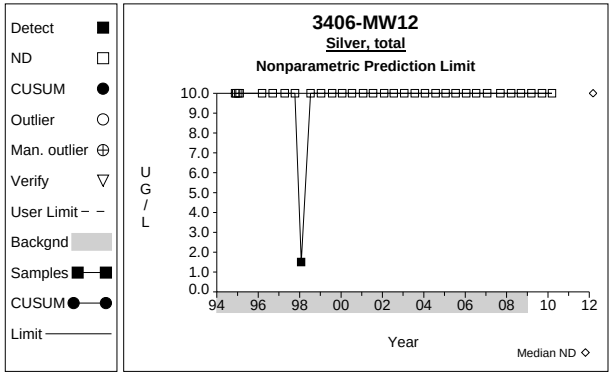
Intra-Well Control Charts



Graph 205



Graph 206



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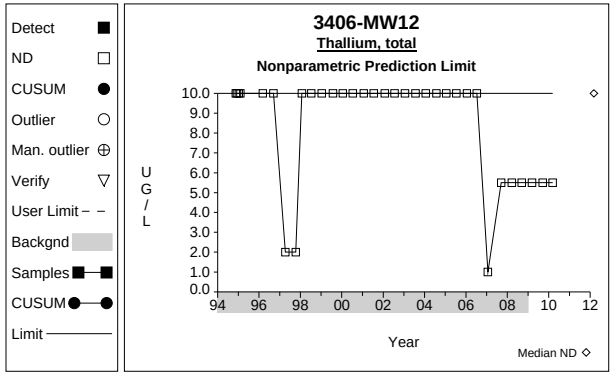
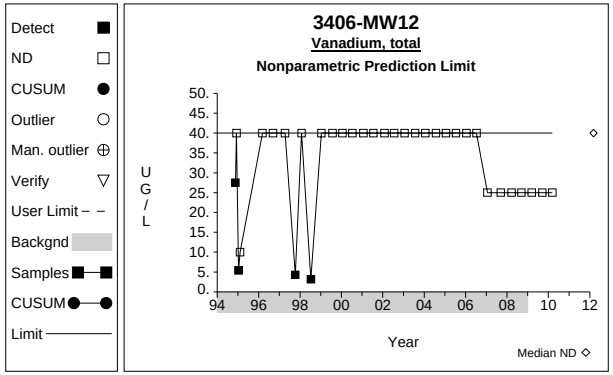


Graph 208



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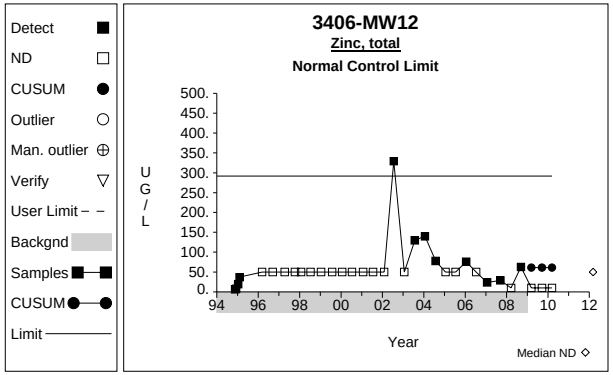
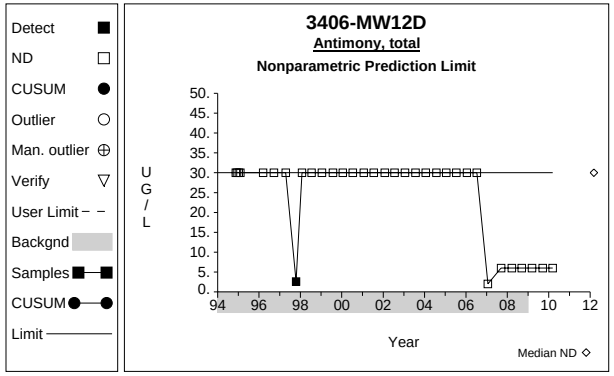


Graph 210

Intra-Well Control Charts



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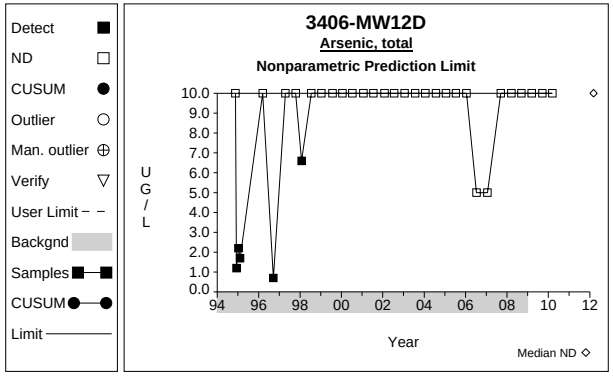

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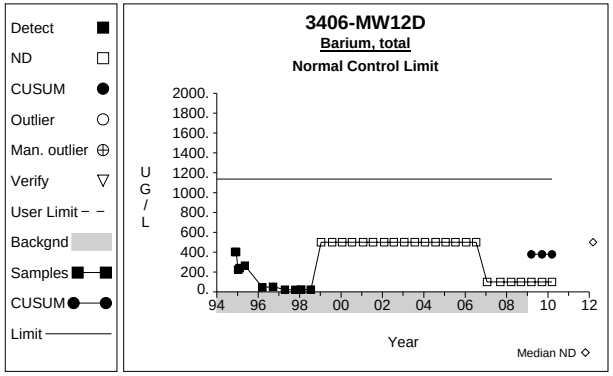

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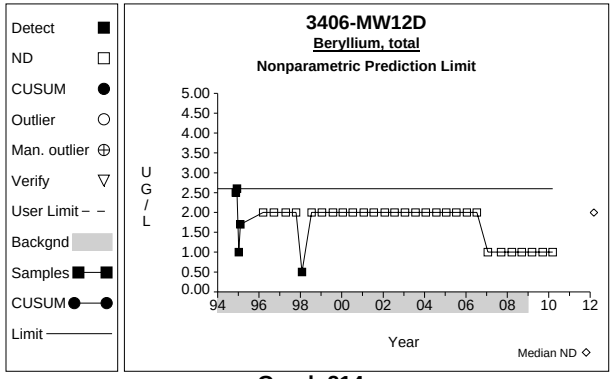
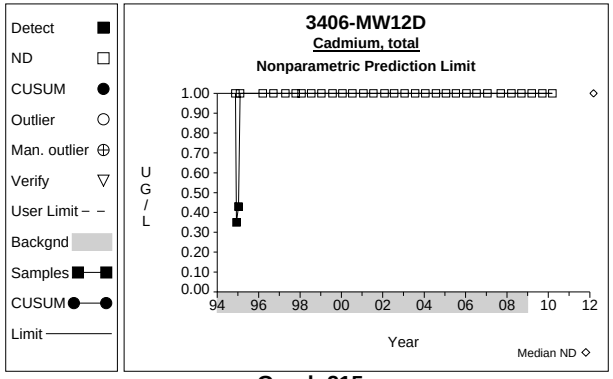


Graph 214



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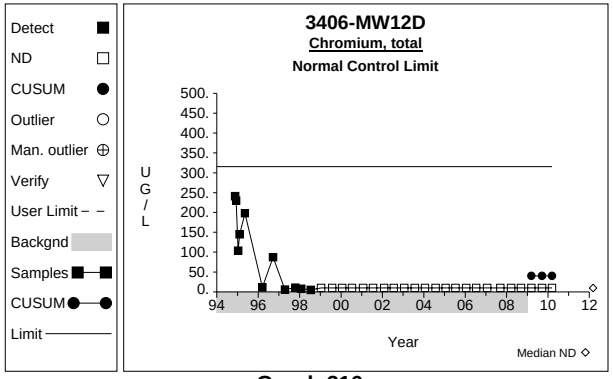
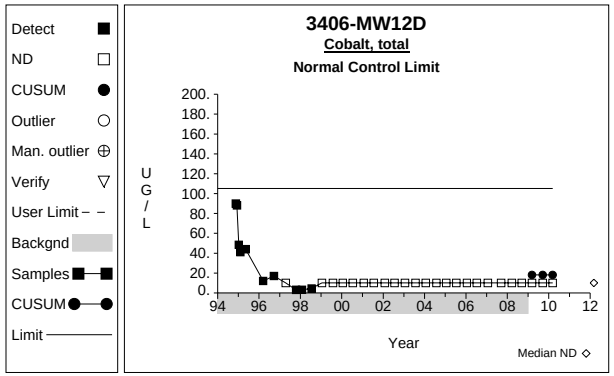
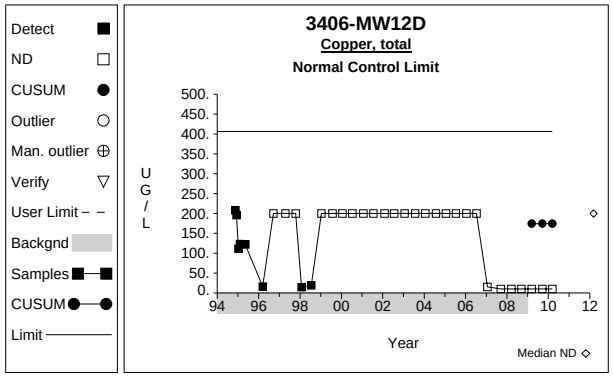


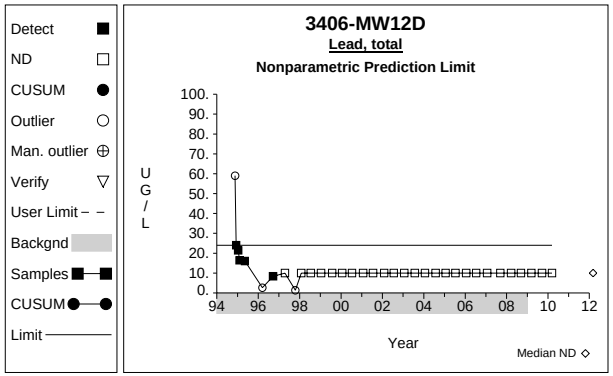
Graph 216



Graph 217



Graph 218



Graph 219

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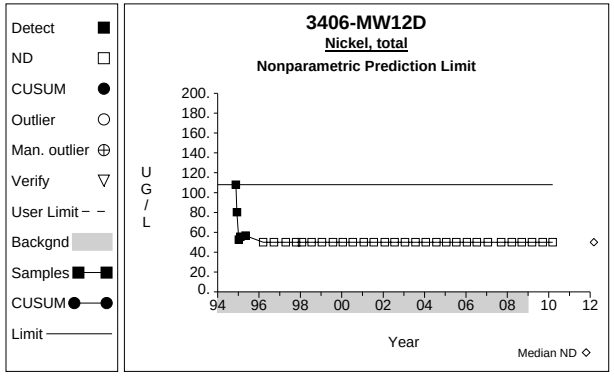
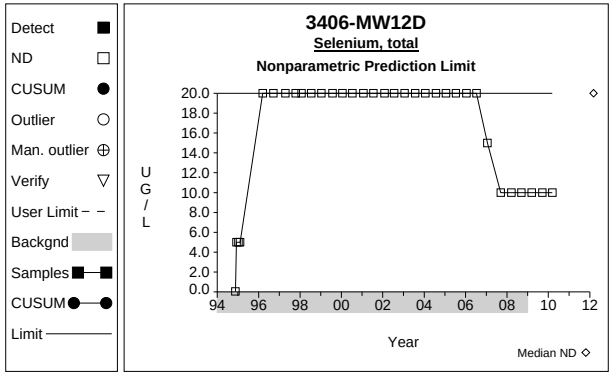
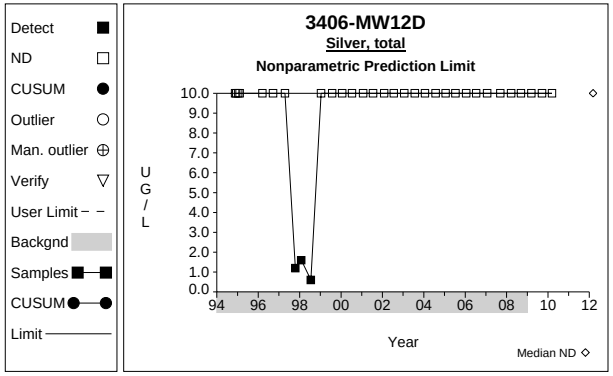
Intra-Well Control Charts



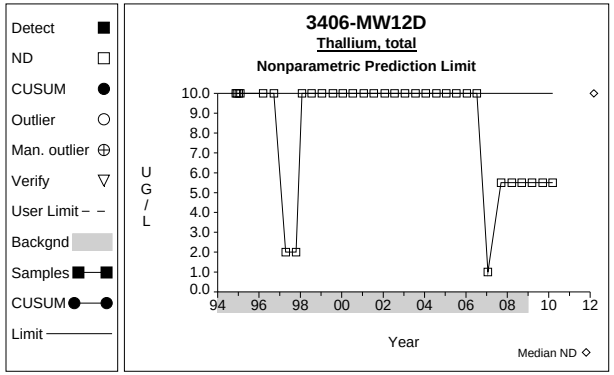
Graph 220



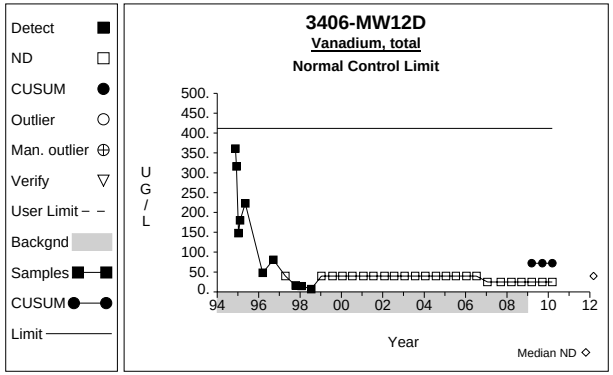
Graph 221



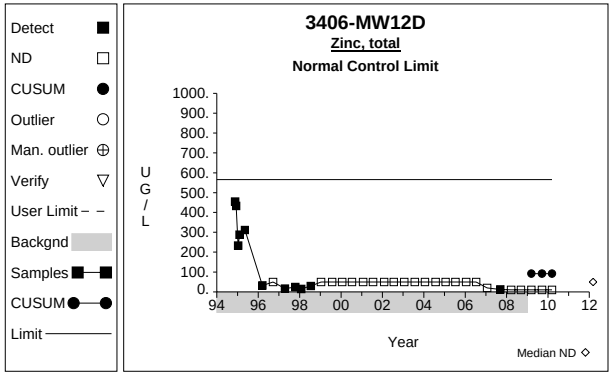
Graph 222



Graph 223



Graph 224



Graph 225

False Positive and False Negative Rates for Current Intra-Well Control Charts Monitoring Program

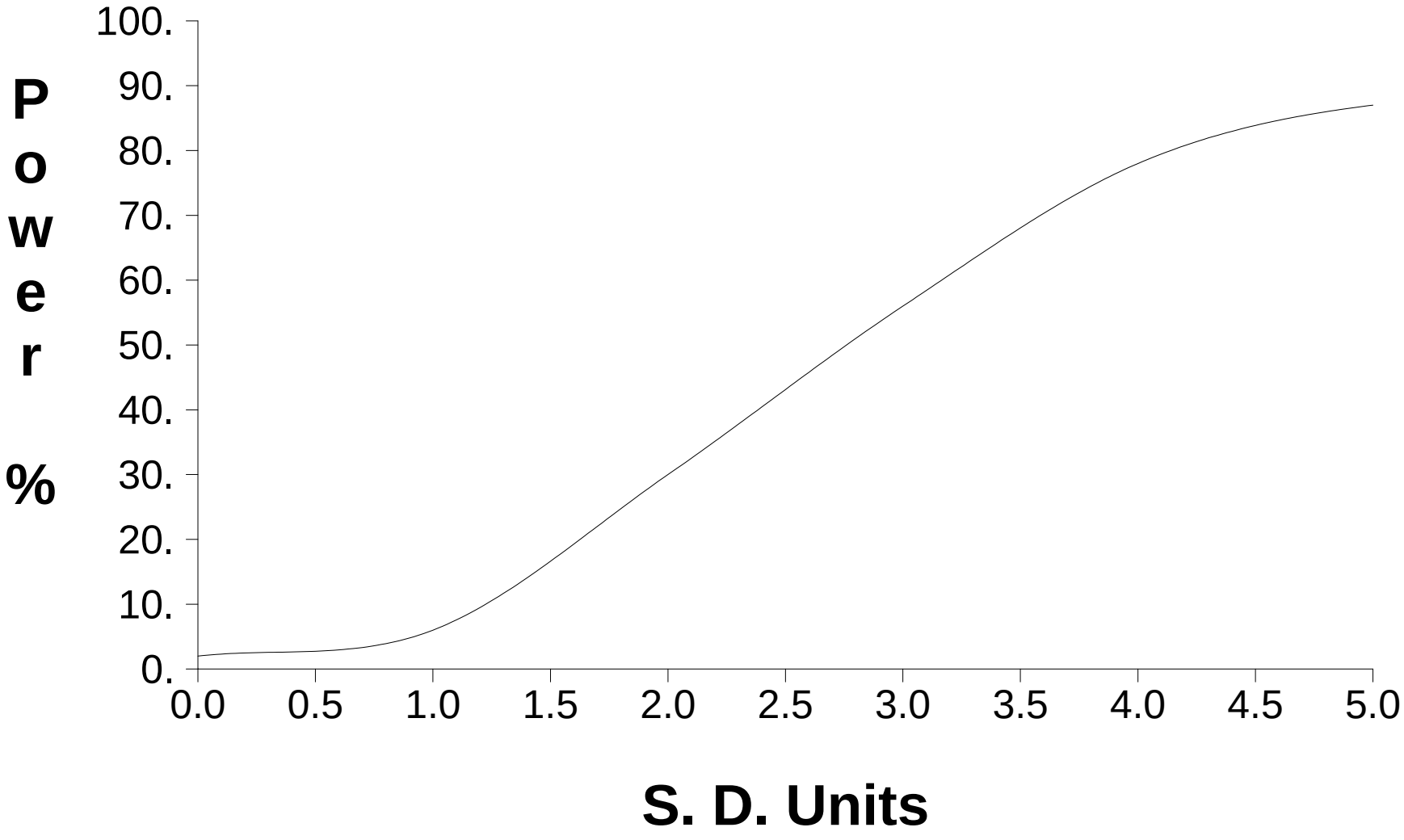


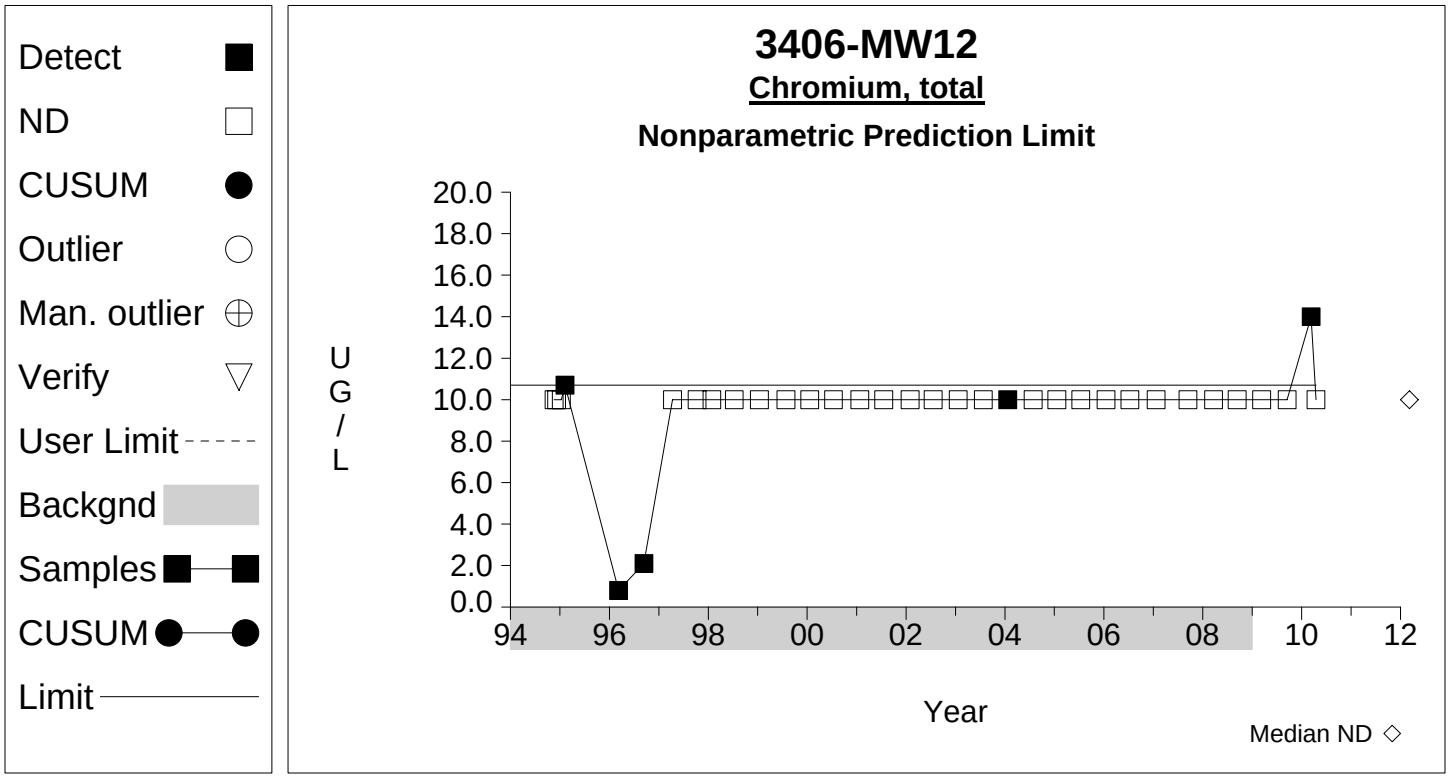
Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-Cusum Control Charts

Constituent	Units	Well	N	Mean	SD	S(i-1)	S(i)	Limit	
Chromium, total	UG/L	3406-MW12	30					10.7000	**

* - Insufficient Data
** - Detection Frequency < 25%
*** - Zero Variance

Intra-Well Sublist Control Charts



Graph 1

Attachment C

Summary of the VOCs Detected in the Ground Water

Table 1

Historical Volatile Organic Compound Detections

Constituent	Units	Well	Date	Result	Limit
Acetone	UG/L	3406-MW01	9/09/1996	21.0000	100.0000
Heptachlor	UG/L	3406-MW01	1/27/1998	.0200	.0500
1,1-dichloroethene	UG/L	3406-MW02	7/10/1998	.4000	5.0000
Benzene	UG/L	3406-MW02	9/13/2007	1.1000	1.0000
Benzene	UG/L	3406-MW02	3/19/2008	1.4000	1.0000
Chloroform	UG/L	3406-MW02	2/16/1994	.5000	5.0000
Chloroform	UG/L	3406-MW02	4/11/1994	.5000	5.0000
Chloroform	UG/L	3406-MW02	9/14/1994	.4000	5.0000
Methane	UG/L	3406-MW02	2/05/2008	1300.0000	5.0000
Toluene	UG/L	3406-MW02	9/09/1996	.2000	5.0000
Vinyl chloride	UG/L	3406-MW02	9/13/2007	1.3000	1.0000
Vinyl chloride	UG/L	3406-MW02	11/15/2007	1.3000	1.0000
Vinyl chloride	UG/L	3406-MW02	3/19/2008	1.4000	1.0000
Vinyl chloride	UG/L	3406-MW02	9/11/2008	3.2000	1.0000
Vinyl chloride	UG/L	3406-MW02	3/10/2009	1.6000	1.0000
Benzene	UG/L	3406-MW04D	1/10/1995	.2000	5.0000
Chloromethane	UG/L	3406-MW04D	12/07/1994	.5000	10.0000
Toluene	UG/L	3406-MW04D	12/07/1994	.2000	5.0000
Toluene	UG/L	3406-MW04D	1/10/1995	.3000	5.0000
Toluene	UG/L	3406-MW04D	3/11/2009	1.2000	1.0000
Bis(2-ethylhexyl) phthalate	UG/L	3406-MW06	1/27/1998	4.0000	20.0000
Benzene	UG/L	3406-MW07	11/17/1994	.2000	5.0000
Chloromethane	UG/L	3406-MW07	3/05/1996	.6000	10.0000
Benzene	UG/L	3406-MW08	11/17/1994	.2000	5.0000
1,1,1-trichloroethane	UG/L	3406-MW09R	6/05/1997	.2000	5.0000
1,1,1-trichloroethane	UG/L	3406-MW09R	10/16/1997	.2000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	3/11/1996	1.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	9/17/1996	3.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/22/1997	9.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	6/05/1997	7.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	10/16/1997	8.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/27/1998	8.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	7/14/1998	2.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/20/2000	23.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	2/16/2000	24.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	7/12/2000	20.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	11/21/2000	26.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/24/2001	28.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	7/18/2001	19.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/31/2002	21.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	7/18/2002	24.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/21/2003	7.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	7/24/2003	14.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/22/2004	22.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	7/27/2004	20.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/19/2005	16.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	7/12/2005	18.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/18/2006	12.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	7/12/2006	11.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	1/24/2007	6.1000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	9/12/2007	12.0000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	3/19/2008	6.3000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	9/11/2008	6.1000	5.0000
1,1-dichloroethane	UG/L	3406-MW09R	9/16/2009	5.1000	5.0000
1,2-dichloroethane	UG/L	3406-MW09R	3/11/1996	.2000	5.0000
3-methylphenol	UG/L	3406-MW09R	1/22/1997	2.0000	10.0000
4-methylphenol	UG/L	3406-MW09R	1/22/1997	2.0000	10.0000
Acetone	UG/L	3406-MW09R	3/11/1996	66.0000	100.0000
Acetone	UG/L	3406-MW09R	4/29/1996	35.0000	34.0000
Acetone	UG/L	3406-MW09R	9/17/1996	12.0000	100.0000
Acetone	UG/L	3406-MW09R	6/05/1997	6.0000	100.0000
Benzene	UG/L	3406-MW09R	3/11/1996	5.0000	5.0000
Benzene	UG/L	3406-MW09R	4/29/1996	3.0000	5.0000
Benzene	UG/L	3406-MW09R	9/17/1996	.9000	5.0000
Benzene	UG/L	3406-MW09R	1/22/1997	2.0000	5.0000
Benzene	UG/L	3406-MW09R	6/05/1997	1.0000	5.0000
Benzene	UG/L	3406-MW09R	10/16/1997	.9000	5.0000
Bis(2-ethylhexyl) phthalate	UG/L	3406-MW09R	1/22/1997	3.0000	50.0000
Bis(2-ethylhexyl) phthalate	UG/L	3406-MW09R	1/27/1998	9.0000	20.0000
Carbon disulfide	UG/L	3406-MW09R	3/11/1996	.2000	100.0000
Carbon disulfide	UG/L	3406-MW09R	9/17/1996	.3000	100.0000
Chloroethane	UG/L	3406-MW09R	9/14/1994	1.0000	10.0000
Chloroethane	UG/L	3406-MW09R	12/06/1994	1.0000	10.0000
Chloroethane	UG/L	3406-MW09R	1/10/1995	2.0000	10.0000
Chloroethane	UG/L	3406-MW09R	3/11/1996	7.0000	10.0000
Chloroethane	UG/L	3406-MW09R	9/17/1996	25.0000	10.0000

Detections are shown for constituents selected in the VOC list and all selected wells
The Limit column refers to the laboratory reporting limit

Table 1

Historical Volatile Organic Compound Detections

Constituent	Units	Well	Date	Result	Limit
Chloroethane	UG/L	3406-MW09R	11/18/1996	27.0000	10.0000
Chloroethane	UG/L	3406-MW09R	1/22/1997	32.0000	10.0000
Chloroethane	UG/L	3406-MW09R	6/05/1997	16.0000	10.0000
Chloroethane	UG/L	3406-MW09R	10/16/1997	14.0000	10.0000
Chloroethane	UG/L	3406-MW09R	1/27/1998	8.0000	10.0000
Chloroethane	UG/L	3406-MW09R	7/14/1998	.5000	10.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	9/17/1996	2.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	1/22/1997	3.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	6/05/1997	2.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	10/16/1997	2.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	1/27/1998	1.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	7/18/2002	6.5000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	1/21/2003	6.9000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	7/24/2003	7.5000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	1/22/2004	12.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	7/27/2004	12.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	1/19/2005	11.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	7/12/2005	11.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	1/18/2006	8.4000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	7/12/2006	6.5000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-MW09R	9/12/2007	5.1000	5.0000
Dichlorodifluoromethane	UG/L	3406-MW09R	1/22/1997	2.0000	10.0000
Dichlorodifluoromethane	UG/L	3406-MW09R	1/27/1998	.7000	5.0000
Ethane	UG/L	3406-MW09R	11/21/2000	.9600	.5000
Isobutyl alcohol	UG/L	3406-MW09R	1/22/1997	30.0000	50.0000
Methane	UG/L	3406-MW09R	11/21/2000	720.0000	.5000
Methane	UG/L	3406-MW09R	11/21/2000	4100.0000	100.0000
Methyl ethyl ketone	UG/L	3406-MW09R	3/11/1996	10.0000	100.0000
Methylene chloride	UG/L	3406-MW09R	3/11/1996	.5000	10.0000
Methylene chloride	UG/L	3406-MW09R	9/17/1996	2.0000	10.0000
Methylene chloride	UG/L	3406-MW09R	1/22/1997	6.0000	10.0000
Methylene chloride	UG/L	3406-MW09R	6/05/1997	3.0000	10.0000
Methylene chloride	UG/L	3406-MW09R	10/16/1997	5.0000	10.0000
Methylene chloride	UG/L	3406-MW09R	1/27/1998	4.0000	10.0000
Methylene chloride	UG/L	3406-MW09R	7/14/1998	.3000	10.0000
Tetrachloroethene	UG/L	3406-MW09R	3/11/1996	1.0000	5.0000
Tetrachloroethene	UG/L	3406-MW09R	9/17/1996	.5000	5.0000
Tetrachloroethene	UG/L	3406-MW09R	1/22/1997	1.0000	5.0000
Tetrachloroethene	UG/L	3406-MW09R	6/05/1997	1.0000	5.0000
Tetrachloroethene	UG/L	3406-MW09R	10/16/1997	1.0000	5.0000
Tetrachloroethene	UG/L	3406-MW09R	1/27/1998	.6000	5.0000
Tetrachloroethene	UG/L	3406-MW09R	7/14/1998	.3000	5.0000
Toluene	UG/L	3406-MW09R	9/17/1996	.6000	5.0000
Toluene	UG/L	3406-MW09R	1/22/1997	2.0000	5.0000
Toluene	UG/L	3406-MW09R	6/05/1997	4.0000	5.0000
Total xylenes	UG/L	3406-MW09R	9/17/1996	1.0000	5.0000
Total xylenes	UG/L	3406-MW09R	1/22/1997	2.0000	5.0000
Trichloroethene	UG/L	3406-MW09R	3/11/1996	.5000	5.0000
Trichloroethene	UG/L	3406-MW09R	9/17/1996	1.0000	5.0000
Trichloroethene	UG/L	3406-MW09R	1/22/1997	2.0000	5.0000
Trichloroethene	UG/L	3406-MW09R	6/05/1997	1.0000	5.0000
Trichloroethene	UG/L	3406-MW09R	10/16/1997	2.0000	5.0000
Trichloroethene	UG/L	3406-MW09R	1/27/1998	2.0000	5.0000
Trichloroethene	UG/L	3406-MW09R	7/14/1998	.2000	5.0000
Vinyl chloride	UG/L	3406-MW09R	3/11/1996	.5000	10.0000
Vinyl chloride	UG/L	3406-MW09R	9/17/1996	1.0000	10.0000
Vinyl chloride	UG/L	3406-MW09R	1/22/1997	2.0000	10.0000
Vinyl chloride	UG/L	3406-MW09R	6/05/1997	1.0000	10.0000
Vinyl chloride	UG/L	3406-MW09R	10/16/1997	1.0000	10.0000
Vinyl chloride	UG/L	3406-MW09R	1/27/1998	.6000	10.0000
Chloromethane	UG/L	3406-MW10	3/05/1996	.8000	10.0000
Acetone	UG/L	3406-MW11	3/11/1996	8.0000	100.0000
Acetone	UG/L	3406-MW11D	12/07/1994	110.0000	34.0000
Chloromethane	UG/L	3406-MW12D	11/18/1994	.9000	10.0000
Chloromethane	UG/L	3406-MW12D	12/06/1994	.6000	10.0000
Methylene chloride	UG/L	3406-MW12D	7/16/1998	.2000	10.0000
Carbon disulfide	UG/L	3406-S01	9/23/1996	.3000	100.0000
1,1-dichloroethane	UG/L	3406-S05	9/14/1994	.8000	5.0000
1,1-dichloroethane	UG/L	3406-S05	9/14/1995	.8000	5.0000
1,1-dichloroethane	UG/L	3406-S05	3/04/1996	.3000	5.0000
1,1-dichloroethane	UG/L	3406-S05	9/23/1996	.4000	5.0000
1,1-dichloroethane	UG/L	3406-S05	3/27/1997	.2000	5.0000
1,1-dichloroethane	UG/L	3406-S05	10/07/1997	.3000	5.0000
1,1-dichloroethane	UG/L	3406-S05	7/14/1998	.2000	5.0000
Acetone	UG/L	3406-S05	3/04/1996	8.0000	100.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	2/17/1994	.9000	5.0000

Detections are shown for constituents selected in the VOC list and all selected wells
The Limit column refers to the laboratory reporting limit

Table 1

Historical Volatile Organic Compound Detections

Constituent	Units	Well	Date	Result	Limit
Cis-1,2-dichloroethene	UG/L	3406-S05	9/14/1994	1.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	1/10/1995	.8000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	9/14/1995	2.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	3/04/1996	.7000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	9/23/1996	.8000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	3/27/1997	.4000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	10/07/1997	.5000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	1/30/1998	.3000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-S05	7/14/1998	.4000	5.0000
Trichloroethene	UG/L	3406-S05	9/14/1994	.2000	5.0000
Trichloroethene	UG/L	3406-S05	9/14/1995	.2000	5.0000
Trichlorofluoromethane	UG/L	3406-S05	2/17/1994	.6000	5.0000
Vinyl chloride	UG/L	3406-S05	9/14/1995	.5000	10.0000
Vinyl chloride	UG/L	3406-S05	3/04/1996	.4000	10.0000
Vinyl chloride	UG/L	3406-S05	9/23/1996	.4000	10.0000
1,1-dichloroethane	UG/L	3406-T01	4/15/1997	38.0000	10.0000
1,1-dichloroethane	UG/L	3406-T01	10/15/1997	6.0000	5.0000
1,1-dichloroethane	UG/L	3406-T01	1/29/1998	28.0000	5.0000
1,1-dichloroethene	UG/L	3406-T01	4/15/1997	5.0000	15.0000
1,1-dichloroethene	UG/L	3406-T01	10/15/1997	2.0000	8.0000
1,1-dichloroethene	UG/L	3406-T01	1/29/1998	5.0000	7.0000
1,2-dichloroethane	UG/L	3406-T01	1/29/1998	2.0000	5.0000
1,4-dichlorobenzene	UG/L	3406-T01	4/15/1997	3.0000	10.0000
1,4-dichlorobenzene	UG/L	3406-T01	1/29/1998	5.0000	5.0000
1,4-dichlorobenzene	UG/L	3406-T01	1/30/2002	5.7000	5.0000
1,4-dichlorobenzene	UG/L	3406-T01	7/28/2004	6.0000	5.0000
1,4-dichlorobenzene	UG/L	3406-T01	9/11/2008	4.0000	3.0000
1,4-dichlorobenzene	UG/L	3406-T01	3/11/2009	4.5000	3.0000
2-hexanone	UG/L	3406-T01	4/15/1997	26.0000	45.0000
2-hexanone	UG/L	3406-T01	1/29/1998	24.0000	50.0000
2-hexanone	UG/L	3406-T01	9/11/2008	56.0000	50.0000
Acetone	UG/L	3406-T01	4/15/1997	4600.0000	250.0000
Acetone	UG/L	3406-T01	10/15/1997	1300.0000	130.0000
Acetone	UG/L	3406-T01	1/29/1998	1200.0000	111.0000
Acetone	UG/L	3406-T01	7/17/2001	570.0000	400.0000
Acetone	UG/L	3406-T01	1/30/2002	620.0000	100.0000
Acetone	UG/L	3406-T01	1/20/2003	1600.0000	200.0000
Acetone	UG/L	3406-T01	1/21/2004	2100.0000	1000.0000
Acetone	UG/L	3406-T01	7/28/2004	680.0000	500.0000
Acetone	UG/L	3406-T01	7/13/2005	1500.0000	1000.0000
Acetone	UG/L	3406-T01	1/18/2006	170.0000	100.0000
Acetone	UG/L	3406-T01	1/24/2007	1300.0000	1300.0000
Acetone	UG/L	3406-T01	9/11/2008	1000.0000	670.0000
Acetone	UG/L	3406-T01	3/10/2010	640.0000	500.0000
Benzene	UG/L	3406-T01	4/15/1997	6.0000	10.0000
Benzene	UG/L	3406-T01	10/15/1997	1.0000	5.0000
Benzene	UG/L	3406-T01	1/29/1998	8.0000	5.0000
Benzene	UG/L	3406-T01	1/30/2002	10.0000	5.0000
Chloroethane	UG/L	3406-T01	4/15/1997	19.0000	15.0000
Chloroethane	UG/L	3406-T01	10/15/1997	4.0000	10.0000
Chloroethane	UG/L	3406-T01	1/29/1998	19.0000	10.0000
Chloroform	UG/L	3406-T01	1/29/1998	1.0000	5.0000
Cis-1,2-dichloroethene	UG/L	3406-T01	4/15/1997	10.0000	15.0000
Cis-1,2-dichloroethene	UG/L	3406-T01	10/15/1997	3.0000	10.0000
Cis-1,2-dichloroethene	UG/L	3406-T01	1/29/1998	18.0000	5.0000
Ethylbenzene	UG/L	3406-T01	4/15/1997	31.0000	10.0000
Ethylbenzene	UG/L	3406-T01	10/15/1997	6.0000	5.0000
Ethylbenzene	UG/L	3406-T01	1/29/1998	46.0000	5.0000
Ethylbenzene	UG/L	3406-T01	1/30/2002	40.0000	5.0000
Ethylbenzene	UG/L	3406-T01	1/20/2003	66.0000	10.0000
Ethylbenzene	UG/L	3406-T01	1/21/2004	78.0000	50.0000
Ethylbenzene	UG/L	3406-T01	7/28/2004	19.0000	5.0000
Ethylbenzene	UG/L	3406-T01	1/24/2007	15.0000	10.0000
Methyl ethyl ketone	UG/L	3406-T01	4/15/1997	6300.0000	130.0000
Methyl ethyl ketone	UG/L	3406-T01	10/15/1997	2100.0000	63.0000
Methyl ethyl ketone	UG/L	3406-T01	1/29/1998	1800.0000	111.0000
Methyl ethyl ketone	UG/L	3406-T01	1/30/2002	480.0000	100.0000
Methyl ethyl ketone	UG/L	3406-T01	1/20/2003	2000.0000	200.0000
Methyl ethyl ketone	UG/L	3406-T01	1/21/2004	1400.0000	1000.0000
Methyl ethyl ketone	UG/L	3406-T01	7/13/2005	870.0000	800.0000
Methyl ethyl ketone	UG/L	3406-T01	3/20/2008	1100.0000	1000.0000
Methyl ethyl ketone	UG/L	3406-T01	9/11/2008	720.0000	670.0000
Methyl isobutyl ketone	UG/L	3406-T01	4/15/1997	250.0000	40.0000
Methyl isobutyl ketone	UG/L	3406-T01	10/15/1997	96.0000	20.0000
Methyl isobutyl ketone	UG/L	3406-T01	1/29/1998	170.0000	100.0000
Methylene chloride	UG/L	3406-T01	4/15/1997	200.0000	15.0000

Detections are shown for constituents selected in the VOC list and all selected wells
The Limit column refers to the laboratory reporting limit

Table 1

Historical Volatile Organic Compound Detections

Constituent	Units	Well	Date	Result	Limit
Methylene chloride	UG/L	3406-T01	10/15/1997	20.0000	8.0000
Methylene chloride	UG/L	3406-T01	1/29/1998	53.0000	10.0000
Styrene	UG/L	3406-T01	1/29/1998	3.0000	10.0000
Tetrachloroethene	UG/L	3406-T01	9/11/2008	6.6000	3.0000
Tetrachloroethene	UG/L	3406-T01	9/16/2009	51.0000	3.0000
Toluene	UG/L	3406-T01	4/15/1997	220.0000	10.0000
Toluene	UG/L	3406-T01	10/15/1997	68.0000	5.0000
Toluene	UG/L	3406-T01	1/29/1998	220.0000	5.0000
Toluene	UG/L	3406-T01	1/25/2001	130.0000	50.0000
Toluene	UG/L	3406-T01	1/30/2002	25.0000	5.0000
Toluene	UG/L	3406-T01	1/20/2003	15.0000	10.0000
Toluene	UG/L	3406-T01	1/21/2004	110.0000	50.0000
Toluene	UG/L	3406-T01	7/28/2004	28.0000	5.0000
Toluene	UG/L	3406-T01	1/24/2007	69.0000	10.0000
Total xylenes	UG/L	3406-T01	4/15/1997	68.0000	30.0000
Total xylenes	UG/L	3406-T01	10/15/1997	14.0000	15.0000
Total xylenes	UG/L	3406-T01	1/29/1998	100.0000	13.3000
Total xylenes	UG/L	3406-T01	1/25/2001	90.0000	50.0000
Total xylenes	UG/L	3406-T01	7/17/2001	34.0000	20.0000
Total xylenes	UG/L	3406-T01	1/30/2002	100.0000	5.0000
Total xylenes	UG/L	3406-T01	7/17/2002	43.0000	33.0000
Total xylenes	UG/L	3406-T01	1/20/2003	130.0000	10.0000
Total xylenes	UG/L	3406-T01	1/21/2004	170.0000	50.0000
Total xylenes	UG/L	3406-T01	7/28/2004	48.0000	5.0000
Total xylenes	UG/L	3406-T01	7/13/2005	14.0000	5.0000
Total xylenes	UG/L	3406-T01	1/18/2006	15.0000	5.0000
Total xylenes	UG/L	3406-T01	1/24/2007	33.0000	8.0000
Total xylenes	UG/L	3406-T01	3/20/2008	55.0000	40.0000
Total xylenes	UG/L	3406-T01	9/11/2008	11.0000	4.0000
Total xylenes	UG/L	3406-T01	3/11/2009	11.0000	4.0000
Total xylenes	UG/L	3406-T01	3/10/2010	24.0000	20.0000
Trichloroethene	UG/L	3406-T01	4/15/1997	4.0000	10.0000
Trichloroethene	UG/L	3406-T01	1/29/1998	2.0000	5.0000
Trichloroethene	UG/L	3406-T01	9/16/2009	4.1000	3.0000
Vinyl chloride	UG/L	3406-T01	4/15/1997	10.0000	15.0000
Vinyl chloride	UG/L	3406-T01	10/15/1997	3.0000	10.0000
Vinyl chloride	UG/L	3406-T01	1/29/1998	11.0000	10.0000

Detections are shown for constituents selected in the VOC list and all selected wells
The Limit column refers to the laboratory reporting limit

ANALYTICAL REPORT

Job Number: 280-4097-1

Job Description: 134|Piedmont Landfill

For:
Waste Management
1000 Parkwood Circle
Atlanta, GA 30339

Attention: Mr. Al Lacsamana

Approved for release.
Stephanie Sanders
Project Mgmt. Assistant
6/22/2010 10:00 AM

Designee for
Betsy A Sara
Project Manager II
betsy.sara@testamericainc.com
06/22/2010

cc: Mr. Van Burbach

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
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CASE NARRATIVE

Client: Waste Management

Project: 134|Piedmont Landfill

Report Number: 280-4097-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Sample Receiving

The sample was received on 06/03/2010; the sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 4.0 C.

Holding Times

The holding times were within established control limits.

Method Blanks

Total Chromium Method 6010C was detected in the Method Blank below the project established reporting limit. No corrective action is taken for any values in Method Blanks that are below the requested reporting limits. The Method Blank data are included at the end of this report.

All other Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

The Laboratory Control Samples were within established control limits.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)

All MS/MSD samples were within established control limits.

EXECUTIVE SUMMARY - Detections

Client: Waste Management

Job Number: 280-4097-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-4097-1	**CSS-1**					
Chromium		23	B	1.7	mg/Kg	6010C
Percent Moisture		19		0.10	%	Moisture

METHOD SUMMARY

Client: Waste Management

Job Number: 280-4097-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Metals (ICP)	TAL DEN	SW846 6010C	
Preparation, Metals	TAL DEN		SW846 3050B
Percent Moisture	TAL DEN	EPA Moisture	

Lab References:

TAL DEN = TestAmerica Denver

Method References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Waste Management

Job Number: 280-4097-1

Method	Analyst	Analyst ID
SW846 6010C	Harre, John K	JKH
EPA Moisture	Berry III, Paul B	PBB

SAMPLE SUMMARY

Client: Waste Management

Job Number: 280-4097-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-4097-1	CSS-1	Solid	06/02/2010 1213	06/03/2010 1030

SAMPLE RESULTS

Client: Waste Management

Job Number: 280-4097-1

Client Sample ID: **CSS-1**

Lab Sample ID: 280-4097-1

Client Matrix: Solid

% Moisture: 19.4

Date Sampled: 06/02/2010 1213

Date Received: 06/03/2010 1030

6010C Metals (ICP)

Method:	6010C	Analysis Batch: 280-18893		Instrument ID:	MT_025
Preparation:	3050B	Prep Batch: 280-18419		Lab File ID:	25A2061010.txt
Dilution:	1.0			Initial Weight/Volume:	1.07 g
Date Analyzed:	06/10/2010 1758			Final Weight/Volume:	100 mL
Date Prepared:	06/09/2010 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Chromium		23	B	0.067	1.7

General Chemistry

Client Sample ID: **CSS-1**

Lab Sample ID: 280-4097-1

Client Matrix: Solid

Date Sampled: 06/02/2010 1213

Date Received: 06/03/2010 1030

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	19		%	0.10	0.10	1.0	Moisture

Analysis Batch: 280-18060 Date Analyzed: 06/04/2010 0852 DryWt Corrected: N

DATA REPORTING QUALIFIERS

Client: Waste Management

Job Number: 280-4097-1

Lab Section	Qualifier	Description
Metals		
	B	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: Waste Management

Job Number: 280-4097-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-18419					
LCS 280-18419/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-18419/1-A	Method Blank	T	Solid	3050B	
280-4097-1	CSS-1	T	Solid	3050B	
280-4097-1MS	Matrix Spike	T	Solid	3050B	
280-4097-1MSD	Matrix Spike Duplicate	T	Solid	3050B	
Analysis Batch:280-18893					
LCS 280-18419/2-A	Lab Control Sample	T	Solid	6010C	280-18419
MB 280-18419/1-A	Method Blank	T	Solid	6010C	280-18419
280-4097-1	CSS-1	T	Solid	6010C	280-18419
280-4097-1MS	Matrix Spike	T	Solid	6010C	280-18419
280-4097-1MSD	Matrix Spike Duplicate	T	Solid	6010C	280-18419

Report Basis

T = Total

General Chemistry					
Analysis Batch:280-18060					
280-4097-1	CSS-1	T	Solid	Moisture	
280-4097-1DU	Duplicate	T	Solid	Moisture	

Report Basis

T = Total

Client: Waste Management

Job Number: 280-4097-1

Method Blank - Batch: 280-18419

Method: 6010C
Preparation: 3050B

Lab Sample ID: MB 280-18419/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/10/2010 1753
Date Prepared: 06/09/2010 0800

Analysis Batch: 280-18893
Prep Batch: 280-18419
Units: mg/Kg

Instrument ID: MT_025
Lab File ID: 25A2061010.txt
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 100 mL

Analyte	Result	Qual	MDL	RL
Chromium	0.169	J	0.058	1.5

Lab Control Sample - Batch: 280-18419

Method: 6010C
Preparation: 3050B

Lab Sample ID: LCS 280-18419/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/10/2010 1756
Date Prepared: 06/09/2010 0800

Analysis Batch: 280-18893
Prep Batch: 280-18419
Units: mg/Kg

Instrument ID: MT_025
Lab File ID: 25A2061010.txt
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 100 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chromium	20.0	19.6	98	84 - 114	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-18419

Method: 6010C
Preparation: 3050B

MS Lab Sample ID: 280-4097-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/10/2010 1802
Date Prepared: 06/09/2010 0800

Analysis Batch: 280-18893
Prep Batch: 280-18419

Instrument ID: MT_025
Lab File ID: 25A2061010.txt
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

MSD Lab Sample ID: 280-4097-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/10/2010 1804
Date Prepared: 06/09/2010 0800

Analysis Batch: 280-18893
Prep Batch: 280-18419

Instrument ID: MT_025
Lab File ID: 25A2061010.txt
Initial Weight/Volume: 1.04 g
Final Weight/Volume: 100 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chromium	100	95	70 - 200	1	40		

Client: Waste Management

Job Number: 280-4097-1

Matrix Spike/
Matrix Spike Duplicate Data Report - Batch: 280-18419

Method: 6010C
Preparation: 3050B

MS Lab Sample ID:	280-4097-1	Units: mg/Kg	MSD Lab Sample ID:	280-4097-1
Client Matrix:	Solid		Client Matrix:	Solid
Dilution:	1.0		Dilution:	1.0
Date Analyzed:	06/10/2010 1802		Date Analyzed:	06/10/2010 1804
Date Prepared:	06/09/2010 0800		Date Prepared:	06/09/2010 0800

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chromium	23	22.4	23.9	45.7	46.0

Client: Waste Management

Job Number: 280-4097-1

Duplicate - Batch: 280-18060

Method: Moisture
Preparation: N/A

Lab Sample ID: 280-4097-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 06/04/2010 0852
Date Prepared: N/A

Analysis Batch: 280-18060
Prep Batch: N/A
Units: %

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	19	19	3	20	

Client: Waste Management

Job Number: 280-4097-1

Laboratory Chronicle

Lab ID: **280-4097-1** **Client ID:** **CSS-1**

Sample Date/Time: 06/02/2010 12:13 Received Date/Time: 06/03/2010 10:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	280-4097-A-1-A		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	280-4097-A-1-A		280-18893	280-18419	06/10/2010 17:58	1	TAL DEN	JKH
A:Moisture	280-4097-A-1		280-18060		06/04/2010 08:52	1	TAL DEN	PBB

Lab ID: **280-4097-1 MS** **Client ID:** **CSS-1**

Sample Date/Time: 06/02/2010 12:13 Received Date/Time: 06/03/2010 10:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	280-4097-A-1-B MS		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	280-4097-A-1-B MS		280-18893	280-18419	06/10/2010 18:02	1	TAL DEN	JKH

Lab ID: **280-4097-1 MSD** **Client ID:** **CSS-1**

Sample Date/Time: 06/02/2010 12:13 Received Date/Time: 06/03/2010 10:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	280-4097-A-1-C MSD		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	280-4097-A-1-C MSD		280-18893	280-18419	06/10/2010 18:04	1	TAL DEN	JKH

Lab ID: **280-4097-1 DU** **Client ID:** **CSS-1**

Sample Date/Time: 06/02/2010 12:13 Received Date/Time: 06/03/2010 10:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:Moisture	280-4097-A-1 DU		280-18060		06/04/2010 08:52	1	TAL DEN	PBB

Lab ID: **MB** **Client ID:** **N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	MB 280-18419/1-A		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	MB 280-18419/1-A		280-18893	280-18419	06/10/2010 17:53	1	TAL DEN	JKH

Client: Waste Management

Job Number: 280-4097-1

Laboratory Chronicle

Lab ID: **LCS** **Client ID:** **N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	LCS 280-18419/2-A		280-18893	280-18419	06/09/2010 08:00	1	TAL DEN	JW
A:6010C	LCS 280-18419/2-A		280-18893	280-18419	06/10/2010 17:56	1	TAL DEN	JKH

Lab References:
TAL DEN = TestAmerica Denver

4.0
AB
JRZ
6/3/10

TestAmerica
ANALYTICAL TESTING CORPORATION

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Fax: 615-726-3404

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: Joyce Engineering Inc Client #: _____
Address: 2211 W. Meadowview Rd #101
City/State/Zip Code: Greensboro NC 27407
Project Manager: Van Burbach
Telephone Number: (336) 323-0092 Fax: _____
Sampler Name: (Print Name) Alex Everhart
Sampler Signature: [signature]

Project Name: Waste Management Piedmont landfill
Project #: 00392.1001.12 Task 09
Site/Location ID: _____ State: NC
Report To: Van Burbach
Invoice To: Leria Jones
Quote #: _____ PO#: _____

TAT
✓ Standard
___ Rush (surcharges may apply)
Date Needed: 10 Day
Fax Results: Y N

QC Deliverables
___ None
✓ Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other)	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: Total Chromium										REMARKS
GSS-1	6/2/10	12:13	G		S								1										

Special Instructions:

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp:
Custody Seals: Y N N/A
Bottles Supplied by Test America: Y N
Method of Shipment:

Relinquished By	Date	Time	Received By	Date	Time
Alex Everhart JEI	6/2/10	13:00	[signature]	6/3/10	1030

Login Sample Receipt Check List

Client: Waste Management

Job Number: 280-4097-1

Login Number: 4097

List Source: TestAmerica Denver

Creator: Green, Angel L

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	