Five-Year Review Report

Second Five-Year Review Report
for
Laurel Park Landfill Superfund Site
Naugatuck, Connecticut

September 2003

PREPARED BY:

United States Environmental Protection Agency
Region 1
Boston, Massachusetts

Approved by:

Susan Studlien
Susan Studlien, Acting Director
Office of Site Remediation and Restoration

Date:

September 19, 2003

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Five-Year Review Report
Laurel Park Landfill Superfund Site
Naugatuck, Connecticut

TABLES

ATTACHMENTS

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name: Laurel Park Landfill Superfund Site		
EPA ID: CTD980521165		
Region: 1	**State:** CT	**City/County:** Naugatuck/ New Haven

SITE STATUS		
NPL Status: **X** Final	Deleted	Other (specify)
Remediation Status (choose all that apply): Under Construction	Operating	Complete **X**
Multiple OUs? Yes **X** No	**Construction completion date:** 09/ 11 /1998	
Has site been put into reuse? Yes	**X** No	

REVIEW STATUS	
Lead Agency: **X** EPA State Tribe Other Federal Agency _____	
Author name: William Lovely	
Author title: Remedial Project Manager	**Author affiliation:** U.S. Environmental Protection Agency
Review Period: 12 / 24 / 2002 to 9 / 22 / 2003	
Date(s) of inspection: 06/ 06 / 2003	
Type of Review: **X** Post-SARA Pre-SARA NPL-Removal Only Non-NPL Remedial Action Site NPL State/Tribe-lead Regional Discretion	
Review number: 1 (first) **X** 2 (second) 3 (third) Other (specify) _____	
Triggering Action: Actual RA Onsite Construction at OU #_____ Actual RA Start at OU#_____ Construction Completion Other (specify) Signing of ROD **X** Previous Five-Year Review Report	
Triggering action date (from WasteLAN): 09 / 30 / 1998	
Due date (five years after triggering action date): 09/ 30 / 2003	

* ["OU" refers to operable unit.]

Five-Year Review Summary Form, cont'd.

Issues: There is noticeable erosion along the eastern edge of downchute #3.

An increasing trend in metals concentrations was observed in 6 monitoring wells.

Leachate is not being effectively captured in the vicinity of EW-16 and EW-20.

The current groundwater sampling protocol is outdated.

Recommendations and Follow-up Actions:

Investigate cause of erosion and repair as necessary.

Install groundwater extraction pumps in EW-16 and/or EW-20, and continue to monitor the groundwater.

Change groundwater sampling protocol to low-flow method.

Protectiveness Statement:

The remedy at the Laurel Park Landfill Superfund Site currently protects human health and the environment because the cap and leachate collection system are effectively containing the contaminants on-site, and the installation of the public water line along Hunters Mountain Road helps to ensure that nearby residents are not exposed to contaminants which may remain in the groundwater. Long-term protectiveness of the remedy will be verified through continued groundwater monitoring and routine site inspections, which are included as part of the site's operation and maintenance activities.

1.0 Introduction

As requested by the Environmental Protection Agency (EPA), a five-year review was conducted of the remedial actions selected for the Laurel Park Landfill, in Naugatuck, Connecticut.

The purpose of the five-year review is to determine whether the remedy being implemented at the Site remains protective of human health and the environment. The methods, findings, and conclusions of the five-year review are documented in this Five-Year Review Report. In addition, this report presents issues identified during the review and provides recommendations to address them.

This Five-Year Review Report was prepared pursuant to CERCLA §121 and the National Contingency Plan. CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that the action is appropriate at such site in accordance with section [104]or [106], the president shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the National Contingency Plan (NCP); 40 CFR § 300.430 (f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five-year review for the Site. The triggering action for this statutory review is the completion of the last five-year review in 1998. The five-year review is required due to the fact that contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

2.0 SITE CHRONOLOGY

TABLE 1

DATE	EVENT
9/8/83	Site listed on the National Priorities List (NPL)
2/87	Remedial Investigation (RI) completed.
5/88	Feasibility Study (FS) completed.
6/30/88	EPA issued a Record of Decision (ROD) for the Site.
4/89	The public water supply line is completed.
12/89	Leachate transportation line to the Naugatuck Publicly Owned Treatment Works (POTW) sanitary interceptor sewer completed.
7/29/96	Remedial Design completed.
7/96	Construction of the remedial action (i.e., landfill cap, leachate collection and transfer systems, groundwater extraction system) initiated.
9/11/98	Construction activities specified in the ROD are complete. EPA issues the first Five-Year Review for the Site.

3.0 BACKGROUND

The Laurel Park Landfill Superfund Site (the Site) is located in Naugatuck, Connecticut, approximately one mile southwest of the Naugatuck River and Connecticut Route. The actual landfill area covers approximately 19 acres of a 35-acre property. A map depicting the location of the Site is presented as Attachment 1.

3.1 Physical Characteristics

The Laurel Park landfill lies on the upper north and west slopes of Huntington Hill. Chain-link fencing is located around the perimeter of the landfill cap area. Twenty-one groundwater extraction wells of which thirteen are active are located along the northern and eastern edge of the landfill cap. The landfill cap consists of a multi-barrier cover system with a vegetative grass cover as the top layer. A leachate collection system consisting of perforated pipe and drainage media surround the landfill cap. Most of the area immediately bordering the Site is forested. About 50 homes are located within one-

half mile radius of the Site, primarily to the north, east, and southeast of the landfill, with the closest residents located approximately 1,000 feet to the north and southeast of the Site.

The Site is located within the Naugatuck River drainage area. Surface water from the landfill flows to two tributaries of the Naugatuck River-Spruce Brook and Long Meadow Pond Brook, which are located one-half west and one mile north of the landfill respectively. Groundwater in the vicinity of the Site flows predominately within the shallow bedrock toward the northwest, northeast and southeast. The shallow bedrock is fairly weathered and was found to vary from a depth of zero to approximately 70 feet below the land surface around the perimeter of the landfill. A map depicting the site features is presented as Attachment 2.

3.2 Land and Resource Use

From the late 1930's until 1987 the Site was used as an active landfill. The Site is currently a closed landfill and will likely remain as such due to the need to protect the integrity of the landfill cap and because the Site is privately owned. Adjacent land use is dominated by residential development. Groundwater in the area is no longer used as a drinking water supply as a result of the completion of the public water supply line in the Spring of 1989. The Naugatuck River, which ultimately receives the surface water runoff from the Site, is classified as restricted recreational use water with a goal of becoming recreational use water.

3.3 History of Contamination

The Site consists of an active landfill that was active from the 1930s until 1987. The landfill is classified primarily as a sanitary landfill, but does contain approximately 20 percent industrial waste. Operational problems at the landfill were reported in the early 1960's. Complaints included chemical spills on roads leading to the landfill, large quantities of black acid smoke, odor, and blowing litter. The complaints culminated in a lawsuit filed in 1961 (Lanoette et al. v. Harold Murtha et al.) which alleged in part that the operation of the waste dumps created a nuisance. Judgment in the case was handed down in 1964 and the landfill owner was ordered to cease open burning of certain wastes, except at certain times, and to pay several thousand dollars in damages. However, the judgment did not require that the landfill stop accepting wastes. Consequently, Laurel Park Inc. (LPI) was incorporated in 1966 and continued to operate the Site as a landfill until 1987.

3.4 Initial Response

On April 16, 1987, LPI informed the Connecticut Department of Environmental Protection (CTDEP) that they had ceased accepting wastes. Prior to this, the Connecticut Superior Court in Hartford issued a judgment on February 1, 1983, ordering LPI to take the following steps as conditions for allowing it to continue disposing of solid waste:

- Immediately prepare a proposal for groundwater monitoring and implement the proposal upon approval by CTDEP.

- Install and maintain a leachate collection and treatment system, upon approval of plans by CTDEP, by October 31, 1983.

- Submit to CTDEP a performance bond covering the cost of installing and maintaining the leachate system for five years.

- Supply potable (i.e., bottled water) to certain specifically identified neighboring residents.

- Provide a municipal water system to those residents if LPI applies for and receives permission for horizontal expansion of the landfill.

As a result of the judgment, the LPI completed the construction of a leachate collection and treatment system in 1984 and provided bottled water to area residents whose private water supply was affected by the Site. Subsequently, in May 1987, EPA entered into an Administrative Order on Consent (AOC) with the State of Connecticut, the Borough of Naugatuck and the Uniroyal Chemical Company (the largest generator of waste at the Site) to design and install the waterline referenced in the 1983 judgment described above. The waterline was completed in the Spring of 1989 and residents whose private water supply was at risk from contamination were allowed to connect.

3.5 Basis for Taking Action

The Remedial Investigation/ Feasibility Study (RI/FS) was conducted from 1985 to 1987. The RI/FS concluded that the existing leachate collection system was only partially effective in capturing leachate. Consequently, leachate continued to contaminate soil, surface water, and groundwater in the vicinity of the Site.

Based on the sampling conducted as part of the RI, the consumption of groundwater from monitoring wells on the property and residential wells in the vicinity of the Site represented the most significant risk to human health. Volatile organic compounds (VOCs), organics, and metals were detected in groundwater at concentrations well above levels considered to be protective. Moreover, because the landfill did not have a barrier to prevent precipitation from coming into contact with the landfill wastes, the generation of leachate would continue and the potential existed for further degradation of groundwater quality to levels that would endanger public health if consumed.

4.0 REMEDIAL ACTIONS

4.1 Remedy Selection

The selected remedy for the Site was contained in the 1988 ROD and included both source control and management of migration (or groundwater control) components:

- grading and placement of a RCRA cap over the entire landfill;
- construction of a leachate collection/groundwater extraction system;
- treatment of the leachate and the contaminated groundwater at the Naugatuck Watter Pollution Control Facility (NWPCF);
- monitoring; and
- institutional controls.

4.2 Remedy Implementation

In a Consent decree (CD) signed with EPA on August 13, 1992, the Potentially Responsible Parties, now know as the Laurel Park Coalition (LPC), agreed to perform the remedial design/ remedial action (RD/RA) specified in the 1988 ROD. Prior to the effective date of the CD, the LPC completed the installation of a dedicated sewer line in December 1989 to provide leachate discharge to and treatment at the NWPCF in accordance with the 1988 ROD. On July 29, 1996 EPA approved Remedial Design (RD) for the remaining items specified in the 1988 ROD.

Construction activities commenced in 1996 and included the construction of the RCRA cap over the landfill wastes and the construction of the new leachate collection/ groundwater extraction system. Construction of the leachate collection system and installation of the groundwater extraction wells was completed during the 1996 construction season. The leachate collection system was cleaned and video-inspected and the groundwater extraction system completed (including pumps and associated appurtenances) during the 1997 construction season. Construction of a RCRA cap over the entire landfill was completed in 1998 and environmental monitoring commenced.

The Site achieved construction completion status when the Preliminary Closeout Report was signed on September 11, 1998.

4.3 Operation and Maintenance

The LPC conducting long-term monitoring and maintenance activities according to: the Operation and Maintenance (O&M) plan that was approved by EPA on December 7, 1998 and the Long-term Monitoring Plan that was approved by EPA on November 25, 1998. The primary activities associated with O&M and long-term monitoring include:

- Monthly inspections of the landfill cap, leachate collection/ groundwater extraction systems, and other components of the remedy; and

- Triennial groundwater sampling events.

5.0 PROGRESS SINCE LAST REVIEW

This is the second Five-Year Review for the Site. The previous Five-Year review was completed in September 1998. All issues identified in that review have been addressed. Significant activities completed since the last five-year review included EPA's approval of the Final Remedial Construction Report on December 21, 1998 and the As-Recorded Drawings on January 6, 1999.

6.0 FIVE-YEAR REVIEW PROCESS

6.1 Administrative Components

EPA, the lead agency for this five-year review, notified CTDEP and the PRPs in early 2003 that the five-year review would be completed. The Five-Year Review Team was led by William Lovely of EPA, Remedial Project Manger, for the Laurel Park Landfill Superfund Site, and included staff from TRC, EPA's technical support contractor. Sheila Gleason, of the CTDEP was also part of the review team.

From February 2003, the review team established the review schedule whose review components included:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection;
- Local Interviews; and
- Five-Year Review Report Development and Review.

The schedule extended through July 30, 2003.

6.2 Community Involvement

EPA mailed letters on May 29, 2003 announcing EPA's review of the Laurel Park Landfill Site cleanup. The mailing included the residents along Hunters Mountain Road and the Town Mayor. Additional copies of the fact sheet were made available to the general public at the Naugatuck Town Hall. The fact sheet described the Five-Year Review process and how the community can contribute during the review process. EPA did not receive any comments from the community.

6.3 Document Review

The five-year review consisted of a review of relevant documents including O&M records and monitoring data. A more detailed description of the documents reviewed is presented in Section 2.0 of the Technical Memorandum, which is included as Attachment 3.

6.4 Data Review

As part off the review, EPA evaluated the data collected by the LPC to confirm that contaminants within the landfill are being contained by the cap and leachate collection system. Technical assistance on the data review was provided by TRC. A summary of the data review is provided below.

Groundwater Monitoring

Groundwater monitoring is used to assess whether contaminated leachate continues to flow from the landfill, and if the levels of detected constituents are increasing or decreasing. This includes monitoring of the water table elevation to evaluate whether the generation of leachate has been reduced/eliminated and if the water table has been lowered under the landfill cap. Groundwater is gauged, sampled, and analyzed triennially for general chemistry, volatile organic compounds (VOCs), and metals.

As part of the five-year review, EPA evaluated all groundwater data collected from 1998 through 2002. The review included a statistical analysis of the results to evaluate the effectiveness of the remedy. Overall, the statistical analysis indicated that most monitored chemicals show no statistically significant trend in concentration over the last 5 years. Some wells show modest downward or upward trends in chemical concentration. Examples of wells with decreasing trends include benzene in wells OW-5 and MW-13. Increasing trends are apparent in wells BH-7 and MW-3 for toluene, wells OW-2 and MW-12S for nickel, and wells MW-10 and BH-7 for iron. In addition, wells OW-2 and MP-9 also showed an increasing trend for chromium.

The apparent increase in toluene and some of the metals may be attributed to the effect of landfill leachate on groundwater chemistry. Landfills typically go through stages where biological processes result in the generation of methane gas and anaerobic conditions. These conditions favor the biological degradation of chlorinated solvents but more easily aerobically degraded solvents such as benzene, toluene, ethylbenzene and xylene can persist. The anaerobic conditions are also expected to increase the mobilization of most metals. Later, as aerobic conditions return, the aerobically degraded chemicals will be preferentially degraded and the metals will precipitate. In addition to biodegradation, the spread

of groundwater contaminants will be restricted by sorption to organic matter, natural chemical reactions, dispersion, and capture by the treatment system.

The rising levels of some metals in groundwater are not unexpected and should mostly be contained by the groundwater extraction system, as half of the referenced wells are downgradient of the leachate collection system, but upgradient of the groundwater extraction system. A few remote monitoring wells, downgradient of the extraction system, show exceedences of the Connecticut GWPC including well OW-4 for nickel and MW-13 for benzene. At OW-4 the nickel levels are statistically increasing over time and may be indicative of a failure to contain landfill impacts at this point. The slight exceedence at MW-13 has been historically present and may be indicative of a slug of material previously existent at the location of MW-13. In both cases the groundwater exceedences were only slightly above the GWPC and would be expected to naturally attenuate to below GWPC within a short distance from the landfill.

Surface Water Monitoring

Prior to the landfill cap construction, most surface drainage for the landfill and leachate flowed to the unnamed stream and to the Long Meadow Pond Brook watershed. VOC contamination was apparent in the unnamed stream with decrease in concentrations downstream of the site (ROD, 1988). Based on an Endangerment Assessment, contact with surface water and sediment was determined to constitute a relatively minor exposure pathway based on contaminant concentrations and frequency of use (ROD, 1988). The long term monitoring does not include this media.

Construction of the landfill cap and the collection and discharge of leachate to the Naugatuck Sewage Treatment Facility have eliminated the discharge of contaminants to surface water receptors. With continued maintenance of the landfill cap and leachate collection system, future compliance regarding surface water and sediments can be expected without additional remedial action.

Air Monitoring

Analytical data for landfill gas samples collected by the LPC in 2001 were evaluated to identify any applicable air regulations. Because the reported releases of contaminates are very low, applicable state and federal air regulations do not require any actions at this site.

6.5 Site Inspection

EPA performed an inspection of the Site on June 6, 2003. The purpose of the inspection was to assess the protectiveness of the remedy, including the integrity of the cap and leachate collection system. A Five-Year Review checklist was used to document the observations made during the inspection. The report is

based on observations made during the visual inspection of the landfill surface. A summary of the site inspection is provided below.

- **Landfill surface** – The landfill surface was generally in good condition with some rodent holes. It was recommended that an area with sparse vegetation be reseeded and that a localized low point in the cover system continue to be monitored.
- **Benches** – The benches appeared in good condition with only minor vegetation and sedimentation.
- **Letdown Channels (downchutes)** – Three of the four downchutes were observed to be in good condition. Downchute #3 appeared to have flow bypass conditions which may be undermining the area and depositing sediments. Continued monitoring was recommended to identify further signs of settlement or degradation with future repair if conditions worsen.
- **Cover penetrations** – There did not appear to be any problems with the cover penetrations, which include leachate collection system manholes, passive gas vent structures and monitoring wells. Potential settlement was observed at MW-1 and continued monitoring was suggested.
- **Cover drainage layer** – The riprap outlet for the drainage layer appeared to be in good condition.
- **Leachate collection and groundwater extraction systems** – The above ground portions of the systems were in good condition. Fourteen of the leachate collection system manholes were inspected and were in good condition structurally.
- **Perimeter ditches and off-site discharge** – The perimeter ditches appeared to be operating as designed and were in good conditions with the exception of minor sedimentation.

Recommendations of corrective actions based on the inspection included the continued monitoring of potential settlement, erosion and sediment areas and the continuation of existing programs including the rodent control and groundwater extraction system maintenance programs. The overall conclusion based on the site inspection is that the components of the landfill cover system are working as designed.

6.6 Interviews

On June 6, 2003, Mr. Russ Dirienzo, the LPC's operation and maintenance contractor was interviewed to identify any current operational/maintenance issues.

Mr. Dirienzo indicated that overall, there have been no major issues with O&M. According to Mr. Dirienzo, leachate monitoring results have indicated the presence of a localized, contaminant "hot-spot" in the vicinity of monitoring wells

OW-1 and PW-1. Contaminants include benzene, chlorobenzene, trichloroethylene, and tetrachloroethylene. Mr. Dirienzo noted that extraction wells EW-5 and EW-9 have been producing lower than expected flows.

Another issue discussed during the interview was the ongoing repair and maintenance of Downchute #3. During the summer of 2001, repairs were made to an area of erosion along the eastern edge of Downchute #3 (where stormwater was breaching Bench #3B and eroding the landfill slope). Repairs consisted of installing a geomembrane flap at the junction between Bench #3B and the top of Downchute #3, covering the area with topsoil and erosion control blankets, and reseeding the area. There was evidence of additional erosion at the eastern edge of Downchute #3, downslope from the repair area based on sediments deposited at the base of the Downchute. Mr.Dirienzo indicated that he has been monitoring potential settlement in a low spot near the bend in the lower half of Downchute #3 (approximately 6 inches below relative grade) and further settlement was not evident.

7.0 TECHNICAL ASSESMENT

7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

The remedial action objectives specified in the 1988 ROD included both source control measures and management of migration measures to mitigate existing and future threats to public heath and the environment. These response objectives are:

Source Control

1. Preventing or minimizing the further release of contaminants in groundwater, surface water, sediments, soil and air.

2. Eliminating the threats posed to human health and the environment from the source area itself.

Management of Migration Measures

1. Preventing or minimizing further migration of contaminants in groundwater, surface water, sediments, soil and air.

2. Eliminating or minimizing the threats posed to human health and the environment from the current extent of contamination.

On September 11, 1998 EPA completed a Preliminary Close-Out report, which stated that all construction activities specified in the ROD have been conducted, and that the remedy is considered operational and functional. Since that time, the

LPC has been performing environmental monitoring and routine site inspections as required by the remedy. The results of these activities have been submitted to and reviewed by EPA and its technical consultant. Based on that review, the remedy is functioning as intended. The landfill cap and O&M of the leachate collection and groundwater extraction systems have achieved the remedial objectives to minimize the migration of contaminants and prevent direct contact with or ingestion of contaminants.

Operation and maintenance of the cap and leachate collection and groundwater extraction systems has been, and continues to be effective. Issues identified during the routine site inspections have been corrected or continue to be monitored.

The only system that offers the potential for optimization is the groundwater extraction system. There does not appear to be any opportunity for optimizing the groundwater extraction system as currently configured. The installation of pumps within extraction wells EW-16 and EW-20 may be considered in the future to ensure the capture of landfill contamination. No other opportunities have been identified.

The only indications of potential issues are the slightly increasing trend in some contaminant concentrations. Otherwise, the various components of the landfill cover system and leachate collection and groundwater extraction systems are working as designed.

Institutional controls include the ownership of the surrounding land to provide a buffer zone, the public supply of water to nearby residents, and the fencing of the site to prevent unauthorized access. No activities were observed that would have violated the institutional controls.

7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Used at the Time of the Remedy Selection Still Valid?

Changes in Standards and To Be Considereds

The 1988 ROD, page 29, identifies the following laws, regulations and guidance as applicable to the remedy. Changes in standards since the 1988 ROD do not appear to change the protectiveness of the remedy.

- Resource Conservation and Recovery Act (RCRA) Part 264. The landfill cap and all subsequent repairs and modifications to the cap were designed in accordance with applicable RCRA requirements. EPA approved the cap on July 24, 1998, and the LPC continues to perform O&M as

necessary. Groundwater monitoring is performed in accordance with the RCRA Groundwater Protection Standard specified in 40 CFR 264.97.

- Clean Water Act. Leachate from the landfill is transported to Town of Naugatuck Publicly Owned Treatment Works (POTW) where it is commingled with other wastes, then treated in accordance with the regulatory criteria (i.e., NPDES permit).

- Clean Air Act. Landfill gas emissions at the site continue to be well below concentrations that would trigger requirements under the federal Clean Air Act.

- Safe Drinking Water Act; EPA Groundwater Protection Strategy. New applicable or relevant and appropriate requirements (ARARs) promulgated since the 1985 ROD and 1990 sROD include Maximum Contaminant Levels (MCLs) and non-zero Maximum Contaminant Level Goals (MCLGs). The MCLs listed for each of the groundwater contaminants monitored at the site continue to be valid.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

The exposure assumptions used to develop the Human Health Risk Assessment included: (1) ingestion of groundwater; (2) direct contact with leachate; (3) inhalation of the contaminants from the soil, groundwater, surface water, and leachate by workers or other individuals, and (4) consumption of fish. With the expansion of the public water supply in 1989, and completion of the landfill cap, leachate collection system, and security fence, the potential ingestion of contaminated groundwater remains the only valid exposure scenario. Assumptions used to assess the risk of groundwater contamination (including groundwater cleanup levels) remain valid and are likely to overstate the risk in light of the groundwater sampling results, and the fact that all residences are connected to the existing public water supply.

7.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

As part of the review, EPA evaluated the current Long-Term Monitoring Plan (1998) being implemented at the site. Based on that review, EPA has determined that the sampling protocol needs to be updated to improve the representativeness of the groundwater sampling results. Consequently, future groundwater sampling events should be performed using the Low Stress (low flow) Purging and Sampling Procedure Specified in section 2.5 of the Technical Memo, which is included as Attachment 3.

Technical Assessment Summary

According to the data reviewed, the site inspection, and site interview, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the site, ARARs, or assumptions used in the baseline risk assessment that would affect the protectiveness of the remedy. In addition, a statistical analysis of the groundwater data did not produce any results to suggest that additional remedial measures are warranted other than the possible installation of groundwater extraction pumps within EW-16 and EW-20.

8.0 ISSUES

Based on the activities conducted during this Five-year review, the issues identified in Table 2 have been noted.

Table 2: Issues

Issues	Affects Current Protectiveness	Affects Future Protectiveness
Erosion along the eastern edge of downchute #3	No	No
Increasing trend in contaminant concentrations in MW-3, BH-7, OW-2, MW-12S, MP-9, and MW-10	No	Yes
Leachate not being effectively captured in the vicinity of EW-16 and EW-20	No	Yes
Outdated groundwater sampling protocol	No	No

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

In response to the issues noted above, it is recommended that the actions listed in Table 3 be taken:

Table 3: Recommendations and Follow-up Actions

Issue	Recommendation and Follow-up Action	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness	
					Current	Future
Erosion along the eastern edge of downchute #3	Investigate cause and repair as necessary.	PRP (LPC)	EPA & CTDEP	On-going, complete prior to the next Five-Year Review.	No	No
Increasing trend in contaminant	Continue to sample groundwater and	PRP (LPC)	EPA & CTDEP	On-going, complete prior to	No	Yes

concentrations 6MWs	investigate cause of trend.			the next Five-Year Review.		
Leachate not being effectively captured in the vicinity of EW-16 and EW-20	Install pumps in EW-16 and EW-20 to improve containment. Continue to monitor the trend in PW-1 and OW-2 or take appropriate action if necessary.	PRP (LPC)	EPA & CTDEP	Complete by Spring 2004.	No	Yes
Outdated ground-water sampling protocol	Change sampling protocol to low-flow method.	PRP (LPC)	EPA & CTDEP	Spring 2004 ground-water sampling event	No	No

10.0 PROTECTIVENESS STATEMENT(S)

The remedy at the Laurel Park Landfill Superfund Site currently protects human health and the environment because the cap and leachate collection/ groundwater extraction systems are effectively containing the contaminants on-site, and the installation of the public water line along Hunters Mountain Road helps to ensure that nearby residents are not exposed to contaminants which may remain in the groundwater. Long-term protectiveness of the remedy will be verified through continued groundwater monitoring and routine site inspections, which are included as part of the site's operation and maintenance activities.

11.0 NEXT REVIEW

The next five-year review will be conducted by September 2008.

Attachments

Originals in color.

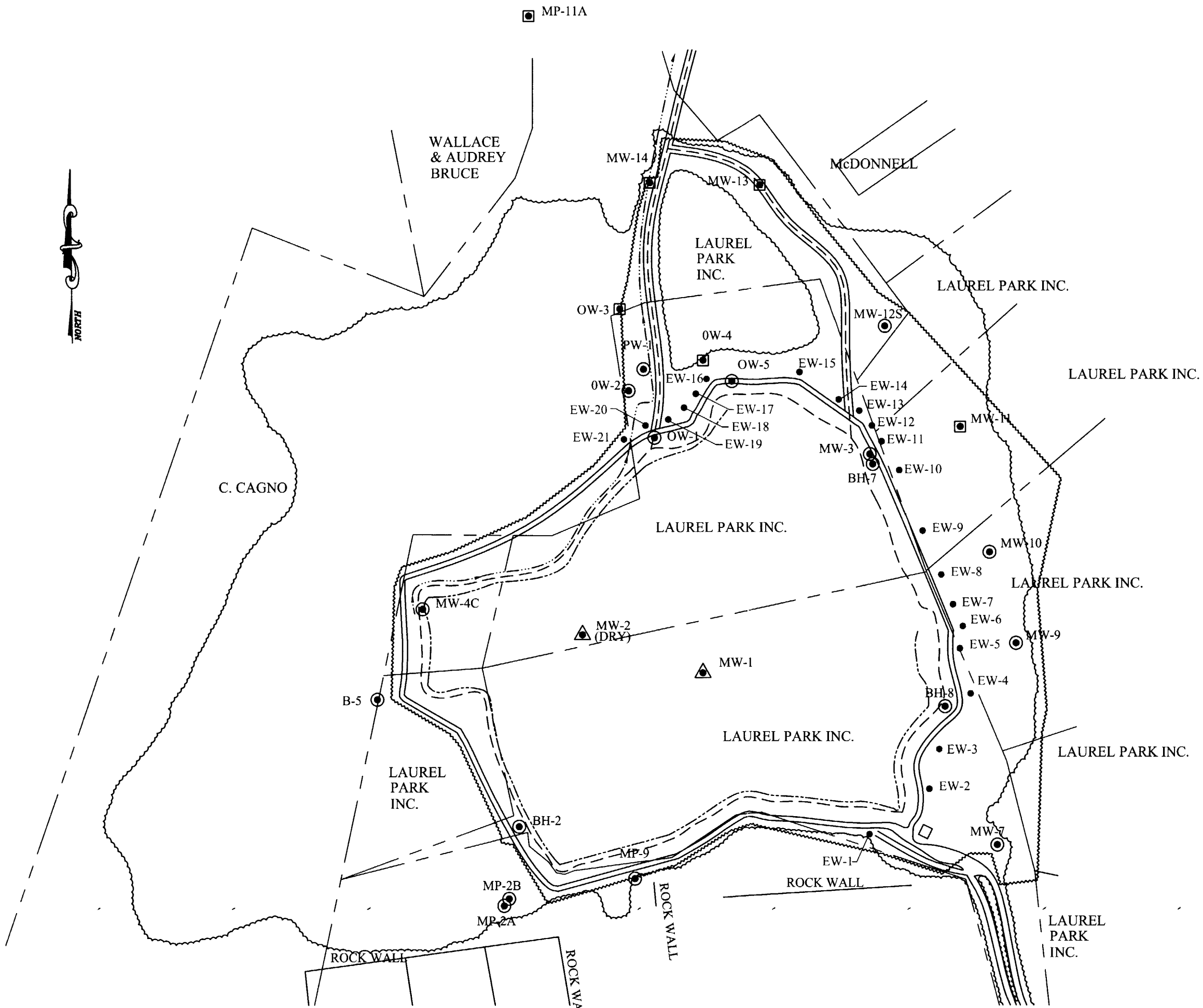
USGS TOPOGRAPHIC SERIES BY TOPO!
NAUGATUCK, CONNECTICUT 1964
PHOTOREVISED 1984

DATE	4/07/03
REV. NUMBER:	N/A
REV. DATE:	N/A
DRAFTED BY:	SRM
PROJ. NO:	00-109-3
DOC. NO.	6699F1
SCALE:	1:24,000
	0 INCHES 1/2
SHEET	1 OF 1

FIGURE 1
SITE LOCATION

LAUREL PARK LANDFILL
HUNTERS MTN. ROAD
NAUGATUCK, CONNECTICUT

SMC ENVIRONMENTAL



LEGEND:

- PROPERTY BOUNDARY
- EXTENT OF LANDFILL
- FENCE
- ACCESS ROAD
- LIMIT OF VEGETATIVE COVER
- DRAINAGE PATH
- LEACHATE COLLECTION SYSTEM
- MW-1 — LANDFILL MONITORING WELL
- MW-13 — REMOTE MONITORING WELL
- MW-3 — PERFORMANCE AND COMPLIANCE MONITORING WELLS
- EW-3 — EXTRACTION WELL
- EQUIPMENT AND STORAGE BUILDING

NOTES:

SITE PLAN PREPARED FROM INFORMATION OBTAINED AND MEASUREMENTS TAKEN BY SMC ENVIRONMENTAL.

ALL LOCATIONS, DIMENSIONS, AND PROPERTY LINES DEPICTED ON THIS PLAN ARE APPROXIMATE. THIS PLAN SHOULD NOT BE USED FOR CONSTRUCTION OR LAND CONVEYANCE PURPOSES.

HORIZONTAL, AND VERTICAL LOCATIONS OF WELLS, AND SELECTED SITE FEATURES DETERMINED THROUGH REPRESENTATIVES OF S.M.C.

Original includes color coding.

SMC ENVIRONMENTAL

DATE:	4/28/03
REV. NUMBER:	N/A
REV. DATE:	N/A
DRAFTED BY:	SRM
PROJECT NO:	CT00-109-3
DOC NO:	6699F2
SCALE:	1"=250'

0 INCHES 1

FIGURE 2
SITE PLAN

LAUREL PARK LANDFILL
NAUGATUCK,CONN.

SHEET 1 OF 1

TRC

Customer-Focused Solutions

FINAL TECHNICAL MEMORANDUM

Date: August 20, 2003

To: Mr. William Lovely
Remedial Project Manager
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Multi-Site Five-Year Review

Subject: **Laurel Park Landfill Superfund Site, Naugatuck, Connecticut**
Input for Five-Year Review

1.0 INTRODUCTION

TRC is assisting EPA in performing a five-year review of the Laurel Park Landfill Superfund Site (site) in accordance with OSWER Directive 9355.7-03B-P "Comprehensive Five-Year Review Guidance" (June 2001). This is the second five-year review conducted for the Laurel Park Landfill. The information in this draft Technical Memorandum will be used by EPA to evaluate and certify the protectiveness of the remedy in EPA's five-year review report.

TRC performed the following tasks to support EPA's five-year review:

- Reviewed site-related documents;
- Evaluated site conditions and performance of the remedy;
- Interviewed the PRP's O&M contractor, SMC Environmental;
- Inspected the site to verify the integrity of the remedial system and to assess O&M; and
- Prepared this technical memorandum.

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2.0 DOCUMENT REVIEW

TRC used the following documents to prepare this memorandum:

- Record of Decision, September 1988 (ROD, 1988)
- Five-Year Review Report, September 1998 (Five Year Review, 1998);
- Long-Term Monitoring Plan, December 1998 (LTMP, 1998);
- Final Remedial Construction Report, January 1999 (FRCR, 1999);
- Operation and Maintenance Plan, January 1999 (O&M Plan, 1999); and
- 2002 Annual Monitoring Report, May 2003 (AMR, 2003).
- TRC Inspection Reports

2.1 Remedial Action Objectives

The remedy selected in the EPA Record of Decision (ROD, 1988) was:

- Construction of a cap to reduce infiltration so that leachate generation is reduced and the water table is lowered below landfill material thus reducing groundwater contamination;
- Rehabilitation of existing perimeter leachate collection system to minimize offsite migration of landfill generated contaminants;
- Installation of a new leachate collection/groundwater extraction system to extract leachate not intercepted by existing leachate collection system and to extract highly contaminated shallow groundwater in vicinity of landfill;
- Treatment of leachate and contaminated groundwater at the local water pollution control facility; and
- Monitoring environmental media for 30 years.

2.2 Design and Construction

Construction of the new leachate collection system and groundwater extraction wells was completed in 1996 (FRCR, 1999). The new leachate collection piping around the landfill perimeter consists of approximately 4,170 linear feet of 6-inch HDPE pipe. The existing leachate collection system was cleaned and video-inspected in 1997. The groundwater extraction pump installation was completed during 1997. Leachate has been discharged to the Naugatuck Water Pollution Control Facility since 1989.

The groundwater extraction system currently consists of 21 extraction wells: 15 located on the east side of the landfill and 6 wells on the north side of the landfill. Based on the results of pumping tests, 13 of the 21 wells were outfitted with pneumatic submersible pumps rated for a total maximum flow rate of 5 gallons per minute. The other eight extraction wells are outfitted

with air supply and water discharge lines, but are not currently being pumped due to inadequate flow.

Construction of the landfill cap began in 1996 and was completed in 1998 (FRCR, 1999). Cap depth is 5 feet on the side slopes and 3 feet on the top. The cap was built with a 6-inch vegetated topsoil layer, 24-inch cover soil layer, synthetic drainage layer, and 40-mil low density polyethylene liner. A geocomposite clay liner covers the landfill top, while the side slopes have low permeability soil, the gas venting system and a 6-inch soil bedding layer.

2.3 Performance Standards

The performance standards appear below (ROD, 1988; LTMP, 1998):

a) *The RCRA Groundwater Protection Standard ("GWPC") established by EPA is met at the point of compliance, as those terms are defined in the SOW;*

b) *The concentration standard, which is satisfied when the concentrations of contaminants in the groundwater has stabilized due to the reduced generation of leachate; and*

c) *The hydraulic standard, which is satisfied when the water table has been lowered below the waste and the generation of leachate has ceased or been reduced to a minimum due to dewatering of the landfill.*

The GWPC is defined by the United States Environmental Protection Agency (USEPA) as the Maximum Contaminant Levels (MCLs) for those target compounds identified as leachate components at the Point of Compliance. For those compounds which are defined as constituents of Site-related leachate, yet have no MCLs established, the appropriate Alternative Concentration Limit (ACL) will be used.

2.4 Monitoring Requirements

The current monitoring requirements (LTMP, 1998) consist of O&M for the landfill system, groundwater monitoring, and wastewater discharge monitoring. Some monitoring requirements were dropped from the 1988 ROD. Because contamination from leachate seeps and landfill runoff to surface water ceased after construction, surface water and sediment sampling was eliminated.

The site monitoring objectives are *to monitor the effectiveness of the remedy, monitor the bedrock aquifer relative to groundwater standards and institutional controls, and identify further impacts to public heath and the environment* (5-Year Review, 1998).

2.4.1 Remedy operation and Maintenance

The goals of the landfill O&M (O&M Plan, 1999) are:

- *Maintaining the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;*
- *Continuing to operate the leachate collection and removal system until leachate is no longer detected;*
- *Maintaining and monitoring the groundwater monitoring system and complying with all other applicable or relevant and appropriate requirements of RCRA 264.90 through 264.101;*
- *Preventing run-on and run-off from eroding or otherwise damaging the final cover; and*
- *Protecting and maintaining surveyed benchmarks used in complying with 40 CFR 264.309.*

Currently operation and maintenance performed by the PRP includes the following:

- Inspection and repair of the landfill cap as needed including repair of erosion, eradication of burrowing animals etc.;
- Cutting the landfill surface vegetation and control of woody plant growth;
- Inspection and repair of the groundwater extraction system components including compressor, pumps and controls;
- Cleaning of the groundwater extraction system water discharge lines to maintain the maximum pumping rate.

2.4.2 Groundwater Monitoring

The contaminated media requiring monitoring consists of groundwater in shallow weathered bedrock. Originally the environmental monitoring for Laurel Park Landfill consisted of sampling 25 groundwater monitoring wells. The 25 wells were divided into three groupings:

- Point of compliance wells: to assess the effectiveness of the leachate collection system and the groundwater extraction system;
- Landfill monitoring wells within the landfill: for hydraulic monitoring only, to assess the groundwater level in the landfill; and
- Remote monitoring wells are downgradient from the point of compliance wells: provide additional data to identify potential further impacts to public health and the environment.

Groundwater quality monitoring was implemented in 1998 and conducted as follows (LTMP, 1998):

Point of compliance wells	Monthly - years 1 and 2, semi-annually - years 3 through 5
Landfill monitoring wells	Dependant on first sampling round
Remote monitoring wells	Quarterly - years 1 and 2, semi-annually - years 3 through 5

In 2001, EPA modified the groundwater monitoring program to a triennial basis (AMR, 2003). The number of wells in the monitoring program was also reduced to 23 groundwater monitoring wells (18 wells triennially and 5 wells semi-annually). Groundwater levels are presently measured at each of the 21 groundwater extraction wells and 25 monitoring wells on a triennial basis.

Groundwater analytical data is evaluated by comparing the result to the Federal Maximum Contaminant Levels (MCLs) established by the EPA and the Connecticut Department of Environmental Protection's (CT DEP) Groundwater Protection Criteria (GWPC).

2.4.3 System Monitoring

The groundwater extraction well flow rates are monitored on a monthly basis. The combined leachate collection and groundwater extraction system flow rate is measured at an off-site monitoring station prior to discharge to the POTW. Samples of the combined flow are also collected for laboratory analysis to demonstrate compliance with discharge requirements.

Currently, an annual O&M report is provided by the PRP's contractor, SMC, to present hydraulic monitoring data and analytical data. The PRP's annual O&M report also evaluates the effectiveness of the leachate collection system, groundwater extraction system, and landfill cap.

2.5 Monitoring Plans

TRC conducted a review of the sampling and analytical procedures to determine the need to update any of the monitoring plans used to evaluate the performance of the remedy.

The groundwater sampling procedure should be updated for consistency with U.S. EPA Region I Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, July 30, 1996. The currently-approved procedure relies on the use of a bailer or a submersible pump to purge three well volumes and a bailer to obtain ground water samples.

This technique potentially results in two deficiencies that may affect sample quality and/or reliability: (1) questionable representativeness, and (2) agitation. Use of a bailer may result in incomplete well purging caused by the continual mixing within the casing of stagnant water with water flowing into the well from the formation. Stagnant water may also be left in the casing if a submersible pump is used for purging, and the water level in the well is not drawn down to the screened section. In this case a bailer would sample the stagnant water from the casing.

The bailer technique may also result in off-gassing of volatile organic compounds (VOCs) during sample collection as groundwater is agitated as it flows into a bailer and is poured from a bailer into the sample container. Off-gassing of volatiles can also occur as groundwater cascades into the well during recharge of wells that are screened across the water table.

EPA recommends the low-flow technique for collecting groundwater samples that are indicative of mobile organic and inorganic loads at ambient flow conditions. The low-flow technique utilizes continuous field parameter monitoring to verify the representativeness of groundwater prior to collection. The low pumping rates avoid agitation that can increase off-gassing of volatile compounds. Agitation within the well may also increase suspended solids that can create a positive bias for inorganic compounds.

One potentially negative impact from changing to the low flow method is the possibility of inconsistency in the data collected with different methods. However, analytical data from the low-flow sampling procedures will be more representative of actual groundwater conditions, and new data trends will quickly become evident as the long term monitoring program continues. The EPA had previously recommended a minimum of 10 samples to perform the statistical tests that are required in the Consent Decree and 40 CFR 264 Subpart F. Assuming three groundwater sampling events per year, a separate statistical analysis on the low flow sampling data could be performed in less than four years if the low flow data are significantly different from the data generated using the original sampling method.

Ultimately, there is no logical merit to maintaining an outdated technique that results in lower-quality data. Frequently, in long-term monitoring programs (more than 4 or 5 sampling events) actual savings in labor time can be realized by using the low-flow technique and dedicated pumping equipment.

2.6 Cleanup Levels

The objective of the remedial activities is to minimize the off-site migration of contaminants (ROD, 1988). This is accomplished primarily when the point of compliance wells meet the federal Maximum Cleanup Levels (MCLs). The results are also compared to the Connecticut DEP GWPC standards in PRP monitoring reports. The analyte list for the remote and point of compliance wells is:

- Target compound list of volatile organic compounds;
- Target analyte list of metals;
- Alkalinity;
- Chloride;
- Sulfate;
- Chemical oxygen demand;
- Total cyanide;
- Total dissolved solids; and
- Total kjeldahl nitrogen.

The Table 2-1 shows the standards applicable to the triennial groundwater monitoring program.

Table 2-1
Standards Compared to Groundwater Sampling Results

Parameter	Unit	USEPA MCL	State GWPC
VOCs			
Benzene	ug/l	5	1
Chlorobenzene	ug/l	100	100
Chloroethane	ug/l	NE	NE
Ethylbenzene	ug/l	700	700
Tetrachloroethene	ug/l	5	5
Toluene	ug/l	1,000	1,000
Trichloroethene	ug/l	5	5
Xylenes (total)	ug/l	10,000	530
1,1-Dichloroethane	ug/l	NE	70
1,1-Dichloroethene	ug/l	7	7
1,2-Dichloroethane	ug/l	5	1
Cis-1.2-dichloroethylene	ug/l	70	70
Vinyl Chloride	ug/l	2	2
General Chemistry(1)			
Cyanide	mg/l	0.2	0.2
Inorganic/Metals			
Aluminum	ug/l	50(2)	NE
Antimony	ug/l	6	6
Arsenic	ug/l	50(3)	50
Barium	ug/l	2,000	1,000
Calcium	ug/l	NE	NE
Chromium	ug/l	100	50
Cobalt	ug/l	NE	NE
Copper	ug/l	1,300	1,300
Iron	ug/l	300(2)	NE
Lead	ug/l	15	15
Magnesium	ug/l	NE	NE
Manganese	ug/l	50(2)	NE
Mercury	mg/l	0.002	0.002
Nickel	ug/l	NE	100
Potassium	ug/l	NE	NE
Selenium	ug/l	50	50
Sodium	ug/l	NE	NE
Vanadium	ug/l	NE	50
Zinc	ug/l	5,000(2)	5,000

NE – No standard has been established.
(1) – Only those general chemistry parameters with established standards are presented.
(2) – Indicates a non-mandatory, non-enforceable guideline.
(3) – Note that the Arsenic MCL was recently reduced to 10 ug/l.

3.0 DATA REVIEW

3.1 Introduction

As discussed previously, environmental monitoring data are available for the monitoring wells, wastewater discharge, and air releases. TRC's review of these data appears below.

3.2 Groundwater Monitoring Data

TRC evaluated the PRP's groundwater data as follows:

- A statistical analysis of analytical data to identify spatial and temporal trends for the purpose of evaluating remedial system performance;
- Groundwater contour maps were prepared to evaluate site hydrogeological conditions; and
- Remedial system O&M data were reviewed to evaluate system performance.

TRC reviewed groundwater analytical data and water level measurements presented in annual monitoring reports prepared by the PRP for years 1998 through 2002. Groundwater and hydraulic data are collected on an ongoing basis as part of the operation and maintenance of the Laurel Park Landfill. Groundwater analytical monitoring includes the sampling of 18 monitoring wells on a triennial basis and 5 wells on a semiannual basis. Hydraulic monitoring includes water level monitoring of 21 groundwater extraction wells and 25 monitoring wells on a triennial basis. A total of 18 groundwater sampling rounds have been conducted as of December 2002. Based on the annual monitoring reports for the site, of the 23 wells that are part of the monitoring program, looking at only June sampling events, the following exceedances of regulatory standards were noted:

Table 3-1
Number of wells exceeding USEPA MCL and/or GWPC Standards
Laurel Park Landfill

	June 1999		June 2000		June 2001		June 2002	
Total Wells Sampled	23		21		18		18	
	VOCs	**Metals**	**VOCs**	**Metals**	**VOCs**	**Metals**	**VOCs**	**Metals**
Upgradient of Landfill	2	0	2	3	1	1	1	1
Immediately Upgradient of Extraction Wells	5	2	5	1	5	1	5	1
Downgradient	3	1	3	2	2	0	2	2

MCL – Maximum contaminant level from National Primary Drinking Water Regulations.
GWPC – Groundwater Protection Standards, Connecticut General Statute 22a.

Site characteristics and monitoring well locations are shown in Figures 1 and 2 in Attachment 1.

3.2.1 Statistical Analysis of Groundwater Data

TRC performed a statistical analysis of groundwater data collected by the potentially responsible party (PRP) The Laurel Park Coalition, LLC between 1998 and 2002. TRC used the results of the statistical analysis to evaluate site remedy effectiveness. The statistical analysis included a time series regression analysis to evaluate trends in groundwater concentrations, and two non-parametric tests of significance using the Chemstat computer program. A detailed description of the statistical analysis is presented in Attachment 2.

Attachment 2 provides the full text of the time series regression and statistical analysis. The data sets selected for trend analysis were those wells that provided data on the remedial system performance (point of compliance wells) and those wells that have an increasing trend in contaminants. The analyses using the Chemstat program were performed on the same data sets analyzed by SMC as included in the 2002 Annual Monitoring Report (AMR, 2002).

The statistical analysis results are briefly summarized below.

3.2.1.1 Time Series Analysis

TRC performed a total of nine time-series regression analyses on contaminant data sets from point of compliance wells that appeared to have a trend, or were reported to have a trend by the PRP's consultant, SMC. The trend analyses were conducted by TRC in accordance with the rules and regulations stipulated in 40 CFR 264.97 (h) and (i). The trend analysis was conducted by subjecting the data set to a linear regression analysis. The significance of the test result was determined by using a probability or p-value. P values were determined with a t-statistic. Specifically, the identification of a significant trend occurs only when $p \leq 0.05$ (probability or *p*-values). In those cases where $p > 0.05$, "no trend" is identified in the corresponding cell. "No trend" means that time cannot be used to effectively predict future concentrations of constituents, regardless of the slope of the line. Table 3-1 presents the results of TRC's analysis of data trends. The results of SMC's time-series analysis are also presented for comparison where available.

Table 3-1
Summary of Trend Analyses
Laurel Park Landfill
1998-2002 Data

Well ID	VOC	SMC Identified Trend	TRC Reported *p*-value	TRC Identified Trend (based upon p-value)
OW-1	benzene	Decreasing	0.57 NS	No trend
OW-1	tetrachloroethene	Decreasing	0.19 NS	No trend
OW-1	trichloroethene	Decreasing	0.30 NS	No trend
OW-2	chromium	NA	0.16	No trend
OW-5	benzene	NA	0.005	Decreasing
BH-7	toluene	NA	0.0007	Increasing

Table 3-1
Summary of Trend Analyses
Laurel Park Landfill
1998-2002 Data

Well ID	VOC	SMC Identified Trend	TRC Reported *p*-value	TRC Identified Trend (based upon p-value)
BH-7	iron	NA	0.027	Increasing
MW-3	toluene	NA	0.003	Increasing
MW-3	iron	NA	0.39	No trend
MW-10	iron	NA	0.002	Increasing
MW-12s	nickel	NA	0.001	Increasing
MW-13	benzene	NA	0.0002	Decreasing
PW-1	benzene	Decreasing	0.88 NS	No trend
PW-1	trichloroethene	Decreasing	0.98 NS	No trend

Note: All reported significance levels are non-directional*.
NS denotes non-significance.
"No trend" indicates that the p-value denotes randomness.

*Testing of a non-directional hypothesis makes no assumptions about the direction of the correlation relationship. That is, no assumptions are made about the positive or negative relationship between a given set of variables.

3.2.1.2 Chemstat Analysis

TRC used the Chemstat computer software to conduct two parametric tests of significance on the data including an intra-well comparison (parametric prediction interval analysis) and an inter-well comparison (parametric tolerance interval analysis). Both analyses require the input of normally distributed data sets in order to provide reliable statistics. TRC checked the distribution of each data set using Chemstat. Given the highly non-normal distributions of the data sets, a non-parametric equivalent of both tests was conducted on the raw data.

As the name implies, the intra-well comparison compares concentrations of a particular contaminant from a single well. One of the major assumptions of the parametric prediction interval analysis is that there exists a pre-disturbance benchmark. This typically entails comparing recent data with pre-impact well data (as specified in the 1989 and 1992 EPA Guidance Documents) for the purpose of detecting a release to groundwater. Unfortunately, pre-impact data is not available, so the results of a statistical comparison of recent intra-well data against post-landfill data cannot be used for the intended purpose. For wells that were previously impacted, the analysis gives an indication of a recent increase in contaminant concentrations that warrant additional evaluation such as a trend analysis. The TRC analysis compared the three most recent contaminant concentrations with the remainder of the data set for a contaminant.

Table 3-2 presents a summary of the intra-well comparison including both parametric and non-parametric analyses. The results of SMC's statistical analysis are presented for comparison purposes. The results of TRC's intra-well analysis show that recent concentrations of the metals nickel and chromium are higher than previous values in groundwater samples from wells OW-2 and MP-9.

Table 3-2
Comparison of Laurel Park Landfill Intra-Well Analysis Results

COC	Number of Wells included in Analysis	Number of Impacted Wells (SMC Analysis)	Number of Impacted Wells (TRC Analysis)
benzene	10	0	0
chlorobenzene	7	0	0
tetrachloroethene	1	0	0
Vinyl chloride	1	0	0
trichloroethene	2	0	0
lead	3	0	0
nickel	3	2	2*
chromium	2	2	2*

Note: Results are based only on the wells selected for the analysis as presented in the original SMC analysis.
* Wells OW-2 and MP-9.

TRC used an inter-well comparison to compare contaminant concentrations from down gradient wells to upgradient control wells. Background wells used by TRC included wells MW-7 and MP-2A. Each data set was first tested for normality. Based upon the results of the normality test, it became clear that SMC subjected untransformed data that were highly non-normal to a parametric test, i.e., the data followed another distribution and required another type of transformation. To avoid problems associated with subjecting non-normal data to a parametric test, TRC used a Non-parametric (distribution-free) Tolerance Interval Analysis on untransformed raw data to test significant differences between wells.

Table 3-3 presents a summary of the inter-well comparison analysis. The results of SMC's statistical analysis are presented for comparison purposes. The results of the inter-well comparison indicate that a number of wells continue to be impacted by leachate related contaminants as compared to the upgradient background well.

Table 3-3
Comparison of Laurel Park Landfill Inter-Well Analysis Results

COC	Number of Wells included in Analysis	Number of Impacted Wells (SMC Analysis)	Number of Impacted Wells (TRC Analysis)
benzene	21	18	15
chlorobenzene	21	13	13
1,1 Dichloroethane	21	9	9
1,2 Dichloroethene	21	6	6
1,1 Dichloroethene	21	7	6
tetrachlorethene	21	7	7
trichloroethene	21	8	6
vinyl chloride	21	7	6
lead	21	8	6
nickel	21	15	14
chromium	21	16	15
iron	21	9	6
manganese	21	16	16

Note: Results are based only on the wells selected for the analysis as presented in the original SMC analysis.

3.2.2 Groundwater Elevation Contours

Groundwater elevation data was used to prepare potentiometric surface contour maps for the purpose of determining potentiometric gradient and potential contaminant migration pathways, and to evaluate the performance of the leachate collection and groundwater extraction systems. Groundwater elevation data was obtained from the *Annual Effectiveness and Monitoring Report, September 2000,* and the *Semi Annual O&M Progress Report, August 2001*. The highest and lowest groundwater elevations were used to prepare the contour maps. Only bedrock water elevations were contoured due to a lack of overburden wells.

Based on a review of the last five years of gauged well groundwater elevations, March 15, 2001 was selected as the high water table event and August 27, 1999 was selected as the low water table event. The potentiometric surface of the gauged bedrock wells for each event is depicted in Attachment 1, Figures 1 and 2. The contours presented on the figures also represent the impact of the extraction wells at the landfill. As there are no reliable groundwater elevations under the landfill cap, the contours presented within the landfill are inferred and are presented as dashed lines. Based on the contours maps, the direction of the potentiometric surface gradient is to the north. This is consistent with the distribution of groundwater contaminants.

3.2.3 Remedy Performance Evaluation

The remedy includes source control and management of migration (through groundwater containment) as follows:

- Institutional controls;
- Grading and placement of a RCRA cap over the entire landfill;
- Leachate collection/groundwater extraction; and
- Treatment of leachate and contaminated groundwater at the Naugatuck Water Pollution Control Facility (NWPCF).

3.2.3.1 Institutional Controls

Institutional controls include fencing of the landfill to limit access and exposure, purchase of surrounding land to provide a buffer zone, and an alternate public supply of water to nearby residents.

There is no evidence in the data of any issues or problems with any of the institutional controls. The fencing has been intact during TRC inspections, and there is no evidence of unauthorized passage onto the landfill. There are no reports of any issues with the buffer zone or the alternate water supply.

3.2.3.2 RCRA Cap

The dual purpose of the cap is to prevent direct exposure to contaminated soils and to reduce or eliminate the generation of landfill leachate thus reducing groundwater contamination. The cap remains intact and continues to prevent direct exposure as designed.

The cap also appears to be reducing the generation of leachate by lowering the level of water within the landfill. The water level in the landfill refuse was reduced from 818 feet mean sea level (MSL) prior to capping (1986) to about 733 feet MSL (2002) following capping. This represents a decline of 85 feet. However, about 5 to 10 feet of saturated refuse thickness remains indicating the cap has not yet achieved the hydraulic performance standard.

3.2.3.3 Leachate Collection

The landfill leachate system includes a perimeter trench that encircles the landfill and is cut into overburden or bedrock. Leachate is gathered to manholes and combined with the extraction well system. The combined flow and varying extraction system pump rates make it impossible to demonstrate whether the leachate volumes have changed with cap construction. However, the combined volume of leachate and groundwater has not changed significantly since completion of the expanded system and remains at an annual discharge rate of about 2.5 million gallons per year. TRC infers that the primary source of flow is intercepted groundwater, as the saturated thickness of landfill refuse has steeply declined since start and completion of the landfill cap. In

all likelihood, the leachate collection continues to operate as planned by decreasing leachate generation rates and minimizing the potential for ongoing groundwater contamination.

3.2.3.4 Groundwater Extraction System

The groundwater elevation data are used to demonstrate that the extraction pumps are actively pumping groundwater. Groundwater elevations from both the monitoring and extraction wells are also contoured on maps to evaluate the ability of the extraction system to intercept and contain contaminated groundwater. The groundwater extraction system includes 21 extraction wells with 13 of the extraction wells pumped at an average annual total rate of about 5 gpm. The individual wells pump at annual average rates between 0.02 gpm (at EW-4) to 1.3 gpm (at EW-21). Available information indicates that the groundwater extraction system, as currently configured, is pumping as much groundwater as possible.

3.2.3.5 Groundwater Quality Trends

TRC's statistical analysis indicated that most monitored chemicals show no statistically significant trend in concentration over the last 5 years. Some wells show modest downward or upward trends in chemical concentration. Examples of wells with decreasing trends determined by TRC's regression analysis include benzene in wells OW-5 and MW-13. Increasing trends are apparent in wells BH-7 and MW-3 for toluene, wells OW-2 and MW-12S for nickel, and wells MW-10 and BH-7 for iron. Additionally, wells OW-2 (nickel and chromium) and MP-9 (nickel and chromium) show increasing trends using the parametric prediction interval analysis method.

The apparent increase in toluene and some of the metals may be attributed to the effect of landfill leachate on groundwater chemistry. Landfills typically go through stages where biological processes result in the generation of methane gas and anaerobic conditions. These conditions favor the biological degradation of chlorinated solvents but more easily aerobically degraded solvents such as benzene, toluene, ethylbenzene and xylene can persist. The anaerobic conditions are also expected to increase the mobilization of most metals. Later, as aerobic conditions return, the aerobically degraded chemicals will be preferentially degraded and the metals will precipitate. In addition to biodegradation, the spread of groundwater contaminants will be restricted by sorption to organic matter, natural chemical reactions, dispersion, and capture by the treatment system.

The rising levels of some metals in groundwater are not unexpected and should mostly be contained by the groundwater extraction system, as half of the referenced wells are downgradient of the leachate collection system, but upgradient of the groundwater extraction system. A few remote monitoring wells, downgradient of the extraction system, show exceedences of the Connecticut GWPC including well OW-4 for nickel and MW-13 for benzene. At OW-4 the nickel levels are statistically increasing (analyzed by simple regression methods) over time and may be indicative of a failure to contain landfill impacts at this point. The slight exceedence at MW-13 has been historically present and may be indicative of a slug of material previously existent at the location of MW-13. In both cases the groundwater exceedences were only slightly above the GWPC and would be expected to naturally attenuate to below GWPC within a short distance from the landfill.

EW-18 has periodically had accumulations of floating oil product in the well but the thickness of product has declined over time to currently less than $1/8^{th}$ inch. The floating product appears to be contained by the groundwater extraction system and has not impacted the downgradient point of compliance wells to date.

In conclusion, the groundwater containment system appears to be properly functioning and meets its intended purpose of groundwater containment. However, if increasing trends in contaminate parameters continue in PW-1 and OW-2, additional groundwater containment may be considered to ensure the capture of landfill contamination. Pumps placed within EW-16 and EW-20 may provide the necessary hydraulic controls to prevent contaminant transport.

3.3 Surface Water/Sediment

Prior to the landfill cap construction, most surface drainage for the landfill and leachate flowed to the unnamed stream and to the Long Meadow Pond Brook watershed. VOC contamination was apparent in the unnamed stream with decrease in concentrations downstream of the site (ROD, 1988). Based on an Endangerment Assessment, contact with surface water and sediment was determined to constitute a relatively minor exposure pathway based on contaminant concentrations and frequency of use (ROD, 1988). The long term monitoring does not include this media.

Construction of the landfill cap and the collection and discharge of leachate to the Naugatuck Sewage Treatment Facility have eliminated the discharge of contaminants to surface water receptors. With continued maintenance of the landfill cap and leachate collection system, future compliance regarding surface water and sediments can be expected without additional remedial action.

3.4 Leachate Monitoring

Leachate and groundwater from the groundwater extraction system is commingled and discharged to the Naugatuck Sewage Treatment Facility. A General Permit for the Discharge of Groundwater Remediation Wastewater to a Sanitary Sewer was applied for in June 2001 (SMC, Aug. 2002). The leachate and groundwater quality is monitored and reported on a monthly schedule for volatile organic compounds, oil & grease, lead, copper, zinc, ammonia, pH and flow. Semiannual monitoring and reporting is also conducted for a longer list of metals including arsenic, barium, cadmium, chromium, iron, manganese, mercury, nickel and silver. The constituent's concentrations in the combined leachate and groundwater quality have not exceeded the monthly or semiannual discharge limits during the last five years.

Leachate seeps have not been observed during semi-annual landfill site inspections.

Based on the General Permit parameters and analytical results of discharged wastewater provided in the annual monitoring reports, future compliance of the discharged leachate and groundwater is anticipated without additional action.

3.5 Air Monitoring, Emissions, and Compliance

The landfill gas vents emit some contaminants to the ambient air. Analytical data for landfill gas samples collected by the PRP in 2001 were evaluated to identify any applicable air regulations. Because the reported releases of contaminates are very low, applicable state and federal air regulations do not require any actions at this site.

3.5.1 Potential Landfill Gas Emission Routes to the Atmosphere

The 15 landfill vents extend to some depth below the landfill cover to provide an outlet for gases generated in remaining waste. The vents help to minimize the amount of potentially explosive methane gas in the landfill, a major constituent of landfill gas.

3.5.2 Emissions Data

The PRP's contractor obtained air emissions data in 2001. TRC reviewed this data in a Technical Memorandum to Mr. William Lovely, USEPA Region 1, dated March 15, 2002.

As part of the PRP's air monitoring, a PID instrument was used to measure VOC and an "LEL" meter was used to measure percent oxygen and methane (as percent of Lower Explosive Limit, or LEL) at the landfill gas vents. Landfill gas is formed in an oxygen-depleted, or anaerobic, environment and oxygen would not normally be a constituent in the gas. However, as the landfill ages and the supply of biodegradable waste decreases over time, the methane generation rate decreases and oxygen levels in the gas rise as atmospheric air begins to infiltrate. The year 2001 test results showed that three of the fifteen vents had concentrations of oxygen of 20 percent or higher, approaching the normal atmospheric level of 20.9 percent. In general, the corresponding methane levels for those vents are low, suggesting a low level of methane generation in the areas served by those vents and that the waste mass is significantly degraded. The lowest oxygen level measured with the PID for all the vents was 0.3 percent at GV-7.

The PRP's contractor estimated the quantity of air emissions likely to be released from the landfill using the 2001 testing data. The testing identified GV-3, GV-9 and GV-15 as having the highest flow rates of all the vents. Additionally, GV-3 exhaust gas was shown to have the highest VOC content as determined from source screening. For those reasons, it appears that GV-3 was selected for further testing. The results for the bag sample concentrations and measured flow rate for GV-3 were used to estimate the annual emissions from that vent. TRC reviewed the laboratory analytical data and analytes found at levels above their detection limit (MDL) were used to estimate total annual emissions of 0.0076 tons per year for vent GV-3.Flow rates measured for the remaining landfill gas vents were coupled with the GV-3 measured data to develop facility-wide estimated annual emissions of 0.024 tons (approximately 48 pounds per year).

3.5.3 Regulatory Review

Air emissions from landfills are potentially subject to state and Federal air regulations. However, none were found to apply to the low emission rates calculated from the PRP's testing of the one vent.

3.5.3.1 State Air Regulations

Connecticut's air pollution control regulations are found at Regulations of Connecticut State Agencies (RCSA) Title 22a Part 174 (Abatement of Air Pollution), or RCSA 22a-174. The regulations generally focus on new sources or modifications to existing sources that emit air contaminants above specific regulatory thresholds. The most recent air emissions data for this site (see Section 3.5.2 Emissions Data) indicates that the emissions of analytes tested are very low- in the pounds per year range (based on results for measurements from GV-3).

Connecticut's air toxics regulations are found in Subpart 29. Subpart 29 lists Hazard Limiting Values (HLVs) for state hazardous air pollutants (state HAPs). HLVs are used with vent stack parameter and location information to establish maximum allowable stack concentrations (MASCs) under the Connecticut rules. If a measured in-stack concentration is above a respective MASC, air pollution control measures may be required by the state. The CT DEP Commissioner is charged with maintaining the list of state HAPs. If the Commissioner deems that a change should be made to an HLV, a new MASC will be developed. No changes have been made to Subpart 29 since 1988. Therefore, no new requirements have been developed for sources subject to this program.

The 2001 air test results for GV-3 could be compared to the CT MASCs to determine compliance, and need for control measures. However, given the very low annual estimated emission rates from the testing, it is most likely that all analyte concentrations in the landfill gas would be below the respective MASCs.

Subpart 23 addresses control of odors. If a facility is a potential source of odor, CT DEP may take action and require a facility to perform dispersion modeling and/or testing as part of the evaluation. This subpart also contains odor limit values for 12 compounds, including several that would be expected to be present in landfill gas. No odor complaints are in the records reviewed for this memo.

There is a general rule that prohibits a source of air pollutants from contributing to or causing air pollution, defined as an excursion of any ambient air quality standard. There is no evidence that the Laurel Park Landfill is considered as a contributor to any ambient air quality standard in the landfill vicinity.

Connecticut's operating permit program regulations are found at Subpart 33. Located in New Haven County, this site would be subject to Title V requirements only if its emissions exceed the following thresholds: 50 tons per year of Volatile Organic Compounds (VOCs) or nitrogen oxides (NOx), 100 tons per year of any regulated pollutant, 10 tons per year of any single Hazardous Air Pollutant (HAP), or total HAP emissions of 25 tons per year.

Landfill gas contains mostly methane and carbon dioxide with trace amounts of other organic compounds, referred to as non-methane organic compounds (NMOCs). VOCs in landfill gas are a subset of NMOCs, and NMOCs also contain some HAPs. Carbon dioxide is not currently a regulated air pollutant in Connecticut.

Based on the landfill gas emissions measured in 2001, the site is not a major source for either HAPs or VOCs.

Subpart 3a requires any source with potential pollutant emissions exceeding 15 tons per year to obtain an air permit. For the reason given above, it is unlikely that this landfill has emissions exceeding this regulatory threshold and it is therefore not subject to it.

Under Subpart 3a, an applicant may be required to perform a Best Available Control Technology (BACT) analysis for any pollutant with a potential to emit greater than 15 tons per year. Further, the Commissioner may request that an air dispersion modeling study be performed to develop evidence of compliance with ambient standards.

3.5.3.2 State Agency Contact

CT DEP was contacted regarding the air permit status of this landfill. There are no records indicating that there is a current air permit for the site. It is likely that CT DEP was involved in the evaluation of the remedial activities and that a determination was made that the estimated emissions were not of a level to trigger air permitting requirements.

The DEP contact also noted that the air permitting threshold had recently changed to 15 tons per year for potential emissions (March 15, 2002). Any evaluation of the site by DEP for regulatory applicability would have been performed when the air permitting threshold was 5 tons per year. This provides additional support that the emissions from the landfill are minimal.

3.5.4 Federal Air Regulations

Federal air regulations are not applicable to Laurel Park Landfill. The Federal rules for landfills apply to facilities that have accepted waste after November 7, 1987 and have uncontrolled non-methane organic compound (NMOC) air emissions of approximately 55 tons per year (National Emission Standards for Hazardous Air Pollutants (NESHAPS) at 40 CFR 63 Subpart WWW (Municipal Solid Waste Landfills) and New Source Performance Standards (NSPS) at 40 CFR 60 Subpart Cc (Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills)).

EPA is developing a MACT standard under 40 CFR 63 Subpart AAAA. This standard will only apply to facilities meeting the same applicability criteria as NESHAPS WWW. Therefore, the proposed MACT standard does not apply to Laurel Park Landfill.

3.5.5 Compliance with Air Regulations

Based on available information, a review of Federal and state air regulations for the Laurel Park Landfill indicates that the facility is not subject to existing air permitting requirements. However, some additional future effort may be required at the request of CT DEP to demonstrate compliance with the MASCs should any of the HLVs change.

Further, review of existing and proposed Federal air regulations for landfills indicates that the facility should not be subject to NSPS or MACT standards.

4.0 SITE INSPECTION

4.1 Summary of Current Site Inspection

Amy Stattel, a TRC engineer, conducted the semi-annual inspection of the Laurel Park Landfill on June 6, 2003. The inspection was performed as part of the semi-annual inspection and also the Five-Year Review for the landfill The Semi-Annual Inspection Report is presented at Attachment 3. A Five-Year Review checklist was used to document the observations made during the inspection. The report is based on observations made by TRC during the visual inspection of the landfill surface. No testing was performed on components of the landfill system. Mr. Russ Dirienzo of SMC Environmental was on site at the time of the inspection

TRC inspected components of the landfill cover system, as summarized below:

- **Landfill surface** – The landfill surface was generally in good condition with some rodent holes. It was recommended that an area with sparse vegetation be reseeded and that a localized low point in the cover system continue to be monitored.
- **Benches** – The benches appeared in good condition with only minor vegetation and sedimentation.
- **Letdown Channels (downchutes)** – Three of the four downchutes were observed to be in good condition. Downchute #3 appeared to have flow bypass conditions which may be undermining the area and depositing sediments. Continued monitoring was recommended to identify further signs of settlement or degradation with future repair if conditions worsen.
- **Cover penetrations** – There did not appear to be any problems with the cover penetrations, which include leachate collection system manholes, passive gas vent structures and monitoring wells. Potential settlement was observed at MW-1 and continued monitoring was suggested.
- **Cover drainage layer** – The riprap outlet for the drainage layer appeared to be in good condition.
- **Leachate collection and groundwater extraction systems** – The above ground portions of the systems were in good condition. Fourteen of the leachate collection system manholes were inspected and were in good condition structurally.

- **Perimeter ditches and off-site discharge** – The perimeter ditches appeared to be operating as designed and were in good conditions with the exception of minor sedimentation.

Recommendations of corrective actions based on the inspection included the continued monitoring of potential settlement, erosion and sediment areas and the continuation of existing programs including the rodent control and groundwater extraction system maintenance programs. The overall conclusion based on the site inspection is that the components of the landfill cover system are working as designed.

4.2 Past Inspections

Semi-annual inspections of the Laurel Park Landfill have been conducted by TRC since April 2001. There have been no major issues regarding the operation and maintenance of the landfill remedial system. The PRP's operation, maintenance, and monitoring have adequately established the landfill cap integrity and leachate collection and groundwater extraction systems continued operation.

5.0 INTERVIEWS

During the semi-annual inspection of the Laurel Park Landfill on June 6, 2003, Amy Stattel of TRC interviewed the PRP's O&M contractor; Mr. Russ Dirienzo of SMC Environmental, who was present during the inspection.

When asked, Mr. Dirienzo indicated that overall, there have been no major issues with O&M since TRC's Fall 2002 semiannual inspection. According to Mr. Dirienzo, leachate monitoring results have indicated the presence of a localized, contaminant "hot-spot" in the vicinity of monitoring wells OW-1 and PW-1. Contaminants include benzene, chlorobenzene, trichloroethylene, and tetrachloroethylene. Mr. Dirienzo noted that extraction wells EW-5 and EW-9 have been producing lower than expected flows.

Another issue discussed during the interview was the ongoing repair and maintenance of Downchute #3. During the summer of 2001, repairs were made to an area of erosion along the eastern edge of Downchute #3 (where stormwater was breaching Bench #3B and eroding the landfill slope). Repairs consisted of installing a geomembrane flap at the junction between Bench #3B and the top of Downchute #3, covering the area with topsoil and erosion control blankets, and reseeding the area. There was evidence of additional erosion at the eastern edge of Downchute #3, downslope from the repair area based on sediments deposited at the base of the Downchute. Mr.Dirienzo indicated that he has been monitoring potential settlement in a low spot near the bend in the lower half of Downchute #3 (approximately 6 inches below relative grade) and further settlement was not evident. This low spot was also observed by TRC during previous semiannual inspections.

6.0 TECHNICAL ASSESSMENT

6.1 Remedial Action Performance

The work performed for this memorandum indicates that the remedy is functioning as intended. The information sources include the review of available documents and data, TRC's trend and statistical analysis of groundwater, the interview, and the site inspection. The landfill cap and the O&M of the leachate collection and groundwater extraction systems have achieved the remedial objectives to minimize the migration of contaminants and prevent direct contact with or ingestion of contaminants.

The increasing trends of contaminates in a few wells warrant close monitoring in future inspections and data reviews to determine if a point is reached where additional hydraulic controls (within EW-16 and EW-20) may be considered to ensure the capture of landfill contamination.

6.2 System Operations/O&M

Operation and maintenance of the cap and leachate collection and groundwater extraction systems has been, and continues to be effective. Issues identified during the semi-annual site inspections have been corrected or continue to be monitored.

6.3 Opportunities of Optimization

The only system that offers the potential for optimization is the groundwater extraction system. There does not appear to be any opportunity for optimizing the groundwater extraction system as currently configured. The installation of pumps within extraction wells EW-16 and EW-20 may be considered in the future to ensure the capture of landfill contamination. No other opportunities have been identified.

6.4 Early Indicators of Potential Issues

The only indications of potential issues are the slightly increasing trend in some contaminant concentrations. Otherwise, the various components of the landfill cover system and leachate collection and groundwater extraction systems are working as designed.

6.5 Implementation of Institutional Controls and Other Measures

Institutional controls include the ownership of the surrounding land to provide a buffer zone, the public supply of water to nearby residents, and the fencing of the site to prevent unauthorized access. No activities were observed that would have violated the institutional controls.

7.0 ISSUES AND RECOMMENDATIONS

Based on our inspection of the site and a review of the data collected over the last five years, TRC does not find any major issues that would raise concern regarding the effectiveness of the

remedy specified in the 1998 ROD. However, in light of the increasing trend of contaminant concentrations in PW-1 and OW-2, TRC recommends that pumps be placed within extraction wells EW-16 and EW-20 to determine if this measure will help to address the increasing trend of groundwater contaminants in those wells. In addition, to improve the representativeness of groundwater sampling results, TRC recommends that the existing groundwater sampling and monitoring plan be updated to require that future groundwater sampling events be performed using the low-flow method specified in Section 2.5 of this Technical Memorandum.

8.0 REFERENCES

Code of Federal Regulations, Title 40, Part 264 (40CFR 264)

Conestoga-Rovers & Associates, *Final Remedial Construction Report – Revision 2, Volume I, Laurel Park, Inc. Site, Naugatuck, Connecticut,* (no date).

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SMC Environmental, *Semi Annual O&M Progress Report Second Half 2002, Laurel Park Landfill Site, Naugatuck, Connecticut*, January 30, 2003.

SMC Environmental, *2002 Annual Monitoring Report, Laurel Park Landfill Site, Naugatuck, Connecticut*, May 14, 2003.

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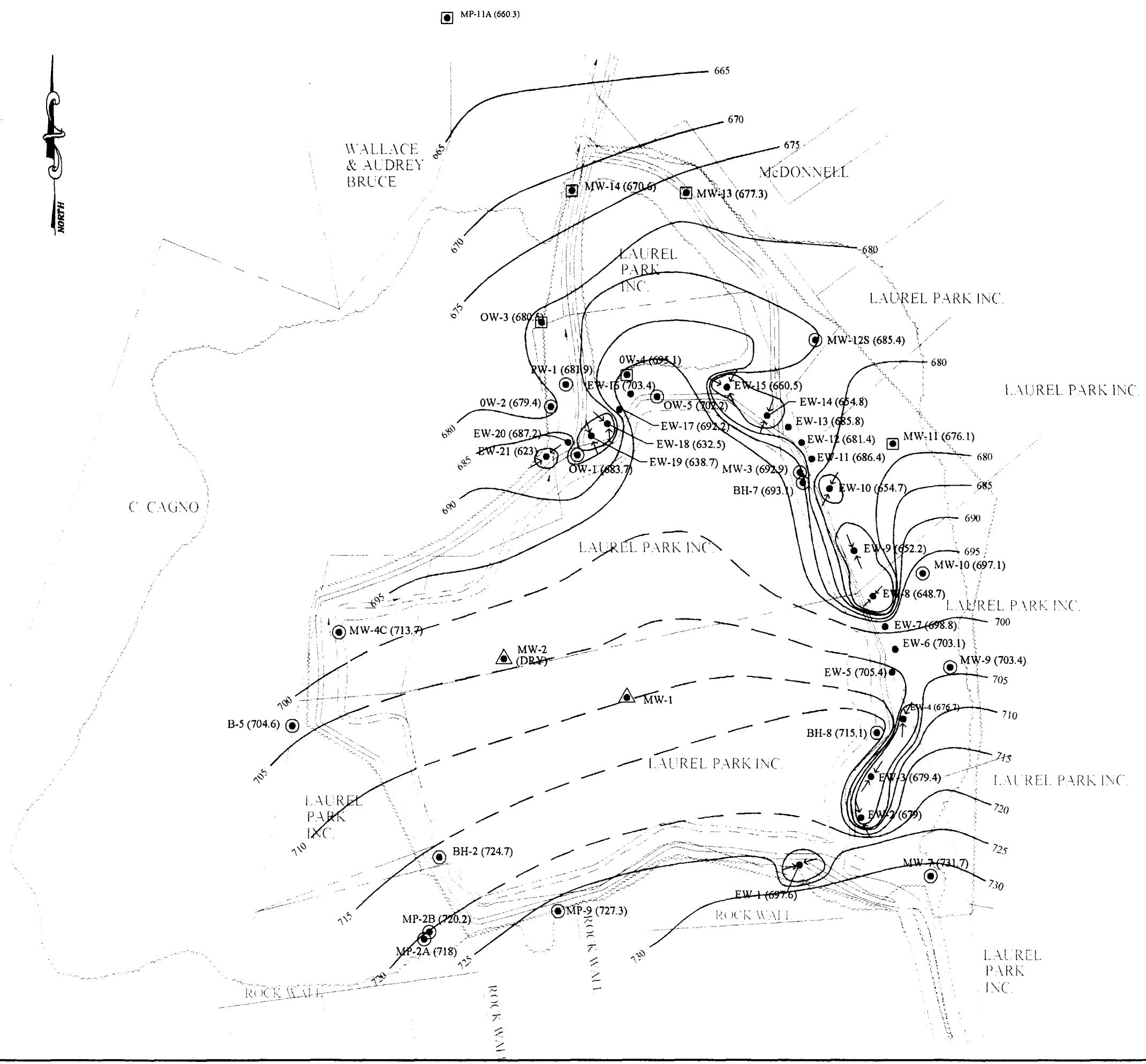
ATTACHMENT 1

FIGURES



LEGEND:

- PROPERTY BOUNDARY
- EXTENT OF LANDFILL
- FENCE
- ACCESS ROAD
- LIMIT OF GEOLOGIC LAYER
- DRAINAGE PATH
- REMOTE SOLUTION SYSTEM
- MW-1 — LANDFILL MONITORING WELL
- MW-13 — REMOTE MONITORING WELL
- MW-3 — PERFORMANCE AND COMPLIANCE MONITORING WELLS
- EW-3 — EXTRACTION WELL
- EQUIPMENT AND STORAGE BUILDING
- 580 — APPROX. GROUNDWATER ELEVATION CONTOUR
- DIRECTION OF GROUNDWATER FLOW AT EXTRACTION WELLS

NOTES:

SITE PLAN PREPARED FROM INFORMATION OBTAINED AND MEASUREMENTS TAKEN BY SMC ENVIRONMENTAL.

DASHED CONTOURS WITH LANDFILL ARE INFERRED

ARROWS REPRESENT GROUNDWATER FLOW AT EXTRACTION WELLS WITH PUMPS

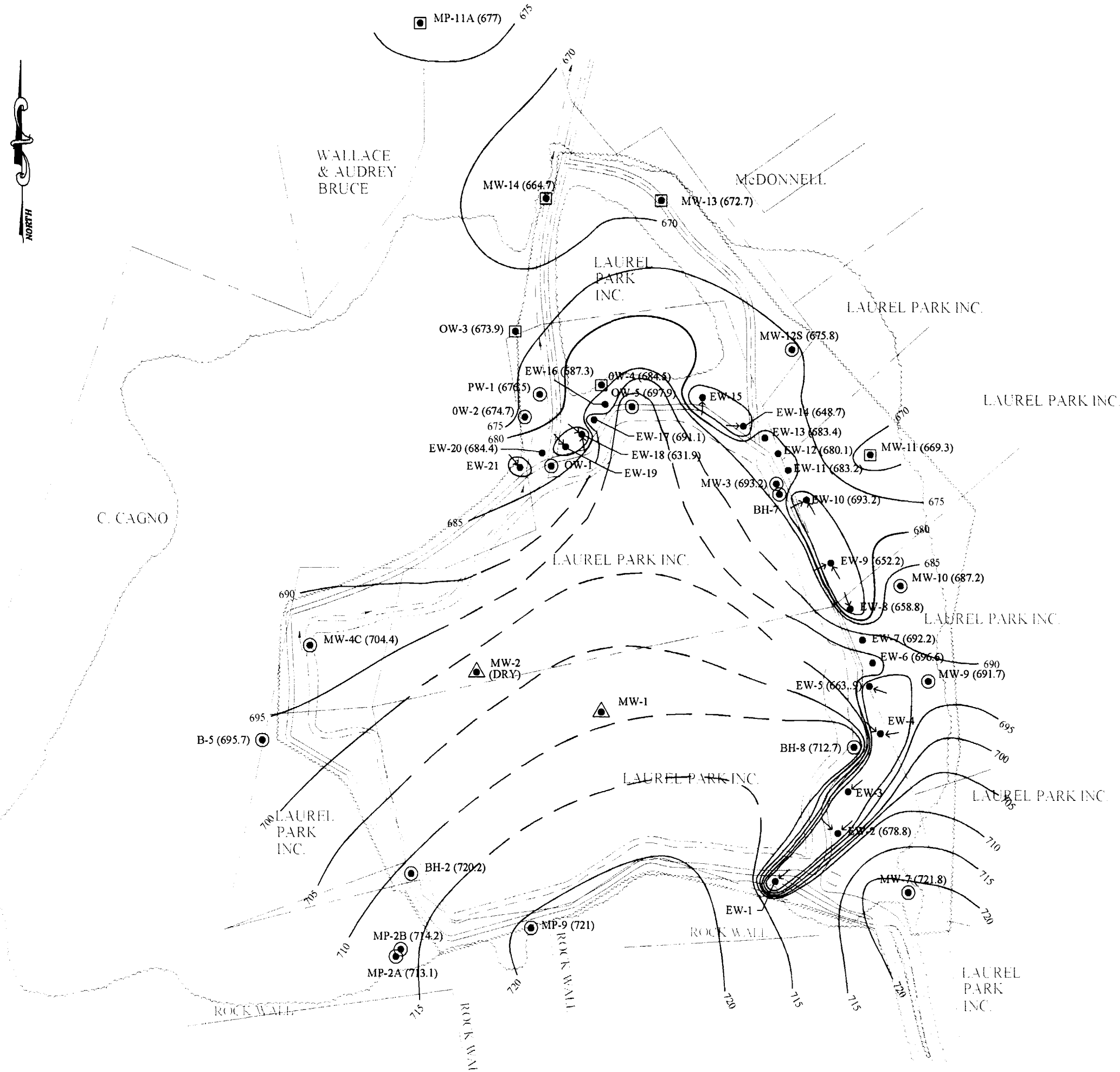
BASE MAP SOURCE:
SMC ENVIRONMENTAL, APRIL 28, 2003
DOC. NO. 6699F2.

Original includes color coding.

0 250
SCALE IN FEET

D2136\MULTI-SITE 5-YEAR\LAUREL PARK\GW\3-15-01 BEDROCK HIGH

TRC — Boott Mills South, Foot of John Street, Lowell, MA 01852, 978-970-5600	FIGURE 1 GROUNDWATER CONTOUR MAP MARCH 15, 2001 HIGH GROUNDWATER CONDITIONS BEDROCK WELLS LAUREL PARK LANDFILL NAUGATUCK, CONNECTICUT
TRC PROJ. NO.: 02136-0530-03032	
EPA CONTRACT NO.: 68-W6-0042	
RAC SUBCONTRACT NO.: 107061	M&E Metcalf & Eddy



LEGEND:

- PROPERTY BOUNDARY
- EXTENT OF LANDFILL
- FENCE
- ACCESS ROAD
- LIMIT OF RECEPTIVE SOILS
- DRAINAGE PATH
- LEACHATE COLLECTION SYSTEM
- MW-1 — LANDFILL MONITORING WELL
- MW-13 — REMOTE MONITORING WELL
- MW-3 — PERFORMANCE AND COMPLIANCE MONITORING WELLS
- EW-3 — EXTRACTION WELL
- EQUIPMENT AND UTILITIES BUILDING
- 580 — APPROX. GROUNDWATER ELEVATION CONTOUR
- DIRECTION OF GROUNDWATER FLOW AT EXTRACTION WELLS

NOTES:

SITE PLAN PREPARED FROM INFORMATION OBTAINED AND MEASUREMENTS TAKEN BY SMC ENVIRONMENTAL.

DASHED CONTOURS WITH LANDFILL ARE INFERRED

ARROWS REPRESENT GROUNDWATER FLOW AT EXTRACTION WELLS WITH PUMPS

IN EXTRACTION WELLS WHERE THE WATER ELEVATION WAS BELOW THE PUMP, THE TOP OF PUMP ELEVATION WAS USED FOR CONTOURING

BASE MAP SOURCE:
SMC ENVIRONMENTAL, APRIL 28, 2003
DOC. NO. 6699F2.

Original includes color coding.

0 250
SCALE IN FEET

02136\MULTI-SITE 5-TEAR\LAUREL PARK\GW\8-27-99 BEDROCK LOW

TRC — Boott Mills South, Foot of John Street, Lowell, MA 01852, 978-970-5600	FIGURE 2 GROUNDWATER CONTOUR MAP AUGUST 27, 1999 LOW GROUNDWATER CONDITIONS BEDROCK WELLS LAUREL PARK LANDFILL NAUGATUCK, CONNECTICUT
TRC PROJ. NO.: 02136-0530-03032	
EPA CONTRACT NO.: 68-W6-0042	
RAC SUBCONTRACT NO.: 107061	Metcalf & Eddy

ATTACHMENT 2

TIME SERIES REGRESSION AND STATISTICAL ANALYSIS

TIME SERIES REGRESSION AND STATISTICAL ANALYSIS

1.0 INTRODUCTION

This technical memorandum summarizes an assessment of the Laurel Park statistical analysis as conducted by TRC Environmental Corporation (TRC). All analyses conducted by TRC and proffered suggestions are done so in accordance with the rules and regulations stipulated in 40 CFR 264.97 (h) and (i). The latter regulation (i) provides that "...if the distribution of the chemical is shown...to be inappropriate for a normal theory test then the data should be transformed (normalized) or a distribution free theory test should be used".

As a guide to this analysis, cited probability or *p*-values indicate what the likelihood of getting a particular test-statistic would be. More specifically, the *p*-value indicates the probability of getting a value more extreme than your test result. As a rule of thumb, a test result is statistically significant if $p \leq 0.05$. This means that if 95% of your expected test results fall under the curve, then anything that falls beyond it, say into the 99% bracket, is highly unusual and statistically significant at the 0.01 level (99%). Conversely, if $p > 0.05$ then that is generally reported as non-significant (NS).

Presented below is a summary of points addressed in this memo and others that should be placed under consideration:

- Descriptive statistics (mean $\pm$ 1 SE) were included to highlight overall trends. Specifically, this entailed pooling data along a hydraulic gradient.
- There is evidence that downgradient remote wells are impacted by landfill leachate (iron).
- The "Primary Wells of Concern" should include the following: OW-1, PW-1, OW-5, MW-3, BH-7, BH-8, MP-9*, MP-2B*, MW-12S*, MW-10*, and OW-2* (* wells added on the basis of metals behavior alone).
- The Constituents of Concern should include lead, nickel, chromium, benzene, tetrachloroethene, tetrachlorethane (and all associated breakdown products including vinyl chloride, dichlorethane, dichlorethene, trichlorethane etc...), and finally, chlorobenzene. COCs that should be placed on a "watch list" include toluene.
- In addition to re-running the entire SMC analysis, the parametric Tolerance Interval Analysis was "spot-checked" with a non-parametric Mann-Whitney *U* test and a parametric *t*-test for independent samples. *U*-test and *t*-test results confirm SMC parametric test results.

2.0 REVIEW OF SMC STATISTICAL ANALYSIS

A groundwater monitoring plan was put into place at the Laurel Park Landfill in March 1998, with the primary objective of evaluating the effectiveness of the treatment system at eliminating the offsite migration of the constituents of concern (COCs). At present, the COCs include lead, nickel, chromium, benzene, tetrachloroethene (PCE), tetrachlorethane (TCE) (and associated

breakdown products including vinyl chloride, dichlorethane, dichlorethene, trichlorethane etc...), and finally, chlorobenzene. These constituents have been monitored since March of 1998.

The wells used in the monitoring program were grouped by SMC into three main landfill areas including the northern, eastern, and western landfill areas. Within the **northern landfill area** the point of compliance (POC) wells include wells OW-1, OW-2, OW-5, and PW-1. As described by SMC, these wells constitute a hot zone. Remote wells include MW-14, OW-3, OW-4, and offsite monitoring well MP-11A. Within the **eastern landfill area**, POC wells include BH-7, BH-8, and MW-3 (Area I) and wells MW-9, MW-10, MW-11, MW-12S, MW-13, and an upgradient monitoring well MW-7. Within the **western landfill area**, POC wells include wells include MW-4C, B-5, BH-2, MP-2A, MP-2B, and MP-9. Wells MP-2A, MP-2B, MP-9 are located upgradient of the cap, with MP-9 situated closest to the cap.

Based upon the results of the 2002 Annual Monitoring Report, SMC concluded that (1) The primary wells of concern include compliance wells within the northern and eastern parts of the landfill including OW-1, PW-1, MW-3, BH-7, and BH-8; (2) The primary COCs include benzene, chlorobenzene, PCE, TCE, and the associated breakdown products; and (3) Other than low levels of benzene (<0.006 ppm), none of the remote monitoring wells exhibited significant concentrations of the COCs. According to SMC, groundwater data indicate that some of the monitoring wells continue to be impacted primarily with VOCs and metals. Sampling of the remote wells indicates that the cap has been effective at containing the migration of contaminants. Finally, clean-up standards have not been attained and no additional upgrades of the leachate system are required.

2.1 Assessment of Data Analysis

In order to identify wells that were potentially impacted by a leaking cap, SMC undertook a statistical evaluation of the data in accordance with 40 CFR, Part 264.97(h). The data included in the analysis were distributed as follows: (1) all wells contained 18 samples (N=18) with the exception of (2) wells MP-9, B-5, MW-4C, MP-2A, and MP-2B (N=16); and (3) wells OW-3 and MW-14 (N=13). CHEMSTAT was used by SMC to conduct two parametric tests of significance on the data including an intra-well comparison and an inter-well comparison. Specifically, inter-well differences in COC levels were assessed with a Parametric Tolerance Interval Analysis, while intra-well differences were assessed with a Parametric Prediction Interval Analysis. TRC duplicated all SMC analyses with CHEMSTAT.

Given that these are both parametric tests, all data were tested by TRC for normality prior to analysis with a Shapiro-Wilk W-test. All non-normal data were transformed to achieve normality. Non-detect readings were converted to one-half the detection limit. In those instances where the data were neither normally or lognormally distributed, and followed a more exotic distribution i.e. Gaussian or Weibull, TRC used the non-parametric equivalent of the appropriate test. In this regard, SMC indicates that they ran the parametric test on the raw data regardless of whether the data were actually normally distributed. Depending on how skewed the data were, using a parametric test may have generated results that cannot be interpreted reliably. In that the transformation of data is an iterative process, it may simply be the case that the data just do not lend themselves to normality (or lognormality) after several transformations (e.g. MW-7 benzene data), or it may be that the transformation results in a severe disruption of scale, rendering the data meaningless. In either case, it would be preferable to use a non-

parametric (distribution-free) test on the raw data. A non-parametric test can be just as powerful with highly non-normal data sets, and is certainly more appropriate than subjecting non-normal data to a parametric test.

2.2 Linear Regression Analysis

SMC conducted a limited temporal analysis of groundwater data and indicate that certain VOC concentrations are decreasing while certain metals are in fact increasing. SMC constructed time-series graphs within wells OW-1 and PW-1 where volatile organic compound concentrations were the highest. These time-series graphs were all fitted with a simple linear regression trendline. The SMC time series analysis was comprised of plots, lacked important test results (*p*-values). Some of the temporal trends identified by SMC have been used to demonstrate decreasing trends while the TRC analysis of identical data sets indicates that there are no discernible trends whatsoever. A separate and additional TRC analysis of temporal trends in nickel, lead, and chromium indicate that there are statistically significant increases in constituents within remote wells, upgradient wells, and hot zone wells. This certainly warrants greater scrutiny over the next few years.

After a review of the time concentration graphs included in Appendix C of SMC's 2002 Annual Monitoring Report, a separate analysis of the time series data was conducted by TRC for VOCs and metals. In accordance with the work plan, a total of nine, time series plots were constructed.

Benzene was used as the primary VOC and the wells included in the analysis are OW-1 and OW-5 ("hot wells") MW-13 (a downgradient remote non-compliance well), BH-7 and MW-3 (both compliance wells). Downgradient remote well MW-13 was selected to evaluate temporal trends in benzene concentrations out of the pool of remote downgradient wells given that benzene was detected in every single sampling event at this well. Metals including nickel, chromium, iron, and lead were evaluated within the "hot" wells OW-1, OW-2, and PW-1; the upgradient wells MW-3, BH-7, MP-9, MP-2B, MW-10 and the downgradient remote well MW-12S.

For the purposes of the temporal analysis, each sample event was represented cumulatively by month, i.e. 1...4...7...n, and paired with a corresponding COC concentration. Given that the time between sampling events was not necessarily of an equal interval, this seemed the most appropriate way to conduct a regression analysis of time against COC level. All less than detection limit values e.g. -1, -5, -250, were converted to one-half of that value. The paired data were then subjected to a linear regression analysis. The SMC linear regression analysis of VOC data (SMC Appendix C), SMC did not report corresponding 0.05 a probability (p) values with any of the reported r^2 values in the time-concentration graphs. In this regard, TRC has assigned 0.05 a probability levels to all r^2-values generated by the regression analysis with a *t*-statistic (t_s).

2.2.1 VOCs

VOCs of concern were arrived at after a review of the raw data provided by SMC. All VOCs that exhibited either a statistically significant decreasing or increasing trend are included in this section. On the whole there are three classes of COC: (1) Those COCs that have decreased over time; (2) those COCs that have increased over time and exceed threshold criteria; and finally (3) those COCs that have increased over time yet are below threshold criteria. This latter class is considered worthy of close monitoring over the next five years and includes constituents such as toluene.

SMC conducted a linear regression analysis on three COCs as observed within two wells (Table 2-1). The results of the TRC linear regression analysis of these same data indicate that no trend exists and that there are no statistically significant changes in the concentration of benzene with time. This stands in stark contrast to the assertion by SMC that the concentrations of VOCs are decreasing with time. In fact, a close examination of the temporal VOC data at well OW-1 suggests that benzene levels have in fact stabilized during the 2001-2002 time frame (Figure 2-1).

Table 2-1. Summary of the 1998-2002 time-series data for all VOCs included in SMC time-series analysis. All reported significance levels are non-directional*. N=number of samples; NS denotes non-significance. (-) denotes decreasing trend; (+) denotes increasing trend; and (No trend) indicates that the p-value denotes randomness.

Well ID	VOC	SMC reported R^2	SMC Identified Trend	TRC reported R^2	TRC reported *p*-value	TRC Identified Trend (based upon p-value)
OW-1	benzene	0.0197	-	0.0197	0.57 NS	No trend
OW-1	tetrachloroethene	0.1245	-	0.1036	0.19 NS	No trend
PW-1	benzene	0.0015	-	0.0015	0.88 NS	No trend
OW-1	trichloroethene	0.0754	-	0.0649	0.30 NS	No trend
PW-1	trichloroethene	0.0071	-	0	0.98 NS	No trend

*Testing of a non-directional hypothesis makes no assumptions about the direction of the correlation relationship. That is, no assumptions are made about the positive or negative relationship between a given set of variables.

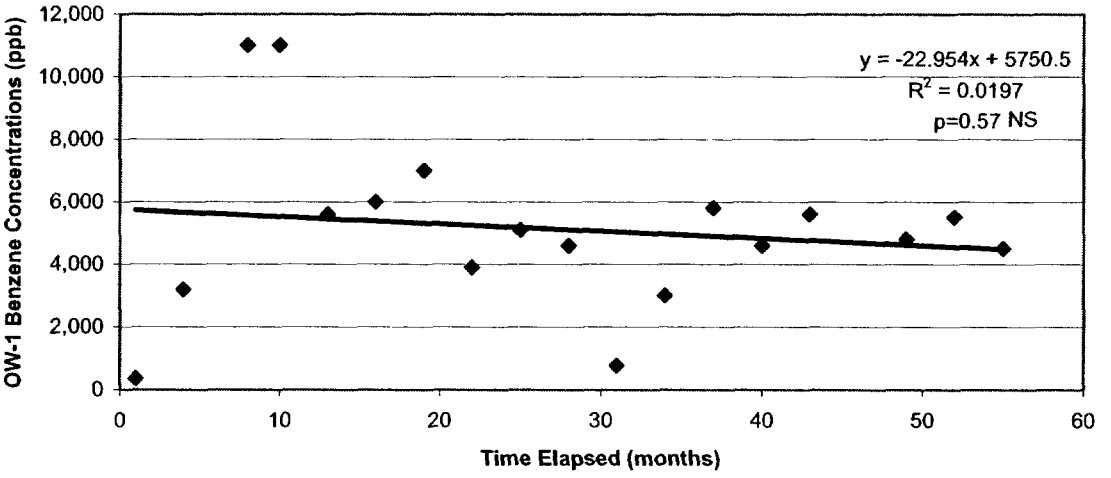


Figure 2-1. Temporal pattern in benzene concentrations at compliance well OW-1. Well OW-1 is located in the "hot zone". All reported significance levels are non-directional. NS denotes non-significance.

It seems likely that nothing convincing can be said about temporal trends in the three VOCs of concern at any of the hot wells, given the short time period and the randomness of the data. Moreover, none of the associated breakdown products that SMC plotted exhibited statistically significant trends with time.

TRC conducted an additional and exploratory examination of temporal trends at wells OW-5, MW-13, BH-7, and MW-3. Benzene levels reported at OW-5 tell have dropped markedly and the reduction is statistically significant beyond the 0.01a probability level (Figure 2-2).

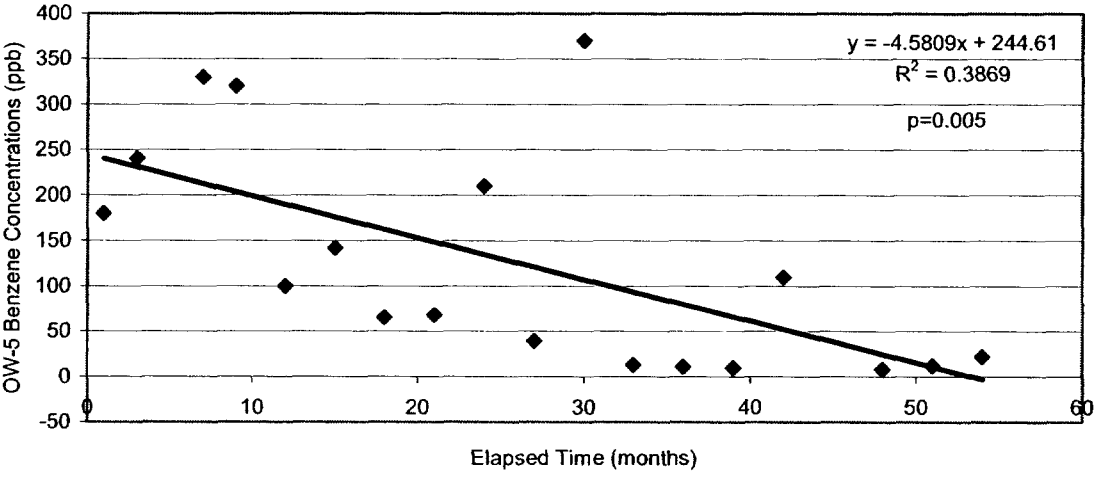


Figure 2-2. Temporal pattern in benzene concentrations at compliance well OW-5. Well OW-5 is located in the "hot zone". All reported significance levels are non-directional. NS denotes non-significance.

An examination of benzene data within the remote, non-compliance well MW-13 also indicates a highly significant decrease in benzene concentrations with time (Figure 2-3). The time series

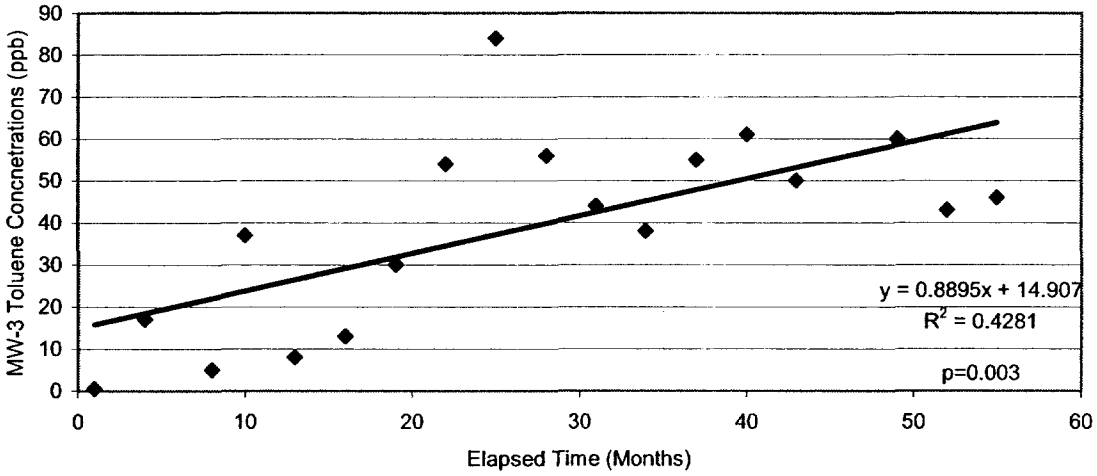


Figure 2-5. Temporal pattern in toluene concentrations at compliance well MW-3. All reported significance levels are non-directional. NS denotes non-significance.

2.2.2 Metals

TRC explored additional wells to identify possibly significant trends in the behavior of metals that may have been missed during the SMC analysis. In this regard, a preliminary review of wells by TRC indicates that metals have exhibited a statistically significant increase in wells MP-2B, OW-1, PW-1, and MW-12S. Linear regression analysis results are presented in Table 2-2.

Table 2-2. Assessment of the 1998-2002 time-series data for select metals. Significance levels are reported at the following α probability levels: (^{a} p = 0.05); (^{b} 0.05>p>0.01); and (^{c} p ≤ 0.01). All reported significance levels are non-directional*. N=number of samples; NS denotes non-significance.

Well ID	COC	MAX. VALUE (ug/l)	TRC reported r^2 Value	Trend	TRC reported (non-directional) *p*-value*
HOT ZONE WELLS					
PW-1	Lead	**39.3**	0.2238	+	0.047 [b]
OW-1	Lead	**329.0**	0.1906	-	0.07 NS
OW-2	Nickel	**139.0**	0.2017	+	0.06**
	Chromium	**103.0**	0.1171	+	0.16***
UPGRADIENT WELLS					
MP-9	Nickel	**140.0**	0.3342	+	0.01 [c]
	Chromium	**77.1**	0.3544	+	0.01 [c]
MP-2B	Nickel	66.7	0.2636	+	0.05 [a]
	Chromium	28.6	0.2667	+	0.05 [a]
DOWNGRADIENT REMOTE WELLS					
MW-12S	Nickel	**130.0**	0.4789	+	0.001 [c]

*Testing of a non-directional hypothesis makes no assumptions about the direction of the correlation relationship. That is, no assumptions are made about the positive or negative relationship between a given set of variables.
/* This result is only weakly significant/non-significant. Statistically significant results in the intra-well analysis conducted by SMC may have been spurious given the use of non-normal data in a parametric test. However, given that nickel and chromium levels exceed threshold criteria, they should be monitored closely in well OW-2.
Boldface: Exceeds threshold criteria.

Although some constituents are not presently above threshold criteria, the relationship between time and concentrations suggest that future sampling may yield values that are above threshold criteria. It is recommended that metals levels in all wells be monitored closely during future sampling events.

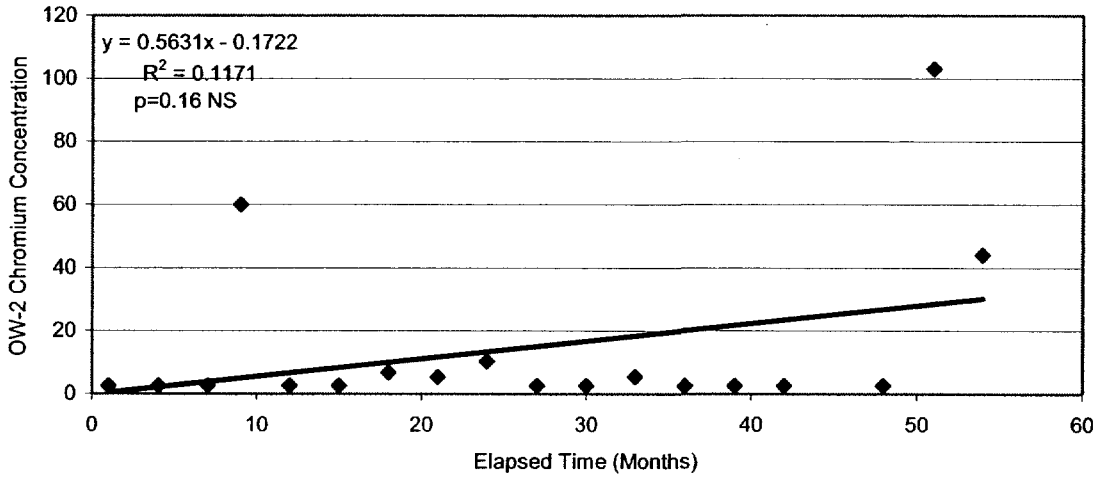


Figure 2-6. Temporal pattern in chromium concentrations at compliance well OW-2. All reported significance levels are non-directional. NS denotes non-significance.

Temporal patterns in iron levels were assessed within wells MW-3; MW-10; and BH-7. Iron levels within MW-3 have dropped albeit not significantly (Figure 2-7). Wells MW-10 (Figure 2-8) and BH-7 (Figure 2-9) both exhibit the opposite trend whereby iron levels have exhibited a highly significant increase since 1998.

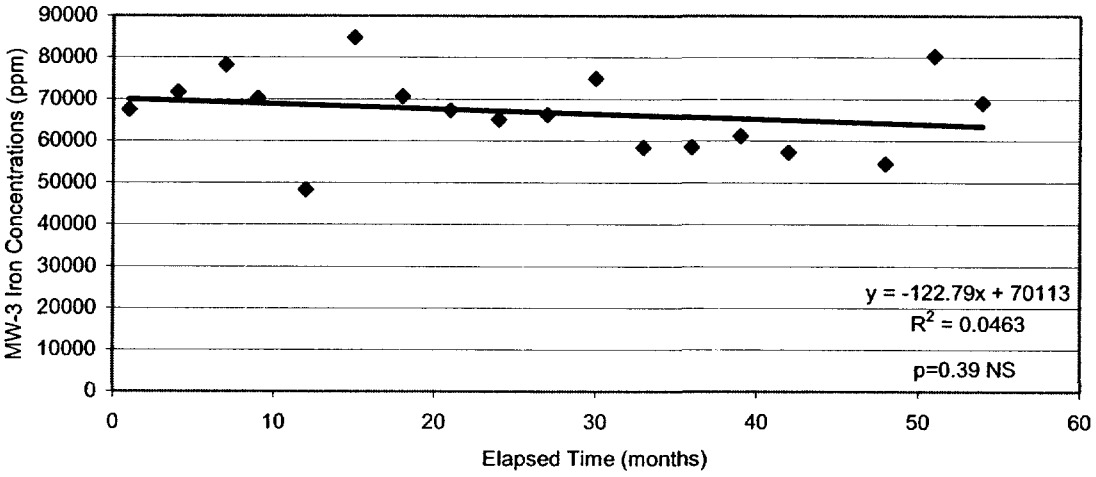


Figure 2-7. Temporal pattern in iron levels with time in well MW-3. All reported significance levels are non-directional. NS denotes non-significance.

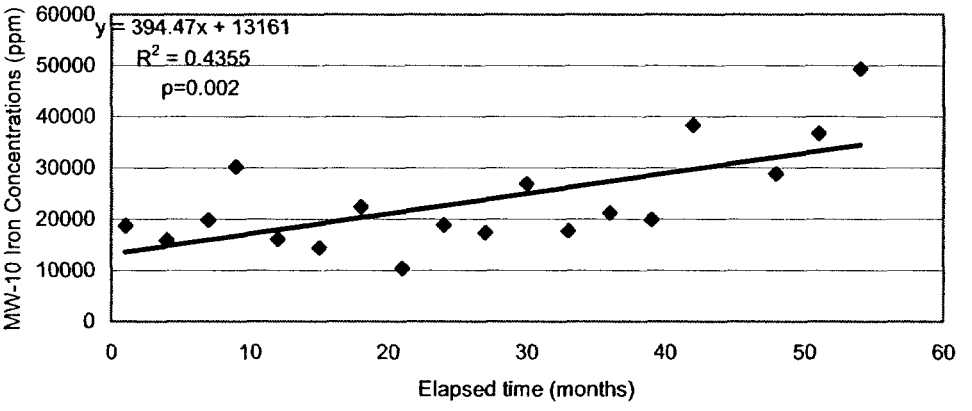


Figure 2-8. Temporal pattern in iron levels with time in well MW-10.

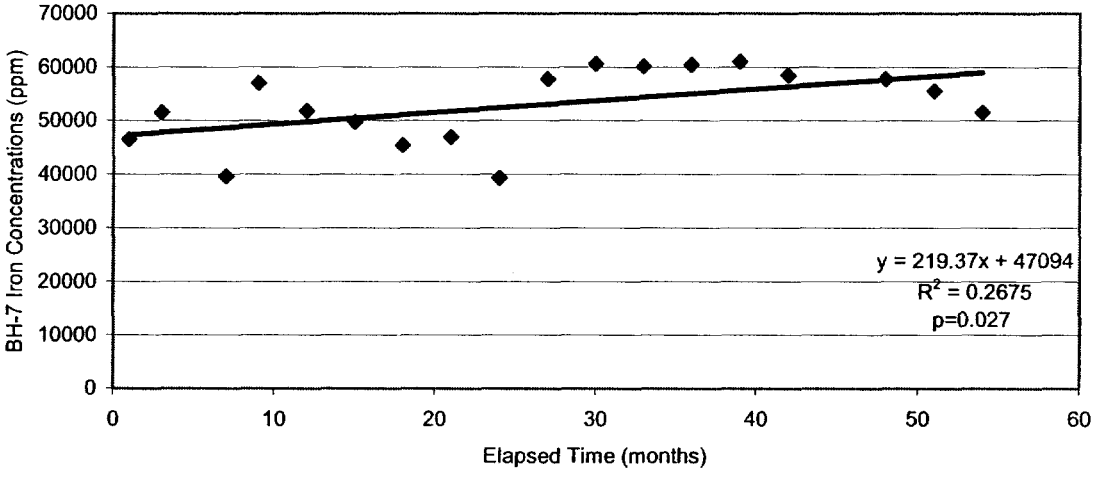


Figure 2-9. Temporal pattern in iron levels with time in well BH-7. All reported significance levels are non-directional. NS denotes non-significance.

2.3 Prediction Interval Analysis (Intra-well Comparison)

One of the major assumptions of the parametric prediction interval analysis is that there exists a pre-disturbance benchmark. This typically entails comparing recent data with pre-impact well data as specified in the 1989 and 1992 EPA Guidance Documents. Unfortunately, SMC did not have (clean) pre-landfill well data, so the results of a statistical comparison of recent intra-well data against post-landfill data cannot be interpreted reliably. For this reason alone, TRC recommends that the results of the intra-well data analysis within the 2002 monitoring report be de-emphasized and possibly not included in any subsequent monitoring reports.

However, in keeping with the approved work plan, TRC conducted a check of the intra-well analysis conducted by SMC with CHEMSTAT. Before running the test however, TRC checked the distribution of each data set included in the analysis. As indicated below in Table 2-3, the distribution of each data set varies widely, with some exotic distributions included as well. Subjecting these highly non-normal data to a parametric test may have generated spurious

results. To avoid this problem, TRC ran a non-parametric prediction interval analysis on the data.

2.3.1 VOCs

The TRC analysis and the SMC analysis of VOCs yielded similar end results as indicated below in Table 2-3. However, there were observable differences in the reported distribution of identical data sets.

Table 2-3. Comparison of parametric and non-parametric prediction interval analysis results for VOCs. [a] = exotic distribution; [b] = parametric test result; [c] = non-parametric test result.

Well ID	COC	SMC Transformation	TRC transformation	SMC-Reported Distribution	TRC-Reported Distribution	SMC RESULT	TRC RESULT
OW-1	benzene	none	none	normal	normal	No impact	No impact
OW-5	benzene	log	Natural log	lognormal	lognormal	No impact	No impact
PW-1	benzene	none	none	normal	normal	No impact	No impact
OW-2	benzene	log	none	Assumed lognormal	other[a]	No impact[b]	No impact[c]
BH-7	benzene	none	none	norm	norm	No impact	No impact
BH-8	benzene	none	none	norm	norm	No impact	No impact
MW-3	benzene	none	none	norm	norm	No impact	No impact
MW-10	benzene	none	none	Assumed normal	other[a]	No impact[b]	No impact[c]
BH-2	benzene	none	none	norm	norm	No impact	No impact
MP-9	benzene	log	Natural log	lognormal	lognormal	No impact	No impact
OW-1	chlorobenzene	log	none	Assumed lognormal	other[a]	No impact[b]	No impact[c]
OW-2	chlorobenzene	none	none	norm	norm	No impact	No impact
BH-7	chlorobenzene	none	none	norm	norm	No impact	No impact
BH-8	chlorobenzene	log	Natural log	lognormal	lognormal	No impact	No impact
MW-3	chlorobenzene	none	none	norm	norm	No impact	No impact
PW-1	chlorobenzene	none	none	norm	norm	No impact	No impact
BH-2	chlorobenzene	none	none	Assumed normal	other[a]	No impact[b]	No impact[c]
OW-1	tetrachloroethene	none	none	Assumed normal	other[a]	No impact[b]	No impact[c]
OW-1	Vinyl chloride	log	Natural log	lognormal	lognormal	No impact	No impact
OW-1	trichloroethene	none	none	Assumed normal	other[a]	No impact[b]	No impact[c]
PW-1	trichloroethene	none	none	norm	norm	No impact	No impact
OW-1	1,1 DCE	log	none	Assumed lognormal	other[a]	No impact[b]	No impact[c]
PW-1	1,1 DCE	none	none	Assumed normal	other[a]	No impact[b]	No impact[c]

2.3.2 Metals

The TRC analysis and the SMC analysis of metals yielded similar end results as indicated below in Table 2-4. However, there were observable differences in the reported distribution of identical data sets.

Table 2-4. Comparison of parametric and non-parametric prediction interval analysis results for metals. [a] = exotic distribution; [b] = parametric test result; [c] = non-parametric test result.

Well ID	COC	SMC Transformation	TRC Transformation	SMC-Reported Distribution	TRC-Reported Distribution	SMC RESULT	TRC RESULT
PW-1	lead	log	Natural log	lognormal	lognormal	No impact	No impact
BH-2	lead	log	Natural log	lognormal	lognormal	No impact	No impact
BH-7	lead	log	Cube root	lognormal	Cube-root normal	No impact	No impact
OW-2	nickel	log	Natural log	lognormal	lognormal	impacted	impacted
OW-4	nickel	none	none	norm	norm	No impact	No impact
MP-9	nickel	none	none	Assumed normal	other[a]	impacted[b]	impacted[c]
OW-2	chromium	none	none	Assumed normal	other[a]	impacted[b]	impacted[c]
MP-9	chromium	none	none	Assumed normal	other[a]	impacted[b]	impacted[c]

2.4 Inter-well Analysis

SMC used a Parametric Tolerance Interval Analysis to determine whether statistically significant differences exist between upgradient control wells and wells downgradient of the landfill. Background wells used by SMC Environmental in this particular analysis included Wells MW-7 and MP-2A. In that this is a parametric test, normality of the data set (that is the data follow a normal distribution curve) must be established.

In this regard, SMC subjected untransformed data that were highly non-normal to a parametric test, i.e. the data followed another distribution and required another type of transformation). To avoid problems associated with subjecting non-normal data to a parametric test, TRC used a Non-parametric (distribution-free) Tolerance Interval Analysis on untransformed raw data to test significant differences between wells.

2.4.1 VOCs

As can be observed in Table 2-5, there are differences in the end results of the two types of analyses and are represented by the boldfaced type. This is in all likelihood attributable to the enormous range of distribution types, including normal data, data that follow a cube-root distribution, and those distributions that are exotic. The non-parametric test is insensitive to non-normal distributions (and hence more accurate), whereas the parametric test is sensitive and will generate spurious results. In those instances where differences are observed, it is suggested that the non-parametric result be used.

Table 2-5. Comparison of parametric and non-parametric tolerance interval analysis results for VOCs. [a] = exotic distribution; [B] = parametric test result; [C] = non-parametric test result.

Well ID	COC	TRC Identified Distribution	SMC RESULT[B]	TRC RESULT[C]
B-5	benzene	other[a]	Not impacted	Not impacted
BH-2	benzene	normal	impacted	impacted
BH-7	benzene	normal	impacted	impacted
BH-8	benzene	normal	impacted	impacted
MW-10	benzene	other[a]	impacted	impacted
MW-11	benzene	Cube-root normal	No impact	No impact
MW-12S	benzene	other[a]	impacted	impacted
MW-13	benzene	lognormal	impacted	impacted
MW-14	benzene	other[a]	impacted	impacted
MW-3	benzene	normal	impacted	impacted
MW-4C	benzene	other[a]	impacted	impacted
MW-9	**benzene**	**other[a]**	**impacted**	**Not impacted**
OW-1	benzene	normal	impacted	impacted
OW-2	benzene	other[a]	impacted	impacted
OW-3	benzene	normal	No impact	No impact
OW-4	benzene	other[a]	impacted	impacted
OW-5	benzene	lognormal	impacted	impacted
PW-1	benzene	other[a]	impacted	impacted
MP-11A	**benzene**	**other[a]**	**impacted**	**Not impacted**
MP-2B	**benzene**	**other[a]**	**impacted**	**Not impacted**
MP-9	benzene	lognormal	impacted	impacted
B-5	chlorobenzene	normal	Not impacted	Not impacted
BH-2	chlorobenzene	other[a]	impacted	impacted
BH-7	chlorobenzene	normal	impacted	impacted
BH-8	chlorobenzene	lognormal	impacted	impacted
MW-10	chlorobenzene	other[a]	impacted	impacted
MW-11	chlorobenzene	other[a]	impacted	impacted
MW-12S	chlorobenzene	other[a]	impacted	impacted
MW-13	chlorobenzene	normal	Not impacted	Not impacted
MW-14	chlorobenzene	normal	Not impacted	Not impacted
MW-3	chlorobenzene	normal	impacted	impacted
MW-4C	chlorobenzene	other[a]	impacted	impacted
MW-9	chlorobenzene	normal	Not impacted	Not impacted
OW-1	chlorobenzene	other[a]	impacted	impacted
OW-2	chlorobenzene	normal	impacted	impacted
OW-3	chlorobenzene	normal	Not impacted	Not impacted
OW-4	chlorobenzene	normal	Not impacted	Not impacted
OW-5	chlorobenzene	other[a]	impacted	impacted
PW-1	chlorobenzene	normal	impacted	impacted
MP-11A	chlorobenzene	normal	Not impacted	Not impacted
MP-2B	chlorobenzene	normal	Not impacted	Not impacted
MP-9	chlorobenzene	other[a]	impacted	impacted
B-5	1,1 Dichloroethane	Normal	Not impacted	Not impacted
BH-2	1,1 Dichloroethane	other[a]	impacted	impacted
BH-7	1,1 Dichloroethane	other[a]	impacted	impacted
BH-8	1,1 Dichloroethane	other[a]	impacted	impacted
MW-10	1,1 Dichloroethane	Normal	Not impacted	Not impacted
MW-11	1,1 Dichloroethane	Normal	Not impacted	Not impacted
MW-12S	1,1 Dichloroethane	Normal	Not impacted	Not impacted
MW-13	1,1 Dichloroethane	Normal	Not impacted	Not impacted
MW-14	1,1 Dichloroethane	Normal	Not impacted	Not impacted
MW-3	1,1 Dichloroethane	other[a]	impacted	impacted
MW-4C	1,1 Dichloroethane	Normal	Not impacted	Not impacted
MW-9	1,1 Dichloroethane	Normal	Not impacted	Not impacted
OW-1	1,1 Dichloroethane	other[a]	impacted	impacted
OW-2	1,1 Dichloroethane	other[a]	impacted	impacted

Laurel Park Landfill Site
Statistical Analyses

Well ID	COC	TRC Identified Distribution	SMC RESULT[B]	TRC RESULT[C]
OW-3	1,1 Dichloroethane	Normal	Not impacted	Not impacted
OW-4	1,1 Dichloroethane	Normal	Not impacted	Not impacted
OW-5	1,1 Dichloroethane	other[a]	impacted	impacted
PW-1	1,1 Dichloroethane	Normal	impacted	impacted
MP-11A	1,1 Dichloroethane	Normal	Not impacted	Not impacted
MP-2B	1,1 Dichloroethane	Normal	Not impacted	Not impacted
MP-9	1,1 Dichloroethane	other[a]	impacted	impacted
B-5	1,2 Dichloroethene	Normal	Not impacted	Not impacted
BH-2	1,2 Dichloroethene	Normal	Not impacted	Not impacted
BH-7	1,2 Dichloroethene	other[a]	impacted	impacted
BH-8	1,2 Dichloroethene	other[a]	impacted	impacted
MW-10	1,2 Dichloroethene	Normal	Not impacted	Not impacted
MW-11	1,2 Dichloroethene	Normal	Not impacted	Not impacted
MW-12S	1,2 Dichloroethene	Normal	Not impacted	Not impacted
MW-13	1,2 Dichloroethene	Normal	Not impacted	Not impacted
MW-14	1,2 Dichloroethene	Normal	Not impacted	Not impacted
MW-3	1,2 Dichloroethene	other[a]	impacted	impacted
MW-4C	1,2 Dichloroethene	Normal	Not impacted	Not impacted
MW-9	1,2 Dichloroethene	Normal	Not impacted	Not impacted
OW-1	1,2 Dichloroethene	other[a]	impacted	impacted
OW-2	1,2 Dichloroethene	Normal	Not impacted	Not impacted
OW-3	1,2 Dichloroethene	Normal	Not impacted	Not impacted
OW-4	1,2 Dichloroethene	Normal	Not impacted	Not impacted
OW-5	1,2 Dichloroethene	other[a]	impacted	impacted
PW-1	1,2 Dichloroethene	other[a]	impacted	impacted
MP-11A	1,2 Dichloroethene	Normal	Not impacted	Not impacted
MP-2B	1,2 Dichloroethene	Normal	Not impacted	Not impacted
MP-9	1,2 Dichloroethene	Normal	Not impacted	Not impacted
B-5	1,1 Dichloroethene	Normal	Not impacted	Not impacted
BH-2	**1,1 Dichloroethene**	**Cube-root normal**	**impacted**	**Not impacted**
BH-7	1,1 Dichloroethene	other[a]	impacted	impacted
BH-8	1,1 Dichloroethene	other[a]	impacted	impacted
MW-10	1,1 Dichloroethene	Normal	Not impacted	Not impacted
MW-11	1,1 Dichloroethene	Normal	Not impacted	Not impacted
MW-12S	1,1 Dichloroethene	Normal	Not impacted	Not impacted
MW-13	1,1 Dichloroethene	Normal	Not impacted	Not impacted
MW-14	1,1 Dichloroethene	Normal	Not impacted	Not impacted
MW-3	1,1 Dichloroethene	other[a]	impacted	impacted
MW-4C	1,1 Dichloroethene	Normal	Not impacted	Not impacted
MW-9	1,1 Dichloroethene	Normal	Not impacted	Not impacted
OW-1	1,1 Dichloroethene	other[a]	impacted	impacted
OW-2	1,1 Dichloroethene	Normal	Not impacted	Not impacted
OW-3	1,1 Dichloroethene	Normal	Not impacted	Not impacted
OW-4	1,1 Dichloroethene	Normal	Not impacted	Not impacted
OW-5	1,1 Dichloroethene	other[a]	impacted	impacted
PW-1	1,1 Dichloroethene	other[a]	impacted	impacted
MP-11A	1,1 Dichloroethene	Normal	Not impacted	Not impacted
MP-2B	1,1 Dichloroethene	Normal	Not impacted	Not impacted
MP-9	1,1 Dichloroethene	Normal	Not impacted	Not impacted
B-5	tetrachloroethene	Normal	Not impacted	Not impacted
BH-2	tetrachloroethene	Normal	Not impacted	Not impacted
BH-7	tetrachloroethene	other[a]	impacted	impacted
BH-8	tetrachloroethene	other[a]	impacted	impacted
MW-10	tetrachloroethene	Normal	Not impacted	Not impacted
MW-11	tetrachloroethene	Normal	Not impacted	Not impacted
MW-12S	tetrachloroethene	Normal	Not impacted	Not impacted
MW-13	tetrachloroethene	Normal	Not impacted	Not impacted
MW-14	tetrachloroethene	Normal	Not impacted	Not impacted
MW-3	tetrachloroethene	other[a]	impacted	impacted
MW-4C	tetrachloroethene	Normal	Not impacted	Not impacted

Well ID	COC	TRC Identified Distribution	SMC RESULT[B]	TRC RESULT[C]
MW-9	tetrachloroethene	Normal	Not impacted	Not impacted
OW-1	tetrachloroethene	Square root normal	impacted	impacted
OW-2	tetrachloroethene	other[a]	impacted	impacted
OW-3	tetrachloroethene	Normal	Not impacted	Not impacted
OW-4	tetrachloroethene	Normal	Not impacted	Not impacted
OW-5	tetrachloroethene	other[a]	impacted	impacted
PW-1	tetrachloroethene	other[a]	impacted	impacted
MP-11A	tetrachloroethene	Normal	Not impacted	Not impacted
MP-2B	tetrachloroethene	Normal	Not impacted	Not impacted
MP-9	tetrachloroethene	Normal	Not impacted	Not impacted
B-5	trichloroethene	Normal	Not impacted	Not impacted
BH-2	trichloroethene	Normal	Not impacted	Not impacted
BH-7	trichloroethene	other[a]	impacted	impacted
BH-8	trichloroethene	other[a]	impacted	impacted
MW-10	trichloroethene	Normal	Not impacted	Not impacted
MW-11	trichloroethene	Normal	Not impacted	Not impacted
MW-12S	trichloroethene	Normal	Not impacted	Not impacted
MW-13	**trichloroethene**	**Cube root normal**	**impacted**	**Not impacted**
MW-14	trichloroethene	Normal	Not impacted	Not impacted
MW-3	trichloroethene	other[a]	impacted	impacted
MW-4C	trichloroethene	other[a]	Not impacted	Not impacted
MW-9	trichloroethene	other[a]	Not impacted	Not impacted
OW-1	trichloroethene	Square root normal	impacted	impacted
OW-2	trichloroethene	Normal	Not impacted	Not impacted
OW-3	trichloroethene	Normal	Not impacted	Not impacted
OW-4	**trichloroethene**	**Cube root normal**	**impacted**	**Not impacted**
OW-5	trichloroethene	other[a]	impacted	impacted
PW-1	trichloroethene	other[a]	impacted	impacted
MP-11A	trichloroethene	Normal	Not impacted	Not impacted
MP-2B	trichloroethene	Normal	Not impacted	Not impacted
MP-9	trichloroethene	Normal	Not impacted	Not impacted
B-5	Vinyl chloride	other[a]	Not impacted	Not impacted
BH-2	**Vinyl chloride**	**other[a]**	**impacted**	**Not impacted**
BH-7	Vinyl chloride	other[a]	impacted	impacted
BH-8	Vinyl chloride	other[a]	impacted	impacted
MW-10	Vinyl chloride	other[a]	Not impacted	Not impacted
MW-11	Vinyl chloride	other[a]	Not impacted	Not impacted
MW-12S	Vinyl chloride	other[a]	Not impacted	Not impacted
MW-13	Vinyl chloride	other[a]	Not impacted	Not impacted
MW-14	Vinyl chloride	Normal	Not impacted	Not impacted
MW-3	Vinyl chloride	other[a]	impacted	impacted
MW-4C	Vinyl chloride	other[a]	Not impacted	Not impacted
MW-9	Vinyl chloride	other[a]	Not impacted	Not impacted
OW-1	Vinyl chloride	lognormal	impacted	impacted
OW-2	Vinyl chloride	other[a]	Not impacted	Not impacted
OW-3	Vinyl chloride	Normal	Not impacted	Not impacted
OW-4	Vinyl chloride	other[a]	Not impacted	Not impacted
OW-5	Vinyl chloride	other[a]	impacted	impacted
PW-1	Vinyl chloride	normal	impacted	impacted
MP-11A	Vinyl chloride	other[a]	Not impacted	Not impacted
MP-2B	Vinyl chloride	other[a]	Not impacted	Not impacted
MP-9	Vinyl chloride	other[a]	Not impacted	Not impacted

2.4.2 Metals

As can be observed in Table 2-5, there are differences in the end results of the two types of analyses and are represented by the boldfaced type. Discrepancies were noted between the parametric SMC and non-parametric TRC analyses for lead, nickel, chromium, and iron within

wells PW-1, MP-11A, MW-13, MW-14, MW-10, MW-12S, and MP-2B. In all instances, TRC reports that the well has not been impacted whereas SMC reports an impacted well.

Table 2-6. Comparison of parametric and non-parametric tolerance interval analysis results for metals. [a] = exotic distribution; [B] = parametric test result; [C] = non-parametric test result.

Well	COC	TRC Dist.	SMC Result[B]	TRC Result[C]
B-5	Lead	Other	No Impact	No Impact
BH-2	Lead	Log normal	Impact	Impact
BH-7	Lead	Cube root normal	Impact	Impact
BH-8	Lead	Other	No Impact	No Impact
MW-10	Lead	Other	No Impact	No Impact
MW-11	Lead	Other	No Impact	No Impact
MW-12S	Lead	Other	No Impact	No Impact
MW-13	Lead	Other	No Impact	No Impact
MW-14	Lead	Other	No Impact	No Impact
MW-3	Lead	Other	No Impact	No Impact
MW-4C	Lead	Other	Impact	Impact
MW-9	Lead	Other	Impact	Impact
OW-1	Lead	lognormal	Impact	Impact
OW-2	Lead	other	Impact	Impact
OW-3	Lead	lognormal	No Impact	No Impact
OW-4	Lead	other	No Impact	No Impact
OW-5	Lead	Square root normal	No Impact	No Impact
PW-1	**Lead**	**lognormal**	**Impact**	**No Impact**
MP-11A	**Lead**	**other**	**Impact**	**No Impact**
MP-2B	Lead	other	No Impact	No Impact
MP-9	Lead	other	No Impact	No Impact
B-5	Nickel	other	No Impact	No Impact
BH-2	Nickel	normal	Impact	Impact
BH-7	Nickel	normal	Impact	Impact
BH-8	Nickel	normal	Impact	Impact
MW-10	Nickel	normal	No Impact	No Impact
MW-11	Nickel	normal	No Impact	No Impact
MW-12S	Nickel	normal	Impact	Impact
MW-13	**Nickel**	**normal**	**Impact**	**No Impact**
MW-14	Nickel	normal	No Impact	No Impact
MW-3	Nickel	normal	Impact	Impact
MW-4C	Nickel	Other	Impact	Impact
MW-9	Nickel	Normal	No Impact	No Impact
OW-1	Nickel	Other	Impact	Impact
OW-2	Nickel	lognormal	Impact	Impact
OW-3	Nickel	other	Impact	Impact

Laurel Park Landfill Site
Statistical Analyses

Well	COC	TRC Dist.	SMC Result[B]	TRC Result[C]
OW-4	Nickel	normal	Impact	Impact
OW-5	Nickel	other	Impact	Impact
PW-1	Nickel	normal	Impact	Impact
MP-11A	Nickel	other	No Impact	No Impact
MP-2B	Nickel	other	Impact	Impact
MP-9	Nickel	other	Impact	Impact
B-5	Chromium	normal	No Impact	No Impact
BH-2	Chromium	other	Impact	Impact
BH-7	Chromium	other	Impact	Impact
BH-8	Chromium	normal	Impact	Impact
MW-10	Chromium	other	No Impact	No Impact
MW-11	Chromium	Cube root normal	Impact	Impact
MW-12S	Chromium	normal	No Impact	No Impact
MW-13	Chromium	other	Impact	Impact
MW-14	**Chromium**	**other**	**Impact**	**No Impact**
MW-3	Chromium	lognormal	Impact	Impact
MW-4C	Chromium	other	Impact	Impact
MW-9	Chromium	normal	No Impact	No Impact
OW-1	Chromium	other	Impact	Impact
OW-2	Chromium	other	Impact	Impact
OW-3	Chromium	other	Impact	Impact
OW-4	Chromium	normal	Impact	Impact
OW-5	Chromium	Lognormal	Impact	Impact
PW-1	Chromium	Normal	Impact	Impact
MP-11A	Chromium	Normal	No Impact	No Impact
MP-2B	Chromium	Other	Impact	Impact
MP-9	Chromium	Other	Impact	Impact
B-5	Iron	Normal	No Impact	No Impact
BH-2	Iron	Lognormal	No Impact	No Impact
BH-7	Iron	Normal	Impact	Impact
BH-8	Iron	Normal	Impact	Impact
MW-10	**Iron**	**Lognormal**	**Impact**	**No Impact**
MW-11	Iron	Normal	No Impact	No Impact
MW-12S	**Iron**	**Lognormal**	**Impact**	**No Impact**
MW-13	Iron	Cube root normal	No Impact	No Impact
MW-14	Iron	Lognormal	No Impact	No Impact
MW-3	Iron	Normal	Impact	Impact
MW-4C	Iron	Other	No Impact	No Impact
MW-9	Iron	Lognormal	No Impact	No Impact
OW-1	Iron	Other	Impact	Impact
OW-2	Iron	Lognormal	Impact	Impact
OW-3	Iron	lognormal	No Impact	No Impact

Well	COC	TRC Dist.	SMC Result[B]	TRC Result[C]
OW-4	Iron	Lognormal	No Impact	No Impact
OW-5	Iron	Normal	Impact	Impact
PW-1	Iron	Lognormal	No Impact	No Impact
MP-11A	Iron	Lognormal	No Impact	No Impact
MP-2B	**Iron**	**Normal**	**Impact**	**No Impact**
MP-9	Iron	Lognormal	No Impact	No Impact
B-5	Manganese	Other	No Impact	No Impact
BH-2	Manganese	Other	Impact	Impact
BH-7	Manganese	Other	Impact	Impact
BH-8	Manganese	Normal	Impact	Impact
MW-10	Manganese	Normal	Impact	Impact
MW-11	Manganese	Normal	Impact	Impact
MW-12S	Manganese	Lognormal	Impact	Impact
MW-13	Manganese	Normal	Impact	Impact
MW-14	Manganese	Normal	No Impact	No Impact
MW-3	Manganese	Lognormal	Impact	Impact
MW-4C	Manganese	Other	Impact	Impact
MW-9	Manganese	Normal	Impact	Impact
OW-1	Manganese	Other	Impact	Impact
OW-2	Manganese	Other	Impact	Impact
OW-3	Manganese	normal	No Impact	No Impact
OW-4	Manganese	normal	Impact	Impact
OW-5	Manganese	normal	Impact	Impact
PW-1	Manganese	normal	Impact	Impact
MP-11A	Manganese	lognormal	No Impact	No Impact
MP-2B	Manganese	normal	No Impact	No Impact
MP-9	Manganese	lognormal	Impact	Impact

2.4.2.1 Additional Metals Analysis

A non-parametric Mann-Whitney *U*-test (U_A) was used to selectively confirm some of the statistically significant inter-well relationships observed where (U_A) is represented by a comparison of sample 1 (U_1) and sample 2 (U_2):

$$U_1 = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1 \quad \text{and:}$$

$$U_2 = n_1 n_2 - U_1$$

where:

R_1 the sum of the ranks of sample 1

n_1 = sample size for sample 1

n_2 = sample size for sample 2

Lead levels were assessed between wells MW-7 and BH-2; nickel levels were assessed between wells MW-7 and MW-12S; and chromium levels were assessed between wells MW-7 and MW-3. The results of the spot check conducted with a non-parametric analysis confirmed the results of the parametric analysis conducted by SMC. Specifically, metals levels are consistently higher within landfill wells than those levels observed in the upgradient control well (MW-7) for each well pair examined (Table 2-3).

Table 2-3. Assessment of statistically significant differences in lead, nickel, and chromium levels between upgradient control well MW-7 and landfill compliance wells BH-2, MW-12S, and MW-3. All reported significance levels are non-directional*. N=number of samples; NS denotes non-significance.

Well Pairs	Metal	N	Mean	Standard Error	U_A-Statistic	*p*-value*	*SMC Results*
MW-7 vs. BH-2	**Lead**						
MW-7		18	3.11	0.60			
BH-2		17	22.32	5.18	269.0	0.0001 [c]	**Impacted**
MW-7 vs. MW-12S	**Nickel**						
MW-7		18	16.99	2.1			
MW-12S		18	74.82	6.75	312	<0.0001 [c]	**Impacted**
MW-7 vs. MW-3	**Chromium**						
MW-7		18	3.08	0.31	324		
MW-3		18	13.98	1.06		<0.0001 [c]	**Impacted**

*Testing of a non-directional hypothesis makes no assumptions about the direction of the correlation relationship. That is, no assumptions are made about the positive or negative relationship between a given set of variables.

2.5 Landfill Leachate Analysis

In a similar manner to the benzene data, iron data were taken from compliance wells within four equally spaced "bands" oriented perpendicular to the approximate groundwater flow vector (all less than values were converted to one-half the detection limit of 1). This resulted in a cluster of upgradient wells (MP-2A, MP-2B, MP-9, BH-2, BH-8, and MW-9); mid-gradient wells (B-5, MW-4C, MW-10, BH-7, and MW-3); downgradient wells (OW-1, OW-2, OW-5, PW-1, and MW-12S); and finally downgradient remote wells (OW-3, MW-13, MW-14, and MP-11A). Within each band, mean iron values (± 1 Standard Error) were calculated and the results are presented in Figure 2-7.

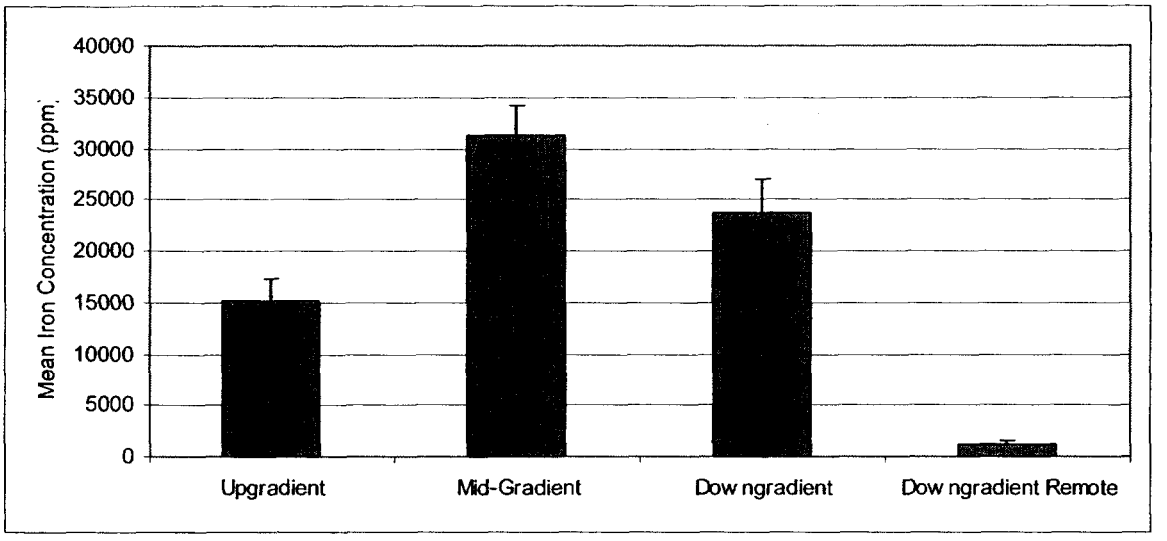


Figure 2-7. Comparison of mean iron concentrations (ppm ±1SE) oriented with increasing distance from upgradient wells.

Given the extremely high iron levels on this site, the iron-fouling (Fe precipitate) problems noted by SMC are not unusual. SMC indicates that pump efficiency has not been affected.

In order to compare iron levels within upgradient control well MW-7 and wells that could potentially be impacted by landfill leachate, TRC used a parametric *t*-test for independent samples to confirm some of the statistically significant inter-well relationships SMC observed. Specifically iron levels were assessed between wells MW-7 and MW-10; wells MW-7 and BH-7; and wells MW-7 and MW-3. Raw data were first subjected to the non-parametric Kolmogorov-Smirnov *D*-test as a test for normality. Data were transformed in accordance with the distribution pattern reported by the *D*-test.

Based upon the results of the comparison with the control well MW-7, mean iron levels are consistently and significantly higher in the downgradient wells (Table 2-4).

Table 2-4. Assessment of statistically significant differences in iron levels between upgradient control well MW-7 and landfill compliance wells MW-10, BH-7, and MW-3. All reported significance levels are non-directional*. N=number of samples; NS denotes non-significance.

Well Pairs	Data Distribution Pattern	Transformation	Mean	Standard Error	*t*-Statistic	*p*-value*	*SMC Result*
PAIR I MW-7 vs. MW-10							
MW-7	lognormal	Log (x)	3.52	0.161	-4.74	<0.0001 [c]	Impacted
MW-10	lognormal	Log (x)	4.33	0.038			
PAIR II MW-7 vs. BH-7							
MW-7	lognormal	Log (x)	3.52	0.161	-7.13	<0.0001 [c]	Impacted
BH-7	lognormal	Log (x)	4.71	0.013			

Well Pairs	Data Distribution Pattern	Transformation	Mean	Standard Error	*t*-Statistic	*p*-value*	*SMC Result*
PAIR III MW-7 vs. MW-3							
MW-7	lognormal	Log (x)	3.52	0.161	-7.74	<0.0001 [c]	Impacted
MW-3	lognormal	Log (x)	4.82	0.014			

*Testing of a non-directional hypothesis makes no assumptions about the direction of the correlation relationship. That is, no assumptions are made about the positive or negative relationship between a given set of variables.

These statistically significant results are consistent with the parametric tolerance interval analysis conducted by SMC and suggest that remote wells may be impacted by landfill leachate.

2.6 Spatial Trend in the Distribution of Benzene

It would informative to understand general spatial trends in well data (i.e. the mean (+/-1SE) of contaminants within different portions of the site, i.e. upgradient versus downgradient. In order to achieve this, benzene data were pooled within compliance wells within four equally spaced "bands" oriented perpendicular to the approximate groundwater flow vector (all less than values were converted to one-half the detection limit of 1). This resulted in a cluster of upgradient wells (MP-2A, MP-2B, MP-9, BH-2, BH-8, and MW-9); mid-gradient wells (B-5, MW-4C, MW-10, BH-7, and MW-3); downgradient wells (OW-1, OW-2, OW-5, PW-1, and MW-12S); and finally downgradient remote wells (OW-3, MW-13, MW-14, and MP-11A). Within each band, mean benzene values (± 1 Standard Error) were calculated and the results are presented in Figure 2-1.

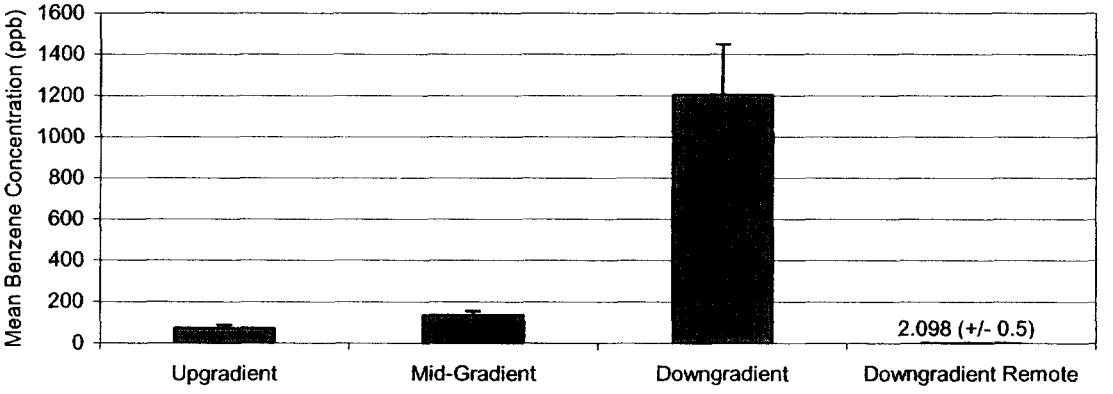


Figure 2-6. Comparison of mean benzene concentrations (ppb ±1SE) oriented along an approximate hydraulic gradient.

As is clear from the graph, benzene concentrations are the highest within those wells that constitute the hot zone as identified by SMC. More importantly however, the data for the downgradient remote wells indicate that the landfill cap integrity has been maintained and appears to be functioning as designed.

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: OW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	360	11000	10640	0.4886	5198.7
2	770	11000	10230	0.3253	3327.82
3	3000	7000	4000	0.2553	1021.2
4	3200	6000	2800	0.2027	567.56
5	3900	5800	1900	0.1587	301.53
6	4500	5600	1100	0.1197	131.67
7	4600	5600	1000	0.0837	83.7
8	4600	5500	900	0.0496	44.64
9	4800	5100	300	0.0163	4.89
10	5100	4800	-300		
11	5500	4600	-900		
12	5600	4600	-1000		
13	5600	4500	-1100		
14	5800	3900	-1900		
15	6000	3200	-2800		
16	7000	3000	-4000		
17	11000	770	-10230		
18	11000	360	-10640		

Sum of b values = 10681.7
Sample Standard Deviation = 2731.09
W Statistic = 0.899828
5% Critical value of 0.897 is less than 0.899828
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.899828
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: OW-5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	8	370	362	0.4886	176.873
2	10	330	320	0.3253	104.096
3	11	320	309	0.2553	78.8877
4	12	240	228	0.2027	46.2156
5	13	210	197	0.1587	31.2639
6	22	180	158	0.1197	18.9126
7	39	142	103	0.0837	8.6211
8	65	110	45	0.0496	2.232
9	68	100	32	0.0163	0.5216
10	100	68	-32		
11	110	65	-45		
12	142	39	-103		
13	180	22	-158		
14	210	13	-197		
15	240	12	-228		
16	320	11	-309		
17	330	10	-320		
18	370	8	-362		

Sum of b values = 467.624
Sample Standard Deviation = 122.418
W Statistic = 0.858325
5% Critical value of 0.897 exceeds 0.858325
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.858325
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: PW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0	1500	1500	0.4886	732.9
2	5	1300	1295	0.3253	421.263
3	220	1300	1080	0.2553	275.724
4	380	1100	720	0.2027	145.944
5	500	1000	500	0.1587	79.35
6	510	850	340	0.1197	40.698
7	530	710	180	0.0837	15.066
8	640	700	60	0.0496	2.976
9	640	650	10	0.0163	0.163
10	650	640	-10		
11	700	640	-60		
12	710	530	-180		
13	850	510	-340		
14	1000	500	-500		
15	1100	380	-720		
16	1300	220	-1080		
17	1300	5	-1295		
18	1500	0	-1500		

Sum of b values = 1714.08
Sample Standard Deviation = 423.771
W Statistic = 0.962395
5% Critical value of 0.897 is less than 0.962395
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.962395
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: OW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	24	23.5	0.4886	11.4821
2	0.5	10	9.5	0.3253	3.09035
3	2	7	5	0.2553	1.2765
4	2	5	3	0.2027	0.6081
5	2	5	3	0.1587	0.4761
6	4	5	1	0.1197	0.1197
7	4	5	1	0.0837	0.0837
8	4	5	1	0.0496	0.0496
9	5	5	0	0.0163	0
10	5	5	0		
11	5	4	-1		
12	5	4	-1		
13	5	4	-1		
14	5	2	-3		
15	5	2	-3		
16	7	2	-5		
17	10	0.5	-9.5		
18	24	0.5	-23.5		

Sum of b values = 17.1862
Sample Standard Deviation = 5.19678
W Statistic = 0.643338
5% Critical value of 0.897 exceeds 0.643338
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.643338
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: OW-2

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.693147	3.17805	3.8712	0.4886	1.89147
2	-0.693147	2.30259	2.99573	0.3253	0.974512
3	0.693147	1.94591	1.25276	0.2553	0.31983
4	0.693147	1.60944	0.916291	0.2027	0.185732
5	0.693147	1.60944	0.916291	0.1587	0.145415
6	1.38629	1.60944	0.223144	0.1197	0.0267103
7	1.38629	1.60944	0.223144	0.0837	0.0186771
8	1.38629	1.60944	0.223144	0.0496	0.0110679
9	1.60944	1.60944	0	0.0163	0
10	1.60944	1.60944	0		
11	1.60944	1.38629	-0.223144		
12	1.60944	1.38629	-0.223144		
13	1.60944	1.38629	-0.223144		
14	1.60944	0.693147	-0.916291		
15	1.60944	0.693147	-0.916291		
16	1.94591	0.693147	-1.25276		
17	2.30259	-0.693147	-2.99573		
18	3.17805	-0.693147	-3.8712		

Sum of b values = 3.57341
Sample Standard Deviation = 0.92961
W Statistic = 0.869192
5% Critical value of 0.897 exceeds 0.869192
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.869192
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: OW-2

Normality Test of Parameter Concentrations

Log Base 10 Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.30103	1.38021	1.68124	0.4886	0.821454
2	-0.30103	1	1.30103	0.3253	0.423225
3	0.30103	0.845098	0.544068	0.2553	0.138901
4	0.30103	0.69897	0.39794	0.2027	0.0806624
5	0.30103	0.69897	0.39794	0.1587	0.0631531
6	0.60206	0.69897	0.09691	0.1197	0.0116001
7	0.60206	0.69897	0.09691	0.0837	0.00811137
8	0.60206	0.69897	0.09691	0.0496	0.00480674
9	0.69897	0.69897	0	0.0163	0
10	0.69897	0.69897	0		
11	0.69897	0.60206	-0.09691		
12	0.69897	0.60206	-0.09691		
13	0.69897	0.60206	-0.09691		
14	0.69897	0.30103	-0.39794		
15	0.69897	0.30103	-0.39794		
16	0.845098	0.30103	-0.544068		
17	1	-0.30103	-1.30103		
18	1.38021	-0.30103	-1.68124		

Sum of b values = 1.55191
Sample Standard Deviation = 0.403725
W Statistic = 0.869192
5% Critical value of 0.897 exceeds 0.869192
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.869192
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: OW-5

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	2.07944	5.9135	3.83406	0.4886	1.87332
2	2.30259	5.79909	3.49651	0.3253	1.13741
3	2.3979	5.76832	3.37043	0.2553	0.86047
4	2.48491	5.48064	2.99573	0.2027	0.607235
5	2.56495	5.34711	2.78216	0.1587	0.441529
6	3.09104	5.19296	2.10191	0.1197	0.251599
7	3.66356	4.95583	1.29227	0.0837	0.108163
8	4.17439	4.70048	0.526093	0.0496	0.0260942
9	4.21951	4.60517	0.385662	0.0163	0.0062863
10	4.60517	4.21951	-0.385662		
11	4.70048	4.17439	-0.526093		
12	4.95583	3.66356	-1.29227		
13	5.19296	3.09104	-2.10191		
14	5.34711	2.56495	-2.78216		
15	5.48064	2.48491	-2.99573		
16	5.76832	2.3979	-3.37043		
17	5.79909	2.30259	-3.49651		
18	5.9135	2.07944	-3.83406		

Sum of b values = 5.31211
Sample Standard Deviation = 1.35728
W Statistic = 0.901041
5% Critical value of 0.897 is less than 0.901041
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.901041
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: BH-7

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	31	680	649	0.4886	317.101
2	55	440	385	0.3253	125.241
3	230	400	170	0.2553	43.401
4	230	390	160	0.2027	32.432
5	240	360	120	0.1587	19.044
6	240	340	100	0.1197	11.97
7	240	310	70	0.0837	5.859
8	250	290	40	0.0496	1.984
9	290	290	0	0.0163	0
10	290	290	0		
11	290	250	-40		
12	310	240	-70		
13	340	240	-100		
14	360	240	-120		
15	390	230	-160		
16	400	230	-170		
17	440	55	-385		
18	680	31	-649		

Sum of b values = 557.032
Sample Standard Deviation = 141.981
W Statistic = 0.905424
5% Critical value of 0.897 is less than 0.905424
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.905424
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: BH-8

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	160	700	540	0.4886	263.844
2	200	620	420	0.3253	136.626
3	220	480	260	0.2553	66.378
4	280	450	170	0.2027	34.459
5	280	430	150	0.1587	23.805
6	310	420	110	0.1197	13.167
7	310	360	50	0.0837	4.185
8	320	350	30	0.0496	1.488
9	330	330	0	0.0163	0
10	330	330	0		
11	350	320	-30		
12	360	310	-50		
13	420	310	-110		
14	430	280	-150		
15	450	280	-170		
16	480	220	-260		
17	620	200	-420		
18	700	160	-540		

Sum of b values = 543.952
Sample Standard Deviation = 137.291
W Statistic = 0.923402
5% Critical value of 0.897 is less than 0.923402
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.923402
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: MW-3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	590	589.5	0.4886	288.03
2	5	520	515	0.3253	167.529
3	190	510	320	0.2553	81.696
4	220	480	260	0.2027	52.702
5	250	480	230	0.1587	36.501
6	260	470	210	0.1197	25.137
7	310	390	80	0.0837	6.696
8	320	390	70	0.0496	3.472
9	380	390	10	0.0163	0.163
10	390	380	-10		
11	390	320	-70		
12	390	310	-80		
13	470	260	-210		
14	480	250	-230		
15	480	220	-260		
16	510	190	-320		
17	520	5	-515		
18	590	0.5	-589.5		

Sum of b values = 661.926
Sample Standard Deviation = 166.117
W Statistic = 0.933984
5% Critical value of 0.897 is less than 0.933984
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.933984
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: MW-10

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	28	27.5	0.4886	13.4365
2	0.5	6	5.5	0.3253	1.78915
3	0.5	1	0.5	0.2553	0.12765
4	0.5	0.5	0	0.2027	0
5	0.5	0.5	0	0.1587	0
6	0.5	0.5	0	0.1197	0
7	0.5	0.5	0	0.0837	0
8	0.5	0.5	0	0.0496	0
9	0.5	0.5	0	0.0163	0
10	0.5	0.5	0		
11	0.5	0.5	0		
12	0.5	0.5	0		
13	0.5	0.5	0		
14	0.5	0.5	0		
15	0.5	0.5	0		
16	1	0.5	-0.5		
17	6	0.5	-5.5		
18	28	0.5	-27.5		

Sum of b values = 15.3533
Sample Standard Deviation = 6.52778
W Statistic = 0.325404
5% Critical value of 0.897 exceeds 0.325404
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.325404
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: MW-10

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.693147	3.3322	4.02535	0.4886	1.96679
2	-0.693147	1.79176	2.48491	0.3253	0.80834
3	-0.693147	0	0.693147	0.2553	0.17696
4	-0.693147	-0.693147	0	0.2027	0
5	-0.693147	-0.693147	0	0.1587	0
6	-0.693147	-0.693147	0	0.1197	0
7	-0.693147	-0.693147	0	0.0837	0
8	-0.693147	-0.693147	0	0.0496	0
9	-0.693147	-0.693147	0	0.0163	0
10	-0.693147	-0.693147	0		
11	-0.693147	-0.693147	0		
12	-0.693147	-0.693147	0		
13	-0.693147	-0.693147	0		
14	-0.693147	-0.693147	0		
15	-0.693147	-0.693147	0		
16	0	-0.693147	-0.693147		
17	1.79176	-0.693147	-2.48491		
18	3.3322	-0.693147	-4.02535		

Sum of b values = 2.95209
Sample Standard Deviation = 1.084
W Statistic = 0.436266
5% Critical value of 0.897 exceeds 0.436266
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.436266
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: MW-10

Normality Test of Parameter Concentrations

Log Base 10 Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.30103	1.44716	1.74819	0.4886	0.854165
2	-0.30103	0.778151	1.07918	0.3253	0.351058
3	-0.30103	0	0.30103	0.2553	0.076853
4	-0.30103	-0.30103	0	0.2027	0
5	-0.30103	-0.30103	0	0.1587	0
6	-0.30103	-0.30103	0	0.1197	0
7	-0.30103	-0.30103	0	0.0837	0
8	-0.30103	-0.30103	0	0.0496	0
9	-0.30103	-0.30103	0	0.0163	0
10	-0.30103	-0.30103	0		
11	-0.30103	-0.30103	0		
12	-0.30103	-0.30103	0		
13	-0.30103	-0.30103	0		
14	-0.30103	-0.30103	0		
15	-0.30103	-0.30103	0		
16	0	-0.30103	-0.30103		
17	0.778151	-0.30103	-1.07918		
18	1.44716	-0.30103	-1.74819		

Sum of b values = 1.28208
Sample Standard Deviation = 0.470775
W Statistic = 0.436266
5% Critical value of 0.897 exceeds 0.436266
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.436266
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: MW-10

Normality Test of Parameter Concentrations

Square Root Tranformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.707107	5.2915	4.5844	0.4886	2.23994
2	0.707107	2.44949	1.74238	0.3253	0.566797
3	0.707107	1	0.292893	0.2553	0.0747756
4	0.707107	0.707107	0	0.2027	0
5	0.707107	0.707107	0	0.1587	0
6	0.707107	0.707107	0	0.1197	0
7	0.707107	0.707107	0	0.0837	0
8	0.707107	0.707107	0	0.0496	0
9	0.707107	0.707107	0	0.0163	0
10	0.707107	0.707107	0		
11	0.707107	0.707107	0		
12	0.707107	0.707107	0		
13	0.707107	0.707107	0		
14	0.707107	0.707107	0		
15	0.707107	0.707107	0		
16	1	0.707107	-0.292893		
17	2.44949	0.707107	-1.74238		
18	5.2915	0.707107	-4.5844		

Sum of b values = 2.88151
Sample Standard Deviation = 1.12991
W Statistic = 0.382562
5% Critical value of 0.897 exceeds 0.382562
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.382562
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: MW-10

Normality Test of Parameter Concentrations

Cube Root Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1	3.03659	2.03659	0.4886	0.995077
2	1	1.81712	0.817121	0.3253	0.265809
3	1	1	0	0.2553	0
4	1	1	0	0.2027	0
5	1	1	0	0.1587	0
6	1	1	0	0.1197	0
7	1	1	0	0.0837	0
8	1	1	0	0.0496	0
9	1	1	0	0.0163	0
10	1	1	0		
11	1	1	0		
12	1	1	0		
13	1	1	0		
14	1	1	0		
15	1	1	0		
16	1	1	0		
17	1.81712	1	-0.817121		
18	3.03659	1	-2.03659		

Sum of b values = 1.26089
Sample Standard Deviation = 0.506601
W Statistic = 0.364394
5% Critical value of 0.897 exceeds 0.364394
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.364394
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: BH-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 17

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	29	28.5	0.4968	14.1588
2	1	27	26	0.3273	8.5098
3	10	24	14	0.254	3.556
4	12	24	12	0.1988	2.3856
5	14	22	8	0.1524	1.2192
6	14	21	7	0.1109	0.7763
7	16	20	4	0.0725	0.29
8	18	19	1	0.0359	0.0359
9	18	18	0		
10	19	18	-1		
11	20	16	-4		
12	21	14	-7		
13	22	14	-8		
14	24	12	-12		
15	24	10	-14		
16	27	1	-26		
17	29	0.5	-28.5		

Sum of b values = 30.9316
Sample Standard Deviation = 7.98137
W Statistic = 0.938708
5% Critical value of 0.892 is less than 0.938708
Data is normally distributed at 95% level of significance
1% Critical value of 0.851 is less than 0.938708
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: MP-9

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	48	47.5	0.5056	24.016
2	1	46	45	0.329	14.805
3	2	32	30	0.2521	7.563
4	2	20	18	0.1939	3.4902
5	3	11	8	0.1447	1.1576
6	4	11	7	0.1005	0.7035
7	4	10	6	0.0593	0.3558
8	6	9	3	0.0196	0.0588
9	9	6	-3		
10	10	4	-6		
11	11	4	-7		
12	11	3	-8		
13	20	2	-18		
14	32	2	-30		
15	46	1	-45		
16	48	0.5	-47.5		

Sum of b values = 52.1499
Sample Standard Deviation = 15.5137
W Statistic = 0.753332
5% Critical value of 0.887 exceeds 0.753332
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.753332
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Benzene

Well: MP-9

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.693147	3.8712	4.56435	0.5056	2.30773
2	0	3.82864	3.82864	0.329	1.25962
3	0.693147	3.46574	2.77259	0.2521	0.69897
4	0.693147	2.99573	2.30259	0.1939	0.446471
5	1.09861	2.3979	1.29928	0.1447	0.188006
6	1.38629	2.3979	1.0116	0.1005	0.101666
7	1.38629	2.30259	0.916291	0.0593	0.054336
8	1.79176	2.19722	0.405465	0.0196	0.00794712
9	2.19722	1.79176	-0.405465		
10	2.30259	1.38629	-0.916291		
11	2.3979	1.38629	-1.0116		
12	2.3979	1.09861	-1.29928		
13	2.99573	0.693147	-2.30259		
14	3.46574	0.693147	-2.77259		
15	3.82864	0	-3.82864		
16	3.8712	-0.693147	-4.56435		

Sum of b values = 5.06475
Sample Standard Deviation = 1.32693
W Statistic = 0.971242
5% Critical value of 0.887 is less than 0.971242
Data is normally distributed at 95% level of significance
1% Critical value of 0.844 is less than 0.971242
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: 1,1-Dichloroethene

Well: OW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	125	124.5	0.4886	60.8307
2	0.5	50	49.5	0.3253	16.1023
3	0.5	25	24.5	0.2553	6.25485
4	0.5	17	16.5	0.2027	3.34455
5	0.5	16	15.5	0.1587	2.45985
6	0.5	15	14.5	0.1197	1.73565
7	5	12.5	7.5	0.0837	0.62775
8	5	12.5	7.5	0.0496	0.372
9	5	5	0	0.0163	0
10	5	5	0		
11	12.5	5	-7.5		
12	12.5	5	-7.5		
13	15	0.5	-14.5		
14	16	0.5	-15.5		
15	17	0.5	-16.5		
16	25	0.5	-24.5		
17	50	0.5	-49.5		
18	125	0.5	-124.5		

Sum of b values = 91.7277
Sample Standard Deviation = 29.7701
W Statistic = 0.558458
5% Critical value of 0.897 exceeds 0.558458
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.558458
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: 1,1-Dichloroethene

Well: OW-1

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.693147	4.82831	5.52146	0.4886	2.69779
2	-0.693147	3.91202	4.60517	0.3253	1.49806
3	-0.693147	3.21888	3.91202	0.2553	0.998739
4	-0.693147	2.83321	3.52636	0.2027	0.714793
5	-0.693147	2.77259	3.46574	0.1587	0.550012
6	-0.693147	2.70805	3.4012	0.1197	0.407123
7	1.60944	2.52573	0.916291	0.0837	0.0766935
8	1.60944	2.52573	0.916291	0.0496	0.045448
9	1.60944	1.60944	0	0.0163	0
10	1.60944	1.60944	0		
11	2.52573	1.60944	-0.916291		
12	2.52573	1.60944	-0.916291		
13	2.70805	-0.693147	-3.4012		
14	2.77259	-0.693147	-3.46574		
15	2.83321	-0.693147	-3.52636		
16	3.21888	-0.693147	-3.91202		
17	3.91202	-0.693147	-4.60517		
18	4.82831	-0.693147	-5.52146		

Sum of b values = 6.98866
Sample Standard Deviation = 1.81006
W Statistic = 0.876901
5% Critical value of 0.897 exceeds 0.876901
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.876901
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: 1,1-Dichloroethene

Well: OW-1

Normality Test of Parameter Concentrations

Log Base 10 Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.30103	2.09691	2.39794	0.4886	1.17163
2	-0.30103	1.69897	2	0.3253	0.6506
3	-0.30103	1.39794	1.69897	0.2553	0.433747
4	-0.30103	1.23045	1.53148	0.2027	0.310431
5	-0.30103	1.20412	1.50515	0.1587	0.238867
6	-0.30103	1.17609	1.47712	0.1197	0.176811
7	0.69897	1.09691	0.39794	0.0837	0.0333076
8	0.69897	1.09691	0.39794	0.0496	0.0197378
9	0.69897	0.69897	0	0.0163	0
10	0.69897	0.69897	0		
11	1.09691	0.69897	-0.39794		
12	1.09691	0.69897	-0.39794		
13	1.17609	-0.30103	-1.47712		
14	1.20412	-0.30103	-1.50515		
15	1.23045	-0.30103	-1.53148		
16	1.39794	-0.30103	-1.69897		
17	1.69897	-0.30103	-2		
18	2.09691	-0.30103	-2.39794		

Sum of b values = 3.03514
Sample Standard Deviation = 0.786101
W Statistic = 0.876901
5% Critical value of 0.897 exceeds 0.876901
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.876901
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: 1,1-Dichloroethene

Well: PW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	18	17.5	0.4886	8.5505
2	0.5	17	16.5	0.3253	5.36745
3	0.5	12.5	12	0.2553	3.0636
4	0.5	10	9.5	0.2027	1.92565
5	0.5	8	7.5	0.1587	1.19025
6	0.5	7	6.5	0.1197	0.77805
7	0.5	5	4.5	0.0837	0.37665
8	0.5	5	4.5	0.0496	0.2232
9	2.5	5	2.5	0.0163	0.04075
10	5	2.5	-2.5		
11	5	0.5	-4.5		
12	5	0.5	-4.5		
13	7	0.5	-6.5		
14	8	0.5	-7.5		
15	10	0.5	-9.5		
16	12.5	0.5	-12		
17	17	0.5	-16.5		
18	18	0.5	-17.5		

Sum of b values = 21.5161
Sample Standard Deviation = 5.81383
W Statistic = 0.805662
5% Critical value of 0.897 exceeds 0.805662
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.805662
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: 1,1-Dichloroethene

Well: PW-1

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.693147	2.89037	3.58352	0.4886	1.75091
2	-0.693147	2.83321	3.52636	0.3253	1.14713
3	-0.693147	2.52573	3.21888	0.2553	0.821779
4	-0.693147	2.30259	2.99573	0.2027	0.607235
5	-0.693147	2.07944	2.77259	0.1587	0.44001
6	-0.693147	1.94591	2.63906	0.1197	0.315895
7	-0.693147	1.60944	2.30259	0.0837	0.192726
8	-0.693147	1.60944	2.30259	0.0496	0.114208
9	0.916291	1.60944	0.693147	0.0163	0.0112983
10	1.60944	0.916291	-0.693147		
11	1.60944	-0.693147	-2.30259		
12	1.60944	-0.693147	-2.30259		
13	1.94591	-0.693147	-2.63906		
14	2.07944	-0.693147	-2.77259		
15	2.30259	-0.693147	-2.99573		
16	2.52573	-0.693147	-3.21888		
17	2.83321	-0.693147	-3.52636		
18	2.89037	-0.693147	-3.58352		

Sum of b values = 5.40118
Sample Standard Deviation = 1.46522
W Statistic = 0.799327
5% Critical value of 0.897 exceeds 0.799327
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.799327
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: 1,1-Dichloroethene

Well: OW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	125	124.5	0.4886	60.8307
2	0.5	50	49.5	0.3253	16.1023
3	0.5	25	24.5	0.2553	6.25485
4	0.5	17	16.5	0.2027	3.34455
5	0.5	16	15.5	0.1587	2.45985
6	0.5	15	14.5	0.1197	1.73565
7	5	12.5	7.5	0.0837	0.62775
8	5	12.5	7.5	0.0496	0.372
9	5	5	0	0.0163	0
10	5	5	0		
11	12.5	5	-7.5		
12	12.5	5	-7.5		
13	15	0.5	-14.5		
14	16	0.5	-15.5		
15	17	0.5	-16.5		
16	25	0.5	-24.5		
17	50	0.5	-49.5		
18	125	0.5	-124.5		

Sum of b values = 91.7277
Sample Standard Deviation = 29.7701
W Statistic = 0.558458
5% Critical value of 0.897 exceeds 0.558458
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.558458
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: 1,1-Dichloroethene

Well: OW-1

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.693147	4.82831	5.52146	0.4886	2.69779
2	-0.693147	3.91202	4.60517	0.3253	1.49806
3	-0.693147	3.21888	3.91202	0.2553	0.998739
4	-0.693147	2.83321	3.52636	0.2027	0.714793
5	-0.693147	2.77259	3.46574	0.1587	0.550012
6	-0.693147	2.70805	3.4012	0.1197	0.407123
7	1.60944	2.52573	0.916291	0.0837	0.0766935
8	1.60944	2.52573	0.916291	0.0496	0.045448
9	1.60944	1.60944	0	0.0163	0
10	1.60944	1.60944	0		
11	2.52573	1.60944	-0.916291		
12	2.52573	1.60944	-0.916291		
13	2.70805	-0.693147	-3.4012		
14	2.77259	-0.693147	-3.46574		
15	2.83321	-0.693147	-3.52636		
16	3.21888	-0.693147	-3.91202		
17	3.91202	-0.693147	-4.60517		
18	4.82831	-0.693147	-5.52146		

Sum of b values = 6.98866
Sample Standard Deviation = 1.81006
W Statistic = 0.876901
5% Critical value of 0.897 exceeds 0.876901
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.876901
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: 1,1-Dichloroethane

Well: PW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	32	31.5	0.4886	15.3909
2	0.5	20	19.5	0.3253	6.34335
3	0.5	18	17.5	0.2553	4.46775
4	2.5	17	14.5	0.2027	2.93915
5	2.5	17	14.5	0.1587	2.30115
6	5	14	9	0.1197	1.0773
7	5	12.5	7.5	0.0837	0.62775
8	10	10	0	0.0496	0
9	10	10	0	0.0163	0
10	10	10	0		
11	10	10	0		
12	12.5	5	-7.5		
13	14	5	-9		
14	17	2.5	-14.5		
15	17	2.5	-14.5		
16	18	0.5	-17.5		
17	20	0.5	-19.5		
18	32	0.5	-31.5		

Sum of b values = 33.1473
Sample Standard Deviation = 8.3974
W Statistic = 0.916556
5% Critical value of 0.897 is less than 0.916556
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.916556
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: OW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	125	124.5	0.4886	60.8307
2	0.5	50	49.5	0.3253	16.1023
3	0.5	28	27.5	0.2553	7.02075
4	5	25	20	0.2027	4.054
5	5	22	17	0.1587	2.6979
6	10	19	9	0.1197	1.0773
7	11	19	8	0.0837	0.6696
8	12	19	7	0.0496	0.3472
9	12.5	15	2.5	0.0163	0.04075
10	15	12.5	-2.5		
11	19	12	-7		
12	19	11	-8		
13	19	10	-9		
14	22	5	-17		
15	25	5	-20		
16	28	0.5	-27.5		
17	50	0.5	-49.5		
18	125	0.5	-124.5		

Sum of b values = 92.8406
Sample Standard Deviation = 28.613
W Statistic = 0.619299
5% Critical value of 0.897 exceeds 0.619299
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.619299
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: OW-1

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.693147	4.82831	5.52146	0.4886	2.69779
2	-0.693147	3.91202	4.60517	0.3253	1.49806
3	-0.693147	3.3322	4.02535	0.2553	1.02767
4	1.60944	3.21888	1.60944	0.2027	0.326233
5	1.60944	3.09104	1.4816	0.1587	0.235131
6	2.30259	2.94444	0.641854	0.1197	0.0768299
7	2.3979	2.94444	0.546544	0.0837	0.0457457
8	2.48491	2.94444	0.459532	0.0496	0.0227928
9	2.52573	2.70805	0.182322	0.0163	0.00297184
10	2.70805	2.52573	-0.182322		
11	2.94444	2.48491	-0.459532		
12	2.94444	2.3979	-0.546544		
13	2.94444	2.30259	-0.641854		
14	3.09104	1.60944	-1.4816		
15	3.21888	1.60944	-1.60944		
16	3.3322	-0.693147	-4.02535		
17	3.91202	-0.693147	-4.60517		
18	4.82831	-0.693147	-5.52146		

Sum of b values = 5.93322
Sample Standard Deviation = 1.55
W Statistic = 0.861925
5% Critical value of 0.897 exceeds 0.861925
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.861925
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: OW-1

Normality Test of Parameter Concentrations

Log Base 10 Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.30103	2.09691	2.39794	0.4886	1.17163
2	-0.30103	1.69897	2	0.3253	0.6506
3	-0.30103	1.44716	1.74819	0.2553	0.446312
4	0.69897	1.39794	0.69897	0.2027	0.141681
5	0.69897	1.34242	0.643453	0.1587	0.102116
6	1	1.27875	0.278754	0.1197	0.0333668
7	1.04139	1.27875	0.237361	0.0837	0.0198671
8	1.07918	1.27875	0.199572	0.0496	0.00989879
9	1.09691	1.17609	0.0791812	0.0163	0.00129065
10	1.17609	1.09691	-0.0791812		
11	1.27875	1.07918	-0.199572		
12	1.27875	1.04139	-0.237361		
13	1.27875	1	-0.278754		
14	1.34242	0.69897	-0.643453		
15	1.39794	0.69897	-0.69897		
16	1.44716	-0.30103	-1.74819		
17	1.69897	-0.30103	-2		
18	2.09691	-0.30103	-2.39794		

Sum of b values = 2.57677
Sample Standard Deviation = 0.673156
W Statistic = 0.861925
5% Critical value of 0.897 exceeds 0.861925
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.861925
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: OW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	13	12.5	0.4886	6.1075
2	0.5	11	10.5	0.3253	3.41565
3	0.5	9	8.5	0.2553	2.17005
4	2	8	6	0.2027	1.2162
5	3	7	4	0.1587	0.6348
6	4	7	3	0.1197	0.3591
7	5	7	2	0.0837	0.1674
8	5	6	1	0.0496	0.0496
9	5	5	0	0.0163	0
10	5	5	0		
11	6	5	-1		
12	7	5	-2		
13	7	4	-3		
14	7	3	-4		
15	8	2	-6		
16	9	0.5	-8.5		
17	11	0.5	-10.5		
18	13	0.5	-12.5		

Sum of b values = 14.1203
Sample Standard Deviation = 3.50408
W Statistic = 0.955191
5% Critical value of 0.897 is less than 0.955191
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.955191
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: BH-7

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	24	280	256	0.4886	125.082
2	96	270	174	0.3253	56.6022
3	110	270	160	0.2553	40.848
4	150	250	100	0.2027	20.27
5	150	220	70	0.1587	11.109
6	170	210	40	0.1197	4.788
7	180	200	20	0.0837	1.674
8	190	200	10	0.0496	0.496
9	190	200	10	0.0163	0.163
10	200	190	-10		
11	200	190	-10		
12	200	180	-20		
13	210	170	-40		
14	220	150	-70		
15	250	150	-100		
16	270	110	-160		
17	270	96	-174		
18	280	24	-256		

Sum of b values = 261.032
Sample Standard Deviation = 65.2561
W Statistic = 0.941231
5% Critical value of 0.897 is less than 0.941231
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.941231
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: BH-8

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5	40	35	0.4886	17.101
2	5	21	16	0.3253	5.2048
3	7	21	14	0.2553	3.5742
4	9	20	11	0.2027	2.2297
5	10	18	8	0.1587	1.2696
6	11	18	7	0.1197	0.8379
7	12	16	4	0.0837	0.3348
8	13	14	1	0.0496	0.0496
9	14	14	0	0.0163	0
10	14	14	0		
11	14	13	-1		
12	16	12	-4		
13	18	11	-7		
14	18	10	-8		
15	20	9	-11		
16	21	7	-14		
17	21	5	-16		
18	40	5	-35		

Sum of b values = 30.6016
Sample Standard Deviation = 8.03587
W Statistic = 0.853049
5% Critical value of 0.897 exceeds 0.853049
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.853049
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: BH-8

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.60944	3.68888	2.07944	0.4886	1.01602
2	1.60944	3.04452	1.43508	0.3253	0.466833
3	1.94591	3.04452	1.09861	0.2553	0.280476
4	2.19722	2.99573	0.798508	0.2027	0.161858
5	2.30259	2.89037	0.587787	0.1587	0.0932817
6	2.3979	2.89037	0.492476	0.1197	0.0589494
7	2.48491	2.77259	0.287682	0.0837	0.024079
8	2.56495	2.63906	0.074108	0.0496	0.00367576
9	2.63906	2.63906	0	0.0163	0
10	2.63906	2.63906	0		
11	2.63906	2.56495	-0.074108		
12	2.77259	2.48491	-0.287682		
13	2.89037	2.3979	-0.492476		
14	2.89037	2.30259	-0.587787		
15	2.99573	2.19722	-0.798508		
16	3.04452	1.94591	-1.09861		
17	3.04452	1.60944	-1.43508		
18	3.68888	1.60944	-2.07944		

Sum of b values = 2.10517
Sample Standard Deviation = 0.521637
W Statistic = 0.958047
5% Critical value of 0.897 is less than 0.958047
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.958047
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: MW-3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	220	219.5	0.4886	107.248
2	68	200	132	0.3253	42.9396
3	100	180	80	0.2553	20.424
4	110	160	50	0.2027	10.135
5	120	150	30	0.1587	4.761
6	120	140	20	0.1197	2.394
7	120	140	20	0.0837	1.674
8	120	130	10	0.0496	0.496
9	130	130	0	0.0163	0
10	130	130	0		
11	130	120	-10		
12	140	120	-20		
13	140	120	-20		
14	150	120	-30		
15	160	110	-50		
16	180	100	-80		
17	200	68	-132		
18	220	0.5	-219.5		

Sum of b values = 190.071
Sample Standard Deviation = 48.0895
W Statistic = 0.918934
5% Critical value of 0.897 is less than 0.918934
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.918934
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: PW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	55	54.5	0.4886	26.6287
2	4	48	44	0.3253	14.3132
3	10	46	36	0.2553	9.1908
4	26	45	19	0.2027	3.8513
5	28	40	12	0.1587	1.9044
6	29	37	8	0.1197	0.9576
7	29	35	6	0.0837	0.5022
8	31	35	4	0.0496	0.1984
9	31	32	1	0.0163	0.0163
10	32	31	-1		
11	35	31	-4		
12	35	29	-6		
13	37	29	-8		
14	40	28	-12		
15	45	26	-19		
16	46	10	-36		
17	48	4	-44		
18	55	0.5	-54.5		

Sum of b values = 57.5629
Sample Standard Deviation = 14.5067
W Statistic = 0.926184
5% Critical value of 0.897 is less than 0.926184
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.926184
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: BH-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 17

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	14	13.5	0.4968	6.7068
2	0.5	14	13.5	0.3273	4.41855
3	0.5	13	12.5	0.254	3.175
4	0.5	13	12.5	0.1988	2.485
5	3	13	10	0.1524	1.524
6	7	12	5	0.1109	0.5545
7	8	11	3	0.0725	0.2175
8	8	11	3	0.0359	0.1077
9	9	9	0		
10	11	8	-3		
11	11	8	-3		
12	12	7	-5		
13	13	3	-10		
14	13	0.5	-12.5		
15	13	0.5	-12.5		
16	14	0.5	-13.5		
17	14	0.5	-13.5		

Sum of b values = 19.1891
Sample Standard Deviation = 5.20075
W Statistic = 0.850854
5% Critical value of 0.892 exceeds 0.850854
Evidence of non-normality at 95% level of significance
1% Critical value of 0.851 exceeds 0.850854
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chlorobenzene

Well: BH-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 17

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	14	13.5	0.4968	6.7068
2	0.5	14	13.5	0.3273	4.41855
3	0.5	13	12.5	0.254	3.175
4	0.5	13	12.5	0.1988	2.485
5	3	13	10	0.1524	1.524
6	7	12	5	0.1109	0.5545
7	8	11	3	0.0725	0.2175
8	8	11	3	0.0359	0.1077
9	9	9	0		
10	11	8	-3		
11	11	8	-3		
12	12	7	-5		
13	13	3	-10		
14	13	0.5	-12.5		
15	13	0.5	-12.5		
16	14	0.5	-13.5		
17	14	0.5	-13.5		

Sum of b values = 19.1891
Sample Standard Deviation = 5.20075
W Statistic = 0.850854
5% Critical value of 0.892 exceeds 0.850854
Evidence of non-normality at 95% level of significance
1% Critical value of 0.851 exceeds 0.850854
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Tetrachloroethene

Well: OW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	250	249.5	0.4886	121.906
2	0.5	125	124.5	0.3253	40.4998
3	1	120	119	0.2553	30.3807
4	5	95	90	0.2027	18.243
5	25	88	63	0.1587	9.9981
6	46	82	36	0.1197	4.3092
7	57	72	15	0.0837	1.2555
8	61	69	8	0.0496	0.3968
9	63	69	6	0.0163	0.0978
10	69	63	-6		
11	69	61	-8		
12	72	57	-15		
13	82	46	-36		
14	88	25	-63		
15	95	5	-90		
16	120	1	-119		
17	125	0.5	-124.5		
18	250	0.5	-249.5		

Sum of b values = 227.087
Sample Standard Deviation = 59.6643
W Statistic = 0.852128
5% Critical value of 0.897 exceeds 0.852128
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.852128
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Tetrachloroethene

Well: OW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	250	249.5	0.4886	121.906
2	0.5	125	124.5	0.3253	40.4998
3	1	120	119	0.2553	30.3807
4	5	95	90	0.2027	18.243
5	25	88	63	0.1587	9.9981
6	46	82	36	0.1197	4.3092
7	57	72	15	0.0837	1.2555
8	61	69	8	0.0496	0.3968
9	63	69	6	0.0163	0.0978
10	69	63	-6		
11	69	61	-8		
12	72	57	-15		
13	82	46	-36		
14	88	25	-63		
15	95	5	-90		
16	120	1	-119		
17	125	0.5	-124.5		
18	250	0.5	-249.5		

Sum of b values = 227.087
Sample Standard Deviation = 59.6643
W Statistic = 0.852128
5% Critical value of 0.897 exceeds 0.852128
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.852128
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Vinyl chloride

Well: OW-1

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 7; Samples = 15

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.693147	5.52146	6.21461	0.515	3.20052
2	0	4.60517	4.60517	0.3306	1.52247
3	2.30259	4.49981	2.19722	0.2495	0.548208
4	2.30259	3.91202	1.60944	0.1878	0.302252
5	2.3979	3.55535	1.15745	0.1353	0.156603
6	2.3979	3.29584	0.897942	0.088	0.0790189
7	3.13549	3.21888	0.0833816	0.0433	0.00361042
8	3.17805	3.17805	0		
9	3.21888	3.13549	-0.0833816		
10	3.29584	2.3979	-0.897942		
11	3.55535	2.3979	-1.15745		
12	3.91202	2.30259	-1.60944		
13	4.49981	2.30259	-2.19722		
14	4.60517	0	-4.60517		
15	5.52146	-0.693147	-6.21461		

Sum of b values = 5.81269
Sample Standard Deviation = 1.61956
W Statistic = 0.920097
5% Critical value of 0.881 is less than 0.920097
Data is normally distributed at 95% level of significance
1% Critical value of 0.835 is less than 0.920097
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Trichloroethene

Well: OW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	340	339.5	0.4886	165.88
2	0.5	140	139.5	0.3253	45.3793
3	12.5	140	127.5	0.2553	32.5508
4	25	125	100	0.2027	20.27
5	65	120	55	0.1587	8.7285
6	67	120	53	0.1197	6.3441
7	71	110	39	0.0837	3.2643
8	72	95	23	0.0496	1.1408
9	76	76	0	0.0163	0
10	76	76	0		
11	95	72	-23		
12	110	71	-39		
13	120	67	-53		
14	120	65	-55		
15	125	25	-100		
16	140	12.5	-127.5		
17	140	0.5	-139.5		
18	340	0.5	-339.5		

Sum of b values = 283.558
Sample Standard Deviation = 76.4517
W Statistic = 0.809205
5% Critical value of 0.897 exceeds 0.809205
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.809205
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Trichloroethene

Well: PW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	15	14.5	0.4886	7.0847
2	0.5	14	13.5	0.3253	4.39155
3	0.5	13	12.5	0.2553	3.19125
4	5	12.5	7.5	0.2027	1.52025
5	5	12	7	0.1587	1.1109
6	5	12	7	0.1197	0.8379
7	5	10	5	0.0837	0.4185
8	7	10	3	0.0496	0.1488
9	9	10	1	0.0163	0.0163
10	10	9	-1		
11	10	7	-3		
12	10	5	-5		
13	12	5	-7		
14	12	5	-7		
15	12.5	5	-7.5		
16	13	0.5	-12.5		
17	14	0.5	-13.5		
18	15	0.5	-14.5		

Sum of b values = 18.7202
Sample Standard Deviation = 4.73273
W Statistic = 0.920337
5% Critical value of 0.897 is less than 0.920337
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.920337
Data is normally distributed at 99% level of significance

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-1

Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 5168.67 Std Dev = 3001.62
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	360
	6/30/1998	3200
	10/1/1998	11000
	12/7/1998	11000
	3/30/1999	5600
	6/9/1999	6000
	9/29/1999	7000
	12/16/1999	3900
	3/7/2000	5100
	6/7/2000	4600
	9/27/2000	770
	12/12/2000	3000
	3/1/2001	5800
	6/1/2001	4600
	9/1/2001	5600

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	4500	[0, 12484.2]	FALSE
6/1/2002	1	5500	[0, 12484.2]	FALSE
3/1/2002	1	4800	[0, 12484.2]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-5

Parameter: Benzene

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 4.4724 Std Dev = 1.24147
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	5.19296
	6/30/1998	5.48064
	10/1/1998	5.79909
	12/7/1998	5.76832
	3/30/1999	4.60517
	6/9/1999	4.95583
	9/29/1999	4.17439
	12/16/1999	4.21951
	3/8/2000	5.34711
	6/7/2000	3.66356
	9/27/2000	5.9135
	12/12/2000	2.56495
	3/1/2001	2.3979
	6/1/2001	2.30259
	9/1/2001	4.70048

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	3.09104	[0, 7.49813]	FALSE
6/1/2002	1	2.48491	[0, 7.49813]	FALSE
3/1/2002	1	2.07944	[0, 7.49813]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-2

Parameter: Benzene

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 1.20155 Std Dev = 0.976512
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/3/1998	ND<-0.693147
	7/1/1998	1.38629
	10/2/1998	0.693147
	12/7/1998	ND<-0.693147
	3/30/1999	0.693147
	6/9/1999	1.60944
	9/30/1999	3.17805
	12/17/1999	1.38629
	3/8/2000	1.60944
	6/8/2000	1.38629
	9/27/2000	1.60944
	12/12/2000	1.60944
	3/1/2001	0.693147
	6/1/2001	1.94591
	9/1/2001	1.60944

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	1.60944	[0, 3.58151]	FALSE
6/1/2002	1	2.30259	[0, 3.58151]	FALSE
3/1/2002	1	1.60944	[0, 3.58151]	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for OW-2
Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 13.3333%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 15
Maximum Baseline Concentration = 24
Confidence Level = 83.3%
False Positive Rate = 16.7%

Baseline Samples	Date	Result
	4/3/1998	ND<0.5
	7/1/1998	4
	10/2/1998	2
	12/7/1998	ND<0.5
	3/30/1999	2
	6/9/1999	5
	9/30/1999	24
	12/17/1999	4
	3/8/2000	5
	6/8/2000	4
	9/27/2000	5
	12/12/2000	5
	3/1/2001	2
	6/1/2001	7
	9/1/2001	5

Date	Samples	Mean	Impacted
9/1/2002	1	5	FALSE
6/1/2002	1	10	FALSE
3/1/2002	1	5	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for PW-1

Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 733.667 Std Dev = 454.44
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	700
	6/30/1998	640
	10/1/1998	710
	12/7/1998	ND<0
	3/30/1999	220
	6/9/1999	ND<5
	9/29/1999	850
	12/16/1999	1300
	3/8/2000	1100
	6/7/2000	1000
	9/27/2000	1300
	12/12/2000	640
	3/1/2001	1500
	6/1/2001	530
	9/1/2001	510

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	380	[0, 1841.23]	FALSE
6/1/2002	1	650	[0, 1841.23]	FALSE
3/1/2002	1	500	[0, 1841.23]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-8

Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 364 Std Dev = 148.555
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	160
	6/30/1998	350
	10/2/1998	420
	12/9/1998	320
	3/30/1999	220
	6/9/1999	280
	9/29/1999	480
	12/16/1999	330
	3/8/2000	430
	6/7/2000	310
	9/27/2000	700
	12/12/2000	360
	3/1/2001	200
	6/1/2001	280
	9/1/2001	620

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	330	[0, 726.06]	FALSE
6/1/2002	1	450	[0, 726.06]	FALSE
3/1/2002	1	310	[0, 726.06]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-7

Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 301.733 Std Dev = 154.583
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	55
	6/30/1998	240
	10/2/1998	390
	12/9/1998	240
	3/30/1999	440
	6/9/1999	680
	9/28/1999	360
	12/16/1999	400
	3/8/2000	290
	6/7/2000	340
	9/27/2000	230
	12/12/2000	250
	3/1/2001	290
	6/1/2001	290
	9/1/2001	31

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	310	[0, 678.484]	FALSE
6/1/2002	1	240	[0, 678.484]	FALSE
3/1/2002	1	230	[0, 678.484]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-3

Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 352.033 Std Dev = 154.154
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	ND<0.5
	6/30/1998	220
	10/2/1998	310
	12/9/1998	470
	3/30/1999	190
	6/9/1999	320
	9/28/1999	510
	12/16/1999	480
	3/8/2000	590
	6/7/2000	520
	9/27/2000	250
	12/12/2000	260
	3/1/2001	380
	6/1/2001	390
	9/1/2001	390

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	390	[0, 727.739]	FALSE
6/1/2002	1	5	[0, 727.739]	FALSE
3/1/2002	1	480	[0, 727.739]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-2

Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 17.5667 Std Dev = 8.36845
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	7/2/1998	18
	10/1/1998	22
	12/7/1998	ND<0.5
	3/30/1999	24
	6/9/1999	14
	9/30/1999	1
	12/17/1999	18
	3/7/2000	24
	6/8/2000	27
	9/27/2000	16
	12/12/2000	19
	3/1/2001	21
	6/1/2001	20
	9/1/2001	29
	3/1/2002	10

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	14	[0, 37.9624]	FALSE
6/1/2002	1	12	[0, 37.9624]	FALSE
3/1/2002	1	10	[0, 37.9624]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-10

Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 2.36667 Std Dev = 7.09242
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/31/1998	ND<0.5
	6/29/1998	ND<0.5
	10/1/1998	ND<0.5
	12/9/1998	ND<0.5
	3/30/1999	ND<0.5
	6/9/1999	ND<0.5
	9/28/1999	1
	12/15/1999	ND<0.5
	3/9/2000	ND<0.5
	6/7/2000	ND<0.5
	9/27/2000	ND<0.5
	12/12/2000	ND<0.5
	3/1/2001	ND<0.5
	6/1/2001	ND<0.5
	9/1/2001	28

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	6	[0, 19.6524]	FALSE
6/1/2002	1	0.5	[0, 19.6524]	FALSE
3/1/2002	1	0.5	[0, 19.6524]	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW-10
Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 86.6667%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 15
Maximum Baseline Concentration = 28
Confidence Level = 83.3%
False Positive Rate = 16.7%

Baseline Samples	Date	Result
	3/31/1998	ND<0.5
	6/29/1998	ND<0.5
	10/1/1998	ND<0.5
	12/9/1998	ND<0.5
	3/30/1999	ND<0.5
	6/9/1999	ND<0.5
	9/28/1999	1
	12/15/1999	ND<0.5
	3/9/2000	ND<0.5
	6/7/2000	ND<0.5
	9/27/2000	ND<0.5
	12/12/2000	ND<0.5
	3/1/2001	ND<0.5
	6/1/2001	ND<0.5
	9/1/2001	28

Date	Samples	Mean	Impacted
9/1/2002	1	6	FALSE
6/1/2002	1	0.5	FALSE
3/1/2002	1	0.5	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MP-9

Parameter: Benzene

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 1.83403 Std Dev = 1.36814
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	3.8712
	6/30/1998	2.99573
	10/2/1998	1.09861
	12/9/1998	3.82864
	3/30/1999	2.3979
	6/9/1999	1.79176
	9/29/1999	3.46574
	12/17/1999	1.38629
	3/8/2000	0.693147
	6/8/2000	0.693147
	9/27/2000	0
	12/12/2000	1.38629
	3/1/2001	ND<-0.693147
	9/1/2001	2.19722
	3/1/2002	2.3979

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	2.30259	[0, 5.16848]	FALSE
3/1/2002	1	2.3979	[0, 5.16848]	FALSE
9/1/2001	1	2.19722	[0, 5.16848]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-1

Parameter: Chlorobenzene

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 2.23074 Std Dev = 1.67837
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	ND<-0.693147
	6/30/1998	3.3322
	10/1/1998	ND<4.82831
	12/7/1998	ND<3.91202
	3/30/1999	3.09104
	6/9/1999	ND<2.52573
	9/29/1999	ND<1.60944
	12/16/1999	2.30259
	3/7/2000	2.70805
	6/7/2000	2.94444
	9/27/2000	2.94444
	12/12/2000	ND<-0.693147
	3/1/2001	2.3979
	6/1/2001	ND<-0.693147
	9/1/2001	2.94444

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	3.21888	[0, 6.32128]	FALSE
6/1/2002	1	1.60944	[0, 6.32128]	FALSE
3/1/2002	1	2.48491	[0, 6.32128]	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for OW-1
Parameter: Chlorobenzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 46.6667%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 15
Maximum Baseline Concentration = 125
Confidence Level = 83.3%
False Positive Rate = 16.7%

Baseline Samples	Date	Result
	3/30/1998	ND<0.5
	6/30/1998	28
	10/1/1998	ND<125
	12/7/1998	ND<50
	3/30/1999	22
	6/9/1999	ND<12.5
	9/29/1999	ND<5
	12/16/1999	10
	3/7/2000	15
	6/7/2000	19
	9/27/2000	19
	12/12/2000	ND<0.5
	3/1/2001	11
	6/1/2001	ND<0.5
	9/1/2001	19

Date	Samples	Mean	Impacted
9/1/2002	1	25	FALSE
6/1/2002	1	5	FALSE
3/1/2002	1	12	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-2

Parameter: Chlorobenzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 5.1 Std Dev = 3.73784
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/3/1998	ND<0.5
	7/1/1998	7
	10/2/1998	ND<0.5
	12/7/1998	ND<0.5
	3/30/1999	2
	6/9/1999	11
	9/30/1999	13
	12/17/1999	5
	3/8/2000	5
	6/8/2000	5
	9/27/2000	9
	12/12/2000	4
	3/1/2001	3
	6/1/2001	6
	9/1/2001	5

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	8	[0, 14.2099]	FALSE
6/1/2002	1	7	[0, 14.2099]	FALSE
3/1/2002	1	7	[0, 14.2099]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for PW-1

Parameter: Chlorobenzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 33.3667 Std Dev = 13.9904
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	37
	6/30/1998	45
	10/1/1998	ND<10
	12/7/1998	32
	3/30/1999	28
	6/9/1999	29
	9/29/1999	29
	12/16/1999	55
	3/8/2000	48
	6/7/2000	46
	9/27/2000	40
	12/12/2000	31
	3/1/2001	35
	6/1/2001	ND<0.5
	9/1/2001	35

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	4	[0, 67.4642]	FALSE
6/1/2002	1	26	[0, 67.4642]	FALSE
3/1/2002	1	31	[0, 67.4642]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-3

Parameter: Chlorobenzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 127.233 Std Dev = 50.8495
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	ND<0.5
	6/30/1998	120
	10/2/1998	140
	12/9/1998	200
	3/30/1999	68
	6/9/1999	100
	9/28/1999	220
	12/16/1999	130
	3/8/2000	130
	6/7/2000	120
	9/27/2000	120
	12/12/2000	120
	3/1/2001	130
	6/1/2001	150
	9/1/2001	160

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	140	[0, 251.164]	FALSE
6/1/2002	1	110	[0, 251.164]	FALSE
3/1/2002	1	180	[0, 251.164]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-2

Parameter: Chlorobenzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 8.43333 Std Dev = 5.10555
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	7/2/1998	9
	10/1/1998	ND<0.5
	12/7/1998	ND<0.5
	3/30/1999	8
	6/9/1999	ND<0.5
	9/30/1999	3
	12/17/1999	7
	3/7/2000	11
	6/8/2000	14
	9/27/2000	13
	12/12/2000	14
	3/1/2001	13
	6/1/2001	13
	9/1/2001	12
	3/1/2002	8

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	11	[0, 20.8766]	FALSE
6/1/2002	1	0.5	[0, 20.8766]	FALSE
3/1/2002	1	8	[0, 20.8766]	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for BH-2
Parameter: Chlorobenzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 20%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 15
Maximum Baseline Concentration = 14
Confidence Level = 83.3%
False Positive Rate = 16.7%

Baseline Samples	Date	Result
	7/2/1998	9
	10/1/1998	ND<0.5
	12/7/1998	ND<0.5
	3/30/1999	8
	6/9/1999	ND<0.5
	9/30/1999	3
	12/17/1999	7
	3/7/2000	11
	6/8/2000	14
	9/27/2000	13
	12/12/2000	14
	3/1/2001	13
	6/1/2001	13
	9/1/2001	12
	3/1/2002	8

Date	Samples	Mean	Impacted
9/1/2002	1	11	FALSE
6/1/2002	1	0.5	FALSE
3/1/2002	1	8	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-7

Parameter: Chlorobenzene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 174.667 Std Dev = 62.4302
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	96
	6/30/1998	250
	10/2/1998	270
	12/9/1998	170
	3/30/1999	220
	6/9/1999	200
	9/28/1999	110
	12/16/1999	200
	3/8/2000	150
	6/7/2000	150
	9/27/2000	190
	12/12/2000	200
	3/1/2001	180
	6/1/2001	210
	9/1/2001	24

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	280	[0, 326.822]	FALSE
6/1/2002	1	190	[0, 326.822]	FALSE
3/1/2002	1	270	[0, 326.822]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-8

Parameter: Chlorobenzene

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 2.50993 Std Dev = 0.547941
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	2.3979
	6/30/1998	3.04452
	10/2/1998	ND<1.60944
	12/9/1998	2.56495
	3/30/1999	1.94591
	6/9/1999	2.63906
	9/29/1999	2.48491
	12/16/1999	2.19722
	3/8/2000	ND<1.60944
	6/7/2000	2.63906
	9/27/2000	2.89037
	12/12/2000	3.68888
	3/1/2001	2.30259
	6/1/2001	2.63906
	9/1/2001	2.99573

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	2.77259	[0, 3.84538]	FALSE
6/1/2002	1	3.04452	[0, 3.84538]	FALSE
3/1/2002	1	2.89037	[0, 3.84538]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-1

Parameter: Tetrachloroethene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 70.8667 Std Dev = 64.658
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	ND<0.5
	6/30/1998	82
	10/1/1998	ND<125
	12/7/1998	250
	3/30/1999	69
	6/9/1999	120
	9/29/1999	88
	12/16/1999	46
	3/7/2000	ND<5
	6/7/2000	1
	9/27/2000	95
	12/12/2000	63
	3/1/2001	57
	6/1/2001	ND<0.5
	9/1/2001	61

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	25	[0, 228.452]	FALSE
6/1/2002	1	69	[0, 228.452]	FALSE
3/1/2002	1	72	[0, 228.452]	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for OW-1
Parameter: Tetrachloroethene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 26.6667%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 15
Maximum Baseline Concentration = 250
Confidence Level = 83.3%
False Positive Rate = 16.7%

Baseline Samples	Date	Result
	3/30/1998	ND<0.5
	6/30/1998	82
	10/1/1998	ND<125
	12/7/1998	250
	3/30/1999	69
	6/9/1999	120
	9/29/1999	88
	12/16/1999	46
	3/7/2000	ND<5
	6/7/2000	1
	9/27/2000	95
	12/12/2000	63
	3/1/2001	57
	6/1/2001	ND<0.5
	9/1/2001	61

Date	Samples	Mean	Impacted
9/1/2002	1	25	FALSE
6/1/2002	1	69	FALSE
3/1/2002	1	72	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-1

Parameter: Trichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 99.3 Std Dev = 81.5429
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	ND<0.5
	6/30/1998	95
	10/1/1998	ND<125
	12/7/1998	340
	3/30/1999	110
	6/9/1999	ND<12.5
	9/29/1999	120
	12/16/1999	67
	3/7/2000	76
	6/7/2000	120
	9/27/2000	140
	12/12/2000	72
	3/1/2001	71
	6/1/2001	ND<0.5
	9/1/2001	140

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	25	[0, 298.037]	FALSE
6/1/2002	1	76	[0, 298.037]	FALSE
3/1/2002	1	65	[0, 298.037]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for PW-1

Parameter: Trichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 8.26667 Std Dev = 5.11254
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	ND<0.5
	6/30/1998	13
	10/1/1998	ND<10
	12/7/1998	12
	3/30/1999	5
	6/9/1999	ND<5
	9/29/1999	10
	12/16/1999	ND<5
	3/8/2000	ND<12.5
	6/7/2000	9
	9/27/2000	12
	12/12/2000	ND<0.5
	3/1/2001	14
	6/1/2001	ND<0.5
	9/1/2001	15

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	5	[0, 20.727]	FALSE
6/1/2002	1	7	[0, 20.727]	FALSE
3/1/2002	1	10	[0, 20.727]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-1

Parameter: Vinyl chloride

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 2.90866 Std Dev = 1.61956
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	ND<0
	6/30/1998	2.3979
	10/1/1998	ND<5.52146
	12/7/1998	ND<4.60517
	3/30/1999	3.55535
	6/9/1999	ND<3.21888
	9/29/1999	3.13549
	12/16/1999	ND<2.30259
	3/7/2000	2.3979
	6/7/2000	4.49981
	9/27/2000	3.29584
	12/12/2000	ND<-0.693147
	3/1/2002	3.17805
	6/1/2002	ND<2.30259
	9/1/2002	ND<3.91202

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	3.91202	[0, 6.85586]	FALSE
6/1/2002	1	2.30259	[0, 6.85586]	FALSE
3/1/2002	1	3.17805	[0, 6.85586]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for OW-1

Parameter: 1,1-Dichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 100%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 14
Maximum Baseline Concentration = 125
Confidence Level = 82.4%
False Positive Rate = 17.6%

Baseline Samples	Date	Result
	3/30/1998	ND<0.5
	6/30/1998	ND<0.5
	10/1/1998	ND<125
	12/7/1998	ND<50
	3/30/1999	ND<12.5
	6/9/1999	ND<12.5
	9/29/1999	ND<0.5
	12/16/1999	ND<5
	3/7/2000	ND<5
	6/7/2000	ND<5
	9/27/2000	ND<0.5
	12/12/2000	ND<5
	3/1/2001	ND<0.5
	6/1/2001	ND<0.5

Date	Samples	Mean	Impacted
9/1/2002	1	25	FALSE
6/1/2002	1	17	FALSE
3/1/2002	1	15	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for OW-1

Parameter: 1,1-Dichloroethene

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 1.25622 Std Dev = 1.86385
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	ND<-0.693147
	6/30/1998	ND<-0.693147
	10/1/1998	ND<4.82831
	12/7/1998	ND<3.91202
	3/30/1999	ND<2.52573
	6/9/1999	ND<2.52573
	9/29/1999	ND<-0.693147
	12/16/1999	ND<1.60944
	3/7/2000	ND<1.60944
	6/7/2000	ND<1.60944
	9/27/2000	ND<-0.693147
	12/12/2000	ND<1.60944
	3/1/2001	ND<-0.693147
	6/1/2001	ND<-0.693147
	9/1/2001	2.77259

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	3.21888	[0, 5.79881]	FALSE
6/1/2002	1	2.83321	[0, 5.79881]	FALSE
3/1/2002	1	2.70805	[0, 5.79881]	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for OW-1
Parameter: 1,2-Dichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 33.3333%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 15
Maximum Baseline Concentration = 280
Confidence Level = 83.3%
False Positive Rate = 16.7%

Baseline Samples	Date	Result
	3/30/1998	10
	6/30/1998	110
	10/1/1998	ND<125
	12/7/1998	280
	3/30/1999	180
	6/9/1999	ND<12.5
	9/29/1999	150
	12/16/1999	79
	3/7/2000	110
	6/7/2000	250
	9/27/2000	ND<0.5
	12/12/2000	ND<0.5
	3/1/2001	120
	6/1/2001	ND<0.5
	9/1/2001	140

Date	Samples	Mean	Impacted
9/1/2002	1	0.5	FALSE
6/1/2002	1	0.5	FALSE
3/1/2002	1	0.5	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for PW-1

Parameter: 1,1-Dichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 4.93333 Std Dev = 6.33828
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	ND<0.5
	6/30/1998	ND<0.5
	10/1/1998	ND<10
	12/7/1998	17
	3/30/1999	ND<0.5
	6/9/1999	ND<5
	9/29/1999	ND<5
	12/16/1999	18
	3/8/2000	ND<12.5
	6/7/2000	ND<2.5
	9/27/2000	ND<0.5
	12/12/2000	ND<0.5
	3/1/2001	ND<0.5
	6/1/2001	ND<0.5
	9/1/2001	ND<0.5

Date	Samples	Mean	Interval	Impacted
9/1/2002	1	5	[0, 20.3811]	FALSE
6/1/2002	1	8	[0, 20.3811]	FALSE
3/1/2002	1	7	[0, 20.3811]	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for PW-1
Parameter: 1,1-Dichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 86.6667%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 15
Maximum Baseline Concentration = 18
Confidence Level = 83.3%
False Positive Rate = 16.7%

Baseline Samples	Date	Result
	4/1/1998	ND<0.5
	6/30/1998	ND<0.5
	10/1/1998	ND<10
	12/7/1998	17
	3/30/1999	ND<0.5
	6/9/1999	ND<5
	9/29/1999	ND<5
	12/16/1999	18
	3/8/2000	ND<12.5
	6/7/2000	ND<2.5
	9/27/2000	ND<0.5
	12/12/2000	ND<0.5
	3/1/2001	ND<0.5
	6/1/2001	ND<0.5
	9/1/2001	ND<0.5

Date	Samples	Mean	Impacted
9/1/2002	1	5	FALSE
6/1/2002	1	8	FALSE
3/1/2002	1	7	FALSE

Non-Parametric Tolerance Interval

Parameter: Benzene

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 51.0309%
Background Samples (n) = 33
Maximum Background Concentration = 6
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<1	FALSE
B-5	7/1/1998	ND<1	FALSE
B-5	10/2/1998	ND<1	FALSE
B-5	12/7/1998	ND<1	FALSE
B-5	3/30/1999	2	FALSE
B-5	6/9/1999	ND<1	FALSE
B-5	9/30/1999	ND<1	FALSE
B-5	12/15/1999	ND<1	FALSE
B-5	3/8/2000	ND<1	FALSE
B-5	6/8/2000	ND<1	FALSE
B-5	9/27/2000	ND<1	FALSE
B-5	12/12/2000	ND<1	FALSE
B-5	3/1/2001	ND<1	FALSE
B-5	9/1/2001	ND<1	FALSE
B-5	3/1/2002	ND<1	FALSE
B-5	9/1/2002	ND<1	FALSE
BH-2	7/2/1998	18	TRUE
BH-2	10/1/1998	22	TRUE
BH-2	12/7/1998	ND<1	FALSE
BH-2	3/30/1999	24	TRUE
BH-2	6/9/1999	14	TRUE
BH-2	9/30/1999	1	FALSE
BH-2	12/17/1999	18	TRUE
BH-2	3/7/2000	24	TRUE
BH-2	6/8/2000	27	TRUE
BH-2	9/27/2000	16	TRUE
BH-2	12/12/2000	19	TRUE
BH-2	3/1/2001	21	TRUE
BH-2	6/1/2001	20	TRUE
BH-2	9/1/2001	29	TRUE
BH-2	3/1/2002	10	TRUE
BH-2	6/1/2002	12	TRUE
BH-2	9/1/2002	14	TRUE
BH-7	4/1/1998	55	TRUE
BH-7	6/30/1998	240	TRUE
BH-7	10/2/1998	390	TRUE
BH-7	12/9/1998	240	TRUE
BH-7	3/30/1999	440	TRUE
BH-7	6/9/1999	680	TRUE

BH-7	9/28/1999	360	TRUE
BH-7	12/16/1999	400	TRUE
BH-7	3/8/2000	290	TRUE
BH-7	6/7/2000	340	TRUE
BH-7	9/27/2000	230	TRUE
BH-7	12/12/2000	250	TRUE
BH-7	3/1/2001	290	TRUE
BH-7	6/1/2001	290	TRUE
BH-7	9/1/2001	31	TRUE
BH-7	3/1/2002	230	TRUE
BH-7	6/1/2002	240	TRUE
BH-7	9/1/2002	310	TRUE
BH-8	4/1/1998	160	TRUE
BH-8	6/30/1998	350	TRUE
BH-8	10/2/1998	420	TRUE
BH-8	12/9/1998	320	TRUE
BH-8	3/30/1999	220	TRUE
BH-8	6/9/1999	280	TRUE
BH-8	9/29/1999	480	TRUE
BH-8	12/16/1999	330	TRUE
BH-8	3/8/2000	430	TRUE
BH-8	6/7/2000	310	TRUE
BH-8	9/27/2000	700	TRUE
BH-8	12/12/2000	360	TRUE
BH-8	3/1/2001	200	TRUE
BH-8	6/1/2001	280	TRUE
BH-8	9/1/2001	620	TRUE
BH-8	3/1/2002	310	TRUE
BH-8	6/1/2002	450	TRUE
BH-8	9/1/2002	330	TRUE
MW-10	3/31/1998	ND<1	FALSE
MW-10	6/29/1998	ND<1	FALSE
MW-10	10/1/1998	ND<1	FALSE
MW-10	12/9/1998	ND<1	FALSE
MW-10	3/30/1999	ND<1	FALSE
MW-10	6/9/1999	ND<1	FALSE
MW-10	9/28/1999	1	FALSE
MW-10	12/15/1999	ND<1	FALSE
MW-10	3/9/2000	ND<1	FALSE
MW-10	6/7/2000	ND<1	FALSE
MW-10	9/27/2000	ND<1	FALSE
MW-10	12/12/2000	ND<1	FALSE
MW-10	3/1/2001	ND<1	FALSE
MW-10	6/1/2001	ND<1	FALSE
MW-10	9/1/2001	28	TRUE
MW-10	3/1/2002	ND<1	FALSE
MW-10	6/1/2002	ND<1	FALSE
MW-10	9/1/2002	6	FALSE
MW-11	3/31/1998	ND<1	FALSE
MW-11	6/29/1998	ND<1	FALSE
MW-11	10/1/1998	ND<1	FALSE

MW-11	12/9/1998	ND<1	FALSE
MW-11	3/30/1999	ND<1	FALSE
MW-11	6/9/1999	ND<1	FALSE
MW-11	9/28/1999	1	FALSE
MW-11	12/15/1999	ND<1	FALSE
MW-11	3/9/2000	ND<1	FALSE
MW-11	6/7/2000	ND<1	FALSE
MW-11	9/27/2000	ND<1	FALSE
MW-11	12/12/2000	ND<1	FALSE
MW-11	3/1/2001	ND<1	FALSE
MW-11	6/1/2001	ND<1	FALSE
MW-11	9/1/2001	1	FALSE
MW-11	3/1/2002	ND<1	FALSE
MW-11	6/1/2002	ND<1	FALSE
MW-11	9/1/2002	ND<1	FALSE
MW-12S	3/30/1998	190	TRUE
MW-12S	6/29/1998	ND<1	FALSE
MW-12S	10/1/1998	ND<1	FALSE
MW-12S	12/9/1998	ND<1	FALSE
MW-12S	3/30/1999	ND<1	FALSE
MW-12S	6/9/1999	ND<1	FALSE
MW-12S	9/28/1999	ND<1	FALSE
MW-12S	12/15/1999	ND<1	FALSE
MW-12S	3/9/2000	ND<1	FALSE
MW-12S	6/7/2000	ND<1	FALSE
MW-12S	9/27/2000	ND<1	FALSE
MW-12S	12/12/2000	ND<1	FALSE
MW-12S	3/1/2001	ND<1	FALSE
MW-12S	6/1/2001	ND<1	FALSE
MW-12S	9/1/2001	ND<1	FALSE
MW-12S	3/1/2002	ND<1	FALSE
MW-12S	6/1/2002	ND<1	FALSE
MW-12S	9/1/2002	ND<1	FALSE
MW-13	3/30/1998	17	TRUE
MW-13	6/29/1998	8	TRUE
MW-13	10/1/1998	8	TRUE
MW-13	12/9/1998	2	FALSE
MW-13	3/30/1999	6	FALSE
MW-13	6/9/1999	9	TRUE
MW-13	9/28/1999	6	FALSE
MW-13	12/17/1999	9	TRUE
MW-13	3/9/2000	5	FALSE
MW-13	6/7/2000	2	FALSE
MW-13	9/27/2000	2	FALSE
MW-13	12/12/2000	1	FALSE
MW-13	3/1/2001	2	FALSE
MW-13	6/1/2001	1	FALSE
MW-13	9/1/2001	2	FALSE
MW-13	3/1/2002	2	FALSE
MW-13	6/1/2002	ND<1	FALSE
MW-13	9/1/2002	1	FALSE

MW-14	4/1/1998	ND<1	FALSE
MW-14	6/30/1998	ND<1	FALSE
MW-14	10/1/1998	ND<1	FALSE
MW-14	12/7/1998	ND<1	FALSE
MW-14	3/30/1999	1	FALSE
MW-14	6/9/1999	ND<1	FALSE
MW-14	9/29/1999	ND<1	FALSE
MW-14	12/16/1999	21	TRUE
MW-14	6/1/2001	ND<1	FALSE
MW-14	9/1/2001	ND<1	FALSE
MW-14	3/1/2002	ND<1	FALSE
MW-14	6/1/2002	ND<1	FALSE
MW-14	9/1/2002	ND<1	FALSE
MW-3	3/30/1998	ND<1	FALSE
MW-3	6/30/1998	220	TRUE
MW-3	10/2/1998	310	TRUE
MW-3	12/9/1998	470	TRUE
MW-3	3/30/1999	190	TRUE
MW-3	6/9/1999	320	TRUE
MW-3	9/28/1999	510	TRUE
MW-3	12/16/1999	480	TRUE
MW-3	3/8/2000	590	TRUE
MW-3	6/7/2000	520	TRUE
MW-3	9/27/2000	250	TRUE
MW-3	12/12/2000	260	TRUE
MW-3	3/1/2001	380	TRUE
MW-3	6/1/2001	390	TRUE
MW-3	9/1/2001	390	TRUE
MW-3	3/1/2002	480	TRUE
MW-3	6/1/2002	ND<10	TRUE
MW-3	9/1/2002	390	TRUE
MW-4C	7/1/1998	10	TRUE
MW-4C	10/2/1998	ND<1	FALSE
MW-4C	12/7/1998	ND<1	FALSE
MW-4C	3/30/1999	3	FALSE
MW-4C	6/9/1999	ND<1	FALSE
MW-4C	9/30/1999	ND<1	FALSE
MW-4C	12/17/1999	ND<1	FALSE
MW-4C	3/7/2000	ND<1	FALSE
MW-4C	6/8/2000	ND<1	FALSE
MW-4C	9/27/2000	ND<1	FALSE
MW-4C	12/12/2000	ND<1	FALSE
MW-4C	3/1/2001	ND<1	FALSE
MW-4C	9/1/2001	ND<1	FALSE
MW-4C	3/1/2002	ND<1	FALSE
MW-4C	9/1/2002	ND<1	FALSE
MW-9	3/31/1998	ND<1	FALSE
MW-9	6/29/1998	ND<1	FALSE
MW-9	10/1/1998	ND<1	FALSE
MW-9	12/9/1998	ND<1	FALSE
MW-9	3/30/1999	ND<1	FALSE

MW-9	6/9/1999	ND<1	FALSE
MW-9	9/28/1999	ND<1	FALSE
MW-9	12/15/1999	ND<1	FALSE
MW-9	3/8/2000	ND<1	FALSE
MW-9	6/7/2000	ND<1	FALSE
MW-9	9/27/2000	ND<1	FALSE
MW-9	12/12/2000	ND<1	FALSE
MW-9	3/1/2001	ND<1	FALSE
MW-9	6/1/2001	ND<1	FALSE
MW-9	9/1/2001	6	FALSE
MW-9	3/1/2002	ND<1	FALSE
MW-9	6/1/2002	ND<1	FALSE
MW-9	9/1/2002	ND<1	FALSE
OW-1	3/30/1998	360	TRUE
OW-1	6/30/1998	3200	TRUE
OW-1	10/1/1998	11000	TRUE
OW-1	12/7/1998	11000	TRUE
OW-1	3/30/1999	5600	TRUE
OW-1	6/9/1999	6000	TRUE
OW-1	9/29/1999	7000	TRUE
OW-1	12/16/1999	3900	TRUE
OW-1	3/7/2000	5100	TRUE
OW-1	6/7/2000	4600	TRUE
OW-1	9/27/2000	770	TRUE
OW-1	12/12/2000	3000	TRUE
OW-1	3/1/2001	5800	TRUE
OW-1	6/1/2001	4600	TRUE
OW-1	9/1/2001	5600	TRUE
OW-1	3/1/2002	4800	TRUE
OW-1	6/1/2002	5500	TRUE
OW-1	9/1/2002	4500	TRUE
OW-2	4/3/1998	ND<1	FALSE
OW-2	7/1/1998	4	FALSE
OW-2	10/2/1998	2	FALSE
OW-2	12/7/1998	ND<1	FALSE
OW-2	3/30/1999	2	FALSE
OW-2	6/9/1999	5	FALSE
OW-2	9/30/1999	24	TRUE
OW-2	12/17/1999	4	FALSE
OW-2	3/8/2000	5	FALSE
OW-2	6/8/2000	4	FALSE
OW-2	9/27/2000	5	FALSE
OW-2	12/12/2000	5	FALSE
OW-2	3/1/2001	2	FALSE
OW-2	6/1/2001	7	TRUE
OW-2	9/1/2001	5	FALSE
OW-2	3/1/2002	5	FALSE
OW-2	6/1/2002	10	TRUE
OW-2	9/1/2002	5	FALSE
OW-3	4/2/1998	ND<1	FALSE
OW-3	7/1/1998	ND<1	FALSE

OW-3	10/2/1998	ND<1	FALSE
OW-3	12/7/1998	ND<1	FALSE
OW-3	3/30/1999	ND<1	FALSE
OW-3	6/9/1999	ND<1	FALSE
OW-3	9/30/1999	ND<1	FALSE
OW-3	12/17/1999	ND<1	FALSE
OW-3	6/1/2001	ND<1	FALSE
OW-3	9/1/2001	ND<1	FALSE
OW-3	3/1/2002	ND<1	FALSE
OW-3	6/1/2002	ND<1	FALSE
OW-3	9/1/2002	ND<1	FALSE
OW-4	3/30/1998	ND<1	FALSE
OW-4	6/30/1998	5	FALSE
OW-4	10/2/1998	ND<1	FALSE
OW-4	12/9/1998	8	TRUE
OW-4	3/30/1999	16	TRUE
OW-4	6/9/1999	ND<1	FALSE
OW-4	9/29/1999	3	FALSE
OW-4	12/16/1999	ND<1	FALSE
OW-4	3/8/2000	ND<1	FALSE
OW-4	6/7/2000	1	FALSE
OW-4	9/27/2000	ND<1	FALSE
OW-4	12/12/2000	ND<1	FALSE
OW-4	3/1/2001	ND<1	FALSE
OW-4	6/1/2001	ND<1	FALSE
OW-4	3/1/2002	ND<1	FALSE
OW-4	6/1/2002	ND<1	FALSE
OW-4	9/1/2002	ND<1	FALSE
OW-5	4/1/1998	180	TRUE
OW-5	6/30/1998	240	TRUE
OW-5	10/1/1998	330	TRUE
OW-5	12/7/1998	320	TRUE
OW-5	3/30/1999	100	TRUE
OW-5	6/9/1999	142	TRUE
OW-5	9/29/1999	65	TRUE
OW-5	12/16/1999	68	TRUE
OW-5	3/8/2000	210	TRUE
OW-5	6/7/2000	39	TRUE
OW-5	9/27/2000	370	TRUE
OW-5	12/12/2000	13	TRUE
OW-5	3/1/2001	11	TRUE
OW-5	6/1/2001	10	TRUE
OW-5	9/1/2001	110	TRUE
OW-5	3/1/2002	8	TRUE
OW-5	6/1/2002	12	TRUE
OW-5	9/1/2002	22	TRUE
PW-1	4/1/1998	700	TRUE
PW-1	6/30/1998	640	TRUE
PW-1	10/1/1998	710	TRUE
PW-1	12/7/1998	ND<0	FALSE
PW-1	3/30/1999	220	TRUE

PW-1	6/9/1999	ND<10	TRUE
PW-1	9/29/1999	850	TRUE
PW-1	12/16/1999	1300	TRUE
PW-1	3/8/2000	1100	TRUE
PW-1	6/7/2000	1000	TRUE
PW-1	9/27/2000	1300	TRUE
PW-1	12/12/2000	640	TRUE
PW-1	3/1/2001	1500	TRUE
PW-1	6/1/2001	530	TRUE
PW-1	9/1/2001	510	TRUE
PW-1	3/1/2002	500	TRUE
PW-1	6/1/2002	650	TRUE
PW-1	9/1/2002	380	TRUE
MP-11A	4/3/1998	ND<1	FALSE
MP-11A	6/30/1998	ND<1	FALSE
MP-11A	10/2/1998	ND<1	FALSE
MP-11A	12/9/1998	ND<1	FALSE
MP-11A	3/30/1999	3	FALSE
MP-11A	6/9/1999	ND<1	FALSE
MP-11A	11/18/1999	ND<1	FALSE
MP-11A	12/21/1999	ND<1	FALSE
MP-11A	3/9/2000	ND<1	FALSE
MP-11A	6/8/2000	ND<1	FALSE
MP-11A	9/27/2000	ND<1	FALSE
MP-11A	12/12/2000	ND<1	FALSE
MP-11A	3/1/2001	ND<1	FALSE
MP-11A	6/1/2001	ND<1	FALSE
MP-11A	9/1/2001	ND<1	FALSE
MP-11A	3/1/2002	ND<1	FALSE
MP-11A	6/1/2002	ND<1	FALSE
MP-11A	9/1/2002	ND<1	FALSE
MP-2B	4/2/1998	ND<1	FALSE
MP-2B	7/1/1998	ND<1	FALSE
MP-2B	10/2/1998	ND<1	FALSE
MP-2B	12/7/1998	ND<1	FALSE
MP-2B	3/30/1999	ND<1	FALSE
MP-2B	6/9/1999	ND<1	FALSE
MP-2B	9/30/1999	ND<1	FALSE
MP-2B	12/17/1999	4	FALSE
MP-2B	6/8/2000	ND<1	FALSE
MP-2B	9/27/2000	ND<1	FALSE
MP-2B	12/12/2000	ND<1	FALSE
MP-2B	3/1/2001	ND<1	FALSE
MP-2B	3/1/2002	ND<1	FALSE
MP-2B	9/1/2002	ND<1	FALSE
MP-9	4/1/1998	48	TRUE
MP-9	6/30/1998	20	TRUE
MP-9	10/2/1998	3	FALSE
MP-9	12/9/1998	46	TRUE
MP-9	3/30/1999	11	TRUE
MP-9	6/9/1999	6	FALSE

MP-9	9/29/1999	32	TRUE
MP-9	12/17/1999	4	FALSE
MP-9	3/8/2000	2	FALSE
MP-9	6/8/2000	2	FALSE
MP-9	9/27/2000	1	FALSE
MP-9	12/12/2000	4	FALSE
MP-9	3/1/2001	ND<1	FALSE
MP-9	9/1/2001	9	TRUE
MP-9	3/1/2002	11	TRUE
MP-9	9/1/2002	10	TRUE

Non-Parametric Tolerance Interval

Parameter: Chlorobenzene

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 67.268%
Background Samples (n) = 33
Maximum Background Concentration = 1
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<1	FALSE
B-5	7/1/1998	ND<1	FALSE
B-5	10/2/1998	ND<1	FALSE
B-5	12/7/1998	ND<1	FALSE
B-5	3/30/1999	ND<1	FALSE
B-5	6/9/1999	ND<1	FALSE
B-5	9/30/1999	ND<1	FALSE
B-5	12/15/1999	ND<1	FALSE
B-5	3/8/2000	ND<1	FALSE
B-5	6/8/2000	ND<1	FALSE
B-5	9/27/2000	ND<1	FALSE
B-5	12/12/2000	ND<1	FALSE
B-5	3/1/2001	ND<1	FALSE
B-5	9/1/2001	ND<1	FALSE
B-5	3/1/2002	ND<1	FALSE
B-5	9/1/2002	ND<1	FALSE
BH-2	7/2/1998	9	TRUE
BH-2	10/1/1998	ND<1	FALSE
BH-2	12/7/1998	ND<1	FALSE
BH-2	3/30/1999	8	TRUE
BH-2	6/9/1999	ND<1	FALSE
BH-2	9/30/1999	3	TRUE
BH-2	12/17/1999	7	TRUE
BH-2	3/7/2000	11	TRUE
BH-2	6/8/2000	14	TRUE
BH-2	9/27/2000	13	TRUE
BH-2	12/12/2000	14	TRUE
BH-2	3/1/2001	13	TRUE
BH-2	6/1/2001	13	TRUE
BH-2	9/1/2001	12	TRUE
BH-2	3/1/2002	8	TRUE
BH-2	6/1/2002	ND<1	FALSE
BH-2	9/1/2002	11	TRUE
BH-7	4/1/1998	96	TRUE
BH-7	6/30/1998	250	TRUE
BH-7	10/2/1998	270	TRUE
BH-7	12/9/1998	170	TRUE
BH-7	3/30/1999	220	TRUE
BH-7	6/9/1999	200	TRUE

BH-7	9/28/1999	110	TRUE
BH-7	12/16/1999	200	TRUE
BH-7	3/8/2000	150	TRUE
BH-7	6/7/2000	150	TRUE
BH-7	9/27/2000	190	TRUE
BH-7	12/12/2000	200	TRUE
BH-7	3/1/2001	180	TRUE
BH-7	6/1/2001	210	TRUE
BH-7	9/1/2001	24	TRUE
BH-7	3/1/2002	270	TRUE
BH-7	6/1/2002	190	TRUE
BH-7	9/1/2002	280	TRUE
BH-8	4/1/1998	11	TRUE
BH-8	6/30/1998	21	TRUE
BH-8	10/2/1998	ND<10	TRUE
BH-8	12/9/1998	13	TRUE
BH-8	3/30/1999	7	TRUE
BH-8	6/9/1999	14	TRUE
BH-8	9/29/1999	12	TRUE
BH-8	12/16/1999	9	TRUE
BH-8	3/8/2000	ND<10	TRUE
BH-8	6/7/2000	14	TRUE
BH-8	9/27/2000	18	TRUE
BH-8	12/12/2000	40	TRUE
BH-8	3/1/2001	10	TRUE
BH-8	6/1/2001	14	TRUE
BH-8	9/1/2001	20	TRUE
BH-8	3/1/2002	18	TRUE
BH-8	6/1/2002	21	TRUE
BH-8	9/1/2002	16	TRUE
MW-10	3/31/1998	ND<1	FALSE
MW-10	6/29/1998	ND<1	FALSE
MW-10	10/1/1998	ND<1	FALSE
MW-10	12/9/1998	ND<1	FALSE
MW-10	3/30/1999	ND<1	FALSE
MW-10	6/9/1999	ND<1	FALSE
MW-10	9/28/1999	ND<1	FALSE
MW-10	12/15/1999	ND<1	FALSE
MW-10	3/9/2000	ND<1	FALSE
MW-10	6/7/2000	ND<1	FALSE
MW-10	9/27/2000	ND<1	FALSE
MW-10	12/12/2000	ND<1	FALSE
MW-10	3/1/2001	ND<1	FALSE
MW-10	6/1/2001	ND<1	FALSE
MW-10	9/1/2001	3	TRUE
MW-10	3/1/2002	ND<1	FALSE
MW-10	6/1/2002	ND<1	FALSE
MW-10	9/1/2002	ND<1	FALSE
MW-11	3/31/1998	ND<1	FALSE
MW-11	6/29/1998	ND<1	FALSE
MW-11	10/1/1998	ND<1	FALSE

MW-11	12/9/1998	ND<1	FALSE
MW-11	3/30/1999	ND<1	FALSE
MW-11	6/9/1999	ND<1	FALSE
MW-11	9/28/1999	2	TRUE
MW-11	12/15/1999	ND<1	FALSE
MW-11	3/9/2000	1	FALSE
MW-11	6/7/2000	2	TRUE
MW-11	9/27/2000	1	FALSE
MW-11	12/12/2000	2	TRUE
MW-11	3/1/2001	1	FALSE
MW-11	6/1/2001	ND<1	FALSE
MW-11	9/1/2001	ND<1	FALSE
MW-11	3/1/2002	ND<1	FALSE
MW-11	6/1/2002	ND<1	FALSE
MW-11	9/1/2002	ND<1	FALSE
MW-12S	3/30/1998	110	TRUE
MW-12S	6/29/1998	ND<1	FALSE
MW-12S	10/1/1998	ND<1	FALSE
MW-12S	12/9/1998	ND<1	FALSE
MW-12S	3/30/1999	ND<1	FALSE
MW-12S	6/9/1999	ND<1	FALSE
MW-12S	9/28/1999	ND<1	FALSE
MW-12S	12/15/1999	ND<1	FALSE
MW-12S	3/9/2000	ND<1	FALSE
MW-12S	6/7/2000	ND<1	FALSE
MW-12S	9/27/2000	ND<1	FALSE
MW-12S	12/12/2000	ND<1	FALSE
MW-12S	3/1/2001	ND<1	FALSE
MW-12S	6/1/2001	ND<1	FALSE
MW-12S	9/1/2001	ND<1	FALSE
MW-12S	3/1/2002	ND<1	FALSE
MW-12S	6/1/2002	ND<1	FALSE
MW-12S	9/1/2002	ND<1	FALSE
MW-13	3/30/1998	ND<1	FALSE
MW-13	6/29/1998	ND<1	FALSE
MW-13	10/1/1998	ND<1	FALSE
MW-13	12/9/1998	ND<1	FALSE
MW-13	3/30/1999	ND<1	FALSE
MW-13	6/9/1999	ND<1	FALSE
MW-13	9/28/1999	ND<1	FALSE
MW-13	12/17/1999	ND<1	FALSE
MW-13	3/9/2000	ND<1	FALSE
MW-13	6/7/2000	ND<1	FALSE
MW-13	9/27/2000	ND<1	FALSE
MW-13	12/12/2000	ND<1	FALSE
MW-13	3/1/2001	ND<1	FALSE
MW-13	6/1/2001	ND<1	FALSE
MW-13	9/1/2001	ND<1	FALSE
MW-13	3/1/2002	ND<1	FALSE
MW-13	6/1/2002	ND<1	FALSE
MW-13	9/1/2002	ND<1	FALSE

MW-14	4/1/1998	ND<1	FALSE
MW-14	6/30/1998	ND<1	FALSE
MW-14	10/1/1998	ND<1	FALSE
MW-14	12/7/1998	ND<1	FALSE
MW-14	3/30/1999	ND<1	FALSE
MW-14	6/9/1999	ND<1	FALSE
MW-14	9/29/1999	ND<1	FALSE
MW-14	12/16/1999	ND<1	FALSE
MW-14	6/1/2001	ND<1	FALSE
MW-14	9/1/2001	ND<1	FALSE
MW-14	3/1/2002	ND<1	FALSE
MW-14	6/1/2002	ND<1	FALSE
MW-14	9/1/2002	ND<1	FALSE
MW-3	3/30/1998	ND<1	FALSE
MW-3	6/30/1998	120	TRUE
MW-3	10/2/1998	140	TRUE
MW-3	12/9/1998	200	TRUE
MW-3	3/30/1999	68	TRUE
MW-3	6/9/1999	100	TRUE
MW-3	9/28/1999	220	TRUE
MW-3	12/16/1999	130	TRUE
MW-3	3/8/2000	130	TRUE
MW-3	6/7/2000	120	TRUE
MW-3	9/27/2000	120	TRUE
MW-3	12/12/2000	120	TRUE
MW-3	3/1/2001	130	TRUE
MW-3	6/1/2001	150	TRUE
MW-3	9/1/2001	160	TRUE
MW-3	3/1/2002	180	TRUE
MW-3	6/1/2002	110	TRUE
MW-3	9/1/2002	140	TRUE
MW-4C	7/1/1998	ND<1	FALSE
MW-4C	10/2/1998	ND<1	FALSE
MW-4C	12/7/1998	ND<1	FALSE
MW-4C	3/30/1999	ND<1	FALSE
MW-4C	6/9/1999	ND<1	FALSE
MW-4C	9/30/1999	ND<1	FALSE
MW-4C	12/17/1999	ND<1	FALSE
MW-4C	3/7/2000	ND<1	FALSE
MW-4C	6/8/2000	ND<1	FALSE
MW-4C	9/27/2000	ND<1	FALSE
MW-4C	12/12/2000	ND<1	FALSE
MW-4C	3/1/2001	ND<1	FALSE
MW-4C	9/1/2001	ND<1	FALSE
MW-4C	3/1/2002	ND<2	TRUE
MW-4C	9/1/2002	ND<2	TRUE
MW-9	3/31/1998	ND<1	FALSE
MW-9	6/29/1998	ND<1	FALSE
MW-9	10/1/1998	ND<1	FALSE
MW-9	12/9/1998	ND<1	FALSE
MW-9	3/30/1999	ND<1	FALSE

MW-9	6/9/1999	ND<1	FALSE
MW-9	9/28/1999	ND<1	FALSE
MW-9	12/15/1999	ND<1	FALSE
MW-9	3/8/2000	ND<1	FALSE
MW-9	6/7/2000	ND<1	FALSE
MW-9	9/27/2000	ND<1	FALSE
MW-9	12/12/2000	ND<1	FALSE
MW-9	3/1/2001	ND<1	FALSE
MW-9	6/1/2001	ND<1	FALSE
MW-9	9/1/2001	ND<1	FALSE
MW-9	3/1/2002	ND<1	FALSE
MW-9	6/1/2002	ND<1	FALSE
MW-9	9/1/2002	ND<1	FALSE
OW-1	3/30/1998	ND<1	FALSE
OW-1	6/30/1998	28	TRUE
OW-1	10/1/1998	ND<250	TRUE
OW-1	12/7/1998	ND<100	TRUE
OW-1	3/30/1999	22	TRUE
OW-1	6/9/1999	ND<25	TRUE
OW-1	9/29/1999	ND<10	TRUE
OW-1	12/16/1999	10	TRUE
OW-1	3/7/2000	15	TRUE
OW-1	6/7/2000	19	TRUE
OW-1	9/27/2000	19	TRUE
OW-1	12/12/2000	ND<1	FALSE
OW-1	3/1/2001	11	TRUE
OW-1	6/1/2001	ND<1	FALSE
OW-1	9/1/2001	19	TRUE
OW-1	3/1/2002	12	TRUE
OW-1	6/1/2002	ND<10	TRUE
OW-1	9/1/2002	ND<50	TRUE
OW-2	4/3/1998	ND<1	FALSE
OW-2	7/1/1998	7	TRUE
OW-2	10/2/1998	ND<1	FALSE
OW-2	12/7/1998	ND<1	FALSE
OW-2	3/30/1999	2	TRUE
OW-2	6/9/1999	11	TRUE
OW-2	9/30/1999	13	TRUE
OW-2	12/17/1999	5	TRUE
OW-2	3/8/2000	5	TRUE
OW-2	6/8/2000	5	TRUE
OW-2	9/27/2000	9	TRUE
OW-2	12/12/2000	4	TRUE
OW-2	3/1/2001	3	TRUE
OW-2	6/1/2001	6	TRUE
OW-2	9/1/2001	5	TRUE
OW-2	3/1/2002	7	TRUE
OW-2	6/1/2002	7	TRUE
OW-2	9/1/2002	8	TRUE
OW-3	4/2/1998	ND<1	FALSE
OW-3	7/1/1998	ND<1	FALSE

OW-3	10/2/1998	ND<1	FALSE
OW-3	12/7/1998	ND<1	FALSE
OW-3	3/30/1999	ND<1	FALSE
OW-3	6/9/1999	ND<1	FALSE
OW-3	9/30/1999	ND<1	FALSE
OW-3	12/17/1999	ND<1	FALSE
OW-3	6/1/2001	ND<1	FALSE
OW-3	9/1/2001	ND<1	FALSE
OW-3	3/1/2002	ND<1	FALSE
OW-3	6/1/2002	ND<1	FALSE
OW-3	9/1/2002	ND<1	FALSE
OW-4	3/30/1998	ND<1	FALSE
OW-4	6/30/1998	ND<1	FALSE
OW-4	10/2/1998	ND<1	FALSE
OW-4	12/9/1998	ND<1	FALSE
OW-4	3/30/1999	ND<1	FALSE
OW-4	6/9/1999	ND<1	FALSE
OW-4	9/29/1999	ND<1	FALSE
OW-4	12/16/1999	ND<1	FALSE
OW-4	3/8/2000	ND<1	FALSE
OW-4	6/7/2000	ND<1	FALSE
OW-4	9/27/2000	ND<1	FALSE
OW-4	12/12/2000	ND<1	FALSE
OW-4	3/1/2001	ND<1	FALSE
OW-4	6/1/2001	ND<1	FALSE
OW-4	3/1/2002	ND<1	FALSE
OW-4	6/1/2002	ND<1	FALSE
OW-4	9/1/2002	ND<1	FALSE
OW-5	4/1/1998	5	TRUE
OW-5	6/30/1998	6	TRUE
OW-5	10/1/1998	ND<10	TRUE
OW-5	12/7/1998	8	TRUE
OW-5	3/30/1999	2	TRUE
OW-5	6/9/1999	ND<1	FALSE
OW-5	9/29/1999	1	FALSE
OW-5	12/16/1999	2	TRUE
OW-5	3/8/2000	4	TRUE
OW-5	6/7/2000	1	FALSE
OW-5	9/27/2000	ND<1	FALSE
OW-5	12/12/2000	1	FALSE
OW-5	3/1/2001	ND<1	FALSE
OW-5	6/1/2001	ND<1	FALSE
OW-5	9/1/2001	3	TRUE
OW-5	3/1/2002	ND<1	FALSE
OW-5	6/1/2002	ND<1	FALSE
OW-5	9/1/2002	ND<1	FALSE
PW-1	4/1/1998	37	TRUE
PW-1	6/30/1998	45	TRUE
PW-1	10/1/1998	ND<20	TRUE
PW-1	12/7/1998	32	TRUE
PW-1	3/30/1999	28	TRUE

PW-1	6/9/1999	29	TRUE
PW-1	9/29/1999	29	TRUE
PW-1	12/16/1999	55	TRUE
PW-1	3/8/2000	48	TRUE
PW-1	6/7/2000	46	TRUE
PW-1	9/27/2000	40	TRUE
PW-1	12/12/2000	31	TRUE
PW-1	3/1/2001	35	TRUE
PW-1	6/1/2001	ND<1	FALSE
PW-1	9/1/2001	35	TRUE
PW-1	3/1/2002	31	TRUE
PW-1	6/1/2002	26	TRUE
PW-1	9/1/2002	4	TRUE
MP-11A	4/3/1998	ND<1	FALSE
MP-11A	6/30/1998	ND<1	FALSE
MP-11A	10/2/1998	ND<1	FALSE
MP-11A	12/9/1998	ND<1	FALSE
MP-11A	3/30/1999	ND<1	FALSE
MP-11A	6/9/1999	ND<1	FALSE
MP-11A	11/18/1999	ND<1	FALSE
MP-11A	12/21/1999	ND<1	FALSE
MP-11A	3/9/2000	ND<1	FALSE
MP-11A	6/8/2000	ND<1	FALSE
MP-11A	9/27/2000	ND<1	FALSE
MP-11A	12/12/2000	ND<1	FALSE
MP-11A	3/1/2001	ND<1	FALSE
MP-11A	6/1/2001	ND<1	FALSE
MP-11A	9/1/2001	ND<1	FALSE
MP-11A	3/1/2002	ND<1	FALSE
MP-11A	6/1/2002	ND<1	FALSE
MP-11A	9/1/2002	ND<1	FALSE
MP-2B	4/2/1998	ND<1	FALSE
MP-2B	7/1/1998	ND<1	FALSE
MP-2B	10/2/1998	ND<1	FALSE
MP-2B	12/7/1998	ND<1	FALSE
MP-2B	3/30/1999	ND<1	FALSE
MP-2B	6/9/1999	ND<1	FALSE
MP-2B	9/30/1999	ND<1	FALSE
MP-2B	12/17/1999	ND<1	FALSE
MP-2B	6/8/2000	ND<1	FALSE
MP-2B	9/27/2000	ND<1	FALSE
MP-2B	12/12/2000	ND<1	FALSE
MP-2B	3/1/2001	ND<1	FALSE
MP-2B	3/1/2002	ND<1	FALSE
MP-2B	9/1/2002	ND<1	FALSE
MP-9	4/1/1998	ND<1	FALSE
MP-9	6/30/1998	2	TRUE
MP-9	10/2/1998	ND<1	FALSE
MP-9	12/9/1998	ND<1	FALSE
MP-9	3/30/1999	2	TRUE
MP-9	6/9/1999	ND<1	FALSE

MP-9	9/29/1999	2	TRUE
MP-9	12/17/1999	ND<1	FALSE
MP-9	3/8/2000	ND<1	FALSE
MP-9	6/8/2000	ND<1	FALSE
MP-9	9/27/2000	ND<1	FALSE
MP-9	12/12/2000	1	FALSE
MP-9	3/1/2001	ND<1	FALSE
MP-9	9/1/2001	ND<1	FALSE
MP-9	3/1/2002	1	FALSE
MP-9	9/1/2002	ND<1	FALSE

Non-Parametric Tolerance Interval

Parameter: 1,2-Dichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 93.8619%
Background Samples (n) = 34
Maximum Background Concentration = 1
Minimum Coverage = 91.6%
Average Coverage = 97.1429%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<1	FALSE
B-5	7/1/1998	ND<1	FALSE
B-5	10/2/1998	ND<1	FALSE
B-5	12/7/1998	ND<1	FALSE
B-5	3/30/1999	ND<1	FALSE
B-5	6/9/1999	ND<1	FALSE
B-5	9/30/1999	ND<1	FALSE
B-5	12/15/1999	ND<1	FALSE
B-5	3/8/2000	ND<1	FALSE
B-5	6/8/2000	ND<1	FALSE
B-5	9/27/2000	ND<1	FALSE
B-5	12/12/2000	ND<1	FALSE
B-5	3/1/2001	ND<1	FALSE
B-5	9/1/2001	ND<1	FALSE
B-5	3/1/2002	ND<1	FALSE
B-5	6/1/2002	ND<1	FALSE
B-5	9/1/2002	ND<1	FALSE
BH-2	7/2/1998	ND<1	FALSE
BH-2	10/1/1998	ND<1	FALSE
BH-2	12/7/1998	ND<1	FALSE
BH-2	3/30/1999	ND<1	FALSE
BH-2	6/9/1999	ND<1	FALSE
BH-2	9/30/1999	ND<1	FALSE
BH-2	12/17/1999	ND<1	FALSE
BH-2	3/7/2000	ND<1	FALSE
BH-2	6/8/2000	ND<1	FALSE
BH-2	9/27/2000	ND<1	FALSE
BH-2	12/12/2000	ND<1	FALSE
BH-2	3/1/2001	ND<1	FALSE
BH-2	6/1/2001	ND<1	FALSE
BH-2	9/1/2001	ND<1	FALSE
BH-2	3/1/2002	ND<1	FALSE
BH-2	6/1/2002	ND<1	FALSE
BH-2	9/1/2002	ND<1	FALSE
BH-7	4/1/1998	ND<1	FALSE
BH-7	6/30/1998	ND<1	FALSE
BH-7	10/2/1998	ND<10	TRUE
BH-7	12/9/1998	ND<1	FALSE
BH-7	3/30/1999	ND<1	FALSE

BH-7	6/9/1999	ND<10	TRUE
BH-7	9/28/1999	ND<1	FALSE
BH-7	12/16/1999	ND<1	FALSE
BH-7	3/8/2000	ND<5	TRUE
BH-7	6/7/2000	ND<1	FALSE
BH-7	9/27/2000	ND<1	FALSE
BH-7	12/12/2000	ND<1	FALSE
BH-7	3/1/2001	ND<1	FALSE
BH-7	6/1/2001	ND<1	FALSE
BH-7	9/1/2001	ND<1	FALSE
BH-7	3/1/2002	ND<1	FALSE
BH-7	6/1/2002	ND<1	FALSE
BH-7	9/1/2002	ND<1	FALSE
BH-8	4/1/1998	17	TRUE
BH-8	6/30/1998	7	TRUE
BH-8	10/2/1998	ND<10	TRUE
BH-8	12/9/1998	ND<1	FALSE
BH-8	3/30/1999	ND<1	FALSE
BH-8	6/9/1999	ND<10	TRUE
BH-8	9/29/1999	ND<1	FALSE
BH-8	12/16/1999	ND<1	FALSE
BH-8	3/8/2000	ND<10	TRUE
BH-8	6/7/2000	ND<1	FALSE
BH-8	9/27/2000	ND<1	FALSE
BH-8	12/12/2000	ND<1	FALSE
BH-8	3/1/2001	ND<1	FALSE
BH-8	6/1/2001	ND<1	FALSE
BH-8	9/1/2001	ND<1	FALSE
BH-8	3/1/2002	ND<1	FALSE
BH-8	6/1/2002	ND<1	FALSE
BH-8	9/1/2002	ND<1	FALSE
MW-10	3/31/1998	ND<1	FALSE
MW-10	6/29/1998	ND<1	FALSE
MW-10	10/1/1998	ND<1	FALSE
MW-10	12/9/1998	ND<1	FALSE
MW-10	3/30/1999	ND<1	FALSE
MW-10	6/9/1999	ND<1	FALSE
MW-10	9/28/1999	ND<1	FALSE
MW-10	12/15/1999	ND<1	FALSE
MW-10	3/9/2000	ND<1	FALSE
MW-10	6/7/2000	ND<1	FALSE
MW-10	9/27/2000	ND<1	FALSE
MW-10	12/12/2000	ND<1	FALSE
MW-10	3/1/2001	ND<1	FALSE
MW-10	6/1/2001	ND<1	FALSE
MW-10	9/1/2001	ND<1	FALSE
MW-10	3/1/2002	ND<1	FALSE
MW-10	6/1/2002	ND<1	FALSE
MW-10	9/1/2002	ND<1	FALSE
MW-11	3/31/1998	ND<1	FALSE
MW-11	6/29/1998	ND<1	FALSE

MW-11	10/1/1998	ND<1	FALSE
MW-11	12/9/1998	ND<1	FALSE
MW-11	3/30/1999	ND<1	FALSE
MW-11	6/9/1999	ND<1	FALSE
MW-11	9/28/1999	ND<1	FALSE
MW-11	12/15/1999	ND<1	FALSE
MW-11	3/9/2000	ND<1	FALSE
MW-11	6/7/2000	ND<1	FALSE
MW-11	9/27/2000	ND<1	FALSE
MW-11	12/12/2000	ND<1	FALSE
MW-11	3/1/2001	ND<1	FALSE
MW-11	6/1/2001	ND<1	FALSE
MW-11	9/1/2001	ND<1	FALSE
MW-11	3/1/2002	ND<1	FALSE
MW-11	6/1/2002	ND<1	FALSE
MW-11	9/1/2002	ND<1	FALSE
MW-12S	3/30/1998	ND<1	FALSE
MW-12S	6/29/1998	ND<1	FALSE
MW-12S	10/1/1998	ND<1	FALSE
MW-12S	12/9/1998	ND<1	FALSE
MW-12S	3/30/1999	ND<1	FALSE
MW-12S	6/9/1999	ND<1	FALSE
MW-12S	9/28/1999	ND<1	FALSE
MW-12S	12/15/1999	ND<1	FALSE
MW-12S	3/9/2000	ND<1	FALSE
MW-12S	6/7/2000	ND<1	FALSE
MW-12S	9/27/2000	ND<1	FALSE
MW-12S	12/12/2000	ND<1	FALSE
MW-12S	3/1/2001	ND<1	FALSE
MW-12S	6/1/2001	ND<1	FALSE
MW-12S	9/1/2001	ND<1	FALSE
MW-12S	3/1/2002	ND<1	FALSE
MW-12S	6/1/2002	ND<1	FALSE
MW-12S	9/1/2002	ND<1	FALSE
MW-13	3/30/1998	ND<1	FALSE
MW-13	6/29/1998	ND<1	FALSE
MW-13	10/1/1998	ND<1	FALSE
MW-13	12/9/1998	ND<1	FALSE
MW-13	3/30/1999	ND<1	FALSE
MW-13	6/9/1999	ND<1	FALSE
MW-13	9/28/1999	ND<1	FALSE
MW-13	12/17/1999	ND<1	FALSE
MW-13	3/9/2000	ND<1	FALSE
MW-13	6/7/2000	ND<1	FALSE
MW-13	9/27/2000	ND<1	FALSE
MW-13	12/12/2000	ND<1	FALSE
MW-13	3/1/2001	ND<1	FALSE
MW-13	6/1/2001	ND<1	FALSE
MW-13	9/1/2001	ND<1	FALSE
MW-13	3/1/2002	ND<1	FALSE
MW-13	6/1/2002	ND<1	FALSE
MW-13	9/1/2002	ND<1	FALSE

MW-14	4/1/1998	ND<1	FALSE
MW-14	6/30/1998	ND<1	FALSE
MW-14	10/1/1998	ND<1	FALSE
MW-14	12/7/1998	ND<1	FALSE
MW-14	3/30/1999	ND<1	FALSE
MW-14	6/9/1999	ND<1	FALSE
MW-14	9/29/1999	ND<1	FALSE
MW-14	12/16/1999	ND<1	FALSE
MW-14	6/1/2001	ND<1	FALSE
MW-14	9/1/2001	ND<1	FALSE
MW-14	3/1/2002	ND<1	FALSE
MW-14	6/1/2002	ND<1	FALSE
MW-14	9/1/2002	ND<1	FALSE
MW-3	12/9/1998	ND<10	TRUE
MW-3	3/30/1999	ND<1	FALSE
MW-3	6/9/1999	ND<1	FALSE
MW-3	9/28/1999	2	TRUE
MW-3	12/16/1999	ND<1	FALSE
MW-3	3/8/2000	ND<10	TRUE
MW-3	6/7/2000	ND<1	FALSE
MW-3	9/27/2000	ND<1	FALSE
MW-3	12/12/2000	ND<1	FALSE
MW-3	3/1/2001	ND<1	FALSE
MW-3	6/1/2001	ND<1	FALSE
MW-3	9/1/2001	ND<1	FALSE
MW-3	3/1/2002	ND<1	FALSE
MW-3	6/1/2002	ND<1	FALSE
MW-3	9/1/2002	ND<1	FALSE
MW-4C	7/1/1998	ND<1	FALSE
MW-4C	10/2/1998	ND<1	FALSE
MW-4C	12/7/1998	ND<1	FALSE
MW-4C	3/30/1999	ND<1	FALSE
MW-4C	6/9/1999	ND<1	FALSE
MW-4C	9/30/1999	ND<1	FALSE
MW-4C	12/17/1999	ND<1	FALSE
MW-4C	3/7/2000	ND<1	FALSE
MW-4C	6/8/2000	ND<1	FALSE
MW-4C	9/27/2000	ND<1	FALSE
MW-4C	12/12/2000	ND<1	FALSE
MW-4C	3/1/2001	ND<1	FALSE
MW-4C	9/1/2001	ND<1	FALSE
MW-4C	3/1/2002	ND<1	FALSE
MW-4C	6/1/2002	ND<1	FALSE
MW-4C	9/1/2002	ND<1	FALSE
MW-9	3/31/1998	ND<1	FALSE
MW-9	6/29/1998	ND<1	FALSE
MW-9	10/1/1998	ND<1	FALSE
MW-9	12/9/1998	ND<1	FALSE
MW-9	3/30/1999	ND<1	FALSE
MW-9	6/9/1999	ND<1	FALSE

MW-9	9/28/1999	ND<1	FALSE
MW-9	12/15/1999	ND<1	FALSE
MW-9	3/8/2000	ND<1	FALSE
MW-9	6/7/2000	ND<1	FALSE
MW-9	9/27/2000	ND<1	FALSE
MW-9	12/12/2000	ND<1	FALSE
MW-9	3/1/2001	ND<1	FALSE
MW-9	6/1/2001	ND<1	FALSE
MW-9	9/1/2001	ND<1	FALSE
MW-9	3/1/2002	ND<1	FALSE
MW-9	6/1/2002	ND<1	FALSE
MW-9	9/1/2002	ND<1	FALSE
OW-1	3/30/1998	10	TRUE
OW-1	6/30/1998	110	TRUE
OW-1	10/1/1998	ND<250	TRUE
OW-1	12/7/1998	280	TRUE
OW-1	3/30/1999	180	TRUE
OW-1	6/9/1999	ND<25	TRUE
OW-1	9/29/1999	150	TRUE
OW-1	12/16/1999	79	TRUE
OW-1	3/7/2000	110	TRUE
OW-1	6/7/2000	250	TRUE
OW-1	9/27/2000	ND<1	FALSE
OW-1	12/12/2000	ND<1	FALSE
OW-1	3/1/2001	120	TRUE
OW-1	6/1/2001	ND<1	FALSE
OW-1	9/1/2001	140	TRUE
OW-1	3/1/2002	ND<1	FALSE
OW-1	6/1/2002	ND<1	FALSE
OW-1	9/1/2002	ND<1	FALSE
OW-2	4/3/1998	ND<1	FALSE
OW-2	7/1/1998	ND<1	FALSE
OW-2	10/2/1998	ND<1	FALSE
OW-2	12/7/1998	ND<1	FALSE
OW-2	3/30/1999	ND<1	FALSE
OW-2	6/9/1999	ND<1	FALSE
OW-2	9/30/1999	ND<1	FALSE
OW-2	12/17/1999	ND<1	FALSE
OW-2	3/8/2000	ND<1	FALSE
OW-2	6/8/2000	ND<1	FALSE
OW-2	9/27/2000	ND<1	FALSE
OW-2	12/12/2000	ND<1	FALSE
OW-2	3/1/2001	ND<1	FALSE
OW-2	6/1/2001	ND<1	FALSE
OW-2	9/1/2001	ND<1	FALSE
OW-2	3/1/2002	ND<1	FALSE
OW-2	6/1/2002	ND<1	FALSE
OW-2	9/1/2002	ND<1	FALSE
OW-3	4/2/1998	ND<1	FALSE
OW-3	7/1/1998	ND<1	FALSE
OW-3	10/2/1998	ND<1	FALSE

OW-3	12/7/1998	ND<1	FALSE
OW-3	3/30/1999	ND<1	FALSE
OW-3	6/9/1999	ND<1	FALSE
OW-3	9/30/1999	ND<1	FALSE
OW-3	12/17/1999	ND<1	FALSE
OW-3	6/1/2001	ND<1	FALSE
OW-3	9/1/2001	ND<1	FALSE
OW-3	3/1/2002	ND<1	FALSE
OW-3	6/1/2002	ND<1	FALSE
OW-3	9/1/2002	ND<1	FALSE
OW-4	3/30/1998	ND<1	FALSE
OW-4	6/30/1998	ND<1	FALSE
OW-4	10/2/1998	ND<1	FALSE
OW-4	12/9/1998	ND<1	FALSE
OW-4	3/30/1999	ND<1	FALSE
OW-4	6/9/1999	ND<1	FALSE
OW-4	9/29/1999	ND<1	FALSE
OW-4	12/16/1999	ND<1	FALSE
OW-4	3/8/2000	ND<1	FALSE
OW-4	6/7/2000	ND<1	FALSE
OW-4	9/27/2000	ND<1	FALSE
OW-4	12/12/2000	ND<1	FALSE
OW-4	3/1/2001	ND<1	FALSE
OW-4	6/1/2001	ND<1	FALSE
OW-4	3/1/2002	ND<1	FALSE
OW-4	6/1/2002	ND<1	FALSE
OW-4	9/1/2002	ND<1	FALSE
OW-5	4/1/1998	ND<1	FALSE
OW-5	6/30/1998	2	TRUE
OW-5	10/1/1998	ND<10	TRUE
OW-5	12/7/1998	4	TRUE
OW-5	3/30/1999	ND<1	FALSE
OW-5	6/9/1999	2	TRUE
OW-5	9/29/1999	ND<1	FALSE
OW-5	12/16/1999	ND<1	FALSE
OW-5	3/8/2000	2	TRUE
OW-5	6/7/2000	ND<1	FALSE
OW-5	9/27/2000	ND<1	FALSE
OW-5	12/12/2000	ND<1	FALSE
OW-5	3/1/2001	ND<1	FALSE
OW-5	6/1/2001	ND<1	FALSE
OW-5	9/1/2001	2	TRUE
OW-5	3/1/2002	ND<1	FALSE
OW-5	6/1/2002	ND<1	FALSE
OW-5	9/1/2002	ND<1	FALSE
PW-1	4/1/1998	ND<1	FALSE
PW-1	6/30/1998	5	TRUE
PW-1	10/1/1998	ND<20	TRUE
PW-1	12/7/1998	6	TRUE
PW-1	3/30/1999	ND<1	FALSE
PW-1	6/9/1999	ND<10	TRUE

PW-1	9/29/1999	12	TRUE
PW-1	12/16/1999	ND<10	TRUE
PW-1	3/8/2000	ND<25	TRUE
PW-1	6/7/2000	17	TRUE
PW-1	9/27/2000	ND<1	FALSE
PW-1	12/12/2000	ND<1	FALSE
PW-1	3/1/2001	21	TRUE
PW-1	6/1/2001	ND<1	FALSE
PW-1	9/1/2001	10	TRUE
PW-1	3/1/2002	ND<1	FALSE
PW-1	6/1/2002	ND<1	FALSE
PW-1	9/1/2002	ND<1	FALSE
MP-11A	4/3/1998	ND<1	FALSE
MP-11A	6/30/1998	ND<1	FALSE
MP-11A	10/2/1998	ND<1	FALSE
MP-11A	12/9/1998	ND<1	FALSE
MP-11A	3/30/1999	ND<1	FALSE
MP-11A	6/9/1999	ND<1	FALSE
MP-11A	11/18/1999	ND<1	FALSE
MP-11A	12/21/1999	ND<1	FALSE
MP-11A	3/9/2000	ND<1	FALSE
MP-11A	6/8/2000	ND<1	FALSE
MP-11A	9/27/2000	ND<1	FALSE
MP-11A	12/12/2000	ND<1	FALSE
MP-11A	3/1/2001	ND<1	FALSE
MP-11A	6/1/2001	ND<1	FALSE
MP-11A	9/1/2001	ND<1	FALSE
MP-11A	3/1/2002	ND<1	FALSE
MP-11A	6/1/2002	ND<1	FALSE
MP-11A	9/1/2002	ND<1	FALSE
MP-2B	4/2/1998	ND<1	FALSE
MP-2B	7/1/1998	ND<1	FALSE
MP-2B	10/2/1998	ND<1	FALSE
MP-2B	12/7/1998	ND<1	FALSE
MP-2B	3/30/1999	ND<1	FALSE
MP-2B	6/9/1999	ND<1	FALSE
MP-2B	9/30/1999	ND<1	FALSE
MP-2B	12/17/1999	ND<1	FALSE
MP-2B	3/7/2000	ND<1	FALSE
MP-2B	6/8/2000	ND<1	FALSE
MP-2B	9/27/2000	ND<1	FALSE
MP-2B	12/12/2000	ND<1	FALSE
MP-2B	9/1/2001	ND<1	FALSE
MP-2B	3/1/2002	ND<1	FALSE
MP-2B	6/1/2002	ND<1	FALSE
MP-2B	9/1/2002	ND<1	FALSE
MP-9	4/1/1998	ND<1	FALSE
MP-9	6/30/1998	ND<1	FALSE
MP-9	10/2/1998	ND<1	FALSE
MP-9	12/9/1998	ND<1	FALSE
MP-9	3/30/1999	ND<1	FALSE

MP-9	6/9/1999	ND<1	FALSE
MP-9	9/29/1999	ND<1	FALSE
MP-9	12/17/1999	ND<1	FALSE
MP-9	3/8/2000	ND<1	FALSE
MP-9	6/8/2000	ND<1	FALSE
MP-9	9/27/2000	ND<1	FALSE
MP-9	12/12/2000	ND<1	FALSE
MP-9	3/1/2001	ND<1	FALSE
MP-9	9/1/2001	ND<1	FALSE
MP-9	3/1/2002	ND<1	FALSE
MP-9	6/1/2002	ND<1	FALSE
MP-9	9/1/2002	ND<1	FALSE

Non-Parametric Tolerance Interval

Parameter: 1,1-Dichloroethane

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 89.9743%
Background Samples (n) = 33
Maximum Background Concentration = 1
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<1	FALSE
B-5	7/1/1998	ND<1	FALSE
B-5	10/2/1998	ND<1	FALSE
B-5	12/7/1998	ND<1	FALSE
B-5	3/30/1999	ND<1	FALSE
B-5	6/9/1999	ND<1	FALSE
B-5	9/30/1999	ND<1	FALSE
B-5	12/15/1999	ND<1	FALSE
B-5	3/8/2000	ND<1	FALSE
B-5	6/8/2000	ND<1	FALSE
B-5	9/27/2000	ND<1	FALSE
B-5	12/12/2000	ND<1	FALSE
B-5	3/1/2001	ND<1	FALSE
B-5	9/1/2001	ND<1	FALSE
B-5	3/1/2002	ND<1	FALSE
B-5	9/1/2002	ND<1	FALSE
BH-2	7/2/1998	1	FALSE
BH-2	10/1/1998	ND<1	FALSE
BH-2	12/7/1998	ND<1	FALSE
BH-2	3/30/1999	2	TRUE
BH-2	6/9/1999	1	FALSE
BH-2	9/30/1999	ND<1	FALSE
BH-2	12/17/1999	ND<1	FALSE
BH-2	3/7/2000	1	FALSE
BH-2	6/8/2000	ND<1	FALSE
BH-2	9/27/2000	1	FALSE
BH-2	12/12/2000	1	FALSE
BH-2	3/1/2001	ND<1	FALSE
BH-2	6/1/2001	ND<1	FALSE
BH-2	9/1/2001	ND<1	FALSE
BH-2	3/1/2002	ND<1	FALSE
BH-2	6/1/2002	ND<1	FALSE
BH-2	9/1/2002	ND<1	FALSE
BH-7	4/1/1998	ND<1	FALSE
BH-7	6/30/1998	3	TRUE
BH-7	10/2/1998	ND<10	TRUE
BH-7	12/9/1998	ND<1	FALSE
BH-7	3/30/1999	ND<1	FALSE
BH-7	6/9/1999	ND<10	TRUE

BH-7	9/28/1999	ND<1	FALSE
BH-7	12/16/1999	ND<1	FALSE
BH-7	3/8/2000	ND<5	TRUE
BH-7	6/7/2000	ND<1	FALSE
BH-7	9/27/2000	ND<1	FALSE
BH-7	12/12/2000	ND<1	FALSE
BH-7	3/1/2001	ND<1	FALSE
BH-7	6/1/2001	ND<1	FALSE
BH-7	9/1/2001	ND<1	FALSE
BH-7	3/1/2002	ND<1	FALSE
BH-7	6/1/2002	ND<2	TRUE
BH-7	9/1/2002	ND<1	FALSE
BH-8	4/1/1998	19	TRUE
BH-8	6/30/1998	7	TRUE
BH-8	10/2/1998	ND<10	TRUE
BH-8	12/9/1998	3	TRUE
BH-8	3/30/1999	2	TRUE
BH-8	6/9/1999	ND<10	TRUE
BH-8	9/29/1999	2	TRUE
BH-8	12/16/1999	ND<1	FALSE
BH-8	3/8/2000	ND<10	TRUE
BH-8	6/7/2000	7	TRUE
BH-8	9/27/2000	ND<1	FALSE
BH-8	12/12/2000	ND<1	FALSE
BH-8	3/1/2001	ND<1	FALSE
BH-8	6/1/2001	ND<1	FALSE
BH-8	9/1/2001	ND<1	FALSE
BH-8	3/1/2002	ND<1	FALSE
BH-8	6/1/2002	ND<1	FALSE
BH-8	9/1/2002	ND<1	FALSE
MW-10	3/31/1998	ND<1	FALSE
MW-10	6/29/1998	ND<1	FALSE
MW-10	10/1/1998	ND<1	FALSE
MW-10	12/9/1998	ND<1	FALSE
MW-10	3/30/1999	ND<1	FALSE
MW-10	6/9/1999	ND<1	FALSE
MW-10	9/28/1999	ND<1	FALSE
MW-10	12/15/1999	ND<1	FALSE
MW-10	3/9/2000	ND<1	FALSE
MW-10	6/7/2000	ND<1	FALSE
MW-10	9/27/2000	ND<1	FALSE
MW-10	12/12/2000	ND<1	FALSE
MW-10	3/1/2001	ND<1	FALSE
MW-10	6/1/2001	ND<1	FALSE
MW-10	9/1/2001	ND<1	FALSE
MW-10	3/1/2002	ND<1	FALSE
MW-10	6/1/2002	ND<1	FALSE
MW-10	9/1/2002	ND<1	FALSE
MW-11	3/31/1998	ND<1	FALSE
MW-11	6/29/1998	ND<1	FALSE
MW-11	10/1/1998	ND<1	FALSE

MW-11	12/9/1998	ND<1	FALSE
MW-11	3/30/1999	ND<1	FALSE
MW-11	6/9/1999	ND<1	FALSE
MW-11	9/28/1999	ND<1	FALSE
MW-11	12/15/1999	ND<1	FALSE
MW-11	3/9/2000	ND<1	FALSE
MW-11	6/7/2000	ND<1	FALSE
MW-11	9/27/2000	ND<1	FALSE
MW-11	12/12/2000	ND<1	FALSE
MW-11	3/1/2001	ND<1	FALSE
MW-11	6/1/2001	ND<1	FALSE
MW-11	9/1/2001	ND<1	FALSE
MW-11	3/1/2002	ND<1	FALSE
MW-11	6/1/2002	ND<1	FALSE
MW-11	9/1/2002	ND<1	FALSE
MW-12S	3/30/1998	ND<1	FALSE
MW-12S	6/29/1998	ND<1	FALSE
MW-12S	10/1/1998	ND<1	FALSE
MW-12S	12/9/1998	ND<1	FALSE
MW-12S	3/30/1999	ND<1	FALSE
MW-12S	6/9/1999	ND<1	FALSE
MW-12S	9/28/1999	ND<1	FALSE
MW-12S	12/15/1999	ND<1	FALSE
MW-12S	3/9/2000	ND<1	FALSE
MW-12S	6/7/2000	ND<1	FALSE
MW-12S	9/27/2000	ND<1	FALSE
MW-12S	12/12/2000	ND<1	FALSE
MW-12S	3/1/2001	ND<1	FALSE
MW-12S	6/1/2001	ND<1	FALSE
MW-12S	9/1/2001	ND<1	FALSE
MW-12S	3/1/2002	ND<1	FALSE
MW-12S	6/1/2002	ND<1	FALSE
MW-12S	9/1/2002	ND<1	FALSE
MW-13	3/30/1998	ND<1	FALSE
MW-13	6/29/1998	ND<1	FALSE
MW-13	10/1/1998	ND<1	FALSE
MW-13	12/9/1998	ND<1	FALSE
MW-13	3/30/1999	ND<1	FALSE
MW-13	6/9/1999	ND<1	FALSE
MW-13	9/28/1999	ND<1	FALSE
MW-13	12/17/1999	ND<1	FALSE
MW-13	3/9/2000	ND<1	FALSE
MW-13	6/7/2000	ND<1	FALSE
MW-13	9/27/2000	ND<1	FALSE
MW-13	12/12/2000	ND<1	FALSE
MW-13	3/1/2001	ND<1	FALSE
MW-13	6/1/2001	ND<1	FALSE
MW-13	9/1/2001	ND<1	FALSE
MW-13	3/1/2002	ND<1	FALSE
MW-13	6/1/2002	ND<1	FALSE
MW-13	9/1/2002	ND<1	FALSE

MW-14	4/1/1998	ND<1	FALSE
MW-14	6/30/1998	ND<1	FALSE
MW-14	10/1/1998	ND<1	FALSE
MW-14	12/7/1998	ND<1	FALSE
MW-14	3/30/1999	ND<1	FALSE
MW-14	6/9/1999	ND<1	FALSE
MW-14	9/29/1999	ND<1	FALSE
MW-14	12/16/1999	ND<1	FALSE
MW-14	6/1/2001	ND<1	FALSE
MW-14	9/1/2001	ND<1	FALSE
MW-14	3/1/2002	ND<1	FALSE
MW-14	6/1/2002	ND<1	FALSE
MW-14	9/1/2002	ND<1	FALSE
MW-3	3/30/1998	ND<1	FALSE
MW-3	6/30/1998	2	TRUE
MW-3	10/2/1998	ND<10	TRUE
MW-3	12/9/1998	3	TRUE
MW-3	3/30/1999	ND<1	FALSE
MW-3	6/9/1999	ND<1	FALSE
MW-3	9/28/1999	ND<1	FALSE
MW-3	12/16/1999	ND<1	FALSE
MW-3	3/8/2000	ND<10	TRUE
MW-3	6/7/2000	ND<1	FALSE
MW-3	9/27/2000	ND<1	FALSE
MW-3	12/12/2000	ND<1	FALSE
MW-3	3/1/2001	ND<1	FALSE
MW-3	6/1/2001	ND<1	FALSE
MW-3	9/1/2001	ND<1	FALSE
MW-3	3/1/2002	ND<10	TRUE
MW-3	6/1/2002	ND<10	TRUE
MW-3	9/1/2002	ND<5	TRUE
MW-4C	7/1/1998	ND<1	FALSE
MW-4C	10/2/1998	ND<1	FALSE
MW-4C	12/7/1998	ND<1	FALSE
MW-4C	3/30/1999	ND<1	FALSE
MW-4C	6/9/1999	ND<1	FALSE
MW-4C	9/30/1999	ND<1	FALSE
MW-4C	12/17/1999	ND<1	FALSE
MW-4C	3/7/2000	ND<1	FALSE
MW-4C	6/8/2000	ND<1	FALSE
MW-4C	9/27/2000	ND<1	FALSE
MW-4C	12/12/2000	ND<1	FALSE
MW-4C	3/1/2001	ND<1	FALSE
MW-4C	9/1/2001	ND<1	FALSE
MW-4C	3/1/2002	ND<1	FALSE
MW-4C	9/1/2002	ND<1	FALSE
MW-9	3/31/1998	ND<1	FALSE
MW-9	6/29/1998	ND<1	FALSE
MW-9	10/1/1998	ND<1	FALSE
MW-9	12/9/1998	ND<1	FALSE
MW-9	3/30/1999	ND<1	FALSE

MW-9	6/9/1999	ND<1	FALSE
MW-9	9/28/1999	ND<1	FALSE
MW-9	12/15/1999	ND<1	FALSE
MW-9	3/8/2000	ND<1	FALSE
MW-9	6/7/2000	ND<1	FALSE
MW-9	9/27/2000	ND<1	FALSE
MW-9	12/12/2000	ND<1	FALSE
MW-9	3/1/2001	ND<1	FALSE
MW-9	6/1/2001	ND<1	FALSE
MW-9	9/1/2001	ND<1	FALSE
MW-9	3/1/2002	ND<1	FALSE
MW-9	6/1/2002	ND<1	FALSE
MW-9	9/1/2002	ND<1	FALSE
OW-1	3/30/1998	ND<1	FALSE
OW-1	6/30/1998	18	TRUE
OW-1	10/1/1998	ND<250	TRUE
OW-1	12/7/1998	ND<100	TRUE
OW-1	3/30/1999	41	TRUE
OW-1	6/9/1999	ND<25	TRUE
OW-1	9/29/1999	24	TRUE
OW-1	12/16/1999	13	TRUE
OW-1	3/7/2000	13	TRUE
OW-1	6/7/2000	32	TRUE
OW-1	9/27/2000	ND<1	FALSE
OW-1	12/12/2000	ND<1	FALSE
OW-1	3/1/2001	15	TRUE
OW-1	6/1/2001	ND<1	FALSE
OW-1	9/1/2001	ND<1	FALSE
OW-1	3/1/2002	ND<10	TRUE
OW-1	6/1/2002	ND<10	TRUE
OW-1	9/1/2002	ND<50	TRUE
OW-2	4/3/1998	ND<1	FALSE
OW-2	7/1/1998	ND<1	FALSE
OW-2	10/2/1998	ND<1	FALSE
OW-2	12/7/1998	ND<1	FALSE
OW-2	3/30/1999	ND<1	FALSE
OW-2	6/9/1999	ND<1	FALSE
OW-2	9/30/1999	2	TRUE
OW-2	12/17/1999	ND<1	FALSE
OW-2	3/8/2000	ND<1	FALSE
OW-2	6/8/2000	ND<1	FALSE
OW-2	9/27/2000	ND<1	FALSE
OW-2	12/12/2000	ND<1	FALSE
OW-2	3/1/2001	ND<1	FALSE
OW-2	6/1/2001	ND<1	FALSE
OW-2	9/1/2001	ND<1	FALSE
OW-2	3/1/2002	ND<1	FALSE
OW-2	6/1/2002	ND<1	FALSE
OW-2	9/1/2002	ND<1	FALSE
OW-3	4/2/1998	ND<1	FALSE
OW-3	7/1/1998	ND<1	FALSE

OW-3	10/2/1998	ND<1	FALSE
OW-3	12/7/1998	ND<1	FALSE
OW-3	3/30/1999	ND<1	FALSE
OW-3	6/9/1999	ND<1	FALSE
OW-3	9/30/1999	ND<1	FALSE
OW-3	12/17/1999	ND<1	FALSE
OW-3	3/8/2000	ND<1	FALSE
OW-3	6/8/2000	ND<1	FALSE
OW-3	9/27/2000	ND<1	FALSE
OW-3	12/12/2000	ND<1	FALSE
OW-3	6/1/2001	ND<1	FALSE
OW-3	9/1/2001	ND<1	FALSE
OW-3	3/1/2002	ND<1	FALSE
OW-3	6/1/2002	ND<1	FALSE
OW-3	9/1/2002	ND<1	FALSE
OW-4	3/30/1998	ND<1	FALSE
OW-4	6/30/1998	ND<1	FALSE
OW-4	10/2/1998	ND<1	FALSE
OW-4	12/9/1998	ND<1	FALSE
OW-4	3/30/1999	ND<1	FALSE
OW-4	6/9/1999	ND<1	FALSE
OW-4	9/29/1999	ND<1	FALSE
OW-4	12/16/1999	ND<1	FALSE
OW-4	3/1/2001	ND<1	FALSE
OW-4	6/1/2001	ND<1	FALSE
OW-4	3/1/2002	ND<1	FALSE
OW-4	6/1/2002	ND<1	FALSE
OW-4	9/1/2002	ND<1	FALSE
OW-5	4/1/1998	ND<1	FALSE
OW-5	6/30/1998	1	FALSE
OW-5	10/1/1998	ND<10	TRUE
OW-5	12/7/1998	3	TRUE
OW-5	3/30/1999	1	FALSE
OW-5	6/9/1999	1	FALSE
OW-5	9/29/1999	ND<1	FALSE
OW-5	12/16/1999	ND<1	FALSE
OW-5	3/8/2000	ND<1	FALSE
OW-5	6/7/2000	ND<1	FALSE
OW-5	9/27/2000	2	TRUE
OW-5	12/12/2000	ND<1	FALSE
OW-5	3/1/2001	ND<1	FALSE
OW-5	6/1/2001	ND<1	FALSE
OW-5	9/1/2001	ND<1	FALSE
OW-5	3/1/2002	ND<1	FALSE
OW-5	6/1/2002	ND<1	FALSE
OW-5	9/1/2002	ND<1	FALSE
PW-1	4/1/1998	ND<1	FALSE
PW-1	6/30/1998	17	TRUE
PW-1	10/1/1998	ND<20	TRUE
PW-1	12/7/1998	ND<1	FALSE
PW-1	3/30/1999	17	TRUE

PW-1	6/9/1999	ND<10	TRUE
PW-1	9/29/1999	14	TRUE
PW-1	12/16/1999	10	TRUE
PW-1	3/8/2000	ND<25	TRUE
PW-1	6/7/2000	18	TRUE
PW-1	9/27/2000	20	TRUE
PW-1	12/12/2000	10	TRUE
PW-1	3/1/2001	32	TRUE
PW-1	6/1/2001	ND<1	FALSE
PW-1	9/1/2001	10	TRUE
PW-1	3/1/2002	ND<5	TRUE
PW-1	6/1/2002	ND<5	TRUE
PW-1	9/1/2002	ND<10	TRUE
MP-11A	4/3/1998	ND<1	FALSE
MP-11A	6/30/1998	ND<1	FALSE
MP-11A	10/2/1998	ND<1	FALSE
MP-11A	12/9/1998	ND<1	FALSE
MP-11A	3/30/1999	ND<1	FALSE
MP-11A	6/9/1999	ND<1	FALSE
MP-11A	11/18/1999	ND<1	FALSE
MP-11A	12/21/1999	ND<1	FALSE
MP-11A	3/9/2000	ND<1	FALSE
MP-11A	6/8/2000	ND<1	FALSE
MP-11A	9/27/2000	ND<1	FALSE
MP-11A	12/12/2000	ND<1	FALSE
MP-11A	3/1/2001	ND<1	FALSE
MP-11A	6/1/2001	ND<1	FALSE
MP-11A	9/1/2001	ND<1	FALSE
MP-11A	3/1/2002	ND<1	FALSE
MP-11A	6/1/2002	ND<1	FALSE
MP-11A	9/1/2002	ND<1	FALSE
MP-2B	4/2/1998	ND<1	FALSE
MP-2B	7/1/1998	ND<1	FALSE
MP-2B	10/2/1998	ND<1	FALSE
MP-2B	12/7/1998	ND<1	FALSE
MP-2B	3/30/1999	ND<1	FALSE
MP-2B	6/9/1999	ND<1	FALSE
MP-2B	9/30/1999	ND<1	FALSE
MP-2B	12/17/1999	ND<1	FALSE
MP-2B	3/7/2000	ND<1	FALSE
MP-2B	6/8/2000	ND<1	FALSE
MP-2B	9/27/2000	ND<1	FALSE
MP-2B	12/12/2000	ND<1	FALSE
MP-2B	9/1/2001	ND<1	FALSE
MP-2B	3/1/2002	ND<1	FALSE
MP-2B	9/1/2002	ND<1	FALSE
MP-9	4/1/1998	ND<1	FALSE
MP-9	6/30/1998	ND<1	FALSE
MP-9	10/2/1998	ND<1	FALSE
MP-9	12/9/1998	ND<1	FALSE
MP-9	3/30/1999	1	FALSE

MP-9	6/9/1999	ND<1	FALSE
MP-9	9/29/1999	2	TRUE
MP-9	12/17/1999	ND<1	FALSE
MP-9	3/8/2000	ND<1	FALSE
MP-9	6/8/2000	ND<1	FALSE
MP-9	9/27/2000	ND<1	FALSE
MP-9	12/12/2000	ND<1	FALSE
MP-9	3/1/2001	ND<1	FALSE
MP-9	9/1/2001	ND<1	FALSE
MP-9	3/1/2002	ND<1	FALSE
MP-9	9/1/2002	ND<1	FALSE

Non-Parametric Tolerance Interval

Parameter: 1,1-Dichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 96.1538%
Background Samples (n) = 33
Maximum Background Concentration = 1
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<1	FALSE
B-5	7/1/1998	ND<1	FALSE
B-5	10/2/1998	ND<1	FALSE
B-5	12/7/1998	ND<1	FALSE
B-5	3/30/1999	ND<1	FALSE
B-5	6/9/1999	ND<1	FALSE
B-5	9/30/1999	ND<1	FALSE
B-5	12/15/1999	ND<1	FALSE
B-5	3/8/2000	ND<1	FALSE
B-5	6/8/2000	ND<1	FALSE
B-5	9/27/2000	ND<1	FALSE
B-5	12/12/2000	ND<1	FALSE
B-5	3/1/2001	ND<1	FALSE
B-5	9/1/2001	ND<1	FALSE
B-5	3/1/2002	ND<1	FALSE
B-5	9/1/2002	ND<1	FALSE
BH-2	7/2/1998	ND<1	FALSE
BH-2	10/1/1998	ND<1	FALSE
BH-2	12/7/1998	ND<1	FALSE
BH-2	3/30/1999	ND<1	FALSE
BH-2	6/9/1999	ND<1	FALSE
BH-2	9/30/1999	ND<1	FALSE
BH-2	12/17/1999	ND<1	FALSE
BH-2	3/7/2000	ND<1	FALSE
BH-2	6/8/2000	ND<1	FALSE
BH-2	9/27/2000	1	FALSE
BH-2	12/12/2000	ND<1	FALSE
BH-2	3/1/2001	ND<1	FALSE
BH-2	6/1/2001	ND<1	FALSE
BH-2	9/1/2001	ND<1	FALSE
BH-2	3/1/2002	ND<1	FALSE
BH-2	6/1/2002	ND<1	FALSE
BH-2	9/1/2002	ND<1	FALSE
BH-7	4/1/1998	ND<1	FALSE
BH-7	6/30/1998	ND<1	FALSE
BH-7	10/2/1998	ND<10	TRUE
BH-7	12/9/1998	ND<1	FALSE
BH-7	3/30/1999	1	FALSE
BH-7	6/9/1999	ND<10	TRUE

BH-7	9/28/1999	ND<1	FALSE
BH-7	12/16/1999	ND<1	FALSE
BH-7	3/8/2000	ND<5	TRUE
BH-7	6/7/2000	ND<1	FALSE
BH-7	9/27/2000	ND<1	FALSE
BH-7	12/12/2000	ND<1	FALSE
BH-7	3/1/2001	ND<1	FALSE
BH-7	6/1/2001	ND<1	FALSE
BH-7	9/1/2001	ND<1	FALSE
BH-7	3/1/2002	ND<1	FALSE
BH-7	6/1/2002	ND<2	TRUE
BH-7	9/1/2002	ND<1	FALSE
BH-8	4/1/1998	ND<1	FALSE
BH-8	6/30/1998	ND<1	FALSE
BH-8	10/2/1998	ND<10	TRUE
BH-8	12/9/1998	ND<1	FALSE
BH-8	3/30/1999	ND<1	FALSE
BH-8	6/9/1999	ND<10	TRUE
BH-8	9/29/1999	ND<1	FALSE
BH-8	12/16/1999	ND<1	FALSE
BH-8	3/8/2000	ND<10	TRUE
BH-8	6/7/2000	ND<1	FALSE
BH-8	9/27/2000	1	FALSE
BH-8	12/12/2000	ND<1	FALSE
BH-8	3/1/2001	3	TRUE
BH-8	6/1/2001	ND<1	FALSE
BH-8	9/1/2001	ND<1	FALSE
BH-8	3/1/2002	ND<1	FALSE
BH-8	6/1/2002	ND<1	FALSE
BH-8	9/1/2002	ND<1	FALSE
MW-10	3/31/1998	ND<1	FALSE
MW-10	6/29/1998	ND<1	FALSE
MW-10	10/1/1998	ND<1	FALSE
MW-10	12/9/1998	ND<1	FALSE
MW-10	3/30/1999	ND<1	FALSE
MW-10	6/9/1999	ND<1	FALSE
MW-10	9/28/1999	ND<1	FALSE
MW-10	12/15/1999	ND<1	FALSE
MW-10	3/9/2000	ND<1	FALSE
MW-10	6/7/2000	ND<1	FALSE
MW-10	9/27/2000	ND<1	FALSE
MW-10	12/12/2000	ND<1	FALSE
MW-10	3/1/2001	ND<1	FALSE
MW-10	6/1/2001	ND<1	FALSE
MW-10	9/1/2001	ND<1	FALSE
MW-10	3/1/2002	ND<1	FALSE
MW-10	6/1/2002	ND<1	FALSE
MW-10	9/1/2002	ND<1	FALSE
MW-11	3/31/1998	ND<1	FALSE
MW-11	6/29/1998	ND<1	FALSE
MW-11	10/1/1998	ND<1	FALSE

MW-11	12/9/1998	ND<1	FALSE
MW-11	3/30/1999	ND<1	FALSE
MW-11	6/9/1999	ND<1	FALSE
MW-11	9/28/1999	ND<1	FALSE
MW-11	12/15/1999	ND<1	FALSE
MW-11	3/9/2000	ND<1	FALSE
MW-11	6/7/2000	ND<1	FALSE
MW-11	9/27/2000	ND<1	FALSE
MW-11	12/12/2000	ND<1	FALSE
MW-11	3/1/2001	ND<1	FALSE
MW-11	6/1/2001	ND<1	FALSE
MW-11	9/1/2001	ND<1	FALSE
MW-11	3/1/2002	ND<1	FALSE
MW-11	6/1/2002	ND<1	FALSE
MW-11	9/1/2002	ND<1	FALSE
MW-12S	3/30/1998	ND<1	FALSE
MW-12S	6/29/1998	ND<1	FALSE
MW-12S	10/1/1998	ND<1	FALSE
MW-12S	12/9/1998	ND<1	FALSE
MW-12S	3/30/1999	ND<1	FALSE
MW-12S	6/9/1999	ND<1	FALSE
MW-12S	9/28/1999	ND<1	FALSE
MW-12S	12/15/1999	ND<1	FALSE
MW-12S	3/9/2000	ND<1	FALSE
MW-12S	6/7/2000	ND<1	FALSE
MW-12S	9/27/2000	ND<1	FALSE
MW-12S	12/12/2000	ND<1	FALSE
MW-12S	3/1/2001	ND<1	FALSE
MW-12S	6/1/2001	ND<1	FALSE
MW-12S	9/1/2001	ND<1	FALSE
MW-12S	3/1/2002	ND<1	FALSE
MW-12S	6/1/2002	ND<1	FALSE
MW-12S	9/1/2002	ND<1	FALSE
MW-13	3/30/1998	ND<1	FALSE
MW-13	6/29/1998	ND<1	FALSE
MW-13	10/1/1998	ND<1	FALSE
MW-13	12/9/1998	ND<1	FALSE
MW-13	3/30/1999	ND<1	FALSE
MW-13	6/9/1999	ND<1	FALSE
MW-13	9/28/1999	ND<1	FALSE
MW-13	12/17/1999	ND<1	FALSE
MW-13	3/9/2000	ND<1	FALSE
MW-13	6/7/2000	ND<1	FALSE
MW-13	9/27/2000	ND<1	FALSE
MW-13	12/12/2000	ND<1	FALSE
MW-13	3/1/2001	ND<1	FALSE
MW-13	6/1/2001	ND<1	FALSE
MW-13	9/1/2001	ND<1	FALSE
MW-13	3/1/2002	ND<1	FALSE
MW-13	6/1/2002	ND<1	FALSE
MW-13	9/1/2002	ND<1	FALSE

MW-14	4/1/1998	ND<1	FALSE
MW-14	6/30/1998	ND<1	FALSE
MW-14	10/1/1998	ND<1	FALSE
MW-14	12/7/1998	ND<1	FALSE
MW-14	3/30/1999	ND<1	FALSE
MW-14	6/9/1999	ND<1	FALSE
MW-14	9/29/1999	ND<1	FALSE
MW-14	12/16/1999	ND<1	FALSE
MW-14	6/1/2001	ND<1	FALSE
MW-14	9/1/2001	ND<1	FALSE
MW-14	3/1/2002	ND<1	FALSE
MW-14	6/1/2002	ND<1	FALSE
MW-14	9/1/2002	ND<1	FALSE
MW-3	3/30/1998	ND<1	FALSE
MW-3	6/30/1998	ND<1	FALSE
MW-3	10/2/1998	ND<10	TRUE
MW-3	12/9/1998	9	TRUE
MW-3	3/30/1999	ND<1	FALSE
MW-3	6/9/1999	ND<1	FALSE
MW-3	9/28/1999	ND<1	FALSE
MW-3	12/16/1999	ND<1	FALSE
MW-3	3/8/2000	ND<10	TRUE
MW-3	6/7/2000	ND<1	FALSE
MW-3	9/27/2000	ND<1	FALSE
MW-3	12/12/2000	ND<1	FALSE
MW-3	3/1/2001	ND<1	FALSE
MW-3	6/1/2001	ND<1	FALSE
MW-3	9/1/2001	ND<1	FALSE
MW-3	3/1/2002	ND<1	FALSE
MW-3	9/1/2002	ND<1	FALSE
MW-4C	7/1/1998	ND<1	FALSE
MW-4C	10/2/1998	ND<1	FALSE
MW-4C	12/7/1998	ND<1	FALSE
MW-4C	3/30/1999	ND<1	FALSE
MW-4C	6/9/1999	ND<1	FALSE
MW-4C	9/30/1999	ND<1	FALSE
MW-4C	12/17/1999	ND<1	FALSE
MW-4C	3/7/2000	ND<1	FALSE
MW-4C	6/8/2000	ND<1	FALSE
MW-4C	9/27/2000	ND<1	FALSE
MW-4C	12/12/2000	ND<1	FALSE
MW-4C	3/1/2001	ND<1	FALSE
MW-4C	9/1/2001	ND<1	FALSE
MW-4C	3/1/2002	ND<1	FALSE
MW-4C	9/1/2002	ND<1	FALSE
MW-9	3/31/1998	ND<1	FALSE
MW-9	6/29/1998	ND<1	FALSE
MW-9	10/1/1998	ND<1	FALSE
MW-9	12/9/1998	ND<1	FALSE
MW-9	3/30/1999	ND<1	FALSE
MW-9	6/9/1999	ND<1	FALSE

MW-9	9/28/1999	ND<1	FALSE
MW-9	12/15/1999	ND<1	FALSE
MW-9	3/8/2000	ND<1	FALSE
MW-9	6/7/2000	ND<1	FALSE
MW-9	9/27/2000	ND<1	FALSE
MW-9	12/12/2000	ND<1	FALSE
MW-9	3/1/2001	ND<1	FALSE
MW-9	6/1/2001	ND<1	FALSE
MW-9	9/1/2001	ND<1	FALSE
MW-9	3/1/2002	ND<1	FALSE
MW-9	6/1/2002	ND<1	FALSE
MW-9	9/1/2002	ND<1	FALSE
OW-1	3/30/1998	ND<1	FALSE
OW-1	6/30/1998	ND<1	FALSE
OW-1	10/1/1998	ND<250	TRUE
OW-1	12/7/1998	ND<100	TRUE
OW-1	3/30/1999	ND<25	TRUE
OW-1	6/9/1999	ND<25	TRUE
OW-1	9/29/1999	ND<1	FALSE
OW-1	12/16/1999	ND<10	TRUE
OW-1	3/7/2000	ND<10	TRUE
OW-1	6/7/2000	ND<10	TRUE
OW-1	9/27/2000	ND<1	FALSE
OW-1	12/12/2000	ND<10	TRUE
OW-1	3/1/2001	ND<1	FALSE
OW-1	6/1/2001	ND<1	FALSE
OW-1	9/1/2001	16	TRUE
OW-1	3/1/2002	15	TRUE
OW-1	6/1/2002	17	TRUE
OW-1	9/1/2002	ND<50	TRUE
OW-2	4/3/1998	ND<1	FALSE
OW-2	7/1/1998	ND<1	FALSE
OW-2	10/2/1998	ND<1	FALSE
OW-2	12/7/1998	ND<1	FALSE
OW-2	3/30/1999	ND<1	FALSE
OW-2	6/9/1999	ND<1	FALSE
OW-2	9/30/1999	ND<1	FALSE
OW-2	12/17/1999	ND<1	FALSE
OW-2	3/8/2000	ND<1	FALSE
OW-2	6/8/2000	ND<1	FALSE
OW-2	9/27/2000	ND<1	FALSE
OW-2	9/27/2000	ND<1	FALSE
OW-2	12/12/2000	ND<1	FALSE
OW-2	12/12/2000	ND<1	FALSE
OW-2	3/1/2001	ND<1	FALSE
OW-2	6/1/2001	ND<1	FALSE
OW-2	9/1/2001	ND<1	FALSE
OW-2	3/1/2002	ND<1	FALSE
OW-2	6/1/2002	ND<1	FALSE
OW-2	9/1/2002	ND<1	FALSE
OW-3	4/2/1998	ND<1	FALSE

OW-3	7/1/1998	ND<1	FALSE
OW-3	10/2/1998	ND<1	FALSE
OW-3	12/7/1998	ND<1	FALSE
OW-3	3/30/1999	ND<1	FALSE
OW-3	6/9/1999	ND<1	FALSE
OW-3	9/30/1999	ND<1	FALSE
OW-3	12/17/1999	ND<1	FALSE
OW-3	6/1/2001	ND<1	FALSE
OW-3	9/1/2001	ND<1	FALSE
OW-3	3/1/2002	ND<1	FALSE
OW-3	6/1/2002	ND<1	FALSE
OW-3	9/1/2002	ND<1	FALSE
OW-4	3/30/1998	ND<1	FALSE
OW-4	6/30/1998	ND<1	FALSE
OW-4	10/2/1998	ND<1	FALSE
OW-4	12/9/1998	ND<1	FALSE
OW-4	3/30/1999	ND<1	FALSE
OW-4	6/9/1999	ND<1	FALSE
OW-4	9/29/1999	ND<1	FALSE
OW-4	12/16/1999	ND<1	FALSE
OW-4	3/8/2000	ND<1	FALSE
OW-4	6/7/2000	ND<1	FALSE
OW-4	9/27/2000	ND<1	FALSE
OW-4	12/12/2000	ND<1	FALSE
OW-4	3/1/2001	ND<1	FALSE
OW-4	6/1/2001	ND<1	FALSE
OW-4	3/1/2002	ND<1	FALSE
OW-4	6/1/2002	ND<1	FALSE
OW-4	9/1/2002	ND<1	FALSE
OW-5	4/1/1998	ND<1	FALSE
OW-5	6/30/1998	ND<1	FALSE
OW-5	10/1/1998	ND<10	TRUE
OW-5	12/7/1998	ND<1	FALSE
OW-5	3/30/1999	ND<1	FALSE
OW-5	6/9/1999	ND<1	FALSE
OW-5	9/29/1999	ND<1	FALSE
OW-5	12/16/1999	ND<1	FALSE
OW-5	3/8/2000	1	FALSE
OW-5	6/7/2000	ND<1	FALSE
OW-5	9/27/2000	1	FALSE
OW-5	12/12/2000	ND<1	FALSE
OW-5	3/1/2001	ND<1	FALSE
OW-5	6/1/2001	ND<1	FALSE
OW-5	9/1/2001	1	FALSE
OW-5	3/1/2002	ND<1	FALSE
OW-5	6/1/2002	ND<1	FALSE
OW-5	9/1/2002	ND<1	FALSE
PW-1	4/1/1998	ND<1	FALSE
PW-1	6/30/1998	ND<1	FALSE
PW-1	10/1/1998	ND<20	TRUE
PW-1	12/7/1998	17	TRUE

PW-1	3/30/1999	ND<1	FALSE
PW-1	6/9/1999	ND<10	TRUE
PW-1	9/29/1999	ND<10	TRUE
PW-1	12/16/1999	18	TRUE
PW-1	3/8/2000	ND<25	TRUE
PW-1	6/7/2000	ND<5	TRUE
PW-1	9/27/2000	ND<1	FALSE
PW-1	12/12/2000	ND<1	FALSE
PW-1	3/1/2001	ND<1	FALSE
PW-1	6/1/2001	ND<1	FALSE
PW-1	9/1/2001	ND<1	FALSE
PW-1	3/1/2002	7	TRUE
PW-1	6/1/2002	8	TRUE
PW-1	9/1/2002	ND<10	TRUE
MP-11A	4/3/1998	ND<1	FALSE
MP-11A	6/30/1998	ND<1	FALSE
MP-11A	10/2/1998	ND<1	FALSE
MP-11A	12/9/1998	ND<1	FALSE
MP-11A	3/30/1999	ND<1	FALSE
MP-11A	6/9/1999	ND<1	FALSE
MP-11A	11/18/1999	ND<1	FALSE
MP-11A	12/21/1999	ND<1	FALSE
MP-11A	3/9/2000	ND<1	FALSE
MP-11A	6/8/2000	ND<1	FALSE
MP-11A	9/27/2000	ND<1	FALSE
MP-11A	12/12/2000	ND<1	FALSE
MP-11A	3/1/2001	ND<1	FALSE
MP-11A	6/1/2001	ND<1	FALSE
MP-11A	9/1/2001	ND<1	FALSE
MP-11A	3/1/2002	ND<1	FALSE
MP-11A	6/1/2002	ND<1	FALSE
MP-11A	9/1/2002	ND<1	FALSE
MP-2B	4/2/1998	ND<1	FALSE
MP-2B	7/1/1998	ND<1	FALSE
MP-2B	10/2/1998	ND<1	FALSE
MP-2B	12/7/1998	ND<1	FALSE
MP-2B	3/30/1999	ND<1	FALSE
MP-2B	6/9/1999	ND<1	FALSE
MP-2B	9/30/1999	ND<1	FALSE
MP-2B	12/17/1999	ND<1	FALSE
MP-2B	3/7/2000	ND<1	FALSE
MP-2B	6/8/2000	ND<1	FALSE
MP-2B	9/27/2000	ND<1	FALSE
MP-2B	12/12/2000	ND<1	FALSE
MP-2B	9/1/2001	ND<1	FALSE
MP-2B	3/1/2002	ND<1	FALSE
MP-2B	9/1/2002	ND<1	FALSE
MP-9	4/1/1998	ND<1	FALSE
MP-9	6/30/1998	ND<1	FALSE
MP-9	10/2/1998	ND<1	FALSE
MP-9	12/9/1998	ND<1	FALSE

MP-9	3/30/1999	ND<1	FALSE
MP-9	6/9/1999	ND<1	FALSE
MP-9	9/29/1999	ND<1	FALSE
MP-9	12/17/1999	ND<1	FALSE
MP-9	3/8/2000	ND<1	FALSE
MP-9	6/8/2000	ND<1	FALSE
MP-9	9/27/2000	ND<1	FALSE
MP-9	12/12/2000	ND<1	FALSE
MP-9	3/1/2001	ND<1	FALSE
MP-9	9/1/2001	ND<1	FALSE
MP-9	3/1/2002	ND<1	FALSE
MP-9	9/1/2002	ND<1	FALSE

Non-Parametric Tolerance Interval

Parameter: Tetrachloroethene

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 92.5065%
Background Samples (n) = 33
Maximum Background Concentration = 1
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<1	FALSE
B-5	7/1/1998	ND<1	FALSE
B-5	10/2/1998	ND<1	FALSE
B-5	12/7/1998	ND<1	FALSE
B-5	3/30/1999	ND<1	FALSE
B-5	6/9/1999	ND<1	FALSE
B-5	9/30/1999	ND<1	FALSE
B-5	12/15/1999	ND<1	FALSE
B-5	3/8/2000	ND<1	FALSE
B-5	6/8/2000	ND<1	FALSE
B-5	9/27/2000	ND<1	FALSE
B-5	12/12/2000	ND<1	FALSE
B-5	3/1/2001	ND<1	FALSE
B-5	9/1/2001	ND<1	FALSE
B-5	3/1/2002	ND<1	FALSE
B-5	9/1/2002	ND<1	FALSE
BH-2	7/2/1998	ND<1	FALSE
BH-2	10/1/1998	ND<1	FALSE
BH-2	12/7/1998	ND<1	FALSE
BH-2	3/30/1999	ND<1	FALSE
BH-2	6/9/1999	ND<1	FALSE
BH-2	9/30/1999	ND<1	FALSE
BH-2	12/17/1999	ND<1	FALSE
BH-2	3/7/2000	ND<1	FALSE
BH-2	6/8/2000	ND<1	FALSE
BH-2	9/27/2000	ND<1	FALSE
BH-2	12/12/2000	ND<1	FALSE
BH-2	3/1/2001	ND<1	FALSE
BH-2	6/1/2001	ND<1	FALSE
BH-2	9/1/2001	ND<1	FALSE
BH-2	3/1/2002	ND<1	FALSE
BH-2	9/1/2002	ND<1	FALSE
BH-7	4/1/1998	ND<1	FALSE
BH-7	6/30/1998	ND<1	FALSE
BH-7	10/2/1998	ND<10	TRUE
BH-7	12/9/1998	ND<1	FALSE
BH-7	3/30/1999	ND<1	FALSE
BH-7	6/9/1999	ND<10	TRUE
BH-7	9/28/1999	ND<1	FALSE

BH-7	12/16/1999	ND<1	FALSE
BH-7	3/8/2000	ND<5	TRUE
BH-7	6/7/2000	ND<1	FALSE
BH-7	9/27/2000	ND<1	FALSE
BH-7	12/12/2000	ND<1	FALSE
BH-7	3/1/2001	ND<1	FALSE
BH-7	6/1/2001	ND<1	FALSE
BH-7	9/1/2001	ND<1	FALSE
BH-7	3/1/2002	ND<1	FALSE
BH-7	6/1/2002	ND<2	TRUE
BH-7	9/1/2002	ND<1	FALSE
BH-8	4/1/1998	ND<1	FALSE
BH-8	6/30/1998	ND<1	FALSE
BH-8	10/2/1998	ND<10	TRUE
BH-8	12/9/1998	ND<1	FALSE
BH-8	3/30/1999	ND<1	FALSE
BH-8	6/9/1999	ND<10	TRUE
BH-8	9/29/1999	ND<1	FALSE
BH-8	12/16/1999	ND<1	FALSE
BH-8	3/8/2000	ND<10	TRUE
BH-8	6/7/2000	ND<1	FALSE
BH-8	9/27/2000	ND<1	FALSE
BH-8	12/12/2000	ND<1	FALSE
BH-8	3/1/2001	ND<1	FALSE
BH-8	6/1/2001	ND<1	FALSE
BH-8	9/1/2001	ND<1	FALSE
BH-8	3/1/2002	ND<1	FALSE
BH-8	6/1/2002	ND<1	FALSE
BH-8	9/1/2002	ND<1	FALSE
MW-10	3/31/1998	ND<1	FALSE
MW-10	6/29/1998	ND<1	FALSE
MW-10	10/1/1998	ND<1	FALSE
MW-10	12/9/1998	ND<1	FALSE
MW-10	3/30/1999	ND<1	FALSE
MW-10	6/9/1999	ND<1	FALSE
MW-10	9/28/1999	ND<1	FALSE
MW-10	12/15/1999	ND<1	FALSE
MW-10	3/9/2000	ND<1	FALSE
MW-10	6/7/2000	ND<1	FALSE
MW-10	9/27/2000	ND<1	FALSE
MW-10	12/12/2000	ND<1	FALSE
MW-10	3/1/2001	ND<1	FALSE
MW-10	6/1/2001	ND<1	FALSE
MW-10	9/1/2001	ND<1	FALSE
MW-10	3/1/2002	ND<1	FALSE
MW-10	6/1/2002	ND<1	FALSE
MW-10	9/1/2002	ND<1	FALSE
MW-11	3/31/1998	ND<1	FALSE
MW-11	6/29/1998	ND<1	FALSE
MW-11	10/1/1998	ND<1	FALSE
MW-11	12/9/1998	ND<1	FALSE

MW-11	3/30/1999	ND<1	FALSE
MW-11	6/9/1999	ND<1	FALSE
MW-11	9/28/1999	ND<1	FALSE
MW-11	12/15/1999	ND<1	FALSE
MW-11	3/9/2000	ND<1	FALSE
MW-11	6/7/2000	ND<1	FALSE
MW-11	9/27/2000	ND<1	FALSE
MW-11	12/12/2000	ND<1	FALSE
MW-11	3/1/2001	ND<1	FALSE
MW-11	6/1/2001	ND<1	FALSE
MW-11	9/1/2001	ND<1	FALSE
MW-11	3/1/2002	ND<1	FALSE
MW-11	6/1/2002	ND<1	FALSE
MW-11	9/1/2002	ND<1	FALSE
MW-12S	3/30/1998	ND<1	FALSE
MW-12S	6/29/1998	ND<1	FALSE
MW-12S	10/1/1998	ND<1	FALSE
MW-12S	12/9/1998	ND<1	FALSE
MW-12S	3/30/1999	ND<1	FALSE
MW-12S	6/9/1999	ND<1	FALSE
MW-12S	9/28/1999	ND<1	FALSE
MW-12S	12/15/1999	ND<1	FALSE
MW-12S	3/9/2000	ND<1	FALSE
MW-12S	6/7/2000	ND<1	FALSE
MW-12S	9/27/2000	ND<1	FALSE
MW-12S	12/12/2000	ND<1	FALSE
MW-12S	3/1/2001	ND<1	FALSE
MW-12S	6/1/2001	ND<1	FALSE
MW-12S	9/1/2001	ND<1	FALSE
MW-12S	3/1/2002	ND<1	FALSE
MW-12S	6/1/2002	ND<1	FALSE
MW-12S	9/1/2002	ND<1	FALSE
MW-13	3/30/1998	ND<1	FALSE
MW-13	6/29/1998	ND<1	FALSE
MW-13	10/1/1998	ND<1	FALSE
MW-13	12/9/1998	ND<1	FALSE
MW-13	3/30/1999	ND<1	FALSE
MW-13	6/9/1999	ND<1	FALSE
MW-13	9/28/1999	ND<1	FALSE
MW-13	12/17/1999	ND<1	FALSE
MW-13	3/9/2000	ND<1	FALSE
MW-13	6/7/2000	ND<1	FALSE
MW-13	9/27/2000	ND<1	FALSE
MW-13	12/12/2000	ND<1	FALSE
MW-13	3/1/2001	ND<1	FALSE
MW-13	6/1/2001	ND<1	FALSE
MW-13	9/1/2001	ND<1	FALSE
MW-13	3/1/2002	ND<1	FALSE
MW-13	6/1/2002	ND<1	FALSE
MW-13	9/1/2002	ND<1	FALSE
MW-14	4/1/1998	ND<1	FALSE

MW-14	6/30/1998	ND<1	FALSE
MW-14	10/1/1998	ND<1	FALSE
MW-14	12/7/1998	ND<1	FALSE
MW-14	3/30/1999	ND<1	FALSE
MW-14	6/9/1999	ND<1	FALSE
MW-14	9/29/1999	ND<1	FALSE
MW-14	12/16/1999	ND<1	FALSE
MW-14	6/1/2001	ND<1	FALSE
MW-14	9/1/2001	ND<1	FALSE
MW-14	3/1/2002	ND<1	FALSE
MW-14	6/1/2002	ND<1	FALSE
MW-14	9/1/2002	ND<1	FALSE
MW-3	3/30/1998	ND<1	FALSE
MW-3	6/30/1998	ND<1	FALSE
MW-3	10/2/1998	ND<10	TRUE
MW-3	12/9/1998	ND<10	TRUE
MW-3	3/30/1999	ND<1	FALSE
MW-3	6/9/1999	ND<1	FALSE
MW-3	9/28/1999	ND<1	FALSE
MW-3	12/16/1999	ND<1	FALSE
MW-3	3/8/2000	ND<10	TRUE
MW-3	6/7/2000	ND<1	FALSE
MW-3	9/27/2000	ND<1	FALSE
MW-3	12/12/2000	ND<1	FALSE
MW-3	3/1/2001	ND<1	FALSE
MW-3	6/1/2001	ND<1	FALSE
MW-3	9/1/2001	ND<1	FALSE
MW-3	3/1/2002	ND<10	TRUE
MW-3	6/1/2002	ND<10	TRUE
MW-3	9/1/2002	ND<5	TRUE
MW-4C	7/1/1998	ND<1	FALSE
MW-4C	10/2/1998	ND<1	FALSE
MW-4C	12/7/1998	ND<1	FALSE
MW-4C	3/30/1999	ND<1	FALSE
MW-4C	6/9/1999	ND<1	FALSE
MW-4C	9/30/1999	ND<1	FALSE
MW-4C	12/17/1999	ND<1	FALSE
MW-4C	3/7/2000	ND<1	FALSE
MW-4C	6/8/2000	ND<1	FALSE
MW-4C	9/27/2000	ND<1	FALSE
MW-4C	12/12/2000	ND<1	FALSE
MW-4C	3/1/2001	ND<1	FALSE
MW-4C	9/1/2001	ND<1	FALSE
MW-4C	3/1/2002	ND<1	FALSE
MW-4C	9/1/2002	ND<1	FALSE
MW-9	3/31/1998	ND<1	FALSE
MW-9	6/29/1998	ND<1	FALSE
MW-9	10/1/1998	ND<1	FALSE
MW-9	12/9/1998	ND<1	FALSE
MW-9	3/30/1999	ND<1	FALSE
MW-9	6/9/1999	ND<1	FALSE

MW-9	9/28/1999	ND<1	FALSE
MW-9	12/15/1999	ND<1	FALSE
MW-9	3/8/2000	ND<1	FALSE
MW-9	6/7/2000	ND<1	FALSE
MW-9	9/27/2000	ND<1	FALSE
MW-9	12/12/2000	ND<1	FALSE
MW-9	3/1/2001	ND<1	FALSE
MW-9	6/1/2001	ND<1	FALSE
MW-9	9/1/2001	ND<1	FALSE
MW-9	3/1/2002	ND<1	FALSE
MW-9	6/1/2002	ND<1	FALSE
MW-9	9/1/2002	ND<1	FALSE
OW-1	3/30/1998	ND<1	FALSE
OW-1	6/30/1998	82	TRUE
OW-1	10/1/1998	ND<250	TRUE
OW-1	12/7/1998	250	TRUE
OW-1	3/30/1999	69	TRUE
OW-1	6/9/1999	120	TRUE
OW-1	9/29/1999	88	TRUE
OW-1	12/16/1999	46	TRUE
OW-1	3/7/2000	ND<10	TRUE
OW-1	6/7/2000	1	FALSE
OW-1	9/27/2000	95	TRUE
OW-1	12/12/2000	63	TRUE
OW-1	3/1/2001	57	TRUE
OW-1	6/1/2001	ND<1	FALSE
OW-1	9/1/2001	61	TRUE
OW-1	3/1/2002	72	TRUE
OW-1	6/1/2002	69	TRUE
OW-1	9/1/2002	ND<50	TRUE
OW-2	4/3/1998	ND<1	FALSE
OW-2	7/1/1998	ND<1	FALSE
OW-2	10/2/1998	ND<1	FALSE
OW-2	12/7/1998	ND<1	FALSE
OW-2	3/30/1999	ND<1	FALSE
OW-2	6/9/1999	ND<1	FALSE
OW-2	9/30/1999	ND<1	FALSE
OW-2	12/17/1999	ND<1	FALSE
OW-2	3/8/2000	130	TRUE
OW-2	6/8/2000	ND<1	FALSE
OW-2	9/27/2000	ND<1	FALSE
OW-2	12/12/2000	ND<1	FALSE
OW-2	3/1/2001	ND<1	FALSE
OW-2	6/1/2001	ND<1	FALSE
OW-2	9/1/2001	ND<1	FALSE
OW-2	3/1/2002	ND<1	FALSE
OW-2	6/1/2002	ND<1	FALSE
OW-2	9/1/2002	ND<1	FALSE
OW-3	4/2/1998	ND<1	FALSE
OW-3	7/1/1998	ND<1	FALSE
OW-3	10/2/1998	ND<1	FALSE

OW-3	12/7/1998	ND<1	FALSE
OW-3	3/30/1999	ND<1	FALSE
OW-3	6/9/1999	ND<1	FALSE
OW-3	9/30/1999	ND<1	FALSE
OW-3	12/17/1999	ND<1	FALSE
OW-3	6/1/2001	ND<1	FALSE
OW-3	9/1/2001	ND<1	FALSE
OW-3	3/1/2002	ND<1	FALSE
OW-3	6/1/2002	ND<1	FALSE
OW-3	9/1/2002	ND<1	FALSE
OW-4	3/30/1998	ND<1	FALSE
OW-4	6/30/1998	ND<1	FALSE
OW-4	10/2/1998	ND<1	FALSE
OW-4	12/9/1998	ND<1	FALSE
OW-4	3/30/1999	ND<1	FALSE
OW-4	6/9/1999	ND<1	FALSE
OW-4	9/29/1999	ND<1	FALSE
OW-4	12/16/1999	ND<1	FALSE
OW-4	3/8/2000	ND<1	FALSE
OW-4	6/7/2000	ND<1	FALSE
OW-4	9/27/2000	ND<1	FALSE
OW-4	12/12/2000	ND<1	FALSE
OW-4	3/1/2001	ND<1	FALSE
OW-4	6/1/2001	ND<1	FALSE
OW-4	3/1/2002	ND<1	FALSE
OW-4	6/1/2002	ND<1	FALSE
OW-4	9/1/2002	ND<1	FALSE
OW-5	4/1/1998	ND<1	FALSE
OW-5	6/30/1998	5	TRUE
OW-5	10/1/1998	ND<10	TRUE
OW-5	12/7/1998	7	TRUE
OW-5	3/30/1999	1	FALSE
OW-5	6/9/1999	3	TRUE
OW-5	9/29/1999	1	FALSE
OW-5	12/16/1999	2	TRUE
OW-5	3/8/2000	6	TRUE
OW-5	6/7/2000	2	TRUE
OW-5	9/27/2000	4	TRUE
OW-5	12/12/2000	1	FALSE
OW-5	3/1/2001	ND<1	FALSE
OW-5	6/1/2001	ND<1	FALSE
OW-5	9/1/2001	5	TRUE
OW-5	3/1/2002	ND<1	FALSE
OW-5	6/1/2002	ND<1	FALSE
OW-5	9/1/2002	ND<1	FALSE
PW-1	4/1/1998	ND<1	FALSE
PW-1	6/30/1998	ND<1	FALSE
PW-1	10/1/1998	ND<20	TRUE
PW-1	12/7/1998	ND<1	FALSE
PW-1	3/30/1999	1	FALSE
PW-1	6/9/1999	ND<10	TRUE

PW-1	9/29/1999	ND<10	TRUE
PW-1	12/16/1999	ND<10	TRUE
PW-1	3/8/2000	ND<25	TRUE
PW-1	6/7/2000	ND<5	TRUE
PW-1	9/27/2000	3	TRUE
PW-1	12/12/2000	ND<1	FALSE
PW-1	3/1/2001	2	TRUE
PW-1	6/1/2001	ND<1	FALSE
PW-1	9/1/2001	3	TRUE
PW-1	3/1/2002	ND<5	TRUE
PW-1	6/1/2002	ND<5	TRUE
PW-1	9/1/2002	ND<10	TRUE
MP-11A	4/3/1998	ND<1	FALSE
MP-11A	6/30/1998	ND<1	FALSE
MP-11A	10/2/1998	ND<1	FALSE
MP-11A	12/9/1998	ND<1	FALSE
MP-11A	3/30/1999	ND<1	FALSE
MP-11A	6/9/1999	ND<1	FALSE
MP-11A	11/18/1999	ND<1	FALSE
MP-11A	12/21/1999	ND<1	FALSE
MP-11A	3/9/2000	ND<1	FALSE
MP-11A	6/8/2000	ND<1	FALSE
MP-11A	9/27/2000	ND<1	FALSE
MP-11A	12/12/2000	ND<1	FALSE
MP-11A	3/1/2001	ND<1	FALSE
MP-11A	6/1/2001	ND<1	FALSE
MP-11A	9/1/2001	ND<1	FALSE
MP-11A	3/1/2002	ND<1	FALSE
MP-11A	6/1/2002	ND<1	FALSE
MP-11A	9/1/2002	ND<1	FALSE
MP-2B	4/2/1998	ND<1	FALSE
MP-2B	7/1/1998	ND<1	FALSE
MP-2B	10/2/1998	ND<1	FALSE
MP-2B	12/7/1998	ND<1	FALSE
MP-2B	3/30/1999	ND<1	FALSE
MP-2B	6/9/1999	ND<1	FALSE
MP-2B	9/30/1999	ND<1	FALSE
MP-2B	12/17/1999	ND<1	FALSE
MP-2B	6/8/2000	ND<1	FALSE
MP-2B	9/27/2000	ND<1	FALSE
MP-2B	12/12/2000	ND<1	FALSE
MP-2B	9/1/2001	ND<1	FALSE
MP-2B	3/1/2002	ND<1	FALSE
MP-2B	9/1/2002	ND<1	FALSE
MP-9	4/1/1998	ND<1	FALSE
MP-9	6/30/1998	ND<1	FALSE
MP-9	10/2/1998	ND<1	FALSE
MP-9	12/9/1998	ND<1	FALSE
MP-9	3/30/1999	ND<1	FALSE
MP-9	6/9/1999	ND<1	FALSE
MP-9	9/29/1999	ND<1	FALSE

MP-9	12/17/1999	ND<1	FALSE
MP-9	3/8/2000	ND<1	FALSE
MP-9	6/8/2000	ND<1	FALSE
MP-9	9/27/2000	ND<1	FALSE
MP-9	12/12/2000	ND<1	FALSE
MP-9	3/1/2001	ND<1	FALSE
MP-9	9/1/2001	ND<1	FALSE
MP-9	3/1/2002	ND<1	FALSE
MP-9	9/1/2002	ND<1	FALSE

Non-Parametric Tolerance Interval

Parameter: Trichloroethene

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 92.5258%
Background Samples (n) = 33
Maximum Background Concentration = 1
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<1	FALSE
B-5	7/1/1998	ND<1	FALSE
B-5	10/2/1998	ND<1	FALSE
B-5	12/7/1998	ND<1	FALSE
B-5	3/30/1999	ND<1	FALSE
B-5	6/9/1999	ND<1	FALSE
B-5	9/30/1999	ND<1	FALSE
B-5	12/15/1999	ND<1	FALSE
B-5	3/8/2000	ND<1	FALSE
B-5	6/8/2000	ND<1	FALSE
B-5	9/27/2000	ND<1	FALSE
B-5	12/12/2000	ND<1	FALSE
B-5	3/1/2001	ND<1	FALSE
B-5	9/1/2001	ND<1	FALSE
B-5	3/1/2002	ND<1	FALSE
B-5	9/1/2002	ND<1	FALSE
BH-2	7/2/1998	ND<1	FALSE
BH-2	10/1/1998	ND<1	FALSE
BH-2	12/7/1998	ND<1	FALSE
BH-2	3/30/1999	ND<1	FALSE
BH-2	6/9/1999	ND<1	FALSE
BH-2	9/30/1999	ND<1	FALSE
BH-2	12/17/1999	ND<1	FALSE
BH-2	3/7/2000	ND<1	FALSE
BH-2	6/8/2000	ND<1	FALSE
BH-2	9/27/2000	ND<1	FALSE
BH-2	12/12/2000	ND<1	FALSE
BH-2	3/1/2001	ND<1	FALSE
BH-2	6/1/2001	ND<1	FALSE
BH-2	9/1/2001	ND<1	FALSE
BH-2	3/1/2002	ND<1	FALSE
BH-2	6/1/2002	ND<1	FALSE
BH-2	9/1/2002	ND<1	FALSE
BH-7	4/1/1998	ND<1	FALSE
BH-7	6/30/1998	ND<1	FALSE
BH-7	10/2/1998	ND<10	TRUE
BH-7	12/9/1998	ND<1	FALSE
BH-7	3/30/1999	ND<1	FALSE
BH-7	6/9/1999	ND<10	TRUE

BH-7	9/28/1999	ND<1	FALSE
BH-7	12/16/1999	ND<1	FALSE
BH-7	3/8/2000	ND<5	TRUE
BH-7	6/7/2000	ND<1	FALSE
BH-7	9/27/2000	ND<1	FALSE
BH-7	12/12/2000	ND<1	FALSE
BH-7	3/1/2001	ND<1	FALSE
BH-7	6/1/2001	ND<1	FALSE
BH-7	9/1/2001	ND<1	FALSE
BH-7	3/1/2002	ND<1	FALSE
BH-7	6/1/2002	ND<2	TRUE
BH-7	9/1/2002	ND<1	FALSE
BH-8	4/1/1998	ND<1	FALSE
BH-8	6/30/1998	ND<1	FALSE
BH-8	10/2/1998	ND<10	TRUE
BH-8	12/9/1998	ND<1	FALSE
BH-8	3/30/1999	ND<1	FALSE
BH-8	6/9/1999	ND<10	TRUE
BH-8	9/29/1999	ND<1	FALSE
BH-8	12/16/1999	ND<1	FALSE
BH-8	3/8/2000	ND<10	TRUE
BH-8	6/7/2000	ND<1	FALSE
BH-8	9/27/2000	ND<1	FALSE
BH-8	12/12/2000	ND<1	FALSE
BH-8	3/1/2001	ND<1	FALSE
BH-8	6/1/2001	ND<1	FALSE
BH-8	9/1/2001	ND<1	FALSE
BH-8	3/1/2002	ND<1	FALSE
BH-8	6/1/2002	ND<1	FALSE
BH-8	9/1/2002	ND<1	FALSE
MW-10	3/31/1998	ND<1	FALSE
MW-10	6/29/1998	ND<1	FALSE
MW-10	10/1/1998	ND<1	FALSE
MW-10	12/9/1998	ND<1	FALSE
MW-10	3/30/1999	ND<1	FALSE
MW-10	6/9/1999	ND<1	FALSE
MW-10	9/28/1999	ND<1	FALSE
MW-10	12/15/1999	ND<1	FALSE
MW-10	3/9/2000	ND<1	FALSE
MW-10	6/7/2000	ND<1	FALSE
MW-10	9/27/2000	ND<1	FALSE
MW-10	12/12/2000	ND<1	FALSE
MW-10	3/1/2001	ND<1	FALSE
MW-10	6/1/2001	ND<1	FALSE
MW-10	9/1/2001	ND<1	FALSE
MW-10	3/1/2002	ND<1	FALSE
MW-10	6/1/2002	ND<1	FALSE
MW-10	9/1/2002	ND<1	FALSE
MW-11	3/31/1998	ND<1	FALSE
MW-11	6/29/1998	ND<1	FALSE
MW-11	10/1/1998	ND<1	FALSE

MW-11	12/9/1998	ND<1	FALSE
MW-11	3/30/1999	ND<1	FALSE
MW-11	6/9/1999	ND<1	FALSE
MW-11	9/28/1999	ND<1	FALSE
MW-11	12/15/1999	ND<1	FALSE
MW-11	3/9/2000	ND<1	FALSE
MW-11	6/7/2000	ND<1	FALSE
MW-11	9/27/2000	ND<1	FALSE
MW-11	12/12/2000	ND<1	FALSE
MW-11	3/1/2001	ND<1	FALSE
MW-11	6/1/2001	ND<1	FALSE
MW-11	9/1/2001	ND<1	FALSE
MW-11	3/1/2002	ND<1	FALSE
MW-11	6/1/2002	ND<1	FALSE
MW-11	9/1/2002	ND<1	FALSE
MW-12S	3/30/1998	ND<1	FALSE
MW-12S	6/29/1998	ND<1	FALSE
MW-12S	10/1/1998	ND<1	FALSE
MW-12S	12/9/1998	ND<1	FALSE
MW-12S	3/30/1999	ND<1	FALSE
MW-12S	6/9/1999	ND<1	FALSE
MW-12S	9/28/1999	ND<1	FALSE
MW-12S	12/15/1999	ND<1	FALSE
MW-12S	3/9/2000	ND<1	FALSE
MW-12S	6/7/2000	ND<1	FALSE
MW-12S	9/27/2000	ND<1	FALSE
MW-12S	12/12/2000	ND<1	FALSE
MW-12S	3/1/2001	ND<1	FALSE
MW-12S	6/1/2001	ND<1	FALSE
MW-12S	9/1/2001	ND<1	FALSE
MW-12S	3/1/2002	ND<1	FALSE
MW-12S	6/1/2002	ND<1	FALSE
MW-12S	9/1/2002	ND<1	FALSE
MW-13	3/30/1998	ND<1	FALSE
MW-13	6/29/1998	ND<1	FALSE
MW-13	10/1/1998	ND<1	FALSE
MW-13	12/9/1998	1	FALSE
MW-13	3/30/1999	ND<1	FALSE
MW-13	6/9/1999	ND<1	FALSE
MW-13	9/28/1999	ND<1	FALSE
MW-13	12/17/1999	ND<1	FALSE
MW-13	3/9/2000	ND<1	FALSE
MW-13	6/7/2000	ND<1	FALSE
MW-13	9/27/2000	ND<1	FALSE
MW-13	12/12/2000	ND<1	FALSE
MW-13	3/1/2001	ND<1	FALSE
MW-13	6/1/2001	ND<1	FALSE
MW-13	9/1/2001	ND<1	FALSE
MW-13	3/1/2002	ND<1	FALSE
MW-13	6/1/2002	ND<1	FALSE
MW-13	9/1/2002	ND<1	FALSE

MW-14	4/1/1998	ND<1	FALSE
MW-14	6/30/1998	ND<1	FALSE
MW-14	10/1/1998	ND<1	FALSE
MW-14	12/7/1998	ND<1	FALSE
MW-14	3/30/1999	ND<1	FALSE
MW-14	6/9/1999	ND<1	FALSE
MW-14	9/29/1999	ND<1	FALSE
MW-14	12/16/1999	ND<1	FALSE
MW-14	6/1/2001	ND<1	FALSE
MW-14	9/1/2001	ND<1	FALSE
MW-14	3/1/2002	ND<1	FALSE
MW-14	6/1/2002	ND<1	FALSE
MW-14	9/1/2002	ND<1	FALSE
MW-3	3/30/1998	ND<1	FALSE
MW-3	6/30/1998	ND<1	FALSE
MW-3	10/2/1998	ND<10	TRUE
MW-3	12/9/1998	23	TRUE
MW-3	3/30/1999	ND<1	FALSE
MW-3	6/9/1999	ND<1	FALSE
MW-3	9/28/1999	ND<1	FALSE
MW-3	12/16/1999	ND<1	FALSE
MW-3	3/8/2000	ND<10	TRUE
MW-3	6/7/2000	ND<1	FALSE
MW-3	9/27/2000	ND<1	FALSE
MW-3	12/12/2000	ND<1	FALSE
MW-3	3/1/2001	ND<1	FALSE
MW-3	6/1/2001	ND<1	FALSE
MW-3	9/1/2001	ND<1	FALSE
MW-3	3/1/2002	ND<10	TRUE
MW-3	6/1/2002	ND<10	TRUE
MW-3	9/1/2002	ND<5	TRUE
MW-4C	7/1/1998	ND<1	FALSE
MW-4C	10/2/1998	ND<1	FALSE
MW-4C	12/7/1998	ND<1	FALSE
MW-4C	3/30/1999	ND<1	FALSE
MW-4C	6/9/1999	ND<1	FALSE
MW-4C	9/30/1999	ND<1	FALSE
MW-4C	12/17/1999	ND<1	FALSE
MW-4C	3/7/2000	ND<1	FALSE
MW-4C	6/8/2000	ND<1	FALSE
MW-4C	9/27/2000	ND<1	FALSE
MW-4C	12/12/2000	ND<1	FALSE
MW-4C	3/1/2001	ND<1	FALSE
MW-4C	9/1/2001	ND<1	FALSE
MW-4C	3/1/2002	ND<1	FALSE
MW-4C	9/1/2002	ND<1	FALSE
MW-9	3/31/1998	ND<1	FALSE
MW-9	6/29/1998	ND<1	FALSE
MW-9	10/1/1998	ND<1	FALSE
MW-9	12/9/1998	ND<1	FALSE
MW-9	3/30/1999	ND<1	FALSE

MW-9	6/9/1999	ND<1	FALSE
MW-9	9/28/1999	ND<1	FALSE
MW-9	12/15/1999	ND<1	FALSE
MW-9	3/8/2000	ND<1	FALSE
MW-9	6/7/2000	ND<1	FALSE
MW-9	9/27/2000	ND<1	FALSE
MW-9	12/12/2000	ND<1	FALSE
MW-9	3/1/2001	ND<1	FALSE
MW-9	6/1/2001	ND<1	FALSE
MW-9	9/1/2001	ND<1	FALSE
MW-9	3/1/2002	ND<1	FALSE
MW-9	6/1/2002	ND<1	FALSE
MW-9	9/1/2002	ND<1	FALSE
OW-1	3/30/1998	ND<1	FALSE
OW-1	6/30/1998	95	TRUE
OW-1	10/1/1998	ND<250	TRUE
OW-1	12/7/1998	340	TRUE
OW-1	3/30/1999	110	TRUE
OW-1	6/9/1999	ND<25	TRUE
OW-1	9/29/1999	120	TRUE
OW-1	12/16/1999	67	TRUE
OW-1	3/7/2000	76	TRUE
OW-1	6/7/2000	120	TRUE
OW-1	9/27/2000	140	TRUE
OW-1	12/12/2000	72	TRUE
OW-1	3/1/2001	71	TRUE
OW-1	6/1/2001	ND<1	FALSE
OW-1	9/1/2001	140	TRUE
OW-1	3/1/2002	65	TRUE
OW-1	6/1/2002	76	TRUE
OW-1	9/1/2002	ND<50	TRUE
OW-2	4/3/1998	ND<1	FALSE
OW-2	7/1/1998	ND<1	FALSE
OW-2	10/2/1998	ND<1	FALSE
OW-2	12/7/1998	ND<1	FALSE
OW-2	3/30/1999	ND<1	FALSE
OW-2	6/9/1999	ND<1	FALSE
OW-2	9/30/1999	ND<1	FALSE
OW-2	12/17/1999	ND<1	FALSE
OW-2	3/8/2000	ND<1	FALSE
OW-2	6/8/2000	ND<1	FALSE
OW-2	9/27/2000	ND<1	FALSE
OW-2	12/12/2000	ND<1	FALSE
OW-2	3/1/2001	ND<1	FALSE
OW-2	6/1/2001	ND<1	FALSE
OW-2	9/1/2001	ND<1	FALSE
OW-2	3/1/2002	ND<1	FALSE
OW-2	6/1/2002	ND<1	FALSE
OW-2	9/1/2002	ND<1	FALSE
OW-3	4/2/1998	ND<1	FALSE
OW-3	7/1/1998	ND<1	FALSE

OW-3	10/2/1998	ND<1	FALSE
OW-3	12/7/1998	ND<1	FALSE
OW-3	3/30/1999	ND<1	FALSE
OW-3	6/9/1999	ND<1	FALSE
OW-3	9/30/1999	ND<1	FALSE
OW-3	12/17/1999	ND<1	FALSE
OW-3	6/1/2001	ND<1	FALSE
OW-3	9/1/2001	ND<1	FALSE
OW-3	3/1/2002	ND<1	FALSE
OW-3	6/1/2002	ND<1	FALSE
OW-3	9/1/2002	ND<1	FALSE
OW-4	3/30/1998	ND<1	FALSE
OW-4	6/30/1998	ND<1	FALSE
OW-4	10/2/1998	ND<1	FALSE
OW-4	12/9/1998	1	FALSE
OW-4	3/30/1999	ND<1	FALSE
OW-4	6/9/1999	ND<1	FALSE
OW-4	9/29/1999	ND<1	FALSE
OW-4	12/16/1999	ND<1	FALSE
OW-4	3/8/2000	ND<1	FALSE
OW-4	6/7/2000	ND<1	FALSE
OW-4	9/27/2000	ND<1	FALSE
OW-4	12/12/2000	ND<1	FALSE
OW-4	3/1/2001	ND<1	FALSE
OW-4	6/1/2001	ND<1	FALSE
OW-4	3/1/2002	ND<1	FALSE
OW-4	6/1/2002	ND<1	FALSE
OW-4	9/1/2002	ND<1	FALSE
OW-5	4/1/1998	ND<1	FALSE
OW-5	6/30/1998	2	TRUE
OW-5	10/1/1998	ND<10	TRUE
OW-5	12/7/1998	4	TRUE
OW-5	3/30/1999	ND<1	FALSE
OW-5	6/9/1999	ND<1	FALSE
OW-5	9/29/1999	ND<1	FALSE
OW-5	12/16/1999	ND<1	FALSE
OW-5	3/8/2000	ND<1	FALSE
OW-5	6/7/2000	ND<1	FALSE
OW-5	9/27/2000	ND<1	FALSE
OW-5	12/12/2000	ND<1	FALSE
OW-5	3/1/2001	ND<1	FALSE
OW-5	6/1/2001	ND<1	FALSE
OW-5	9/1/2001	3	TRUE
OW-5	3/1/2002	ND<1	FALSE
OW-5	6/1/2002	ND<1	FALSE
OW-5	9/1/2002	ND<1	FALSE
PW-1	4/1/1998	ND<1	FALSE
PW-1	6/30/1998	13	TRUE
PW-1	10/1/1998	ND<20	TRUE
PW-1	12/7/1998	12	TRUE
PW-1	3/30/1999	5	TRUE

PW-1	6/9/1999	ND<10	TRUE
PW-1	9/29/1999	10	TRUE
PW-1	12/16/1999	ND<10	TRUE
PW-1	3/8/2000	ND<25	TRUE
PW-1	6/7/2000	9	TRUE
PW-1	9/27/2000	12	TRUE
PW-1	12/12/2000	ND<1	FALSE
PW-1	3/1/2001	14	TRUE
PW-1	6/1/2001	ND<1	FALSE
PW-1	9/1/2001	15	TRUE
PW-1	3/1/2002	10	TRUE
PW-1	6/1/2002	7	TRUE
PW-1	9/1/2002	ND<10	TRUE
MP-11A	4/3/1998	ND<1	FALSE
MP-11A	6/30/1998	ND<1	FALSE
MP-11A	10/2/1998	ND<1	FALSE
MP-11A	12/9/1998	ND<1	FALSE
MP-11A	3/30/1999	ND<1	FALSE
MP-11A	6/9/1999	ND<1	FALSE
MP-11A	11/18/1999	ND<1	FALSE
MP-11A	12/21/1999	ND<1	FALSE
MP-11A	3/9/2000	ND<1	FALSE
MP-11A	6/8/2000	ND<1	FALSE
MP-11A	9/27/2000	ND<1	FALSE
MP-11A	12/12/2000	ND<1	FALSE
MP-11A	3/1/2001	ND<1	FALSE
MP-11A	6/1/2001	ND<1	FALSE
MP-11A	9/1/2001	ND<1	FALSE
MP-11A	3/1/2002	ND<1	FALSE
MP-11A	6/1/2002	ND<1	FALSE
MP-11A	9/1/2002	ND<1	FALSE
MP-2B	4/2/1998	ND<1	FALSE
MP-2B	7/1/1998	ND<1	FALSE
MP-2B	10/2/1998	ND<1	FALSE
MP-2B	12/7/1998	ND<1	FALSE
MP-2B	3/30/1999	ND<1	FALSE
MP-2B	6/9/1999	ND<1	FALSE
MP-2B	9/30/1999	ND<1	FALSE
MP-2B	12/17/1999	ND<1	FALSE
MP-2B	6/8/2000	ND<1	FALSE
MP-2B	9/27/2000	ND<1	FALSE
MP-2B	12/12/2000	ND<1	FALSE
MP-2B	3/1/2001	ND<1	FALSE
MP-2B	3/1/2002	ND<1	FALSE
MP-2B	9/1/2002	ND<1	FALSE
MP-9	4/1/1998	ND<1	FALSE
MP-9	6/30/1998	ND<1	FALSE
MP-9	10/2/1998	ND<1	FALSE
MP-9	12/9/1998	ND<1	FALSE
MP-9	3/30/1999	ND<1	FALSE
MP-9	6/9/1999	ND<1	FALSE

MP-9	9/29/1999	ND<1	FALSE
MP-9	12/17/1999	ND<1	FALSE
MP-9	3/8/2000	ND<1	FALSE
MP-9	6/8/2000	ND<1	FALSE
MP-9	9/27/2000	ND<1	FALSE
MP-9	12/12/2000	ND<1	FALSE
MP-9	3/1/2001	ND<1	FALSE
MP-9	9/1/2001	ND<1	FALSE
MP-9	3/1/2002	ND<1	FALSE
MP-9	9/1/2002	ND<1	FALSE

Non-Parametric Tolerance Interval

Parameter: Vinyl chloride

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 93.3333%
Background Samples (n) = 29
Maximum Background Concentration = 2
Minimum Coverage = 90.2%
Average Coverage = 96.6667%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<2	FALSE
B-5	7/1/1998	ND<2	FALSE
B-5	10/2/1998	ND<2	FALSE
B-5	12/7/1998	ND<2	FALSE
B-5	3/30/1999	ND<2	FALSE
B-5	6/9/1999	ND<2	FALSE
B-5	9/30/1999	ND<2	FALSE
B-5	12/15/1999	ND<2	FALSE
B-5	3/8/2000	ND<2	FALSE
B-5	6/8/2000	ND<2	FALSE
B-5	9/27/2000	ND<1	FALSE
B-5	12/12/2000	ND<1	FALSE
B-5	3/1/2002	ND<2	FALSE
B-5	9/1/2002	ND<2	FALSE
BH-2	7/2/1998	ND<2	FALSE
BH-2	10/1/1998	ND<2	FALSE
BH-2	12/7/1998	ND<2	FALSE
BH-2	3/30/1999	1	FALSE
BH-2	6/9/1999	ND<2	FALSE
BH-2	9/30/1999	ND<2	FALSE
BH-2	12/17/1999	ND<2	FALSE
BH-2	3/7/2000	ND<2	FALSE
BH-2	6/8/2000	ND<2	FALSE
BH-2	9/27/2000	ND<1	FALSE
BH-2	12/12/2000	2	FALSE
BH-2	3/1/2002	ND<2	FALSE
BH-2	6/1/2002	ND<2	FALSE
BH-2	9/1/2002	ND<2	FALSE
BH-7	4/1/1998	ND<2	FALSE
BH-7	6/30/1998	ND<2	FALSE
BH-7	10/2/1998	ND<20	TRUE
BH-7	12/9/1998	ND<2	FALSE
BH-7	3/30/1999	ND<2	FALSE
BH-7	6/9/1999	ND<20	TRUE
BH-7	9/28/1999	ND<2	FALSE
BH-7	12/16/1999	ND<2	FALSE
BH-7	3/8/2000	ND<10	TRUE
BH-7	6/7/2000	ND<2	FALSE
BH-7	9/27/2000	ND<1	FALSE

BH-7	12/12/2000	ND<1	FALSE
BH-7	3/1/2002	ND<2	FALSE
BH-7	6/1/2002	ND<4	TRUE
BH-7	9/1/2002	ND<2	FALSE
BH-8	4/1/1998	ND<2	FALSE
BH-8	6/30/1998	1	FALSE
BH-8	10/2/1998	ND<20	TRUE
BH-8	12/9/1998	ND<2	FALSE
BH-8	3/30/1999	1	FALSE
BH-8	6/9/1999	ND<20	TRUE
BH-8	9/29/1999	ND<2	FALSE
BH-8	12/16/1999	ND<2	FALSE
BH-8	3/8/2000	ND<20	TRUE
BH-8	6/7/2000	6	TRUE
BH-8	9/27/2000	2	FALSE
BH-8	12/12/2000	ND<1	FALSE
BH-8	3/1/2002	ND<2	FALSE
BH-8	6/1/2002	ND<2	FALSE
BH-8	9/1/2002	ND<2	FALSE
MW-10	3/31/1998	ND<2	FALSE
MW-10	6/29/1998	ND<2	FALSE
MW-10	10/1/1998	ND<2	FALSE
MW-10	12/9/1998	ND<2	FALSE
MW-10	3/30/1999	ND<2	FALSE
MW-10	6/9/1999	ND<2	FALSE
MW-10	9/28/1999	ND<2	FALSE
MW-10	12/15/1999	ND<2	FALSE
MW-10	3/9/2000	ND<2	FALSE
MW-10	6/7/2000	ND<2	FALSE
MW-10	9/27/2000	ND<1	FALSE
MW-10	12/12/2000	ND<1	FALSE
MW-10	3/1/2002	ND<2	FALSE
MW-10	6/1/2002	ND<2	FALSE
MW-10	9/1/2002	ND<2	FALSE
MW-11	3/31/1998	ND<2	FALSE
MW-11	6/29/1998	ND<2	FALSE
MW-11	10/1/1998	ND<2	FALSE
MW-11	12/9/1998	ND<2	FALSE
MW-11	3/30/1999	ND<2	FALSE
MW-11	6/9/1999	ND<2	FALSE
MW-11	9/28/1999	ND<2	FALSE
MW-11	12/15/1999	ND<2	FALSE
MW-11	3/9/2000	ND<2	FALSE
MW-11	6/7/2000	ND<2	FALSE
MW-11	9/27/2000	ND<1	FALSE
MW-11	12/12/2000	ND<1	FALSE
MW-11	3/1/2002	ND<2	FALSE
MW-11	6/1/2002	ND<2	FALSE
MW-11	9/1/2002	ND<2	FALSE

MW-12S	3/30/1998	ND<2	FALSE
MW-12S	6/29/1998	ND<2	FALSE
MW-12S	10/1/1998	ND<2	FALSE
MW-12S	12/9/1998	ND<2	FALSE
MW-12S	3/30/1999	ND<2	FALSE
MW-12S	6/9/1999	ND<2	FALSE
MW-12S	9/28/1999	ND<2	FALSE
MW-12S	12/15/1999	ND<2	FALSE
MW-12S	3/9/2000	ND<2	FALSE
MW-12S	6/7/2000	ND<2	FALSE
MW-12S	9/27/2000	ND<1	FALSE
MW-12S	12/12/2000	ND<1	FALSE
MW-12S	3/1/2002	ND<2	FALSE
MW-12S	6/1/2002	ND<2	FALSE
MW-12S	9/1/2002	ND<2	FALSE
MW-13	3/30/1998	ND<2	FALSE
MW-13	6/29/1998	ND<2	FALSE
MW-13	10/1/1998	ND<2	FALSE
MW-13	12/9/1998	ND<2	FALSE
MW-13	3/30/1999	ND<2	FALSE
MW-13	6/9/1999	ND<2	FALSE
MW-13	9/28/1999	ND<2	FALSE
MW-13	12/17/1999	ND<2	FALSE
MW-13	3/9/2000	ND<2	FALSE
MW-13	6/7/2000	ND<2	FALSE
MW-13	9/27/2000	ND<1	FALSE
MW-13	12/12/2000	ND<1	FALSE
MW-13	3/1/2002	ND<2	FALSE
MW-13	6/1/2002	ND<2	FALSE
MW-13	9/1/2002	ND<2	FALSE
MW-14	4/1/1998	ND<2	FALSE
MW-14	6/30/1998	ND<2	FALSE
MW-14	10/1/1998	ND<2	FALSE
MW-14	12/7/1998	ND<2	FALSE
MW-14	3/30/1999	ND<2	FALSE
MW-14	6/9/1999	ND<2	FALSE
MW-14	9/29/1999	ND<2	FALSE
MW-14	12/16/1999	ND<2	FALSE
MW-14	3/1/2002	ND<2	FALSE
MW-14	6/1/2002	ND<2	FALSE
MW-14	9/1/2002	ND<2	FALSE
MW-3	3/30/1998	ND<2	FALSE
MW-3	6/30/1998	ND<2	FALSE
MW-3	10/2/1998	ND<20	TRUE
MW-3	12/9/1998	ND<20	TRUE
MW-3	3/30/1999	ND<2	FALSE
MW-3	6/9/1999	ND<10	TRUE
MW-3	9/28/1999	ND<2	FALSE
MW-3	12/16/1999	ND<2	FALSE
MW-3	3/8/2000	ND<20	TRUE
MW-3	6/7/2000	2	FALSE

MW-3	9/27/2000	ND<1	FALSE
MW-3	12/12/2000	ND<1	FALSE
MW-3	3/1/2002	ND<20	TRUE
MW-3	6/1/2002	ND<20	TRUE
MW-3	9/1/2002	ND<10	TRUE
MW-4C	7/1/1998	ND<2	FALSE
MW-4C	10/2/1998	ND<2	FALSE
MW-4C	12/7/1998	ND<2	FALSE
MW-4C	3/30/1999	ND<2	FALSE
MW-4C	6/9/1999	ND<2	FALSE
MW-4C	9/30/1999	ND<2	FALSE
MW-4C	12/17/1999	ND<2	FALSE
MW-4C	3/7/2000	ND<2	FALSE
MW-4C	6/8/2000	ND<2	FALSE
MW-4C	9/27/2000	ND<1	FALSE
MW-4C	12/12/2000	ND<1	FALSE
MW-4C	3/1/2002	ND<2	FALSE
MW-4C	9/1/2002	ND<2	FALSE
MW-9	3/31/1998	ND<2	FALSE
MW-9	6/29/1998	ND<2	FALSE
MW-9	10/1/1998	ND<2	FALSE
MW-9	12/9/1998	ND<2	FALSE
MW-9	3/30/1999	ND<2	FALSE
MW-9	6/9/1999	ND<2	FALSE
MW-9	9/28/1999	ND<2	FALSE
MW-9	12/15/1999	ND<2	FALSE
MW-9	3/8/2000	ND<2	FALSE
MW-9	6/7/2000	ND<2	FALSE
MW-9	9/27/2000	ND<1	FALSE
MW-9	12/12/2000	ND<1	FALSE
MW-9	3/1/2002	ND<2	FALSE
MW-9	6/1/2002	ND<2	FALSE
MW-9	9/1/2002	ND<2	FALSE
OW-1	3/30/1998	ND<2	FALSE
OW-1	6/30/1998	11	TRUE
OW-1	10/1/1998	ND<500	TRUE
OW-1	12/7/1998	ND<200	TRUE
OW-1	3/30/1999	35	TRUE
OW-1	6/9/1999	ND<50	TRUE
OW-1	9/29/1999	23	TRUE
OW-1	12/16/1999	ND<20	TRUE
OW-1	3/7/2000	11	TRUE
OW-1	6/7/2000	90	TRUE
OW-1	9/27/2000	27	TRUE
OW-1	12/12/2000	ND<1	FALSE
OW-1	3/1/2002	24	TRUE
OW-1	6/1/2002	ND<20	TRUE
OW-1	9/1/2002	ND<100	TRUE
OW-2	4/3/1998	ND<2	FALSE

OW-2	7/1/1998	ND<2	FALSE
OW-2	10/2/1998	ND<2	FALSE
OW-2	12/7/1998	ND<2	FALSE
OW-2	3/30/1999	ND<2	FALSE
OW-2	6/9/1999	ND<2	FALSE
OW-2	9/30/1999	ND<2	FALSE
OW-2	12/17/1999	ND<2	FALSE
OW-2	3/8/2000	ND<2	FALSE
OW-2	6/8/2000	ND<2	FALSE
OW-2	9/27/2000	ND<1	FALSE
OW-2	12/12/2000	ND<1	FALSE
OW-2	3/1/2002	ND<2	FALSE
OW-2	6/1/2002	ND<2	FALSE
OW-2	9/1/2002	ND<2	FALSE
OW-3	4/2/1998	ND<2	FALSE
OW-3	7/1/1998	ND<2	FALSE
OW-3	10/2/1998	ND<2	FALSE
OW-3	12/7/1998	ND<2	FALSE
OW-3	3/30/1999	ND<2	FALSE
OW-3	6/9/1999	ND<2	FALSE
OW-3	9/30/1999	ND<2	FALSE
OW-3	12/17/1999	ND<2	FALSE
OW-3	3/1/2002	ND<2	FALSE
OW-3	6/1/2002	ND<2	FALSE
OW-3	9/1/2002	ND<2	FALSE
OW-4	3/30/1998	ND<2	FALSE
OW-4	6/30/1998	ND<2	FALSE
OW-4	10/2/1998	ND<2	FALSE
OW-4	12/9/1998	ND<2	FALSE
OW-4	3/30/1999	ND<2	FALSE
OW-4	6/9/1999	ND<2	FALSE
OW-4	9/29/1999	ND<2	FALSE
OW-4	12/16/1999	ND<2	FALSE
OW-4	3/8/2000	ND<2	FALSE
OW-4	6/7/2000	ND<2	FALSE
OW-4	9/27/2000	ND<1	FALSE
OW-4	12/12/2000	ND<1	FALSE
OW-4	3/1/2002	ND<2	FALSE
OW-4	6/1/2002	ND<2	FALSE
OW-4	9/1/2002	ND<2	FALSE
OW-5	4/1/1998	ND<2	FALSE
OW-5	6/30/1998	3	TRUE
OW-5	10/1/1998	ND<20	TRUE
OW-5	12/7/1998	4	TRUE
OW-5	3/30/1999	2	FALSE
OW-5	6/9/1999	3	TRUE
OW-5	9/29/1999	ND<2	FALSE
OW-5	12/16/1999	ND<2	FALSE
OW-5	3/8/2000	ND<2	FALSE
OW-5	6/7/2000	ND<2	FALSE
OW-5	9/27/2000	2	FALSE

OW-5	12/12/2000	ND<1	FALSE
OW-5	3/1/2002	ND<2	FALSE
OW-5	6/1/2002	ND<2	FALSE
OW-5	9/1/2002	ND<2	FALSE
PW-1	4/1/1998	ND<2	FALSE
PW-1	6/30/1998	ND<2	FALSE
PW-1	10/1/1998	ND<40	TRUE
PW-1	12/7/1998	ND<2	FALSE
PW-1	3/30/1999	3	TRUE
PW-1	6/9/1999	ND<20	TRUE
PW-1	9/29/1999	ND<20	TRUE
PW-1	12/16/1999	ND<20	TRUE
PW-1	3/8/2000	ND<50	TRUE
PW-1	6/7/2000	17	TRUE
PW-1	9/27/2000	7	TRUE
PW-1	12/12/2000	ND<1	FALSE
PW-1	3/1/2002	ND<10	TRUE
PW-1	6/1/2002	ND<10	TRUE
PW-1	9/1/2002	ND<20	TRUE
MP-11A	4/3/1998	ND<2	FALSE
MP-11A	6/30/1998	ND<2	FALSE
MP-11A	10/2/1998	ND<2	FALSE
MP-11A	12/9/1998	ND<2	FALSE
MP-11A	3/30/1999	ND<2	FALSE
MP-11A	6/9/1999	ND<2	FALSE
MP-11A	11/18/1999	ND<2	FALSE
MP-11A	12/21/1999	ND<2	FALSE
MP-11A	3/9/2000	ND<2	FALSE
MP-11A	6/8/2000	ND<2	FALSE
MP-11A	9/27/2000	ND<1	FALSE
MP-11A	12/12/2000	ND<1	FALSE
MP-11A	3/1/2002	ND<2	FALSE
MP-11A	6/1/2002	ND<2	FALSE
MP-11A	9/1/2002	ND<2	FALSE
MP-2B	4/2/1998	ND<2	FALSE
MP-2B	7/1/1998	ND<2	FALSE
MP-2B	10/2/1998	ND<2	FALSE
MP-2B	12/7/1998	ND<2	FALSE
MP-2B	3/30/1999	ND<2	FALSE
MP-2B	6/9/1999	ND<2	FALSE
MP-2B	9/30/1999	ND<2	FALSE
MP-2B	12/17/1999	ND<2	FALSE
MP-2B	6/8/2000	ND<2	FALSE
MP-2B	9/27/2000	ND<1	FALSE
MP-2B	12/12/2000	ND<1	FALSE
MP-2B	3/1/2002	ND<2	FALSE
MP-2B	9/1/2002	ND<2	FALSE
MP-9	4/1/1998	ND<2	FALSE
MP-9	6/30/1998	ND<2	FALSE

MP-9	10/2/1998	ND<2	FALSE
MP-9	12/9/1998	ND<2	FALSE
MP-9	3/30/1999	ND<2	FALSE
MP-9	6/9/1999	ND<2	FALSE
MP-9	9/29/1999	ND<2	FALSE
MP-9	12/17/1999	ND<2	FALSE
MP-9	3/8/2000	ND<2	FALSE
MP-9	6/8/2000	ND<2	FALSE
MP-9	9/27/2000	ND<1	FALSE
MP-9	12/12/2000	ND<1	FALSE
MP-9	3/1/2002	ND<2	FALSE
MP-9	6/1/2002	ND<2	FALSE
MP-9	9/1/2002	ND<2	FALSE

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: PW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.5	44	42.5	0.4886	20.7655
2	1.5	39.3	37.8	0.3253	12.2963
3	1.5	26.7	25.2	0.2553	6.43356
4	1.5	25.9	24.4	0.2027	4.94588
5	2.5	12.5	10	0.1587	1.587
6	3.8	12.3	8.5	0.1197	1.01745
7	4.2	11.4	7.2	0.0837	0.60264
8	5.6	9.5	3.9	0.0496	0.19344
9	6	8.8	2.8	0.0163	0.04564
10	8.8	6	-2.8		
11	9.5	5.6	-3.9		
12	11.4	4.2	-7.2		
13	12.3	3.8	-8.5		
14	12.5	2.5	-10		
15	25.9	1.5	-24.4		
16	26.7	1.5	-25.2		
17	39.3	1.5	-37.8		
18	44	1.5	-42.5		

Sum of b values = 47.8875
Sample Standard Deviation = 13.1322
W Statistic = 0.782205
5% Critical value of 0.897 exceeds 0.782205
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.782205
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: PW-1

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.405465	3.78419	3.37872	0.4886	1.65084
2	0.405465	3.67122	3.26576	0.3253	1.06235
3	0.405465	3.28466	2.8792	0.2553	0.735059
4	0.405465	3.25424	2.84878	0.2027	0.577447
5	0.916291	2.52573	1.60944	0.1587	0.255418
6	1.335	2.5096	1.1746	0.1197	0.140599
7	1.43508	2.43361	0.998529	0.0837	0.0835769
8	1.72277	2.25129	0.528525	0.0496	0.0262148
9	1.79176	2.17475	0.382992	0.0163	0.00624277
10	2.17475	1.79176	-0.382992		
11	2.25129	1.72277	-0.528525		
12	2.43361	1.43508	-0.998529		
13	2.5096	1.335	-1.1746		
14	2.52573	0.916291	-1.60944		
15	3.25424	0.405465	-2.84878		
16	3.28466	0.405465	-2.8792		
17	3.67122	0.405465	-3.26576		
18	3.78419	0.405465	-3.37872		

Sum of b values = 4.53775
Sample Standard Deviation = 1.14151
W Statistic = 0.929558
5% Critical value of 0.897 is less than 0.929558
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.929558
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: BH-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 17

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.5	72	70.5	0.4968	35.0244
2	1.5	68.3	66.8	0.3273	21.8636
3	5.3	48.4	43.1	0.254	10.9474
4	6.2	33.2	27	0.1988	5.3676
5	6.4	31.4	25	0.1524	3.81
6	7.4	22.8	15.4	0.1109	1.70786
7	8.6	21.8	13.2	0.0725	0.957
8	9.4	19.1	9.7	0.0359	0.34823
9	16.2	16.2	0		
10	19.1	9.4	-9.7		
11	21.8	8.6	-13.2		
12	22.8	7.4	-15.4		
13	31.4	6.4	-25		
14	33.2	6.2	-27		
15	48.4	5.3	-43.1		
16	68.3	1.5	-66.8		
17	72	1.5	-70.5		

Sum of b values = 80.0261
Sample Standard Deviation = 22.0217
W Statistic = 0.825359
5% Critical value of 0.892 exceeds 0.825359
Evidence of non-normality at 95% level of significance
1% Critical value of 0.851 exceeds 0.825359
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: BH-2

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 17

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.405465	4.27667	3.8712	0.4968	1.92321
2	0.405465	4.22391	3.81844	0.3273	1.24978
3	1.66771	3.8795	2.21179	0.254	0.561795
4	1.82455	3.50255	1.678	0.1988	0.333587
5	1.8563	3.44681	1.59051	0.1524	0.242394
6	2.00148	3.12676	1.12528	0.1109	0.124794
7	2.15176	3.08191	0.930148	0.0725	0.0674357
8	2.24071	2.94969	0.708979	0.0359	0.0254523
9	2.78501	2.78501	0		
10	2.94969	2.24071	-0.708979		
11	3.08191	2.15176	-0.930148		
12	3.12676	2.00148	-1.12528		
13	3.44681	1.8563	-1.59051		
14	3.50255	1.82455	-1.678		
15	3.8795	1.66771	-2.21179		
16	4.22391	0.405465	-3.81844		
17	4.27667	0.405465	-3.8712		

Sum of b values = 4.52845
Sample Standard Deviation = 1.1624
W Statistic = 0.948561
5% Critical value of 0.892 is less than 0.948561
Data is normally distributed at 95% level of significance
1% Critical value of 0.851 is less than 0.948561
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: BH-7

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.5	178	176.5	0.4886	86.2379
2	1.5	91.6	90.1	0.3253	29.3095
3	1.5	68.4	66.9	0.2553	17.0796
4	1.5	59.3	57.8	0.2027	11.7161
5	1.5	37.8	36.3	0.1587	5.76081
6	3.8	36.9	33.1	0.1197	3.96207
7	6.6	32.4	25.8	0.0837	2.15946
8	16	24	8	0.0496	0.3968
9	19	20	1	0.0163	0.0163
10	20	19	-1		
11	24	16	-8		
12	32.4	6.6	-25.8		
13	36.9	3.8	-33.1		
14	37.8	1.5	-36.3		
15	59.3	1.5	-57.8		
16	68.4	1.5	-66.9		
17	91.6	1.5	-90.1		
18	178	1.5	-176.5		

Sum of b values = 156.639
Sample Standard Deviation = 44.5139
W Statistic = 0.728377
5% Critical value of 0.897 exceeds 0.728377
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.728377
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: BH-7

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.405465	5.18178	4.77632	0.4886	2.33371
2	0.405465	4.51743	4.11197	0.3253	1.33762
3	0.405465	4.22537	3.81991	0.2553	0.975222
4	0.405465	4.08261	3.67714	0.2027	0.745357
5	0.405465	3.63231	3.22684	0.1587	0.5121
6	1.335	3.60821	2.27321	0.1197	0.272103
7	1.88707	3.47816	1.59109	0.0837	0.133174
8	2.77259	3.17805	0.405465	0.0496	0.0201111
9	2.94444	2.99573	0.0512933	0.0163	0.000836081
10	2.99573	2.94444	-0.0512933		
11	3.17805	2.77259	-0.405465		
12	3.47816	1.88707	-1.59109		
13	3.60821	1.335	-2.27321		
14	3.63231	0.405465	-3.22684		
15	4.08261	0.405465	-3.67714		
16	4.22537	0.405465	-3.81991		
17	4.51743	0.405465	-4.11197		
18	5.18178	0.405465	-4.77632		

Sum of b values = 6.33024
Sample Standard Deviation = 1.62362
W Statistic = 0.894171
5% Critical value of 0.897 exceeds 0.894171
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.894171
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: BH-7

Normality Test of Parameter Concentrations

Log Base 10 Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.176091	2.25042	2.07433	0.4886	1.01352
2	0.176091	1.9619	1.7858	0.3253	0.580922
3	0.176091	1.83506	1.65896	0.2553	0.423534
4	0.176091	1.77305	1.59696	0.2027	0.323704
5	0.176091	1.57749	1.4014	0.1587	0.222402
6	0.579784	1.56703	0.987243	0.1197	0.118173
7	0.819544	1.51055	0.691001	0.0837	0.0578368
8	1.20412	1.38021	0.176091	0.0496	0.00873413
9	1.27875	1.30103	0.0222764	0.0163	0.000363105
10	1.30103	1.27875	-0.0222764		
11	1.38021	1.20412	-0.176091		
12	1.51055	0.819544	-0.691001		
13	1.56703	0.579784	-0.987243		
14	1.57749	0.176091	-1.4014		
15	1.77305	0.176091	-1.59696		
16	1.83506	0.176091	-1.65896		
17	1.9619	0.176091	-1.7858		
18	2.25042	0.176091	-2.07433		

Sum of b values = 2.74919
Sample Standard Deviation = 0.70513
W Statistic = 0.894171
5% Critical value of 0.897 exceeds 0.894171
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.894171
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: BH-7

Normality Test of Parameter Concentrations

Square Root Tranformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.22474	13.3417	12.1169	0.4886	5.92033
2	1.22474	9.57079	8.34604	0.3253	2.71497
3	1.22474	8.27043	7.04568	0.2553	1.79876
4	1.22474	7.70065	6.4759	0.2027	1.31267
5	1.22474	6.14817	4.92343	0.1587	0.781348
6	1.94936	6.07454	4.12518	0.1197	0.493784
7	2.56905	5.6921	3.12305	0.0837	0.2614
8	4	4.89898	0.898979	0.0496	0.0445894
9	4.3589	4.47214	0.113237	0.0163	0.00184576
10	4.47214	4.3589	-0.113237		
11	4.89898	4	-0.898979		
12	5.6921	2.56905	-3.12305		
13	6.07454	1.94936	-4.12518		
14	6.14817	1.22474	-4.92343		
15	7.70065	1.22474	-6.4759		
16	8.27043	1.22474	-7.04568		
17	9.57079	1.22474	-8.34604		
18	13.3417	1.22474	-12.1169		

Sum of b values = 13.3297
Sample Standard Deviation = 3.41536
W Statistic = 0.896022
5% Critical value of 0.897 exceeds 0.896022
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 is less than 0.896022
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Lead

Well: BH-7

Normality Test of Parameter Concentrations

Cube Root Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.44225	5.62523	4.18298	0.4886	2.0438
2	1.44225	4.50781	3.06556	0.3253	0.997225
3	1.44225	4.08964	2.64739	0.2553	0.675879
4	1.44225	3.89958	2.45733	0.2027	0.498102
5	1.44225	3.35607	1.91382	0.1587	0.303723
6	1.56049	3.32922	1.76873	0.1197	0.211717
7	1.87578	3.18798	1.3122	0.0837	0.109831
8	2.51984	2.8845	0.364657	0.0496	0.018087
9	2.6684	2.71442	0.046016	0.0163	0.00075006
10	2.71442	2.6684	-0.046016		
11	2.8845	2.51984	-0.364657		
12	3.18798	1.87578	-1.3122		
13	3.32922	1.56049	-1.76873		
14	3.35607	1.44225	-1.91382		
15	3.89958	1.44225	-2.45733		
16	4.08964	1.44225	-2.64739		
17	4.50781	1.44225	-3.06556		
18	5.62523	1.44225	-4.18298		

Sum of b values = 4.85912
Sample Standard Deviation = 1.24089
W Statistic = 0.901989
5% Critical value of 0.897 is less than 0.901989
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.901989
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Nickel

Well: OW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	2.5	249	246.5	0.4886	120.44
2	2.5	168	165.5	0.3253	53.8371
3	2.5	139	136.5	0.2553	34.8485
4	2.5	32.2	29.7	0.2027	6.02019
5	5	26.1	21.1	0.1587	3.34857
6	6.2	22.5	16.3	0.1197	1.95111
7	8.3	19.4	11.1	0.0837	0.92907
8	10.8	19.1	8.3	0.0496	0.41168
9	11	14	3	0.0163	0.0489
10	14	11	-3		
11	19.1	10.8	-8.3		
12	19.4	8.3	-11.1		
13	22.5	6.2	-16.3		
14	26.1	5	-21.1		
15	32.2	2.5	-29.7		
16	139	2.5	-136.5		
17	168	2.5	-165.5		
18	249	2.5	-246.5		

Sum of b values = 221.835
Sample Standard Deviation = 69.7183
W Statistic = 0.59555
5% Critical value of 0.897 exceeds 0.59555
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.59555
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Nickel

Well: OW-2

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.916291	5.51745	4.60116	0.4886	2.24813
2	0.916291	5.12396	4.20767	0.3253	1.36876
3	0.916291	4.93447	4.01818	0.2553	1.02584
4	0.916291	3.47197	2.55568	0.2027	0.518035
5	1.60944	3.26194	1.6525	0.1587	0.262251
6	1.82455	3.11352	1.28897	0.1197	0.154289
7	2.11626	2.96527	0.849018	0.0837	0.0710628
8	2.37955	2.94969	0.570142	0.0496	0.0282791
9	2.3979	2.63906	0.241162	0.0163	0.00393094
10	2.63906	2.3979	-0.241162		
11	2.94969	2.37955	-0.570142		
12	2.96527	2.11626	-0.849018		
13	3.11352	1.82455	-1.28897		
14	3.26194	1.60944	-1.6525		
15	3.47197	0.916291	-2.55568		
16	4.93447	0.916291	-4.01818		
17	5.12396	0.916291	-4.20767		
18	5.51745	0.916291	-4.60116		

Sum of b values = 5.68057
Sample Standard Deviation = 1.43937
W Statistic = 0.916197
5% Critical value of 0.897 is less than 0.916197
Data is normally distributed at 95% level of significance
1% Critical value of 0.858 is less than 0.916197
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Nickel

Well: OW-4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 17

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	41.1	168	126.9	0.4968	63.0439
2	45.5	157	111.5	0.3273	36.4939
3	47	131	84	0.254	21.336
4	51.7	114	62.3	0.1988	12.3852
5	51.9	108	56.1	0.1524	8.54964
6	66.7	106	39.3	0.1109	4.35837
7	71.8	102	30.2	0.0725	2.1895
8	76.6	93.5	16.9	0.0359	0.60671
9	79.7	79.7	0		
10	93.5	76.6	-16.9		
11	102	71.8	-30.2		
12	106	66.7	-39.3		
13	108	51.9	-56.1		
14	114	51.7	-62.3		
15	131	47	-84		
16	157	45.5	-111.5		
17	168	41.1	-126.9		

Sum of b values = 148.963
Sample Standard Deviation = 38.6045
W Statistic = 0.930602
5% Critical value of 0.892 is less than 0.930602
Data is normally distributed at 95% level of significance
1% Critical value of 0.851 is less than 0.930602
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Nickel

Well: MP-9

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	2.5	140	137.5	0.5056	69.52
2	2.5	42.3	39.8	0.329	13.0942
3	2.5	10.7	8.2	0.2521	2.06722
4	2.5	9	6.5	0.1939	1.26035
5	2.5	8.2	5.7	0.1447	0.82479
6	2.5	6.1	3.6	0.1005	0.3618
7	2.5	5.5	3	0.0593	0.1779
8	2.5	5.2	2.7	0.0196	0.05292
9	5.2	2.5	-2.7		
10	5.5	2.5	-3		
11	6.1	2.5	-3.6		
12	8.2	2.5	-5.7		
13	9	2.5	-6.5		
14	10.7	2.5	-8.2		
15	42.3	2.5	-39.8		
16	140	2.5	-137.5		

Sum of b values = 87.3592
Sample Standard Deviation = 34.6251
W Statistic = 0.424369
5% Critical value of 0.887 exceeds 0.424369
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.424369
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Nickel

Well: MP-9

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.916291	4.94164	4.02535	0.5056	2.03522
2	0.916291	3.74479	2.8285	0.329	0.930575
3	0.916291	2.37024	1.45395	0.2521	0.366542
4	0.916291	2.19722	1.28093	0.1939	0.248373
5	0.916291	2.10413	1.18784	0.1447	0.171881
6	0.916291	1.80829	0.891998	0.1005	0.0896458
7	0.916291	1.70475	0.788457	0.0593	0.0467555
8	0.916291	1.64866	0.732368	0.0196	0.0143544
9	1.64866	0.916291	-0.732368		
10	1.70475	0.916291	-0.788457		
11	1.80829	0.916291	-0.891998		
12	2.10413	0.916291	-1.18784		
13	2.19722	0.916291	-1.28093		
14	2.37024	0.916291	-1.45395		
15	3.74479	0.916291	-2.8285		
16	4.94164	0.916291	-4.02535		

Sum of b values = 3.90334
Sample Standard Deviation = 1.16764
W Statistic = 0.745014
5% Critical value of 0.887 exceeds 0.745014
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.745014
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Nickel

Well: MP-9

Normality Test of Parameter Concentrations

Log Base 10 Transformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.39794	2.14613	1.74819	0.5056	0.883884
2	0.39794	1.62634	1.2284	0.329	0.404144
3	0.39794	1.02938	0.631444	0.2521	0.159187
4	0.39794	0.954243	0.556303	0.1939	0.107867
5	0.39794	0.913814	0.515874	0.1447	0.0746469
6	0.39794	0.78533	0.38739	0.1005	0.0389327
7	0.39794	0.740363	0.342423	0.0593	0.0203057
8	0.39794	0.716003	0.318063	0.0196	0.00623404
9	0.716003	0.39794	-0.318063		
10	0.740363	0.39794	-0.342423		
11	0.78533	0.39794	-0.38739		
12	0.913814	0.39794	-0.515874		
13	0.954243	0.39794	-0.556303		
14	1.02938	0.39794	-0.631444		
15	1.62634	0.39794	-1.2284		
16	2.14613	0.39794	-1.74819		

Sum of b values = 1.6952
Sample Standard Deviation = 0.5071
W Statistic = 0.745014
5% Critical value of 0.887 exceeds 0.745014
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.745014
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Nickel

Well: MP-9

Normality Test of Parameter Concentrations

Square Root Tranformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.58114	11.8322	10.251	0.5056	5.18292
2	1.58114	6.50385	4.92271	0.329	1.61957
3	1.58114	3.27109	1.68995	0.2521	0.426036
4	1.58114	3	1.41886	0.1939	0.275117
5	1.58114	2.86356	1.28243	0.1447	0.185567
6	1.58114	2.46982	0.888679	0.1005	0.0893122
7	1.58114	2.34521	0.764069	0.0593	0.0453093
8	1.58114	2.28035	0.699212	0.0196	0.0137046
9	2.28035	1.58114	-0.699212		
10	2.34521	1.58114	-0.764069		
11	2.46982	1.58114	-0.888679		
12	2.86356	1.58114	-1.28243		
13	3	1.58114	-1.41886		
14	3.27109	1.58114	-1.68995		
15	6.50385	1.58114	-4.92271		
16	11.8322	1.58114	-10.251		

Sum of b values = 7.83753
Sample Standard Deviation = 2.67919
W Statistic = 0.570507
5% Critical value of 0.887 exceeds 0.570507
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.570507
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Nickel

Well: MP-9

Normality Test of Parameter Concentrations

Cube Root Transformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.70998	5.19249	3.48252	0.5056	1.76076
2	1.70998	3.48428	1.77431	0.329	0.583747
3	1.70998	2.20358	0.4936	0.2521	0.124436
4	1.70998	2.08008	0.370108	0.1939	0.0717639
5	1.70998	2.01653	0.306554	0.1447	0.0443583
6	1.70998	1.82716	0.117184	0.1005	0.011777
7	1.70998	1.76517	0.0551982	0.0593	0.00327325
8	1.70998	1.73248	0.0225023	0.0196	0.000441044
9	1.73248	1.70998	-0.0225023		
10	1.76517	1.70998	-0.0551982		
11	1.82716	1.70998	-0.117184		
12	2.01653	1.70998	-0.306554		
13	2.08008	1.70998	-0.370108		
14	2.20358	1.70998	-0.4936		
15	3.48428	1.70998	-1.77431		
16	5.19249	1.70998	-3.48252		

Sum of b values = 2.60056
Sample Standard Deviation = 0.931927
W Statistic = 0.519132
5% Critical value of 0.887 exceeds 0.519132
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.519132
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: OW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	2.5	103	100.5	0.4886	49.1043
2	2.5	59.9	57.4	0.3253	18.6722
3	2.5	44	41.5	0.2553	10.595
4	2.5	10.3	7.8	0.2027	1.58106
5	2.5	6.7	4.2	0.1587	0.66654
6	2.5	5.4	2.9	0.1197	0.34713
7	2.5	5.3	2.8	0.0837	0.23436
8	2.5	2.5	0	0.0496	0
9	2.5	2.5	0	0.0163	0
10	2.5	2.5	0		
11	2.5	2.5	0		
12	5.3	2.5	-2.8		
13	5.4	2.5	-2.9		
14	6.7	2.5	-4.2		
15	10.3	2.5	-7.8		
16	44	2.5	-41.5		
17	59.9	2.5	-57.4		
18	103	2.5	-100.5		

Sum of b values = 81.2006
Sample Standard Deviation = 27.2176
W Statistic = 0.523565
5% Critical value of 0.897 exceeds 0.523565
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.523565
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: OW-2

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.916291	4.63473	3.71844	0.4886	1.81683
2	0.916291	4.09268	3.17639	0.3253	1.03328
3	0.916291	3.78419	2.8679	0.2553	0.732175
4	0.916291	2.33214	1.41585	0.2027	0.286993
5	0.916291	1.90211	0.985817	0.1587	0.156449
6	0.916291	1.6864	0.770108	0.1197	0.092182
7	0.916291	1.66771	0.751416	0.0837	0.0628935
8	0.916291	0.916291	0	0.0496	0
9	0.916291	0.916291	0	0.0163	0
10	0.916291	0.916291	0		
11	0.916291	0.916291	0		
12	1.66771	0.916291	-0.751416		
13	1.6864	0.916291	-0.770108		
14	1.90211	0.916291	-0.985817		
15	2.33214	0.916291	-1.41585		
16	3.78419	0.916291	-2.8679		
17	4.09268	0.916291	-3.17639		
18	4.63473	0.916291	-3.71844		

Sum of b values = 4.1808
Sample Standard Deviation = 1.23358
W Statistic = 0.675666
5% Critical value of 0.897 exceeds 0.675666
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.675666
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: OW-2

Normality Test of Parameter Concentrations

Log Base 10 Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.39794	2.01284	1.6149	0.4886	0.789039
2	0.39794	1.77743	1.37949	0.3253	0.448747
3	0.39794	1.64345	1.24551	0.2553	0.317979
4	0.39794	1.01284	0.614897	0.2027	0.12464
5	0.39794	0.826075	0.428135	0.1587	0.067945
6	0.39794	0.732394	0.334454	0.1197	0.0400341
7	0.39794	0.724276	0.326336	0.0837	0.0273143
8	0.39794	0.39794	0	0.0496	0
9	0.39794	0.39794	0	0.0163	0
10	0.39794	0.39794	0		
11	0.39794	0.39794	0		
12	0.724276	0.39794	-0.326336		
13	0.732394	0.39794	-0.334454		
14	0.826075	0.39794	-0.428135		
15	1.01284	0.39794	-0.614897		
16	1.64345	0.39794	-1.24551		
17	1.77743	0.39794	-1.37949		
18	2.01284	0.39794	-1.6149		

Sum of b values = 1.8157
Sample Standard Deviation = 0.535739
W Statistic = 0.675666
5% Critical value of 0.897 exceeds 0.675666
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.675666
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: OW-2

Normality Test of Parameter Concentrations

Square Root Tranformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.58114	10.1489	8.56775	0.4886	4.1862
2	1.58114	7.73951	6.15837	0.3253	2.00332
3	1.58114	6.63325	5.05211	0.2553	1.2898
4	1.58114	3.20936	1.62822	0.2027	0.330041
5	1.58114	2.58844	1.0073	0.1587	0.159858
6	1.58114	2.32379	0.742651	0.1197	0.0888953
7	1.58114	2.30217	0.721034	0.0837	0.0603506
8	1.58114	1.58114	0	0.0496	0
9	1.58114	1.58114	0	0.0163	0
10	1.58114	1.58114	0		
11	1.58114	1.58114	0		
12	2.30217	1.58114	-0.721034		
13	2.32379	1.58114	-0.742651		
14	2.58844	1.58114	-1.0073		
15	3.20936	1.58114	-1.62822		
16	6.63325	1.58114	-5.05211		
17	7.73951	1.58114	-6.15837		
18	10.1489	1.58114	-8.56775		

Sum of b values = 8.11847
Sample Standard Deviation = 2.5428
W Statistic = 0.59962
5% Critical value of 0.897 exceeds 0.59962
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.59962
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: OW-2

Normality Test of Parameter Concentrations

Cube Root Transformation
Non-Detects Replaced with 1/2 DL
K = 9; Samples = 18

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.70998	4.68755	2.97757	0.4886	1.45484
2	1.70998	3.91269	2.20272	0.3253	0.716543
3	1.70998	3.53035	1.82037	0.2553	0.464741
4	1.70998	2.17577	0.465791	0.2027	0.0944159
5	1.70998	1.8852	0.175228	0.1587	0.0278086
6	1.70998	1.75441	0.0444347	0.1197	0.00531883
7	1.70998	1.74351	0.0335375	0.0837	0.00280708
8	1.70998	1.70998	0	0.0496	0
9	1.70998	1.70998	0	0.0163	0
10	1.70998	1.70998	0		
11	1.70998	1.70998	0		
12	1.74351	1.70998	-0.0335375		
13	1.75441	1.70998	-0.0444347		
14	1.8852	1.70998	-0.175228		
15	2.17577	1.70998	-0.465791		
16	3.53035	1.70998	-1.82037		
17	3.91269	1.70998	-2.20272		
18	4.68755	1.70998	-2.97757		

Sum of b values = 2.76648
Sample Standard Deviation = 0.906567
W Statistic = 0.547779
5% Critical value of 0.897 exceeds 0.547779
Evidence of non-normality at 95% level of significance
1% Critical value of 0.858 exceeds 0.547779
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: MP-9

Normality Test of Parameter Concentrations

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	2.5	77.1	74.6	0.5056	37.7178
2	2.5	25.4	22.9	0.329	7.5341
3	2.5	7.9	5.4	0.2521	1.36134
4	2.5	7	4.5	0.1939	0.87255
5	2.5	5.7	3.2	0.1447	0.46304
6	2.5	2.5	0	0.1005	0
7	2.5	2.5	0	0.0593	0
8	2.5	2.5	0	0.0196	0
9	2.5	2.5	0		
10	2.5	2.5	0		
11	2.5	2.5	0		
12	5.7	2.5	-3.2		
13	7	2.5	-4.5		
14	7.9	2.5	-5.4		
15	25.4	2.5	-22.9		
16	77.1	2.5	-74.6		

Sum of b values = 47.9488
Sample Standard Deviation = 18.9468
W Statistic = 0.426967
5% Critical value of 0.887 exceeds 0.426967
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.426967
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: MP-9

Normality Test of Parameter Concentrations

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.916291	4.3451	3.42881	0.5056	1.73361
2	0.916291	3.23475	2.31846	0.329	0.762773
3	0.916291	2.06686	1.15057	0.2521	0.290059
4	0.916291	1.94591	1.02962	0.1939	0.199643
5	0.916291	1.74047	0.824175	0.1447	0.119258
6	0.916291	0.916291	0	0.1005	0
7	0.916291	0.916291	0	0.0593	0
8	0.916291	0.916291	0	0.0196	0
9	0.916291	0.916291	0		
10	0.916291	0.916291	0		
11	0.916291	0.916291	0		
12	1.74047	0.916291	-0.824175		
13	1.94591	0.916291	-1.02962		
14	2.06686	0.916291	-1.15057		
15	3.23475	0.916291	-2.31846		
16	4.3451	0.916291	-3.42881		

Sum of b values = 3.10534
Sample Standard Deviation = 1.01352
W Statistic = 0.625843
5% Critical value of 0.887 exceeds 0.625843
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.625843
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: MP-9

Normality Test of Parameter Concentrations

Log Base 10 Transformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.39794	1.88705	1.48911	0.5056	0.752896
2	0.39794	1.40483	1.00689	0.329	0.331268
3	0.39794	0.897627	0.499687	0.2521	0.125971
4	0.39794	0.845098	0.447158	0.1939	0.0867039
5	0.39794	0.755875	0.357935	0.1447	0.0517932
6	0.39794	0.39794	0	0.1005	0
7	0.39794	0.39794	0	0.0593	0
8	0.39794	0.39794	0	0.0196	0
9	0.39794	0.39794	0		
10	0.39794	0.39794	0		
11	0.39794	0.39794	0		
12	0.755875	0.39794	-0.357935		
13	0.845098	0.39794	-0.447158		
14	0.897627	0.39794	-0.499687		
15	1.40483	0.39794	-1.00689		
16	1.88705	0.39794	-1.48911		

Sum of b values = 1.34863
Sample Standard Deviation = 0.440165
W Statistic = 0.625843
5% Critical value of 0.887 exceeds 0.625843
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.625843
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: MP-9

Normality Test of Parameter Concentrations

Square Root Tranformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.58114	8.78066	7.19952	0.5056	3.64008
2	1.58114	5.03984	3.4587	0.329	1.13791
3	1.58114	2.81069	1.22956	0.2521	0.309971
4	1.58114	2.64575	1.06461	0.1939	0.206428
5	1.58114	2.38747	0.806328	0.1447	0.116676
6	1.58114	1.58114	0	0.1005	0
7	1.58114	1.58114	0	0.0593	0
8	1.58114	1.58114	0	0.0196	0
9	1.58114	1.58114	0		
10	1.58114	1.58114	0		
11	1.58114	1.58114	0		
12	2.38747	1.58114	-0.806328		
13	2.64575	1.58114	-1.06461		
14	2.81069	1.58114	-1.22956		
15	5.03984	1.58114	-3.4587		
16	8.78066	1.58114	-7.19952		

Sum of b values = 5.41107
Sample Standard Deviation = 1.91937
W Statistic = 0.529855
5% Critical value of 0.887 exceeds 0.529855
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.529855
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chromium

Well: MP-9

Normality Test of Parameter Concentrations

Cube Root Transformation
Non-Detects Replaced with 1/2 DL
K = 8; Samples = 16

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.70998	4.25616	2.54619	0.5056	1.28735
2	1.70998	2.93953	1.22955	0.329	0.404523
3	1.70998	1.99163	0.281656	0.2521	0.0710054
4	1.70998	1.91293	0.202955	0.1939	0.039353
5	1.70998	1.78632	0.07634	0.1447	0.0110464
6	1.70998	1.70998	0	0.1005	0
7	1.70998	1.70998	0	0.0593	0
8	1.70998	1.70998	0	0.0196	0
9	1.70998	1.70998	0		
10	1.70998	1.70998	0		
11	1.70998	1.70998	0		
12	1.78632	1.70998	-0.07634		
13	1.91293	1.70998	-0.202955		
14	1.99163	1.70998	-0.281656		
15	2.93953	1.70998	-1.22955		
16	4.25616	1.70998	-2.54619		

Sum of b values = 1.81328
Sample Standard Deviation = 0.680479
W Statistic = 0.473378
5% Critical value of 0.887 exceeds 0.473378
Evidence of non-normality at 95% level of significance
1% Critical value of 0.844 exceeds 0.473378
Evidence of non-normality at 99% level of significance

Parametric Prediction Interval Analysis

Intra-Well Comparison for PW-1

Parameter: Lead

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 1.74447 Std Dev = 1.12625
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	2.17475
	6/30/1998	ND<0.916291
	10/1/1998	1.79176
	12/7/1998	1.43508
	3/30/1999	ND<0.405465
	6/9/1999	ND<0.405465
	9/29/1999	ND<0.405465
	12/16/1999	2.52573
	3/8/2000	3.28466
	6/7/2000	1.335
	9/29/2000	3.67122
	12/15/2000	ND<0.405465
	3/27/2001	3.25424
	6/19/2001	2.43361
	9/18/2001	1.72277

Date	Samples	Mean	Interval	Impacted
9/24/2002	1	3.78419	[0, 4.48937]	FALSE
6/25/2002	1	2.25129	[0, 4.48937]	FALSE
3/26/2002	1	2.5096	[0, 4.48937]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-2

Parameter: Lead

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 2.56985 Std Dev = 1.22868
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	7/2/1998	3.44681
	10/1/1998	ND<0.405465
	12/7/1998	1.82455
	3/30/1999	1.66771
	6/9/1999	1.8563
	9/30/1999	ND<0.405465
	12/17/1999	2.00148
	3/7/2000	2.24071
	6/8/2000	2.78501
	9/29/2000	4.22391
	12/15/2000	3.50255
	3/27/2001	2.94969
	6/19/2001	3.08191
	9/18/2001	4.27667
	3/26/2002	3.8795

Date	Samples	Mean	Interval	Impacted
9/24/2002	1	2.15176	[0, 5.5644]	FALSE
6/25/2002	1	3.12676	[0, 5.5644]	FALSE
3/26/2002	1	3.8795	[0, 5.5644]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-7

Parameter: Lead

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 2.54057 Std Dev = 1.73864
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	2.99573
	6/30/1998	1.88707
	10/2/1998	ND<0.405465
	12/9/1998	ND<0.405465
	3/30/1999	ND<0.405465
	6/9/1999	ND<0.405465
	9/28/1999	ND<0.405465
	12/16/1999	2.77259
	3/8/2000	3.17805
	6/7/2000	5.18178
	9/29/2000	4.08261
	12/15/2000	4.22537
	3/27/2001	3.60821
	6/19/2001	3.63231
	9/18/2001	4.51743

Date	Samples	Mean	Interval	Impacted
9/24/2002	1	3.47816	[0, 6.77799]	FALSE
6/25/2002	1	2.94444	[0, 6.77799]	FALSE
3/26/2002	1	1.335	[0, 6.77799]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for BH-7

Parameter: Lead

Cube Root Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 2.80089 Std Dev = 1.32354
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/1/1998	2.71442
	6/30/1998	1.87578
	10/2/1998	ND<1.44225
	12/9/1998	ND<1.44225
	3/30/1999	ND<1.44225
	6/9/1999	ND<1.44225
	9/28/1999	ND<1.44225
	12/16/1999	2.51984
	3/8/2000	2.8845
	6/7/2000	5.62523
	9/29/2000	3.89958
	12/15/2000	4.08964
	3/27/2001	3.32922
	6/19/2001	3.35607
	9/18/2001	4.50781

Date	Samples	Mean	Interval	Impacted
9/24/2002	1	3.18798	[0, 6.02664]	FALSE
6/25/2002	1	2.6684	[0, 6.02664]	FALSE
3/26/2002	1	1.56049	[0, 6.02664]	FALSE

Parametric Prediction Interval Analysis
Intra-Well Comparison for OW-2
Parameter: Nickel

Natural Logarithm Transformation
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 2.31265 Std Dev = 1.1703
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	4/3/1998	ND<0.916291
	7/1/1998	ND<0.916291
	10/2/1998	1.60944
	12/7/1998	4.93447
	3/30/1999	ND<0.916291
	6/9/1999	2.37955
	9/30/1999	3.26194
	12/17/1999	2.96527
	3/8/2000	3.11352
	6/8/2000	1.82455
	9/29/2000	ND<0.916291
	12/15/2000	3.47197
	3/27/2001	2.11626
	6/19/2001	2.3979
	9/18/2001	2.94969

Date	Samples	Mean	Interval	Impacted
9/24/2002	1	5.12396	[0, 5.16493]	FALSE
6/25/2002	1	5.51745	[0, 5.16493]	TRUE
3/26/2002	1	2.63906	[0, 5.16493]	FALSE

Parametric Prediction Interval Analysis
Intra-Well Comparison for OW-4
Parameter: Nickel

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Intra-Well USEPA Style 95% Comparison
For 3 recent sampling event(s)
Future Samples (k) = 3
From 15 baseline samples
Baseline mean = 84.8333 Std Dev = 39.1513
95% confidence t = 2.35982 at 14 degrees of freedom
Actual confidence level is 1.0 - (0.05/3) = 98.3333 %

Baseline Samples	Date	Result
	3/30/1998	41.1
	6/30/1998	45.5
	10/2/1998	47
	12/9/1998	106
	3/30/1999	71.8
	6/9/1999	66.7
	9/29/1999	157
	12/16/1999	114
	3/8/2000	93.5
	6/7/2000	51.7
	9/29/2000	51.9
	12/15/2000	102
	3/27/2001	76.6
	6/19/2001	79.7
	3/26/2002	168

Date	Samples	Mean	Interval	Impacted
9/24/2002	1	108	[0, 180.253]	FALSE
6/25/2002	1	131	[0, 180.253]	FALSE
3/26/2002	1	168	[0, 180.253]	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MP-9
Parameter: Nickel

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 53.8462%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 13
Maximum Baseline Concentration = 10.7
Confidence Level = 81.3%
False Positive Rate = 18.7%

Baseline Samples	Date	Result
	4/1/1998	ND<2.5
	6/30/1998	5.5
	10/2/1998	9
	12/9/1998	10.7
	3/30/1999	ND<2.5
	6/9/1999	6.1
	9/29/1999	8.2
	12/17/1999	ND<2.5
	3/8/2000	ND<2.5
	6/8/2000	ND<2.5
	9/29/2000	ND<2.5
	12/15/2000	5.2
	3/27/2001	ND<2.5

Date	Samples	Mean	Impacted
9/24/2002	1	140	TRUE
3/26/2002	1	42.3	TRUE
9/18/2001	1	2.5	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MP-9
Parameter: Nickel

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 53.8462%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 13
Maximum Baseline Concentration = 10.7
Confidence Level = 81.3%
False Positive Rate = 18.7%

Baseline Samples	Date	Result
	4/1/1998	ND<2.5
	6/30/1998	5.5
	10/2/1998	9
	12/9/1998	10.7
	3/30/1999	ND<2.5
	6/9/1999	6.1
	9/29/1999	8.2
	12/17/1999	ND<2.5
	3/8/2000	ND<2.5
	6/8/2000	ND<2.5
	9/29/2000	ND<2.5
	12/15/2000	5.2
	3/27/2001	ND<2.5

Date	Samples	Mean	Impacted
9/24/2002	1	140	TRUE
3/26/2002	1	42.3	TRUE
9/18/2001	1	2.5	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for OW-2
Parameter: Chromium

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 61.5385%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 13
Maximum Baseline Concentration = 59.9
Confidence Level = 81.3%
False Positive Rate = 18.7%

Baseline Samples	Date	Result
	4/3/1998	ND<2.5
	7/1/1998	ND<2.5
	10/2/1998	ND<2.5
	12/7/1998	59.9
	3/30/1999	ND<2.5
	6/9/1999	ND<2.5
	9/30/1999	6.7
	12/17/1999	5.3
	3/8/2000	10.3
	6/8/2000	ND<2.5
	9/29/2000	ND<2.5
	12/15/2000	5.4
	3/27/2001	ND<2.5

Date	Samples	Mean	Impacted
9/24/2002	1	44	FALSE
6/25/2002	1	103	TRUE
3/26/2002	1	2.5	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MP-9

Parameter: Chromium

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 76.9231%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 13
Maximum Baseline Concentration = 7.9
Confidence Level = 81.3%
False Positive Rate = 18.7%

Baseline Samples	Date	Result
	4/1/1998	5.7
	6/30/1998	ND<2.5
	10/2/1998	ND<2.5
	12/9/1998	7.9
	3/30/1999	ND<2.5
	6/9/1999	ND<2.5
	9/29/1999	ND<2.5
	12/17/1999	ND<2.5
	3/8/2000	ND<2.5
	6/8/2000	ND<2.5
	9/29/2000	ND<2.5
	12/15/2000	7
	3/27/2001	ND<2.5

Date	Samples	Mean	Impacted
9/24/2002	1	77.1	TRUE
3/26/2002	1	25.4	TRUE
9/18/2001	1	2.5	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for OW-2
Parameter: Chromium

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 61.5385%
Future Samples (k) = 3
Recent Dates = 3
Baseline Samples (n) = 13
Maximum Baseline Concentration = 59.9
Confidence Level = 81.3%
False Positive Rate = 18.7%

Baseline Samples	Date	Result
	4/3/1998	ND<2.5
	7/1/1998	ND<2.5
	10/2/1998	ND<2.5
	12/7/1998	59.9
	3/30/1999	ND<2.5
	6/9/1999	ND<2.5
	9/30/1999	6.7
	12/17/1999	5.3
	3/8/2000	10.3
	6/8/2000	ND<2.5
	9/29/2000	ND<2.5
	12/15/2000	5.4
	3/27/2001	ND<2.5

Date	Samples	Mean	Impacted
9/24/2002	1	44	FALSE
6/25/2002	1	103	TRUE
3/26/2002	1	2.5	FALSE

Non-Parametric Tolerance Interval

Parameter: Lead

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 65.2956%
Background Samples (n) = 33
Maximum Background Concentration = 60.9
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<2.5	FALSE
B-5	7/1/1998	ND<2.5	FALSE
B-5	10/2/1998	ND<1.5	FALSE
B-5	12/7/1998	3.7	FALSE
B-5	3/30/1999	ND<1.5	FALSE
B-5	6/9/1999	ND<1.5	FALSE
B-5	9/30/1999	ND<1.5	FALSE
B-5	12/15/1999	ND<1.5	FALSE
B-5	3/8/2000	ND<1.5	FALSE
B-5	6/8/2000	ND<1.5	FALSE
B-5	9/29/2000	ND<1.5	FALSE
B-5	12/15/2000	ND<1.5	FALSE
B-5	3/27/2001	ND<1.5	FALSE
B-5	9/18/2001	ND<1.5	FALSE
B-5	3/26/2002	ND<1.5	FALSE
B-5	9/24/2002	ND<1.5	FALSE
BH-2	7/2/1998	31.4	FALSE
BH-2	10/1/1998	ND<1.5	FALSE
BH-2	12/7/1998	6.2	FALSE
BH-2	3/30/1999	5.3	FALSE
BH-2	6/9/1999	6.4	FALSE
BH-2	9/30/1999	ND<1.5	FALSE
BH-2	12/17/1999	7.4	FALSE
BH-2	3/7/2000	9.4	FALSE
BH-2	6/8/2000	16.2	FALSE
BH-2	9/29/2000	68.3	TRUE
BH-2	12/15/2000	33.2	FALSE
BH-2	3/27/2001	19.1	FALSE
BH-2	6/19/2001	21.8	FALSE
BH-2	9/18/2001	72	TRUE
BH-2	3/26/2002	48.4	FALSE
BH-2	6/25/2002	22.8	FALSE
BH-2	9/24/2002	8.6	FALSE
BH-7	4/1/1998	20	FALSE
BH-7	6/30/1998	6.6	FALSE
BH-7	10/2/1998	ND<1.5	FALSE
BH-7	12/9/1998	ND<1.5	FALSE
BH-7	3/30/1999	ND<1.5	FALSE
BH-7	6/9/1999	ND<1.5	FALSE

BH-7	9/28/1999	ND<1.5	FALSE
BH-7	12/16/1999	16	FALSE
BH-7	3/8/2000	24	FALSE
BH-7	6/7/2000	178	TRUE
BH-7	9/29/2000	59.3	FALSE
BH-7	12/15/2000	68.4	TRUE
BH-7	3/27/2001	36.9	FALSE
BH-7	6/19/2001	37.8	FALSE
BH-7	9/18/2001	91.6	TRUE
BH-7	3/26/2002	3.8	FALSE
BH-7	6/25/2002	19	FALSE
BH-7	9/24/2002	32.4	FALSE
BH-8	4/1/1998	7.4	FALSE
BH-8	6/30/1998	ND<2.5	FALSE
BH-8	10/2/1998	ND<1.5	FALSE
BH-8	12/9/1998	ND<1.5	FALSE
BH-8	3/30/1999	ND<1.5	FALSE
BH-8	6/9/1999	ND<1.5	FALSE
BH-8	9/29/1999	ND<1.5	FALSE
BH-8	12/16/1999	ND<1.5	FALSE
BH-8	3/8/2000	ND<1.5	FALSE
BH-8	6/7/2000	ND<1.5	FALSE
BH-8	9/29/2000	ND<1.5	FALSE
BH-8	12/15/2000	ND<1.5	FALSE
BH-8	3/27/2001	11.6	FALSE
BH-8	6/19/2001	ND<1.5	FALSE
BH-8	9/18/2001	7.7	FALSE
BH-8	3/26/2002	ND<1.5	FALSE
BH-8	6/25/2002	3.9	FALSE
BH-8	9/24/2002	9.8	FALSE
MW-10	3/31/1998	ND<2.5	FALSE
MW-10	6/29/1998	ND<2.5	FALSE
MW-10	10/1/1998	ND<1.5	FALSE
MW-10	12/9/1998	ND<1.5	FALSE
MW-10	3/30/1999	ND<1.5	FALSE
MW-10	6/9/1999	ND<1.5	FALSE
MW-10	9/28/1999	ND<1.5	FALSE
MW-10	12/15/1999	ND<1.5	FALSE
MW-10	3/9/2000	ND<1.5	FALSE
MW-10	6/7/2000	ND<1.5	FALSE
MW-10	9/29/2000	ND<1.5	FALSE
MW-10	12/15/2000	ND<1.5	FALSE
MW-10	3/27/2001	ND<1.5	FALSE
MW-10	6/19/2001	ND<1.5	FALSE
MW-10	9/18/2001	ND<1.5	FALSE
MW-10	3/26/2002	3.2	FALSE
MW-10	6/25/2002	ND<1.5	FALSE
MW-10	9/24/2002	3.4	FALSE
MW-11	3/31/1998	ND<2.5	FALSE
MW-11	6/29/1998	ND<2.5	FALSE
MW-11	10/1/1998	ND<1.5	FALSE

MW-11	12/9/1998	ND<1.5	FALSE
MW-11	3/30/1999	ND<1.5	FALSE
MW-11	6/9/1999	ND<1.5	FALSE
MW-11	9/28/1999	ND<1.5	FALSE
MW-11	12/15/1999	ND<1.5	FALSE
MW-11	3/9/2000	ND<1.5	FALSE
MW-11	6/7/2000	ND<1.5	FALSE
MW-11	9/29/2000	ND<1.5	FALSE
MW-11	12/15/2000	ND<1.5	FALSE
MW-11	3/27/2001	ND<1.5	FALSE
MW-11	6/19/2001	ND<1.5	FALSE
MW-11	9/18/2001	ND<1.5	FALSE
MW-11	3/26/2002	3.1	FALSE
MW-11	6/25/2002	3.2	FALSE
MW-11	9/24/2002	ND<1.5	FALSE
MW-12S	3/30/1998	ND<2.5	FALSE
MW-12S	6/29/1998	ND<2.5	FALSE
MW-12S	10/1/1998	5	FALSE
MW-12S	12/9/1998	ND<1.5	FALSE
MW-12S	3/30/1999	ND<1.5	FALSE
MW-12S	6/9/1999	ND<1.5	FALSE
MW-12S	9/28/1999	ND<1.5	FALSE
MW-12S	12/15/1999	ND<1.5	FALSE
MW-12S	3/9/2000	ND<1.5	FALSE
MW-12S	6/7/2000	ND<1.5	FALSE
MW-12S	9/29/2000	ND<1.5	FALSE
MW-12S	12/15/2000	ND<1.5	FALSE
MW-12S	3/27/2001	ND<1.5	FALSE
MW-12S	6/19/2001	ND<1.5	FALSE
MW-12S	9/18/2001	ND<1.5	FALSE
MW-12S	3/26/2002	ND<1.5	FALSE
MW-12S	6/25/2002	ND<1.5	FALSE
MW-12S	9/24/2002	ND<1.5	FALSE
MW-13	3/30/1998	ND<2.5	FALSE
MW-13	6/29/1998	ND<2.5	FALSE
MW-13	10/1/1998	ND<1.5	FALSE
MW-13	12/9/1998	ND<1.5	FALSE
MW-13	3/30/1999	ND<1.5	FALSE
MW-13	6/9/1999	ND<1.5	FALSE
MW-13	9/28/1999	ND<1.5	FALSE
MW-13	12/17/1999	ND<1.5	FALSE
MW-13	3/9/2000	ND<1.5	FALSE
MW-13	6/7/2000	ND<1.5	FALSE
MW-13	9/29/2000	ND<1.5	FALSE
MW-13	12/15/2000	ND<1.5	FALSE
MW-13	3/27/2001	ND<1.5	FALSE
MW-13	6/19/2001	3.5	FALSE
MW-13	9/18/2001	ND<1.5	FALSE
MW-13	3/26/2002	ND<1.5	FALSE
MW-13	6/25/2002	ND<1.5	FALSE
MW-13	9/24/2002	7.2	FALSE

MW-14	4/1/1998	5.8	FALSE
MW-14	6/30/1998	ND<2.5	FALSE
MW-14	10/1/1998	ND<1.5	FALSE
MW-14	12/7/1998	3.1	FALSE
MW-14	3/30/1999	ND<1.5	FALSE
MW-14	6/9/1999	ND<1.5	FALSE
MW-14	9/29/1999	ND<1.5	FALSE
MW-14	12/16/1999	ND<1.5	FALSE
MW-14	6/19/2001	ND<1.5	FALSE
MW-14	9/18/2001	ND<1.5	FALSE
MW-14	3/26/2002	ND<1.5	FALSE
MW-14	6/25/2002	4.3	FALSE
MW-14	9/24/2002	ND<1.5	FALSE
MW-3	3/30/1998	ND<2.5	FALSE
MW-3	6/30/1998	ND<2.5	FALSE
MW-3	10/2/1998	ND<1.5	FALSE
MW-3	12/9/1998	ND<1.5	FALSE
MW-3	3/30/1999	ND<1.5	FALSE
MW-3	6/9/1999	ND<1.5	FALSE
MW-3	9/28/1999	ND<1.5	FALSE
MW-3	12/16/1999	ND<1.5	FALSE
MW-3	3/8/2000	ND<1.5	FALSE
MW-3	6/7/2000	ND<1.5	FALSE
MW-3	9/29/2000	ND<1.5	FALSE
MW-3	12/15/2000	ND<1.5	FALSE
MW-3	3/27/2001	6.3	FALSE
MW-3	6/19/2001	ND<1.5	FALSE
MW-3	9/18/2001	8.2	FALSE
MW-3	3/26/2002	3.9	FALSE
MW-3	6/25/2002	7.4	FALSE
MW-3	9/24/2002	5	FALSE
MW-4C	7/1/1998	183	TRUE
MW-4C	10/2/1998	ND<1.5	FALSE
MW-4C	12/7/1998	ND<1.5	FALSE
MW-4C	3/30/1999	ND<1.5	FALSE
MW-4C	6/9/1999	ND<1.5	FALSE
MW-4C	9/30/1999	ND<1.5	FALSE
MW-4C	12/17/1999	ND<1.5	FALSE
MW-4C	3/7/2000	ND<1.5	FALSE
MW-4C	6/8/2000	ND<1.5	FALSE
MW-4C	9/29/2000	ND<1.5	FALSE
MW-4C	12/15/2000	6.3	FALSE
MW-4C	3/27/2001	ND<1.5	FALSE
MW-4C	9/18/2001	ND<1.5	FALSE
MW-4C	3/26/2002	ND<1.5	FALSE
MW-4C	9/24/2002	ND<1.5	FALSE
MW-9	3/31/1998	11.7	FALSE
MW-9	6/29/1998	34.8	FALSE
MW-9	10/1/1998	11	FALSE
MW-9	12/9/1998	38.8	FALSE
MW-9	3/30/1999	167	TRUE

MW-9	6/9/1999	15.2	FALSE
MW-9	9/28/1999	ND<1.5	FALSE
MW-9	12/15/1999	ND<1.5	FALSE
MW-9	3/8/2000	ND<1.5	FALSE
MW-9	6/7/2000	ND<1.5	FALSE
MW-9	9/29/2000	ND<1.5	FALSE
MW-9	12/15/2000	8.3	FALSE
MW-9	3/27/2001	ND<1.5	FALSE
MW-9	6/19/2001	ND<1.5	FALSE
MW-9	9/18/2001	ND<1.5	FALSE
MW-9	3/26/2002	ND<1.5	FALSE
MW-9	6/25/2002	ND<1.5	FALSE
MW-9	9/24/2002	ND<1.5	FALSE
OW-1	3/30/1998	329	TRUE
OW-1	6/30/1998	8.8	FALSE
OW-1	10/1/1998	49	FALSE
OW-1	12/7/1998	20.9	FALSE
OW-1	3/30/1999	ND<1.5	FALSE
OW-1	6/9/1999	5.1	FALSE
OW-1	9/29/1999	5.6	FALSE
OW-1	12/16/1999	6.7	FALSE
OW-1	3/7/2000	22.1	FALSE
OW-1	6/7/2000	ND<1.5	FALSE
OW-1	9/29/2000	7.3	FALSE
OW-1	12/15/2000	8	FALSE
OW-1	3/27/2001	ND<1.5	FALSE
OW-1	6/19/2001	7.8	FALSE
OW-1	9/18/2001	ND<1.5	FALSE
OW-1	3/26/2002	4.9	FALSE
OW-1	6/25/2002	4	FALSE
OW-1	9/24/2002	7.3	FALSE
OW-2	4/3/1998	ND<2.5	FALSE
OW-2	7/1/1998	ND<2.5	FALSE
OW-2	10/2/1998	ND<1.5	FALSE
OW-2	12/7/1998	62.8	TRUE
OW-2	3/30/1999	ND<1.5	FALSE
OW-2	6/9/1999	ND<1.5	FALSE
OW-2	9/30/1999	ND<1.5	FALSE
OW-2	12/17/1999	4.7	FALSE
OW-2	3/8/2000	4.9	FALSE
OW-2	6/8/2000	ND<1.5	FALSE
OW-2	9/29/2000	ND<1.5	FALSE
OW-2	12/15/2000	ND<1.5	FALSE
OW-2	3/27/2001	ND<1.5	FALSE
OW-2	6/19/2001	9.5	FALSE
OW-2	9/18/2001	ND<1.5	FALSE
OW-2	3/26/2002	ND<1.5	FALSE
OW-2	6/25/2002	13.2	FALSE
OW-2	9/24/2002	5.4	FALSE
OW-3	4/2/1998	18.8	FALSE
OW-3	7/1/1998	ND<2.5	FALSE

OW-3	10/2/1998	ND<1.5	FALSE
OW-3	12/7/1998	5.3	FALSE
OW-3	3/30/1999	19.3	FALSE
OW-3	6/9/1999	9.9	FALSE
OW-3	9/30/1999	ND<1.5	FALSE
OW-3	12/17/1999	16.5	FALSE
OW-3	6/19/2001	5.7	FALSE
OW-3	9/18/2001	ND<1.5	FALSE
OW-3	3/26/2002	ND<1.5	FALSE
OW-3	6/25/2002	3.3	FALSE
OW-3	9/24/2002	ND<1.5	FALSE
OW-4	3/30/1998	ND<2.5	FALSE
OW-4	6/30/1998	ND<2.5	FALSE
OW-4	10/2/1998	5	FALSE
OW-4	12/9/1998	ND<1.5	FALSE
OW-4	3/30/1999	ND<1.5	FALSE
OW-4	6/9/1999	ND<1.5	FALSE
OW-4	9/29/1999	ND<1.5	FALSE
OW-4	12/16/1999	ND<1.5	FALSE
OW-4	3/8/2000	5.7	FALSE
OW-4	6/7/2000	ND<1.5	FALSE
OW-4	9/29/2000	ND<1.5	FALSE
OW-4	12/15/2000	ND<1.5	FALSE
OW-4	3/27/2001	ND<1.5	FALSE
OW-4	6/19/2001	ND<1.5	FALSE
OW-4	3/26/2002	ND<1.5	FALSE
OW-4	6/25/2002	ND<1.5	FALSE
OW-4	9/24/2002	ND<1.5	FALSE
OW-5	4/1/1998	6.4	FALSE
OW-5	6/30/1998	ND<2.5	FALSE
OW-5	10/1/1998	3	FALSE
OW-5	12/7/1998	6.9	FALSE
OW-5	3/30/1999	ND<1.5	FALSE
OW-5	6/9/1999	ND<1.5	FALSE
OW-5	9/29/1999	ND<1.5	FALSE
OW-5	12/16/1999	7.2	FALSE
OW-5	3/8/2000	6.7	FALSE
OW-5	6/7/2000	ND<1.5	FALSE
OW-5	9/29/2000	6.3	FALSE
OW-5	12/15/2000	ND<1.5	FALSE
OW-5	3/27/2001	5.3	FALSE
OW-5	6/19/2001	5.6	FALSE
OW-5	9/18/2001	10.7	FALSE
OW-5	3/26/2002	14.2	FALSE
OW-5	6/25/2002	5.1	FALSE
OW-5	9/24/2002	4.5	FALSE
PW-1	4/1/1998	8.8	FALSE
PW-1	6/30/1998	ND<2.5	FALSE
PW-1	10/1/1998	6	FALSE
PW-1	12/7/1998	4.2	FALSE
PW-1	3/30/1999	ND<1.5	FALSE

PW-1	6/9/1999	ND<1.5	FALSE
PW-1	9/29/1999	ND<1.5	FALSE
PW-1	12/16/1999	12.5	FALSE
PW-1	3/8/2000	26.7	FALSE
PW-1	6/7/2000	3.8	FALSE
PW-1	9/29/2000	39.3	FALSE
PW-1	12/15/2000	ND<1.5	FALSE
PW-1	3/27/2001	25.9	FALSE
PW-1	6/19/2001	11.4	FALSE
PW-1	9/18/2001	5.6	FALSE
PW-1	3/26/2002	12.3	FALSE
PW-1	6/25/2002	9.5	FALSE
PW-1	9/24/2002	44	FALSE
MP-11A	4/3/1998	8.4	FALSE
MP-11A	6/30/1998	ND<2.5	FALSE
MP-11A	10/2/1998	ND<1.5	FALSE
MP-11A	12/9/1998	ND<1.5	FALSE
MP-11A	3/30/1999	ND<1.5	FALSE
MP-11A	6/9/1999	ND<1.5	FALSE
MP-11A	11/18/1999	ND<1.5	FALSE
MP-11A	12/21/1999	ND<1.5	FALSE
MP-11A	3/9/2000	21.5	FALSE
MP-11A	6/8/2000	24.2	FALSE
MP-11A	9/29/2000	9.5	FALSE
MP-11A	12/15/2000	ND<1.5	FALSE
MP-11A	3/27/2001	5.9	FALSE
MP-11A	6/19/2001	ND<1.5	FALSE
MP-11A	9/18/2001	ND<1.5	FALSE
MP-11A	3/26/2002	ND<1.5	FALSE
MP-11A	6/25/2002	ND<1.5	FALSE
MP-11A	9/24/2002	ND<1.5	FALSE
MP-2B	4/2/1998	15.2	FALSE
MP-2B	7/1/1998	6.6	FALSE
MP-2B	10/2/1998	ND<1.5	FALSE
MP-2B	12/7/1998	ND<1.5	FALSE
MP-2B	3/30/1999	ND<1.5	FALSE
MP-2B	6/9/1999	ND<1.5	FALSE
MP-2B	9/30/1999	ND<1.5	FALSE
MP-2B	12/17/1999	ND<1.5	FALSE
MP-2B	3/7/2000	ND<1.5	FALSE
MP-2B	6/8/2000	18.2	FALSE
MP-2B	9/29/2000	ND<1.5	FALSE
MP-2B	12/15/2000	17.5	FALSE
MP-2B	9/18/2001	9.6	FALSE
MP-2B	3/26/2002	8.7	FALSE
MP-2B	9/24/2002	7.7	FALSE
MP-9	4/1/1998	15.9	FALSE
MP-9	6/30/1998	ND<2.5	FALSE
MP-9	10/2/1998	ND<1.5	FALSE
MP-9	12/9/1998	ND<1.5	FALSE
MP-9	3/30/1999	ND<1.5	FALSE

MP-9	6/9/1999	ND<1.5	FALSE
MP-9	9/29/1999	ND<1.5	FALSE
MP-9	12/17/1999	ND<1.5	FALSE
MP-9	3/8/2000	ND<1.5	FALSE
MP-9	6/8/2000	ND<1.5	FALSE
MP-9	9/29/2000	ND<1.5	FALSE
MP-9	12/15/2000	6.6	FALSE
MP-9	3/27/2001	ND<1.5	FALSE
MP-9	9/18/2001	ND<1.5	FALSE
MP-9	3/26/2002	3.3	FALSE
MP-9	9/24/2002	ND<1.5	FALSE

Non-Parametric Tolerance Interval

Parameter: Nickel

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 20.5656%
Background Samples (n) = 33
Maximum Background Concentration = 35
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<2.5	FALSE
B-5	7/1/1998	ND<2.5	FALSE
B-5	10/2/1998	7	FALSE
B-5	12/7/1998	14.9	FALSE
B-5	3/30/1999	ND<2.5	FALSE
B-5	6/9/1999	8.5	FALSE
B-5	9/30/1999	5.3	FALSE
B-5	12/15/1999	8.4	FALSE
B-5	3/8/2000	ND<2.5	FALSE
B-5	6/8/2000	ND<2.5	FALSE
B-5	9/29/2000	ND<2.5	FALSE
B-5	12/15/2000	ND<2.5	FALSE
B-5	3/27/2001	ND<2.5	FALSE
B-5	9/18/2001	ND<2.5	FALSE
B-5	3/26/2002	ND<2.5	FALSE
B-5	9/24/2002	ND<2.5	FALSE
BH-2	7/2/1998	21.1	FALSE
BH-2	10/1/1998	31	FALSE
BH-2	12/7/1998	36.5	TRUE
BH-2	3/30/1999	21.9	FALSE
BH-2	6/9/1999	32.2	FALSE
BH-2	9/30/1999	8.8	FALSE
BH-2	12/17/1999	22.2	FALSE
BH-2	3/7/2000	32.2	FALSE
BH-2	6/8/2000	32	FALSE
BH-2	9/29/2000	31.3	FALSE
BH-2	12/15/2000	26.7	FALSE
BH-2	3/27/2001	33	FALSE
BH-2	6/19/2001	33.4	FALSE
BH-2	9/18/2001	30.6	FALSE
BH-2	3/26/2002	44.3	TRUE
BH-2	6/25/2002	40.9	TRUE
BH-2	9/24/2002	41.1	TRUE
BH-7	4/1/1998	ND<2.5	FALSE
BH-7	6/30/1998	22.5	FALSE
BH-7	10/2/1998	20	FALSE
BH-7	12/9/1998	22.8	FALSE
BH-7	3/30/1999	27.8	FALSE
BH-7	6/9/1999	30.2	FALSE

BH-7	9/28/1999	34.9	FALSE
BH-7	12/16/1999	34.4	FALSE
BH-7	3/8/2000	28.5	FALSE
BH-7	6/7/2000	25.9	FALSE
BH-7	9/29/2000	45.3	TRUE
BH-7	12/15/2000	42.9	TRUE
BH-7	3/27/2001	34.7	FALSE
BH-7	6/19/2001	41.3	TRUE
BH-7	9/18/2001	44.1	TRUE
BH-7	3/26/2002	27.6	FALSE
BH-7	6/25/2002	28.2	FALSE
BH-7	9/24/2002	28.1	FALSE
BH-8	4/1/1998	36.8	TRUE
BH-8	6/30/1998	69.6	TRUE
BH-8	10/2/1998	74	TRUE
BH-8	12/9/1998	83.1	TRUE
BH-8	3/30/1999	79.7	TRUE
BH-8	6/9/1999	93.7	TRUE
BH-8	9/29/1999	99.9	TRUE
BH-8	12/16/1999	93.6	TRUE
BH-8	3/8/2000	95.4	TRUE
BH-8	6/7/2000	58.9	TRUE
BH-8	9/29/2000	110	TRUE
BH-8	12/15/2000	93	TRUE
BH-8	3/27/2001	38.8	TRUE
BH-8	6/19/2001	69	TRUE
BH-8	9/18/2001	99.7	TRUE
BH-8	3/26/2002	60.2	TRUE
BH-8	6/25/2002	72.3	TRUE
BH-8	9/24/2002	64.3	TRUE
MW-10	3/31/1998	ND<2.5	FALSE
MW-10	6/29/1998	ND<5	FALSE
MW-10	10/1/1998	16	FALSE
MW-10	12/9/1998	18.2	FALSE
MW-10	3/30/1999	9.1	FALSE
MW-10	6/9/1999	15.4	FALSE
MW-10	9/28/1999	14.7	FALSE
MW-10	12/15/1999	7.9	FALSE
MW-10	3/9/2000	7.6	FALSE
MW-10	6/7/2000	ND<2.5	FALSE
MW-10	9/29/2000	23.4	FALSE
MW-10	12/15/2000	16.3	FALSE
MW-10	3/27/2001	6.8	FALSE
MW-10	6/19/2001	6.1	FALSE
MW-10	9/18/2001	10.6	FALSE
MW-10	3/26/2002	9.6	FALSE
MW-10	6/25/2002	6.9	FALSE
MW-10	9/24/2002	5.2	FALSE
MW-11	3/31/1998	5.9	FALSE
MW-11	6/29/1998	13.7	FALSE
MW-11	10/1/1998	13	FALSE

MW-11	12/9/1998	9.9	FALSE
MW-11	3/30/1999	12.4	FALSE
MW-11	6/9/1999	14.9	FALSE
MW-11	9/28/1999	11	FALSE
MW-11	12/15/1999	13.7	FALSE
MW-11	3/9/2000	9.5	FALSE
MW-11	6/7/2000	ND<2.5	FALSE
MW-11	9/29/2000	16.8	FALSE
MW-11	12/15/2000	18.4	FALSE
MW-11	3/27/2001	9.3	FALSE
MW-11	6/19/2001	10.3	FALSE
MW-11	9/18/2001	10.5	FALSE
MW-11	3/26/2002	5.4	FALSE
MW-11	6/25/2002	7.2	FALSE
MW-11	9/24/2002	ND<2.5	FALSE
MW-12S	3/30/1998	18.6	FALSE
MW-12S	6/29/1998	23.2	FALSE
MW-12S	10/1/1998	56	TRUE
MW-12S	12/9/1998	56.8	TRUE
MW-12S	3/30/1999	44.1	TRUE
MW-12S	6/9/1999	68.5	TRUE
MW-12S	9/28/1999	65.7	TRUE
MW-12S	12/15/1999	57.9	TRUE
MW-12S	3/9/2000	90.1	TRUE
MW-12S	6/7/2000	130	TRUE
MW-12S	9/29/2000	97.3	TRUE
MW-12S	12/15/2000	113	TRUE
MW-12S	3/27/2001	97	TRUE
MW-12S	6/19/2001	92.5	TRUE
MW-12S	9/18/2001	66.6	TRUE
MW-12S	3/26/2002	82.8	TRUE
MW-12S	6/25/2002	88.5	TRUE
MW-12S	9/24/2002	98.2	TRUE
MW-13	3/30/1998	14.7	FALSE
MW-13	6/29/1998	20.5	FALSE
MW-13	10/1/1998	22	FALSE
MW-13	12/9/1998	18	FALSE
MW-13	3/30/1999	16.7	FALSE
MW-13	6/9/1999	22.2	FALSE
MW-13	9/28/1999	15.9	FALSE
MW-13	12/17/1999	20.7	FALSE
MW-13	3/9/2000	15.7	FALSE
MW-13	6/7/2000	ND<2.5	FALSE
MW-13	9/29/2000	19.1	FALSE
MW-13	12/15/2000	29.5	FALSE
MW-13	3/27/2001	13.8	FALSE
MW-13	6/19/2001	19.1	FALSE
MW-13	9/18/2001	13.3	FALSE
MW-13	3/26/2002	16.4	FALSE
MW-13	6/25/2002	21.8	FALSE
MW-13	9/24/2002	22.7	FALSE

MW-14	4/1/1998	9.5	FALSE
MW-14	6/30/1998	12.4	FALSE
MW-14	10/1/1998	9	FALSE
MW-14	12/7/1998	13.3	FALSE
MW-14	3/30/1999	5.5	FALSE
MW-14	6/9/1999	9	FALSE
MW-14	9/29/1999	ND<2.5	FALSE
MW-14	12/16/1999	5.4	FALSE
MW-14	6/19/2001	ND<2.5	FALSE
MW-14	9/18/2001	ND<2.5	FALSE
MW-14	3/26/2002	5.4	FALSE
MW-14	6/25/2002	14.2	FALSE
MW-14	9/24/2002	ND<2.5	FALSE
MW-3	3/30/1998	8.1	FALSE
MW-3	6/30/1998	26.5	FALSE
MW-3	10/2/1998	46	TRUE
MW-3	12/9/1998	41.8	TRUE
MW-3	3/30/1999	87	TRUE
MW-3	6/9/1999	65.7	TRUE
MW-3	9/28/1999	98.4	TRUE
MW-3	12/16/1999	84.5	TRUE
MW-3	3/8/2000	62.8	TRUE
MW-3	6/7/2000	48.9	TRUE
MW-3	9/29/2000	68.2	TRUE
MW-3	12/15/2000	58.9	TRUE
MW-3	3/27/2001	61.4	TRUE
MW-3	6/19/2001	31.1	FALSE
MW-3	9/18/2001	71.8	TRUE
MW-3	3/26/2002	79.2	TRUE
MW-3	6/25/2002	73.6	TRUE
MW-3	9/24/2002	59.4	TRUE
MW-4C	7/1/1998	41.5	TRUE
MW-4C	10/2/1998	5	FALSE
MW-4C	12/7/1998	11.5	FALSE
MW-4C	3/30/1999	ND<2.5	FALSE
MW-4C	6/9/1999	7.4	FALSE
MW-4C	9/30/1999	ND<2.5	FALSE
MW-4C	12/17/1999	ND<2.5	FALSE
MW-4C	3/7/2000	6.2	FALSE
MW-4C	6/8/2000	ND<2.5	FALSE
MW-4C	9/29/2000	ND<2.5	FALSE
MW-4C	12/15/2000	ND<2.5	FALSE
MW-4C	3/27/2001	ND<2.5	FALSE
MW-4C	9/18/2001	ND<2.5	FALSE
MW-4C	3/26/2002	ND<2.5	FALSE
MW-4C	9/24/2002	ND<2.5	FALSE
MW-9	3/31/1998	5.9	FALSE
MW-9	6/29/1998	22.1	FALSE
MW-9	10/1/1998	20	FALSE
MW-9	12/9/1998	16.3	FALSE
MW-9	3/30/1999	10.7	FALSE

MW-9	6/9/1999	16.8	FALSE
MW-9	9/28/1999	13.8	FALSE
MW-9	12/15/1999	8.3	FALSE
MW-9	3/8/2000	6.2	FALSE
MW-9	6/7/2000	ND<2.5	FALSE
MW-9	9/29/2000	21.7	FALSE
MW-9	12/15/2000	9.4	FALSE
MW-9	3/27/2001	ND<2.5	FALSE
MW-9	6/19/2001	6	FALSE
MW-9	9/18/2001	22.6	FALSE
MW-9	3/26/2002	5.2	FALSE
MW-9	6/25/2002	7.5	FALSE
MW-9	9/24/2002	16.7	FALSE
OW-1	3/30/1998	310	TRUE
OW-1	6/30/1998	23.1	FALSE
OW-1	10/1/1998	58	TRUE
OW-1	12/7/1998	46.7	TRUE
OW-1	3/30/1999	18.6	FALSE
OW-1	6/9/1999	52.4	TRUE
OW-1	9/29/1999	41.9	TRUE
OW-1	12/16/1999	37.5	TRUE
OW-1	3/7/2000	57.2	TRUE
OW-1	6/7/2000	13.9	FALSE
OW-1	9/29/2000	54.1	TRUE
OW-1	12/15/2000	69.2	TRUE
OW-1	3/27/2001	39.2	TRUE
OW-1	6/19/2001	40.9	TRUE
OW-1	9/18/2001	34.7	FALSE
OW-1	3/26/2002	20.4	FALSE
OW-1	6/25/2002	35	FALSE
OW-1	9/24/2002	36.8	TRUE
OW-2	4/3/1998	ND<2.5	FALSE
OW-2	7/1/1998	ND<2.5	FALSE
OW-2	10/2/1998	5	FALSE
OW-2	12/7/1998	139	TRUE
OW-2	3/30/1999	ND<2.5	FALSE
OW-2	6/9/1999	10.8	FALSE
OW-2	9/30/1999	26.1	FALSE
OW-2	12/17/1999	19.4	FALSE
OW-2	3/8/2000	22.5	FALSE
OW-2	6/8/2000	6.2	FALSE
OW-2	9/29/2000	ND<2.5	FALSE
OW-2	12/15/2000	32.2	FALSE
OW-2	3/27/2001	8.3	FALSE
OW-2	6/19/2001	11	FALSE
OW-2	9/18/2001	19.1	FALSE
OW-2	3/26/2002	14	FALSE
OW-2	6/25/2002	249	TRUE
OW-2	9/24/2002	168	TRUE
OW-3	4/2/1998	ND<2.5	FALSE
OW-3	7/1/1998	55.7	TRUE

OW-3	10/2/1998	33	FALSE
OW-3	12/7/1998	20.1	FALSE
OW-3	3/30/1999	20.7	FALSE
OW-3	6/9/1999	25	FALSE
OW-3	9/30/1999	ND<2.5	FALSE
OW-3	12/17/1999	23.3	FALSE
OW-3	6/19/2001	9.7	FALSE
OW-3	9/18/2001	ND<2.5	FALSE
OW-3	3/26/2002	ND<2.5	FALSE
OW-3	6/25/2002	ND<2.5	FALSE
OW-3	9/24/2002	ND<2.5	FALSE
OW-4	3/30/1998	41.1	TRUE
OW-4	6/30/1998	45.5	TRUE
OW-4	10/2/1998	47	TRUE
OW-4	12/9/1998	106	TRUE
OW-4	3/30/1999	71.8	TRUE
OW-4	6/9/1999	66.7	TRUE
OW-4	9/29/1999	157	TRUE
OW-4	12/16/1999	114	TRUE
OW-4	3/8/2000	93.5	TRUE
OW-4	6/7/2000	51.7	TRUE
OW-4	9/29/2000	51.9	TRUE
OW-4	12/15/2000	102	TRUE
OW-4	3/27/2001	76.6	TRUE
OW-4	6/19/2001	79.7	TRUE
OW-4	3/26/2002	168	TRUE
OW-4	6/25/2002	131	TRUE
OW-4	9/24/2002	108	TRUE
OW-5	4/1/1998	12.6	FALSE
OW-5	6/30/1998	54.2	TRUE
OW-5	10/1/1998	60	TRUE
OW-5	12/7/1998	76.1	TRUE
OW-5	3/30/1999	59	TRUE
OW-5	6/9/1999	44.9	TRUE
OW-5	9/29/1999	41700	TRUE
OW-5	12/16/1999	57.8	TRUE
OW-5	3/8/2000	65.1	TRUE
OW-5	6/7/2000	35.7	TRUE
OW-5	9/29/2000	65.8	TRUE
OW-5	12/15/2000	57.4	TRUE
OW-5	3/27/2001	33.9	FALSE
OW-5	6/19/2001	23	FALSE
OW-5	9/18/2001	61	TRUE
OW-5	3/26/2002	46.8	TRUE
OW-5	6/25/2002	25.9	FALSE
OW-5	9/24/2002	26.2	FALSE
PW-1	4/1/1998	65.7	TRUE
PW-1	6/30/1998	61.8	TRUE
PW-1	10/1/1998	71	TRUE
PW-1	12/7/1998	69.3	TRUE
PW-1	3/30/1999	56.1	TRUE

PW-1	6/9/1999	83.5	TRUE
PW-1	9/29/1999	96.6	TRUE
PW-1	12/16/1999	110	TRUE
PW-1	3/8/2000	94.4	TRUE
PW-1	6/7/2000	71.8	TRUE
PW-1	9/29/2000	98	TRUE
PW-1	12/15/2000	82.6	TRUE
PW-1	3/27/2001	78.9	TRUE
PW-1	6/19/2001	73.1	TRUE
PW-1	9/18/2001	75.1	TRUE
PW-1	3/26/2002	77.6	TRUE
PW-1	6/25/2002	71.8	TRUE
PW-1	9/24/2002	76.6	TRUE
MP-11A	4/3/1998	ND<2.5	FALSE
MP-11A	6/30/1998	ND<2.5	FALSE
MP-11A	10/2/1998	ND<2.5	FALSE
MP-11A	12/9/1998	ND<2.5	FALSE
MP-11A	3/30/1999	ND<2.5	FALSE
MP-11A	6/9/1999	ND<2.5	FALSE
MP-11A	11/18/1999	ND<2.5	FALSE
MP-11A	12/21/1999	ND<2.5	FALSE
MP-11A	3/9/2000	ND<2.5	FALSE
MP-11A	6/8/2000	ND<2.5	FALSE
MP-11A	9/29/2000	ND<2.5	FALSE
MP-11A	12/15/2000	ND<2.5	FALSE
MP-11A	3/27/2001	6.5	FALSE
MP-11A	6/19/2001	ND<2.5	FALSE
MP-11A	9/18/2001	ND<2.5	FALSE
MP-11A	3/26/2002	ND<2.5	FALSE
MP-11A	6/25/2002	ND<2.5	FALSE
MP-11A	9/24/2002	ND<2.5	FALSE
MP-2B	4/2/1998	8.6	FALSE
MP-2B	7/1/1998	11.4	FALSE
MP-2B	10/2/1998	11	FALSE
MP-2B	12/7/1998	12	FALSE
MP-2B	3/30/1999	ND<2.5	FALSE
MP-2B	6/9/1999	10	FALSE
MP-2B	9/30/1999	13.8	FALSE
MP-2B	12/17/1999	9.2	FALSE
MP-2B	3/7/2000	15.8	FALSE
MP-2B	6/8/2000	62.8	TRUE
MP-2B	9/29/2000	35.1	TRUE
MP-2B	12/15/2000	7.7	FALSE
MP-2B	3/27/2001	8.9	FALSE
MP-2B	3/26/2002	11.5	FALSE
MP-2B	9/24/2002	66.7	TRUE
MP-9	4/1/1998	ND<2.5	FALSE
MP-9	6/30/1998	5.5	FALSE
MP-9	10/2/1998	9	FALSE
MP-9	12/9/1998	10.7	FALSE
MP-9	3/30/1999	ND<2.5	FALSE

MP-9	6/9/1999	6.1	FALSE
MP-9	9/29/1999	8.2	FALSE
MP-9	12/17/1999	ND<2.5	FALSE
MP-9	3/8/2000	ND<2.5	FALSE
MP-9	6/8/2000	ND<2.5	FALSE
MP-9	9/29/2000	ND<2.5	FALSE
MP-9	12/15/2000	5.2	FALSE
MP-9	3/27/2001	ND<2.5	FALSE
MP-9	9/18/2001	ND<2.5	FALSE
MP-9	3/26/2002	42.3	TRUE
MP-9	9/24/2002	140	TRUE

Non-Parametric Tolerance Interval

Parameter: Chromium

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 52.3077%
Background Samples (n) = 34
Maximum Background Concentration = 7.6
Minimum Coverage = 91.6%
Average Coverage = 97.1429%

Well	Sample	Result	Impacted
B-5	3/30/1998	ND<2.5	FALSE
B-5	7/1/1998	ND<2.5	FALSE
B-5	10/2/1998	ND<2.5	FALSE
B-5	12/7/1998	ND<2.5	FALSE
B-5	3/30/1999	ND<2.5	FALSE
B-5	6/9/1999	ND<2.5	FALSE
B-5	9/30/1999	ND<2.5	FALSE
B-5	12/15/1999	ND<2.5	FALSE
B-5	3/8/2000	ND<2.5	FALSE
B-5	6/8/2000	ND<2.5	FALSE
B-5	9/29/2000	ND<2.5	FALSE
B-5	12/15/2000	ND<2.5	FALSE
B-5	3/27/2001	ND<2.5	FALSE
B-5	9/18/2001	ND<2.5	FALSE
B-5	3/26/2002	ND<2.5	FALSE
B-5	9/24/2002	ND<2.5	FALSE
BH-2	7/2/1998	8.8	TRUE
BH-2	10/1/1998	8	TRUE
BH-2	12/7/1998	7.8	TRUE
BH-2	3/30/1999	10.1	TRUE
BH-2	6/9/1999	7.3	FALSE
BH-2	9/30/1999	ND<2.5	FALSE
BH-2	12/17/1999	8.1	TRUE
BH-2	3/7/2000	6.9	FALSE
BH-2	6/8/2000	13.9	TRUE
BH-2	9/29/2000	12.7	TRUE
BH-2	12/15/2000	13.8	TRUE
BH-2	3/27/2001	13.1	TRUE
BH-2	6/19/2001	14.1	TRUE
BH-2	9/18/2001	12.7	TRUE
BH-2	3/26/2002	12.8	TRUE
BH-2	6/25/2002	10.9	TRUE
BH-2	9/24/2002	13.9	TRUE
BH-7	4/1/1998	7.3	FALSE
BH-7	6/30/1998	8.5	TRUE
BH-7	10/2/1998	9	TRUE
BH-7	12/9/1998	10.1	TRUE
BH-7	3/30/1999	10.3	TRUE
BH-7	6/9/1999	9	TRUE

BH-7	9/28/1999	ND<2.5	FALSE
BH-7	12/16/1999	9.5	TRUE
BH-7	3/8/2000	10.1	TRUE
BH-7	6/7/2000	12.1	TRUE
BH-7	9/29/2000	8.6	TRUE
BH-7	12/15/2000	10.1	TRUE
BH-7	3/27/2001	9.2	TRUE
BH-7	6/19/2001	11.6	TRUE
BH-7	9/18/2001	8.6	TRUE
BH-7	3/26/2002	8.4	TRUE
BH-7	6/25/2002	8.3	TRUE
BH-7	9/24/2002	9.4	TRUE
BH-8	4/1/1998	32.9	TRUE
BH-8	6/30/1998	30.7	TRUE
BH-8	10/2/1998	27	TRUE
BH-8	12/9/1998	25.1	TRUE
BH-8	3/30/1999	16.3	TRUE
BH-8	6/9/1999	18.3	TRUE
BH-8	9/29/1999	ND<2.5	FALSE
BH-8	12/16/1999	11.4	TRUE
BH-8	3/8/2000	13	TRUE
BH-8	6/7/2000	11.1	TRUE
BH-8	9/29/2000	12.9	TRUE
BH-8	12/15/2000	12.3	TRUE
BH-8	3/27/2001	ND<2.5	FALSE
BH-8	6/19/2001	8.6	TRUE
BH-8	9/18/2001	13	TRUE
BH-8	3/26/2002	6.4	FALSE
BH-8	6/25/2002	11.6	TRUE
BH-8	9/24/2002	10.5	TRUE
MW-10	3/31/1998	ND<2.5	FALSE
MW-10	6/29/1998	ND<2.5	FALSE
MW-10	10/1/1998	ND<2.5	FALSE
MW-10	12/9/1998	ND<2.5	FALSE
MW-10	3/30/1999	ND<2.5	FALSE
MW-10	6/9/1999	ND<2.5	FALSE
MW-10	9/28/1999	ND<2.5	FALSE
MW-10	12/15/1999	ND<2.5	FALSE
MW-10	3/9/2000	ND<2.5	FALSE
MW-10	6/7/2000	ND<2.5	FALSE
MW-10	9/29/2000	ND<2.5	FALSE
MW-10	12/15/2000	ND<2.5	FALSE
MW-10	3/27/2001	ND<2.5	FALSE
MW-10	6/19/2001	ND<2.5	FALSE
MW-10	9/18/2001	5.6	FALSE
MW-10	3/26/2002	ND<2.5	FALSE
MW-10	6/25/2002	ND<2.5	FALSE
MW-10	9/24/2002	5.2	FALSE
MW-11	3/31/1998	ND<2.5	FALSE
MW-11	6/29/1998	ND<2.5	FALSE
MW-11	10/1/1998	ND<2.5	FALSE

MW-11	12/9/1998	8	TRUE
MW-11	3/30/1999	5.7	FALSE
MW-11	6/9/1999	5.8	FALSE
MW-11	9/28/1999	ND<2.5	FALSE
MW-11	12/15/1999	ND<2.5	FALSE
MW-11	3/9/2000	6.2	FALSE
MW-11	6/7/2000	6	FALSE
MW-11	9/29/2000	6.8	FALSE
MW-11	12/15/2000	6	FALSE
MW-11	3/27/2001	5.3	FALSE
MW-11	6/19/2001	7.7	TRUE
MW-11	9/18/2001	6.7	FALSE
MW-11	3/26/2002	6.2	FALSE
MW-11	6/25/2002	7.3	FALSE
MW-11	9/24/2002	9.2	TRUE
MW-12S	3/30/1998	ND<2.5	FALSE
MW-12S	6/29/1998	ND<2.5	FALSE
MW-12S	10/1/1998	ND<2.5	FALSE
MW-12S	12/9/1998	ND<2.5	FALSE
MW-12S	3/30/1999	ND<2.5	FALSE
MW-12S	6/9/1999	ND<2.5	FALSE
MW-12S	9/28/1999	ND<2.5	FALSE
MW-12S	12/15/1999	ND<2.5	FALSE
MW-12S	3/9/2000	ND<2.5	FALSE
MW-12S	6/7/2000	ND<2.5	FALSE
MW-12S	9/29/2000	ND<2.5	FALSE
MW-12S	12/15/2000	ND<2.5	FALSE
MW-12S	3/27/2001	ND<2.5	FALSE
MW-12S	6/19/2001	ND<2.5	FALSE
MW-12S	9/18/2001	ND<2.5	FALSE
MW-12S	3/26/2002	ND<2.5	FALSE
MW-12S	6/25/2002	ND<2.5	FALSE
MW-12S	9/24/2002	ND<2.5	FALSE
MW-13	3/30/1998	ND<2.5	FALSE
MW-13	6/29/1998	ND<2.5	FALSE
MW-13	10/1/1998	ND<2.5	FALSE
MW-13	12/9/1998	ND<2.5	FALSE
MW-13	3/30/1999	ND<2.5	FALSE
MW-13	6/9/1999	ND<2.5	FALSE
MW-13	9/28/1999	ND<2.5	FALSE
MW-13	12/17/1999	ND<2.5	FALSE
MW-13	3/9/2000	ND<2.5	FALSE
MW-13	6/7/2000	ND<2.5	FALSE
MW-13	9/29/2000	ND<2.5	FALSE
MW-13	12/15/2000	ND<2.5	FALSE
MW-13	3/27/2001	ND<2.5	FALSE
MW-13	6/19/2001	5	FALSE
MW-13	9/18/2001	ND<2.5	FALSE
MW-13	3/26/2002	ND<2.5	FALSE
MW-13	6/25/2002	ND<2.5	FALSE
MW-13	9/24/2002	7.7	TRUE

MW-14	4/1/1998	6.4	FALSE
MW-14	6/30/1998	ND<2.5	FALSE
MW-14	10/1/1998	ND<2.5	FALSE
MW-14	12/7/1998	ND<2.5	FALSE
MW-14	3/30/1999	ND<2.5	FALSE
MW-14	6/9/1999	ND<2.5	FALSE
MW-14	9/29/1999	ND<2.5	FALSE
MW-14	12/16/1999	ND<2.5	FALSE
MW-14	6/19/2001	ND<2.5	FALSE
MW-14	9/18/2001	ND<2.5	FALSE
MW-14	3/26/2002	ND<2.5	FALSE
MW-14	6/25/2002	ND<2.5	FALSE
MW-14	9/24/2002	ND<2.5	FALSE
MW-3	3/30/1998	10.7	TRUE
MW-3	6/30/1998	11	TRUE
MW-3	10/2/1998	27	TRUE
MW-3	12/9/1998	11.8	TRUE
MW-3	3/30/1999	13.2	TRUE
MW-3	6/9/1999	14.4	TRUE
MW-3	9/28/1999	11.2	TRUE
MW-3	12/16/1999	24	TRUE
MW-3	3/8/2000	16.6	TRUE
MW-3	6/7/2000	14.1	TRUE
MW-3	9/29/2000	11.8	TRUE
MW-3	12/15/2000	13.4	TRUE
MW-3	3/27/2001	14.3	TRUE
MW-3	6/19/2001	15.3	TRUE
MW-3	9/18/2001	10.4	TRUE
MW-3	3/26/2002	11.7	TRUE
MW-3	6/25/2002	8.2	TRUE
MW-3	9/24/2002	12.7	TRUE
MW-4C	7/1/1998	15.4	TRUE
MW-4C	10/2/1998	ND<2.5	FALSE
MW-4C	12/7/1998	ND<2.5	FALSE
MW-4C	3/30/1999	5.3	FALSE
MW-4C	6/9/1999	ND<2.5	FALSE
MW-4C	9/30/1999	ND<2.5	FALSE
MW-4C	12/17/1999	ND<2.5	FALSE
MW-4C	3/7/2000	ND<2.5	FALSE
MW-4C	6/8/2000	ND<2.5	FALSE
MW-4C	9/29/2000	ND<2.5	FALSE
MW-4C	12/15/2000	ND<2.5	FALSE
MW-4C	3/27/2001	ND<2.5	FALSE
MW-4C	9/18/2001	ND<2.5	FALSE
MW-4C	3/26/2002	ND<2.5	FALSE
MW-4C	9/24/2002	ND<2.5	FALSE
MW-9	3/31/1998	ND<2.5	FALSE
MW-9	6/29/1998	ND<2.5	FALSE
MW-9	10/1/1998	ND<2.5	FALSE
MW-9	12/9/1998	ND<2.5	FALSE
MW-9	3/30/1999	ND<2.5	FALSE

MW-9	6/9/1999	ND<2.5	FALSE
MW-9	9/28/1999	ND<2.5	FALSE
MW-9	12/15/1999	ND<2.5	FALSE
MW-9	3/8/2000	ND<2.5	FALSE
MW-9	6/7/2000	ND<2.5	FALSE
MW-9	9/29/2000	ND<2.5	FALSE
MW-9	12/15/2000	ND<2.5	FALSE
MW-9	3/27/2001	ND<2.5	FALSE
MW-9	6/19/2001	ND<2.5	FALSE
MW-9	9/18/2001	ND<2.5	FALSE
MW-9	3/26/2002	ND<2.5	FALSE
MW-9	6/25/2002	ND<2.5	FALSE
MW-9	9/24/2002	ND<2.5	FALSE
OW-1	3/30/1998	98.9	TRUE
OW-1	6/30/1998	12.5	TRUE
OW-1	10/1/1998	23	TRUE
OW-1	12/7/1998	18	TRUE
OW-1	3/30/1999	8	TRUE
OW-1	6/9/1999	15.2	TRUE
OW-1	9/29/1999	15	TRUE
OW-1	12/16/1999	10.2	TRUE
OW-1	3/7/2000	16.7	TRUE
OW-1	6/7/2000	9	TRUE
OW-1	9/29/2000	11.1	TRUE
OW-1	12/15/2000	12.9	TRUE
OW-1	3/27/2001	9.4	TRUE
OW-1	6/19/2001	8.9	TRUE
OW-1	9/18/2001	6.2	FALSE
OW-1	3/26/2002	8	TRUE
OW-1	6/25/2002	7.8	TRUE
OW-1	9/24/2002	13.1	TRUE
OW-2	4/3/1998	ND<2.5	FALSE
OW-2	7/1/1998	ND<2.5	FALSE
OW-2	10/2/1998	ND<2.5	FALSE
OW-2	12/7/1998	59.9	TRUE
OW-2	3/30/1999	ND<2.5	FALSE
OW-2	6/9/1999	ND<2.5	FALSE
OW-2	9/30/1999	6.7	FALSE
OW-2	12/17/1999	5.3	FALSE
OW-2	3/8/2000	10.3	TRUE
OW-2	6/8/2000	ND<2.5	FALSE
OW-2	9/29/2000	ND<2.5	FALSE
OW-2	12/15/2000	5.4	FALSE
OW-2	3/27/2001	ND<2.5	FALSE
OW-2	6/19/2001	ND<2.5	FALSE
OW-2	9/18/2001	ND<2.5	FALSE
OW-2	3/26/2002	ND<2.5	FALSE
OW-2	6/25/2002	103	TRUE
OW-2	9/24/2002	44	TRUE
OW-3	4/2/1998	14.7	TRUE
OW-3	7/1/1998	7	FALSE

OW-3	10/2/1998	ND<2.5	FALSE
OW-3	12/7/1998	ND<2.5	FALSE
OW-3	3/30/1999	20.6	TRUE
OW-3	6/9/1999	11.4	TRUE
OW-3	9/30/1999	ND<2.5	FALSE
OW-3	12/17/1999	11.2	TRUE
OW-3	6/19/2001	10.1	TRUE
OW-3	9/18/2001	ND<2.5	FALSE
OW-3	3/26/2002	ND<2.5	FALSE
OW-3	6/25/2002	ND<2.5	FALSE
OW-3	9/24/2002	ND<2.5	FALSE
OW-4	3/30/1998	8.6	TRUE
OW-4	6/30/1998	9.9	TRUE
OW-4	10/2/1998	11	TRUE
OW-4	12/9/1998	12.8	TRUE
OW-4	3/30/1999	9.2	TRUE
OW-4	6/9/1999	7.9	TRUE
OW-4	9/29/1999	10.8	TRUE
OW-4	12/16/1999	8.5	TRUE
OW-4	3/8/2000	7.2	FALSE
OW-4	6/7/2000	6.3	FALSE
OW-4	9/29/2000	7.3	FALSE
OW-4	12/15/2000	6.6	FALSE
OW-4	3/27/2001	8	TRUE
OW-4	6/19/2001	8.6	TRUE
OW-4	3/26/2002	7.6	FALSE
OW-4	6/25/2002	5.9	FALSE
OW-4	9/24/2002	5.5	FALSE
OW-5	4/1/1998	12	TRUE
OW-5	6/30/1998	20	TRUE
OW-5	10/1/1998	26	TRUE
OW-5	12/7/1998	22.5	TRUE
OW-5	3/30/1999	9.9	TRUE
OW-5	6/9/1999	11.6	TRUE
OW-5	9/29/1999	8.7	TRUE
OW-5	12/16/1999	9	TRUE
OW-5	3/8/2000	13.4	TRUE
OW-5	6/7/2000	8.1	TRUE
OW-5	9/29/2000	9.5	TRUE
OW-5	12/15/2000	6.4	FALSE
OW-5	3/27/2001	5.9	FALSE
OW-5	6/19/2001	5.1	FALSE
OW-5	9/18/2001	9.5	TRUE
OW-5	3/26/2002	ND<2.5	FALSE
OW-5	6/25/2002	ND<2.5	FALSE
OW-5	9/24/2002	7.1	FALSE
PW-1	4/1/1998	17.6	TRUE
PW-1	6/30/1998	9.3	TRUE
PW-1	10/1/1998	10	TRUE
PW-1	12/7/1998	10.3	TRUE
PW-1	3/30/1999	11	TRUE

PW-1	6/9/1999	11.9	TRUE
PW-1	9/29/1999	14.4	TRUE
PW-1	12/16/1999	19.1	TRUE
PW-1	3/8/2000	24.2	TRUE
PW-1	6/7/2000	16.9	TRUE
PW-1	9/29/2000	22.4	TRUE
PW-1	12/15/2000	14.3	TRUE
PW-1	3/27/2001	25	TRUE
PW-1	6/19/2001	20	TRUE
PW-1	9/18/2001	9.7	TRUE
PW-1	3/26/2002	18.5	TRUE
PW-1	6/25/2002	11.8	TRUE
PW-1	9/24/2002	27.8	TRUE
MP-11A	4/3/1998	ND<2.5	FALSE
MP-11A	6/30/1998	ND<2.5	FALSE
MP-11A	10/2/1998	ND<2.5	FALSE
MP-11A	12/9/1998	ND<2.5	FALSE
MP-11A	3/30/1999	ND<2.5	FALSE
MP-11A	6/9/1999	ND<2.5	FALSE
MP-11A	11/18/1999	ND<2.5	FALSE
MP-11A	12/21/1999	ND<2.5	FALSE
MP-11A	3/9/2000	ND<2.5	FALSE
MP-11A	6/8/2000	ND<2.5	FALSE
MP-11A	9/29/2000	ND<2.5	FALSE
MP-11A	12/15/2000	ND<2.5	FALSE
MP-11A	3/27/2001	ND<2.5	FALSE
MP-11A	6/19/2001	ND<2.5	FALSE
MP-11A	9/18/2001	ND<2.5	FALSE
MP-11A	3/26/2002	ND<2.5	FALSE
MP-11A	6/25/2002	ND<2.5	FALSE
MP-11A	9/24/2002	ND<2.5	FALSE
MP-2B	4/2/1998	8.6	TRUE
MP-2B	7/1/1998	9	TRUE
MP-2B	10/2/1998	ND<2.5	FALSE
MP-2B	12/7/1998	ND<2.5	FALSE
MP-2B	3/30/1999	ND<2.5	FALSE
MP-2B	6/9/1999	ND<2.5	FALSE
MP-2B	9/30/1999	6.5	FALSE
MP-2B	12/17/1999	ND<2.5	FALSE
MP-2B	3/7/2000	ND<2.5	FALSE
MP-2B	6/8/2000	31	TRUE
MP-2B	9/29/2000	12.4	TRUE
MP-2B	12/15/2000	ND<2.5	FALSE
MP-2B	9/18/2001	10.2	TRUE
MP-2B	3/26/2002	10.9	TRUE
MP-2B	9/24/2002	28.6	TRUE
MP-9	4/1/1998	5.7	FALSE
MP-9	6/30/1998	ND<2.5	FALSE
MP-9	10/2/1998	ND<2.5	FALSE
MP-9	12/9/1998	7.9	TRUE
MP-9	3/30/1999	ND<2.5	FALSE

MP-9	6/9/1999	ND<2.5	FALSE
MP-9	9/29/1999	ND<2.5	FALSE
MP-9	12/17/1999	ND<2.5	FALSE
MP-9	3/8/2000	ND<2.5	FALSE
MP-9	6/8/2000	ND<2.5	FALSE
MP-9	9/29/2000	ND<2.5	FALSE
MP-9	12/15/2000	7	FALSE
MP-9	3/27/2001	ND<2.5	FALSE
MP-9	9/18/2001	ND<2.5	FALSE
MP-9	3/26/2002	25.4	TRUE
MP-9	9/24/2002	77.1	TRUE

Non-Parametric Tolerance Interval

Parameter: Iron

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Background Samples (n) = 33
Maximum Background Concentration = 55000
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	2810	FALSE
B-5	7/1/1998	2500	FALSE
B-5	10/2/1998	6400	FALSE
B-5	12/7/1998	4940	FALSE
B-5	3/30/1999	11400	FALSE
B-5	6/9/1999	4600	FALSE
B-5	9/30/1999	5250	FALSE
B-5	12/15/1999	6970	FALSE
B-5	3/8/2000	3910	FALSE
B-5	6/8/2000	4520	FALSE
B-5	9/29/2000	3560	FALSE
B-5	12/15/2000	597	FALSE
B-5	3/27/2001	4510	FALSE
B-5	9/18/2001	790	FALSE
B-5	3/26/2002	2250	FALSE
B-5	9/24/2002	914	FALSE
BH-2	7/2/1998	4100	FALSE
BH-2	10/1/1998	3100	FALSE
BH-2	12/7/1998	2680	FALSE
BH-2	3/30/1999	3230	FALSE
BH-2	6/9/1999	2500	FALSE
BH-2	9/30/1999	5380	FALSE
BH-2	12/17/1999	4090	FALSE
BH-2	3/7/2000	2330	FALSE
BH-2	6/8/2000	2310	FALSE
BH-2	9/29/2000	2800	FALSE
BH-2	12/15/2000	2680	FALSE
BH-2	3/27/2001	3200	FALSE
BH-2	6/19/2001	3220	FALSE
BH-2	9/18/2001	2680	FALSE
BH-2	3/26/2002	3770	FALSE
BH-2	6/25/2002	2360	FALSE
BH-2	9/24/2002	3710	FALSE
BH-7	4/1/1998	46500	FALSE
BH-7	6/30/1998	51500	FALSE
BH-7	10/2/1998	39600	FALSE
BH-7	12/9/1998	57000	TRUE
BH-7	3/30/1999	51800	FALSE
BH-7	6/9/1999	49700	FALSE

BH-7	9/28/1999	45400	FALSE
BH-7	12/16/1999	46900	FALSE
BH-7	3/8/2000	39300	FALSE
BH-7	6/7/2000	57800	TRUE
BH-7	9/29/2000	60600	TRUE
BH-7	12/15/2000	60100	TRUE
BH-7	3/27/2001	60400	TRUE
BH-7	6/19/2001	61000	TRUE
BH-7	9/18/2001	58500	TRUE
BH-7	3/26/2002	57700	TRUE
BH-7	6/25/2002	55500	TRUE
BH-7	9/24/2002	51500	FALSE
BH-8	4/1/1998	63300	TRUE
BH-8	6/30/1998	54200	FALSE
BH-8	10/2/1998	57200	TRUE
BH-8	12/9/1998	48100	FALSE
BH-8	3/30/1999	68500	TRUE
BH-8	6/9/1999	55900	TRUE
BH-8	9/29/1999	60500	TRUE
BH-8	12/16/1999	72400	TRUE
BH-8	3/8/2000	73600	TRUE
BH-8	6/7/2000	69500	TRUE
BH-8	9/29/2000	71200	TRUE
BH-8	12/15/2000	54100	FALSE
BH-8	3/27/2001	65400	TRUE
BH-8	6/19/2001	65700	TRUE
BH-8	9/18/2001	55600	TRUE
BH-8	3/26/2002	96900	TRUE
BH-8	6/25/2002	67500	TRUE
BH-8	9/24/2002	73300	TRUE
MW-10	3/31/1998	18700	FALSE
MW-10	6/29/1998	15900	FALSE
MW-10	10/1/1998	19800	FALSE
MW-10	12/9/1998	30200	FALSE
MW-10	3/30/1999	16000	FALSE
MW-10	6/9/1999	14400	FALSE
MW-10	9/28/1999	22400	FALSE
MW-10	12/15/1999	10400	FALSE
MW-10	3/9/2000	18800	FALSE
MW-10	6/7/2000	17300	FALSE
MW-10	9/29/2000	26900	FALSE
MW-10	12/15/2000	17700	FALSE
MW-10	3/27/2001	21200	FALSE
MW-10	6/19/2001	19900	FALSE
MW-10	9/18/2001	38300	FALSE
MW-10	3/26/2002	28800	FALSE
MW-10	6/25/2002	36700	FALSE
MW-10	9/24/2002	49300	FALSE
MW-11	3/31/1998	15500	FALSE
MW-11	6/29/1998	4980	FALSE
MW-11	10/1/1998	2650	FALSE

MW-11	12/9/1998	6600	FALSE
MW-11	3/30/1999	6650	FALSE
MW-11	6/9/1999	5190	FALSE
MW-11	9/28/1999	16700	FALSE
MW-11	12/15/1999	24000	FALSE
MW-11	3/9/2000	7910	FALSE
MW-11	6/7/2000	9280	FALSE
MW-11	9/29/2000	16900	FALSE
MW-11	12/15/2000	17600	FALSE
MW-11	3/27/2001	14400	FALSE
MW-11	6/19/2001	14600	FALSE
MW-11	9/18/2001	19600	FALSE
MW-11	3/26/2002	15900	FALSE
MW-11	6/25/2002	16400	FALSE
MW-11	9/24/2002	17700	FALSE
MW-12S	3/30/1998	52500	FALSE
MW-12S	6/29/1998	11400	FALSE
MW-12S	10/1/1998	9390	FALSE
MW-12S	12/9/1998	856	FALSE
MW-12S	3/30/1999	2250	FALSE
MW-12S	6/9/1999	1230	FALSE
MW-12S	9/28/1999	206	FALSE
MW-12S	12/15/1999	514	FALSE
MW-12S	3/9/2000	777	FALSE
MW-12S	6/7/2000	255	FALSE
MW-12S	9/29/2000	476	FALSE
MW-12S	12/15/2000	135	FALSE
MW-12S	3/27/2001	116	FALSE
MW-12S	6/19/2001	25.1	FALSE
MW-12S	9/18/2001	71.7	FALSE
MW-12S	3/26/2002	261	FALSE
MW-12S	6/25/2002	2100	FALSE
MW-12S	9/24/2002	269	FALSE
MW-13	3/30/1998	608	FALSE
MW-13	6/29/1998	510	FALSE
MW-13	10/1/1998	600	FALSE
MW-13	12/9/1998	625	FALSE
MW-13	3/30/1999	430	FALSE
MW-13	6/9/1999	589	FALSE
MW-13	9/28/1999	278	FALSE
MW-13	12/17/1999	420	FALSE
MW-13	3/9/2000	200	FALSE
MW-13	6/7/2000	347	FALSE
MW-13	9/29/2000	798	FALSE
MW-13	12/15/2000	26.4	FALSE
MW-13	3/27/2001	521	FALSE
MW-13	6/19/2001	2100	FALSE
MW-13	9/18/2001	297	FALSE
MW-13	3/26/2002	258	FALSE
MW-13	6/25/2002	35	FALSE
MW-13	9/24/2002	2040	FALSE

MW-14	4/1/1998	3240	FALSE
MW-14	6/30/1998	209	FALSE
MW-14	10/1/1998	534	FALSE
MW-14	12/7/1998	316	FALSE
MW-14	3/30/1999	239	FALSE
MW-14	6/9/1999	782	FALSE
MW-14	9/29/1999	294	FALSE
MW-14	12/16/1999	628	FALSE
MW-14	6/19/2001	214	FALSE
MW-14	9/18/2001	321	FALSE
MW-14	3/26/2002	1680	FALSE
MW-14	6/25/2002	4230	FALSE
MW-14	9/24/2002	574	FALSE
MW-3	3/30/1998	67500	TRUE
MW-3	6/30/1998	71700	TRUE
MW-3	10/2/1998	78200	TRUE
MW-3	12/9/1998	70200	TRUE
MW-3	3/30/1999	48300	FALSE
MW-3	6/9/1999	84700	TRUE
MW-3	9/28/1999	70700	TRUE
MW-3	12/16/1999	67300	TRUE
MW-3	3/8/2000	65100	TRUE
MW-3	6/7/2000	66200	TRUE
MW-3	9/29/2000	75000	TRUE
MW-3	12/15/2000	58400	TRUE
MW-3	3/27/2001	58500	TRUE
MW-3	6/19/2001	61200	TRUE
MW-3	9/18/2001	57300	TRUE
MW-3	3/26/2002	54500	FALSE
MW-3	6/25/2002	80300	TRUE
MW-3	9/24/2002	69100	TRUE
MW-4C	7/1/1998	9500	FALSE
MW-4C	10/2/1998	402	FALSE
MW-4C	12/7/1998	352	FALSE
MW-4C	3/30/1999	2980	FALSE
MW-4C	6/9/1999	2420	FALSE
MW-4C	9/30/1999	798	FALSE
MW-4C	12/17/1999	252	FALSE
MW-4C	3/7/2000	279	FALSE
MW-4C	6/8/2000	308	FALSE
MW-4C	9/29/2000	318	FALSE
MW-4C	12/15/2000	158	FALSE
MW-4C	3/27/2001	166	FALSE
MW-4C	9/18/2001	96.3	FALSE
MW-4C	3/26/2002	91.9	FALSE
MW-4C	9/24/2002	116	FALSE
MW-9	3/31/1998	21300	FALSE
MW-9	6/29/1998	1480	FALSE
MW-9	10/1/1998	1360	FALSE
MW-9	12/9/1998	1520	FALSE
MW-9	3/30/1999	2320	FALSE

MW-9	6/9/1999	700	FALSE
MW-9	9/28/1999	285	FALSE
MW-9	12/15/1999	269	FALSE
MW-9	3/8/2000	560	FALSE
MW-9	6/7/2000	1240	FALSE
MW-9	9/29/2000	1860	FALSE
MW-9	12/15/2000	997	FALSE
MW-9	3/27/2001	52.7	FALSE
MW-9	6/19/2001	188	FALSE
MW-9	9/18/2001	827	FALSE
MW-9	3/26/2002	182	FALSE
MW-9	6/25/2002	262	FALSE
MW-9	9/24/2002	1420	FALSE
OW-1	3/30/1998	182000	TRUE
OW-1	6/30/1998	9440	FALSE
OW-1	10/1/1998	33800	FALSE
OW-1	12/7/1998	18900	FALSE
OW-1	3/30/1999	14300	FALSE
OW-1	6/9/1999	15500	FALSE
OW-1	9/29/1999	19600	FALSE
OW-1	12/16/1999	25300	FALSE
OW-1	3/7/2000	27100	FALSE
OW-1	6/7/2000	23000	FALSE
OW-1	9/29/2000	29400	FALSE
OW-1	12/15/2000	22300	FALSE
OW-1	3/27/2001	21200	FALSE
OW-1	6/19/2001	20600	FALSE
OW-1	9/18/2001	26100	FALSE
OW-1	3/26/2002	35700	FALSE
OW-1	6/25/2002	30700	FALSE
OW-1	9/24/2002	32300	FALSE
OW-2	4/3/1998	932	FALSE
OW-2	7/1/1998	192	FALSE
OW-2	10/2/1998	452	FALSE
OW-2	12/7/1998	166000	TRUE
OW-2	3/30/1999	2170	FALSE
OW-2	6/9/1999	1400	FALSE
OW-2	9/30/1999	2910	FALSE
OW-2	12/17/1999	15200	FALSE
OW-2	3/8/2000	7790	FALSE
OW-2	6/8/2000	1640	FALSE
OW-2	9/29/2000	535	FALSE
OW-2	12/15/2000	7810	FALSE
OW-2	3/27/2001	3520	FALSE
OW-2	6/19/2001	8280	FALSE
OW-2	9/18/2001	3870	FALSE
OW-2	3/26/2002	3510	FALSE
OW-2	6/25/2002	11700	FALSE
OW-2	9/24/2002	19600	FALSE
OW-3	4/2/1998	7700	FALSE
OW-3	7/1/1998	769	FALSE

OW-3	10/2/1998	621	FALSE
OW-3	12/7/1998	1740	FALSE
OW-3	3/30/1999	11600	FALSE
OW-3	6/9/1999	8580	FALSE
OW-3	9/30/1999	1380	FALSE
OW-3	12/17/1999	10000	FALSE
OW-3	6/19/2001	2240	FALSE
OW-3	9/18/2001	577	FALSE
OW-3	3/26/2002	484	FALSE
OW-3	6/25/2002	2690	FALSE
OW-3	9/24/2002	1130	FALSE
OW-4	3/30/1998	1980	FALSE
OW-4	6/30/1998	3210	FALSE
OW-4	10/2/1998	2550	FALSE
OW-4	12/9/1998	1670	FALSE
OW-4	3/30/1999	190	FALSE
OW-4	6/9/1999	203	FALSE
OW-4	9/29/1999	189	FALSE
OW-4	12/16/1999	414	FALSE
OW-4	3/8/2000	879	FALSE
OW-4	6/7/2000	85.8	FALSE
OW-4	9/29/2000	151	FALSE
OW-4	12/15/2000	23.7	FALSE
OW-4	3/27/2001	85.6	FALSE
OW-4	6/19/2001	232	FALSE
OW-4	3/26/2002	314	FALSE
OW-4	6/25/2002	98.8	FALSE
OW-4	9/24/2002	462	FALSE
OW-5	4/1/1998	23300	FALSE
OW-5	6/30/1998	64100	TRUE
OW-5	10/1/1998	59300	TRUE
OW-5	12/7/1998	50800	FALSE
OW-5	3/30/1999	71600	TRUE
OW-5	6/9/1999	21100	FALSE
OW-5	9/29/1999	35500	FALSE
OW-5	12/16/1999	52400	FALSE
OW-5	3/8/2000	65300	TRUE
OW-5	6/7/2000	68100	TRUE
OW-5	9/29/2000	60600	TRUE
OW-5	12/15/2000	65400	TRUE
OW-5	3/27/2001	68900	TRUE
OW-5	6/19/2001	63600	TRUE
OW-5	9/18/2001	68200	TRUE
OW-5	3/26/2002	90600	TRUE
OW-5	6/25/2002	55700	TRUE
OW-5	9/24/2002	77800	TRUE
PW-1	4/1/1998	7010	FALSE
PW-1	6/30/1998	2490	FALSE
PW-1	10/1/1998	5460	FALSE
PW-1	12/7/1998	3630	FALSE
PW-1	3/30/1999	2940	FALSE

PW-1	6/9/1999	5190	FALSE
PW-1	9/29/1999	4700	FALSE
PW-1	12/16/1999	7210	FALSE
PW-1	3/8/2000	13000	FALSE
PW-1	6/7/2000	4750	FALSE
PW-1	9/29/2000	15000	FALSE
PW-1	12/15/2000	3600	FALSE
PW-1	3/27/2001	14800	FALSE
PW-1	6/19/2001	9440	FALSE
PW-1	9/18/2001	3620	FALSE
PW-1	3/26/2002	10300	FALSE
PW-1	6/25/2002	4140	FALSE
PW-1	9/24/2002	18300	FALSE
MP-11A	4/3/1998	2170	FALSE
MP-11A	6/30/1998	258	FALSE
MP-11A	10/2/1998	165	FALSE
MP-11A	12/9/1998	541	FALSE
MP-11A	3/30/1999	178	FALSE
MP-11A	6/9/1999	559	FALSE
MP-11A	11/18/1999	94.9	FALSE
MP-11A	12/21/1999	200	FALSE
MP-11A	3/9/2000	720	FALSE
MP-11A	6/8/2000	397	FALSE
MP-11A	9/29/2000	771	FALSE
MP-11A	12/15/2000	640	FALSE
MP-11A	3/27/2001	716	FALSE
MP-11A	6/19/2001	253	FALSE
MP-11A	9/18/2001	305	FALSE
MP-11A	3/26/2002	133	FALSE
MP-11A	6/25/2002	171	FALSE
MP-11A	9/24/2002	574	FALSE
MP-2B	4/2/1998	5210	FALSE
MP-2B	7/1/1998	15900	FALSE
MP-2B	10/2/1998	5320	FALSE
MP-2B	12/7/1998	1380	FALSE
MP-2B	3/30/1999	3740	FALSE
MP-2B	6/9/1999	4810	FALSE
MP-2B	9/30/1999	17900	FALSE
MP-2B	12/17/1999	15300	FALSE
MP-2B	3/7/2000	14100	FALSE
MP-2B	6/8/2000	38600	FALSE
MP-2B	9/29/2000	25600	FALSE
MP-2B	12/15/2000	16700	FALSE
MP-2B	3/27/2001	19300	FALSE
MP-2B	3/26/2002	18300	FALSE
MP-2B	9/24/2002	12900	FALSE
MP-9	4/1/1998	2300	FALSE
MP-9	6/30/1998	2680	FALSE
MP-9	10/2/1998	3110	FALSE
MP-9	12/9/1998	1450	FALSE
MP-9	3/30/1999	3270	FALSE

MP-9	6/9/1999	839	FALSE
MP-9	9/29/1999	1750	FALSE
MP-9	12/17/1999	9760	FALSE
MP-9	3/8/2000	869	FALSE
MP-9	6/8/2000	1890	FALSE
MP-9	9/29/2000	499	FALSE
MP-9	12/15/2000	9740	FALSE
MP-9	3/27/2001	576	FALSE
MP-9	9/18/2001	2420	FALSE
MP-9	3/26/2002	6530	FALSE
MP-9	9/24/2002	4980	FALSE

Non-Parametric Tolerance Interval

Parameter: Manganese

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Background Samples (n) = 33
Maximum Background Concentration = 2300
Minimum Coverage = 91.3%
Average Coverage = 97.0588%

Well	Sample	Result	Impacted
B-5	3/30/1998	127	FALSE
B-5	7/1/1998	121	FALSE
B-5	10/2/1998	106	FALSE
B-5	12/7/1998	137	FALSE
B-5	3/30/1999	146	FALSE
B-5	6/9/1999	187	FALSE
B-5	9/30/1999	186	FALSE
B-5	12/15/1999	105	FALSE
B-5	3/8/2000	116	FALSE
B-5	6/8/2000	150	FALSE
B-5	9/29/2000	104	FALSE
B-5	12/15/2000	112	FALSE
B-5	3/27/2001	196	FALSE
B-5	9/18/2001	107	FALSE
B-5	3/26/2002	130	FALSE
B-5	9/24/2002	103	FALSE
BH-2	7/2/1998	10600	TRUE
BH-2	10/1/1998	11100	TRUE
BH-2	12/7/1998	10000	TRUE
BH-2	3/30/1999	11200	TRUE
BH-2	6/9/1999	10900	TRUE
BH-2	9/30/1999	367	FALSE
BH-2	12/17/1999	10600	TRUE
BH-2	3/7/2000	10300	TRUE
BH-2	6/8/2000	10900	TRUE
BH-2	9/29/2000	10400	TRUE
BH-2	12/15/2000	10100	TRUE
BH-2	3/27/2001	9840	TRUE
BH-2	6/19/2001	10200	TRUE
BH-2	9/18/2001	10200	TRUE
BH-2	3/26/2002	9870	TRUE
BH-2	6/25/2002	9620	TRUE
BH-2	9/24/2002	9640	TRUE
BH-7	4/1/1998	1190	FALSE
BH-7	6/30/1998	1990	FALSE
BH-7	10/2/1998	18900	TRUE
BH-7	12/9/1998	2040	FALSE
BH-7	3/30/1999	1970	FALSE
BH-7	6/9/1999	1790	FALSE

BH-7	9/28/1999	1680	FALSE
BH-7	12/16/1999	1560	FALSE
BH-7	3/8/2000	1390	FALSE
BH-7	6/7/2000	1370	FALSE
BH-7	9/29/2000	1180	FALSE
BH-7	12/15/2000	1220	FALSE
BH-7	3/27/2001	1140	FALSE
BH-7	6/19/2001	1100	FALSE
BH-7	9/18/2001	1000	FALSE
BH-7	3/26/2002	995	FALSE
BH-7	6/25/2002	995	FALSE
BH-7	9/24/2002	952	FALSE
BH-8	4/1/1998	1390	FALSE
BH-8	6/30/1998	1270	FALSE
BH-8	10/2/1998	948	FALSE
BH-8	12/9/1998	836	FALSE
BH-8	3/30/1999	1740	FALSE
BH-8	6/9/1999	1240	FALSE
BH-8	9/29/1999	1390	FALSE
BH-8	12/16/1999	2350	TRUE
BH-8	3/8/2000	2630	TRUE
BH-8	6/7/2000	2730	TRUE
BH-8	9/29/2000	2400	TRUE
BH-8	12/15/2000	1460	FALSE
BH-8	3/27/2001	2470	TRUE
BH-8	6/19/2001	2380	TRUE
BH-8	9/18/2001	1540	FALSE
BH-8	3/26/2002	4160	TRUE
BH-8	6/25/2002	2880	TRUE
BH-8	9/24/2002	2870	TRUE
MW-10	3/31/1998	4650	TRUE
MW-10	6/29/1998	3690	TRUE
MW-10	10/1/1998	4520	TRUE
MW-10	12/9/1998	5460	TRUE
MW-10	3/30/1999	4980	TRUE
MW-10	6/9/1999	4760	TRUE
MW-10	9/28/1999	5790	TRUE
MW-10	12/15/1999	2330	TRUE
MW-10	3/9/2000	5180	TRUE
MW-10	6/7/2000	4040	TRUE
MW-10	9/29/2000	6690	TRUE
MW-10	12/15/2000	3620	TRUE
MW-10	3/27/2001	6020	TRUE
MW-10	6/19/2001	4840	TRUE
MW-10	9/18/2001	8660	TRUE
MW-10	3/26/2002	7340	TRUE
MW-10	6/25/2002	7430	TRUE
MW-10	9/24/2002	8900	TRUE
MW-11	3/31/1998	3910	TRUE
MW-11	6/29/1998	3070	TRUE
MW-11	10/1/1998	3610	TRUE

MW-11	12/9/1998	3650	TRUE
MW-11	3/30/1999	6450	TRUE
MW-11	6/9/1999	6660	TRUE
MW-11	9/28/1999	9450	TRUE
MW-11	12/15/1999	6550	TRUE
MW-11	3/9/2000	8790	TRUE
MW-11	6/7/2000	8480	TRUE
MW-11	9/29/2000	10700	TRUE
MW-11	12/15/2000	10400	TRUE
MW-11	3/27/2001	10400	TRUE
MW-11	6/19/2001	11200	TRUE
MW-11	9/18/2001	13100	TRUE
MW-11	3/26/2002	12800	TRUE
MW-11	6/25/2002	15600	TRUE
MW-11	9/24/2002	15000	TRUE
MW-12S	3/30/1998	4840	TRUE
MW-12S	6/29/1998	4730	TRUE
MW-12S	10/1/1998	4130	TRUE
MW-12S	12/9/1998	6710	TRUE
MW-12S	3/30/1999	3060	TRUE
MW-12S	6/9/1999	2980	TRUE
MW-12S	9/28/1999	2660	TRUE
MW-12S	12/15/1999	2320	TRUE
MW-12S	3/9/2000	2410	TRUE
MW-12S	6/7/2000	2600	TRUE
MW-12S	9/29/2000	1820	FALSE
MW-12S	12/15/2000	1930	FALSE
MW-12S	3/27/2001	1950	FALSE
MW-12S	6/19/2001	1540	FALSE
MW-12S	9/18/2001	748	FALSE
MW-12S	3/26/2002	1530	FALSE
MW-12S	6/25/2002	1250	FALSE
MW-12S	9/24/2002	1150	FALSE
MW-13	3/30/1998	4080	TRUE
MW-13	6/29/1998	3750	TRUE
MW-13	10/1/1998	3890	TRUE
MW-13	12/9/1998	4190	TRUE
MW-13	3/30/1999	4230	TRUE
MW-13	6/9/1999	4710	TRUE
MW-13	9/28/1999	5170	TRUE
MW-13	12/17/1999	5760	TRUE
MW-13	3/9/2000	5710	TRUE
MW-13	6/7/2000	4820	TRUE
MW-13	9/29/2000	5030	TRUE
MW-13	12/15/2000	5450	TRUE
MW-13	3/27/2001	5410	TRUE
MW-13	6/19/2001	4860	TRUE
MW-13	9/18/2001	5390	TRUE
MW-13	3/26/2002	5480	TRUE
MW-13	6/25/2002	4920	TRUE
MW-13	9/24/2002	5720	TRUE

MW-14	4/1/1998	277	FALSE
MW-14	6/30/1998	834	FALSE
MW-14	10/1/1998	793	FALSE
MW-14	12/7/1998	994	FALSE
MW-14	3/30/1999	1340	FALSE
MW-14	6/9/1999	1023	FALSE
MW-14	9/29/1999	1530	FALSE
MW-14	12/16/1999	974	FALSE
MW-14	6/19/2001	558	FALSE
MW-14	9/18/2001	713	FALSE
MW-14	3/26/2002	854	FALSE
MW-14	6/25/2002	1370	FALSE
MW-14	9/24/2002	35.4	FALSE
MW-3	3/30/1998	6650	TRUE
MW-3	6/30/1998	7480	TRUE
MW-3	10/2/1998	6910	TRUE
MW-3	12/9/1998	7000	TRUE
MW-3	3/30/1999	11800	TRUE
MW-3	6/9/1999	11000	TRUE
MW-3	9/28/1999	8390	TRUE
MW-3	12/16/1999	6230	TRUE
MW-3	3/8/2000	5510	TRUE
MW-3	6/7/2000	4980	TRUE
MW-3	9/29/2000	6870	TRUE
MW-3	12/15/2000	4430	TRUE
MW-3	3/27/2001	4200	TRUE
MW-3	6/19/2001	4560	TRUE
MW-3	9/18/2001	4110	TRUE
MW-3	3/26/2002	3980	TRUE
MW-3	6/25/2002	6880	TRUE
MW-3	9/24/2002	5350	TRUE
MW-4C	7/1/1998	674	FALSE
MW-4C	10/2/1998	4530	TRUE
MW-4C	12/7/1998	462	FALSE
MW-4C	3/30/1999	589	FALSE
MW-4C	6/9/1999	0.518	FALSE
MW-4C	9/30/1999	458	FALSE
MW-4C	12/17/1999	461	FALSE
MW-4C	3/7/2000	486	FALSE
MW-4C	6/8/2000	509	FALSE
MW-4C	9/29/2000	477	FALSE
MW-4C	12/15/2000	478	FALSE
MW-4C	3/27/2001	480	FALSE
MW-4C	9/18/2001	464	FALSE
MW-4C	3/26/2002	477	FALSE
MW-4C	9/24/2002	492	FALSE
MW-9	3/31/1998	3400	TRUE
MW-9	6/29/1998	5320	TRUE
MW-9	10/1/1998	3640	TRUE
MW-9	12/9/1998	4200	TRUE
MW-9	3/30/1999	1560	FALSE

MW-9	6/9/1999	2210	FALSE
MW-9	9/28/1999	2260	FALSE
MW-9	12/15/1999	1400	FALSE
MW-9	3/8/2000	3730	TRUE
MW-9	6/7/2000	4550	TRUE
MW-9	9/29/2000	5210	TRUE
MW-9	12/15/2000	2480	TRUE
MW-9	3/27/2001	511	FALSE
MW-9	6/19/2001	2100	FALSE
MW-9	9/18/2001	4550	TRUE
MW-9	3/26/2002	519	FALSE
MW-9	6/25/2002	1310	FALSE
MW-9	9/24/2002	1800	FALSE
OW-1	3/30/1998	18600	TRUE
OW-1	6/30/1998	2650	TRUE
OW-1	10/1/1998	4690	TRUE
OW-1	12/7/1998	3770	TRUE
OW-1	3/30/1999	3130	TRUE
OW-1	6/9/1999	3330	TRUE
OW-1	9/29/1999	3310	TRUE
OW-1	12/16/1999	3240	TRUE
OW-1	3/7/2000	3560	TRUE
OW-1	6/7/2000	3400	TRUE
OW-1	9/29/2000	4280	TRUE
OW-1	12/15/2000	3920	TRUE
OW-1	3/27/2001	3330	TRUE
OW-1	6/19/2001	3560	TRUE
OW-1	9/18/2001	3860	TRUE
OW-1	3/26/2002	3910	TRUE
OW-1	6/25/2002	5000	TRUE
OW-1	9/24/2002	5040	TRUE
OW-2	4/3/1998	147	FALSE
OW-2	7/1/1998	223	FALSE
OW-2	10/2/1998	234	FALSE
OW-2	12/7/1998	4270	TRUE
OW-2	3/30/1999	394	FALSE
OW-2	6/9/1999	319	FALSE
OW-2	9/30/1999	10800	TRUE
OW-2	12/17/1999	664	FALSE
OW-2	3/8/2000	439	FALSE
OW-2	6/8/2000	372	FALSE
OW-2	9/29/2000	321	FALSE
OW-2	12/15/2000	340	FALSE
OW-2	3/27/2001	480	FALSE
OW-2	6/19/2001	502	FALSE
OW-2	9/18/2001	436	FALSE
OW-2	3/26/2002	512	FALSE
OW-2	6/25/2002	575	FALSE
OW-2	9/24/2002	694	FALSE
OW-3	4/2/1998	119	FALSE
OW-3	7/1/1998	18.2	FALSE

OW-3	10/2/1998	24	FALSE
OW-3	12/7/1998	98.5	FALSE
OW-3	3/30/1999	245	FALSE
OW-3	6/9/1999	166	FALSE
OW-3	9/30/1999	32.6	FALSE
OW-3	12/17/1999	230	FALSE
OW-3	6/19/2001	205	FALSE
OW-3	9/18/2001	134	FALSE
OW-3	3/26/2002	97.3	FALSE
OW-3	6/25/2002	145	FALSE
OW-3	9/24/2002	219	FALSE
OW-4	3/30/1998	25800	TRUE
OW-4	6/30/1998	2590	TRUE
OW-4	10/2/1998	22700	TRUE
OW-4	12/9/1998	26400	TRUE
OW-4	3/30/1999	19800	TRUE
OW-4	6/9/1999	20300	TRUE
OW-4	9/29/1999	23500	TRUE
OW-4	12/16/1999	17200	TRUE
OW-4	3/8/2000	11700	TRUE
OW-4	6/7/2000	10200	TRUE
OW-4	9/29/2000	13900	TRUE
OW-4	12/15/2000	10700	TRUE
OW-4	3/27/2001	16000	TRUE
OW-4	6/19/2001	16200	TRUE
OW-4	3/26/2002	15500	TRUE
OW-4	6/25/2002	13300	TRUE
OW-4	9/24/2002	9950	TRUE
OW-5	4/1/1998	4350	TRUE
OW-5	6/30/1998	17000	TRUE
OW-5	10/1/1998	23300	TRUE
OW-5	12/7/1998	20900	TRUE
OW-5	3/30/1999	11500	TRUE
OW-5	6/9/1999	14400	TRUE
OW-5	9/29/1999	12000	TRUE
OW-5	12/16/1999	13700	TRUE
OW-5	3/8/2000	16200	TRUE
OW-5	6/7/2000	11400	TRUE
OW-5	9/29/2000	12500	TRUE
OW-5	12/15/2000	9590	TRUE
OW-5	3/27/2001	8510	TRUE
OW-5	6/19/2001	7960	TRUE
OW-5	9/18/2001	14200	TRUE
OW-5	3/26/2002	9730	TRUE
OW-5	6/25/2002	7940	TRUE
OW-5	9/24/2002	12300	TRUE
PW-1	4/1/1998	9870	TRUE
PW-1	6/30/1998	10700	TRUE
PW-1	10/1/1998	9510	TRUE
PW-1	12/7/1998	12000	TRUE
PW-1	3/30/1999	6140	TRUE

PW-1	6/9/1999	15500	TRUE
PW-1	9/29/1999	16400	TRUE
PW-1	12/16/1999	17000	TRUE
PW-1	3/8/2000	15800	TRUE
PW-1	6/7/2000	13600	TRUE
PW-1	9/29/2000	13400	TRUE
PW-1	12/15/2000	14800	TRUE
PW-1	3/27/2001	13700	TRUE
PW-1	6/19/2001	13000	TRUE
PW-1	9/18/2001	13500	TRUE
PW-1	3/26/2002	11500	TRUE
PW-1	6/25/2002	11000	TRUE
PW-1	9/24/2002	12100	TRUE
MP-11A	4/3/1998	255	FALSE
MP-11A	6/30/1998	50.3	FALSE
MP-11A	10/2/1998	58	FALSE
MP-11A	12/9/1998	60.7	FALSE
MP-11A	3/30/1999	16.7	FALSE
MP-11A	6/9/1999	51.1	FALSE
MP-11A	11/18/1999	8	FALSE
MP-11A	12/21/1999	12.4	FALSE
MP-11A	3/9/2000	138	FALSE
MP-11A	6/8/2000	66.1	FALSE
MP-11A	9/29/2000	117	FALSE
MP-11A	12/15/2000	76.5	FALSE
MP-11A	3/27/2001	71.4	FALSE
MP-11A	6/19/2001	27.8	FALSE
MP-11A	9/18/2001	40.7	FALSE
MP-11A	3/26/2002	16.8	FALSE
MP-11A	6/25/2002	11.2	FALSE
MP-11A	9/24/2002	35.4	FALSE
MP-2B	4/2/1998	358	FALSE
MP-2B	7/1/1998	330	FALSE
MP-2B	10/2/1998	49	FALSE
MP-2B	12/7/1998	33.3	FALSE
MP-2B	3/30/1999	60.2	FALSE
MP-2B	6/9/1999	101	FALSE
MP-2B	9/30/1999	166	FALSE
MP-2B	12/17/1999	114	FALSE
MP-2B	3/7/2000	97.1	FALSE
MP-2B	6/8/2000	655	FALSE
MP-2B	9/29/2000	466	FALSE
MP-2B	12/15/2000	0.323	FALSE
MP-2B	3/27/2001	119	FALSE
MP-2B	3/26/2002	290	FALSE
MP-2B	9/24/2002	283	FALSE
MP-9	4/1/1998	9080	TRUE
MP-9	6/30/1998	6460	TRUE
MP-9	10/2/1998	6390	TRUE
MP-9	12/9/1998	12400	TRUE
MP-9	3/30/1999	5930	TRUE

MP-9	6/9/1999	5850	TRUE
MP-9	9/29/1999	9450	TRUE
MP-9	12/17/1999	6310	TRUE
MP-9	3/8/2000	4660	TRUE
MP-9	6/8/2000	3440	TRUE
MP-9	9/29/2000	3680	TRUE
MP-9	12/15/2000	2830	TRUE
MP-9	3/27/2001	3240	TRUE
MP-9	9/18/2001	3280	TRUE
MP-9	3/26/2002	3170	TRUE
MP-9	9/24/2002	2600	TRUE

ATTACHMENT 3

LAUREL PARK LANDFILL SEMI-ANNUAL INSPECTION REPORT – JUNE 6, 2003

TRC

Customer-Focused Solutions

TRC Reference # 02136-0400-08086

August 1, 2003

Mr. William Lovely
Remedial Project Manager
U.S. Environmental Protection Agency
Suite 1100, Mail code HBT
One Congress Street
Boston, Massachusetts 02214-2023

Subject: Semi-Annual Inspection Report, Spring 2003, Laurel Park Landfill Superfund Site, Naugatuck, Connecticut

Reference: Contract No. 68-W6-0042 (Subcontract 107061)
Work Assignment No. 131-TATA-01ZZ
Multi-Site Post Construction Monitoring

Dear Mr. Lovely:

This letter report documents observations made by TRC Environmental Corporation (TRC) during the Semi-Annual Inspection of the Laurel Park Landfill in Naugatuck, Connecticut (Site). TRC performed the inspection on June 6, 2003. The inspection was also performed as part of the Five-Year Review for the landfill. A Five-Year Review checklist was used to document the observations made during the inspection (Attached). Mr. Russ Dirienzo of SMC Environmental ("SMC") was on site at the time of the inspection.

This report is based on observations made by TRC during a visual inspection of the landfill surface. No testing was performed on components of the landfill system. Observations made during the inspection are summarized below.

SUMMARY OF INSPECTION

The results of the inspection are presented below according to the various components of the landfill cover system.

Landfill Surface

The cover system appeared to be firm and stable on the day of the inspections (Photo 1). Rodent holes were observed on the northern and northeastern sides of the cap (see attached site plan). The surface of the landfill was generally in good condition with no obvious signs of settlement,

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erosion, or cracks. A localized area of sparse vegetative cover was present on the western slope, north of MW-2 (see attached site plan). There were no signs of erosion in the area of sparse vegetation; however, this area should be reseeded as necessary to prevent erosion and monitored until vegetation is re-established. TRC inspected a localized low point in the cover system, located at the top of the landfill near MW-1, as noted during TRC's three preceding inspections. The size and depth of the low spot appeared consistent with previous observations (Photo 2). This area should continue to be monitored for differential settlement. No ponded water was observed on the landfill surface.

Benches

The benches were in good condition with no signs of erosion, undermining or bypass (Photo 3). Only minor vegetation and sedimentation was observed. TRC inspected an area where exposed soil and damaged erosion control mat were previously observed on Bench #2B during the Fall 2002 Inspection. According to Russ Dirienzo of SMC, portions of this area were recently re-seeded in the spring of 2003. During the current inspection, the surface of the berm in this area appeared eroded and had only sparse vegetation, consistent with the previous inspection (Photo 4).

Letdown Channels (Downchutes)

The gabion-lined downchute channels were inspected for settlement, material degradation, erosion, undercutting, obstructions and vegetative growth. Downchutes #1, #2 and #4 appeared to be in good condition at the time of the inspection (Photo 5).

TRC inspected the previously-repaired area on Downchute #3 at the end of Bench #3B (Photo 6). During the current inspection, the riprap and the geomembrane in the repair area appeared to be intact, water was not visibly flowing into Downchute #3 from Bench #3B, and runoff could not be heard flowing under the repair area or to the outside of Downchute #3. However, based on sedimentation that is present in the south perimeter ditch at the base of Downchute # 3, it appears that flow is still bypassing the repair area to the east side of Downchute #3. A low spot (approximately 6 inches below relative grade) is present near the bend in the lower half of Downchute #3, and the eastern gabion wall adjacent to the low spot appeared to be tilting outward. It appears that flow bypass conditions may be undermining this area and depositing sediments in the southern perimeter ditch (see attached site plan). TRC recommends continued monitoring of the repair area at the top and the low area near the bend in Downchute #3 for further signs of settlement or degradation. This area may require investigation and repair in the future if flow bypass conditions worsen.

Cover Penetrations

Cover penetrations through the landfill cover system include 15 leachate collection system manholes, 15 passive gas vent structures and several monitoring wells. There did not appear to be any problems with the cover penetrations at the time of the inspection. Potential settlement at

the top of the landfill was evident at MW-1, where the riser was approximately 1.5 inches above the protective casing (Photo 2). This area at the top of the landfill should continue to be monitored for differential settlement in the future.

Cover Drainage Layer

The rip rap outlet of the drainage layer at the perimeter of the cover system appeared to be in good condition with no obvious damage or displacement of the rip rap.

Leachate Collection and Groundwater Extraction Systems

The leachate collection system at the Site consists of subsurface perforated polyethylene pipe that intercepts contaminated groundwater at the perimeter of the landfill, and a network of solid transfer and transportation pipe. Collected leachate is transferred to an off-Site wastewater treatment facility for disposal and treatment. The system includes 15 manholes that provide access to the collection and transfer piping for inspection or collection of leachate and maintenance (i.e. cleaning or flushing).

A groundwater extraction system at the site pumps contaminated groundwater from a series of extraction wells located down-gradient of the landfill. Contaminated groundwater is pumped to the leachate collection system manholes where the water mixes with leachate and is ultimately treated at the wastewater treatment plant. SMC measures water levels in the extraction wells monthly to ensure continuous operation of the extraction system.

The above ground portions of the systems were in good condition. TRC inspected 14 of the leachate collection system manholes located along the perimeter of the landfill cap for both damage and flow. All of the inspected manholes were in good condition structurally. There were no observable cracks or damage apparent at any of the manholes. Manholes 01 and 04 were observed to have steady or pulsing flow from the extraction well discharge lines. Manholes 1A, 1C, 1D, 1E, 1F, 03 and 5A had a trickle of flow. Manholes 1B, 02, 3A, 3B, 5, 5A and 5B had no discernible flow from the extraction well discharge lines.

Perimeter Ditches and Off-Site Discharge

The perimeter ditches appeared to be operating as designed and were in good condition with the exception of some minor sedimentation. Sedimentation was present in the perimeter drainage ditch on the south side of the landfill, near the base of Downchute #3, and on the southwest side of the landfill, between manholes MH-1E and MH-1F (Photo 7). As described above, the sedimentation at the base of Downchute #3 appears to be associated with flow bypassing and erosion along the eastern edge of Downchute #3 below a former repair area. The sedimentation near manhole MH-1E appears to have originated from sands that were reportedly deposited on the adjacent access road during winter maintenance activities. Sedimentation in these areas is minor but should be removed if it inhibits the flow capacity of the ditch.

TRC inspected the erosion area near MH-10 that was repaired during the summer of 2002 (Photo 8). Additional erosion did not appear to have occurred in this area at the time of the inspection.

CORRECTIVE ACTIONS

Status of Corrective Actions

The following table summarizes the status of previously identified maintenance deficiencies or landfill component defects.

Outstanding Deficiencies/Defects	Status	Corrective Action Adequate?	Recommendation
Possible settlement at top of landfill near MW-1	Still present	NA	Monitor
Bench #2B erosion area	Repaired	Yes	Monitor
Low area and gabion subsidence in Downchute #3	Still present	NA	Monitor
Sediment in southern perimeter ditch at base of Downchute #3	Still present	No	Monitor source of erosion; repair if undercutting worsens
Erosion at outlet to North drainage ditch	Repaired	Yes, to date	Monitor for continued erosion

NA = Not Applicable; i.e., no corrective action recommended at this time.

Recommendations

The following corrective actions are recommended at this time:

- Continue to monitor MW-1 for settlement.
- Monitor low spot in Downchute #3 for settlement and/or evidence of gabion subsidence.
- Continue rodent control program.
- Continue the maintenance program as designed and include the regular flushing of the Groundwater Extraction system discharge lines.
- Periodically inspect the leachate collection lines and clean as needed.
- Continue to monitor for sedimentation in the south perimeter ditch at the base of Downchute #3 that may be indicative of further undercutting along the eastern edge of Downchute #3.

Please call Greg Mischel at (978) 656-3569 with any comments or questions.

Sincerely,

TRC Environmental Corporation

Gregory A. Mischel P.E.
Project Manager

Amy L. Stattel
Environmental Engineer

Attachments:

Attachment 1, Inspection Checklist and Site Plan
Attachment 2, Site Inspection Photos

cc: D. Dwight, Metcalf & Eddy

Attachment 1

Inspection Checklist and Site Plan
June 6, 2003

Semi-Annual Inspection Report
Laurel Park Landfill
Superfund Site, Naugatuck, Connecticut

Five-Year Review Site Inspection Checklist

Purpose of the Checklist

The site inspection checklist provides a useful method for collecting important information during the site inspection portion of the five-year review. The checklist serves as a reminder of what information should to be gathered and provides the means of checking off information obtained and reviewed, or information not available or applicable. The checklist is divided into sections as follows:

I. Site Information
II. Interviews
III. On-site Documents & Records Verified
IV. O&M Costs
V. Access and Institutional Controls
VI. General Site Conditions
VII. Landfill Covers
VIII. Vertical Barrier Walls
IX. Groundwater/Surface Water Remedies
X. Other Remedies
XI. Overall Observations

Some data and information identified in the checklist may or may not be available at the site depending on how the site is managed. Sampling results, costs, and maintenance reports may be kept on site or may be kept in the offices of the contractor or at State offices. In cases where the information is not kept at the site, the item should not be checked as "not applicable," but rather it should be obtained from the office or agency where it is maintained. If this is known in advance, it may be possible to obtain the information before the site inspection.

This checklist was developed by EPA and the U.S. Army Corps of Engineers (USACE). It focuses on the two most common types of remedies that are subject to five-year reviews: landfill covers, and groundwater pump and treat remedies. Sections of the checklist are also provided for some other remedies. The sections on general site conditions would be applicable to a wider variety of remedies. The checklist should be modified to suit your needs when inspecting other types of remedies, as appropriate.

The checklist may be completed and attached to the Five-Year Review report to document site status. Please note that the checklist is not meant to be completely definitive or restrictive; additional information may be supplemented if the reviewer deems necessary. Also note that actual site conditions should be documented with photographs whenever possible.

Using the Checklist for Types of Remedies

The checklist has sections designed to capture information concerning the main types of remedies which are found at sites requiring five-year reviews. These remedies are landfill covers (Section VII of the checklist) and groundwater and surface water remedies (Section IX of the checklist). The primary elements and appurtenances for these remedies are listed in sections which can be checked off as the facility is inspected. The opportunity is also provided to note site conditions, write comments on the facilities, and attach any additional pertinent information. If a site includes remedies beyond these, such as soil vapor extraction or soil landfarming, the information should be gathered in a similar manner and attached to the checklist.

Considering Operation and Maintenance Costs

Unexpectedly widely varying or unexpectedly high O&M costs may be early indicators of remedy problems. For this reason, it is important to obtain a record of the original O&M cost estimate and of annual O&M costs during the years for which costs incurred are available. Section IV of the checklist provides a place for documenting annual costs and for commenting on unanticipated or unusually high O&M costs. A more detailed categorization of costs may be attached to the checklist if available. Examples of categories of O&M costs are listed below.

Operating Labor - This includes all wages, salaries, training, overhead, and fringe benefits associated with the labor needed for operation of the facilities and equipment associated with the remedial actions.

Maintenance Equipment and Materials - This includes the costs for equipment, parts, and other materials required to perform routine maintenance of facilities and equipment associated with a remedial action.

Maintenance Labor - This includes the costs for labor required to perform routine maintenance of facilities and for equipment associated with a remedial action.

Auxiliary Materials and Energy - This includes items such as chemicals and utilities which can include electricity, telephone, natural gas, water, and fuel. Auxiliary materials include other expendable materials such as chemicals used during plant operations.

Purchased Services - This includes items such as sampling costs, laboratory fees, and other professional services for which the need can be predicted.

Administrative Costs - This includes all costs associated with administration of O&M not included under other categories, such as labor overhead.

Insurance, Taxes and Licenses - This includes items such as liability and sudden and accidental insurance, real estate taxes on purchased land or right-of-way, licensing fees for certain technologies, and permit renewal and reporting costs.

Other Costs - This includes all other items which do not fit into any of the above categories.

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Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION

Site name: Laurel Park Landfill	**Date of inspection:** June 6, 2003
Location and Region: Naugatuck, CT	**EPA ID:** (Region 1)
Agency, office, or company leading the five-year review:	**Weather/temperature:** Sunny, 82°F

Remedy Includes: (Check all that apply)

- ☑ Landfill cover/containment
- ☑ Access controls
- ☑ Institutional controls
- ☑ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other _____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☑ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Russ DiTenzo (Name) — SMC Environmental (Co. ~~Title~~) — 6/6/03 (Date)
   Interviewed ☑ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached High contaminant concentrations observed over time + recently in OW-1/PW-1. ("hot spot") in leachate. Nearby EWs not generating much flow - but nearby EW-20 has No pump. Could this well (EW-20) be useful for pumping hot spot?

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☑ O&M manual — ☑ Readily available — ☑ Up to date — ☐ N/A
   - ☑ As-built drawings — ☑ Readily available — ☑ Up to date — ☐ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks_____

2. **Site-Specific Health and Safety Plan** — ☑ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

3. **O&M and OSHA Training Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

7. **Groundwater Monitoring Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ☐ N/A

    Remarks_____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☑ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☑ Readily available ☑ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period** N/A
Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** No ☐ Location shown on site map ☑ Gates secured ☐ N/A
Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** Yes ☐ Location shown on site map ☐ N/A
Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☐ N/A
Other problems or suggestions: ☐ Report attached

_____
_____
_____
_____

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☑ No vandalism evident
Remarks _____
_____

2. **Land use changes on site** ☑ N/A
Remarks _____
_____

3. **Land use changes off site** ☑ N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads ☑ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☑ Roads adequate ☐ N/A
Remarks _____
_____

B. Other Site Conditions

Remarks

VII. LANDFILL COVERS ☑ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent < 100 sf Depth < 6 in
   Remarks Possible settlement @ MW-1 (top of cap) based on riser being displaced ~1" above protective casing.

2. **Cracks** ☐ Location shown on site map ☑ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks

3. **Erosion** ☐ Location shown on site map ☑ Erosion not evident
   Areal extent_____ Depth_____
   Remarks

4. **Holes** ☑ Location shown on site map ☐ Holes not evident
   Areal extent Minor Depth_____
   Remarks Rodent holes and mole holes

5. **Vegetative Cover** ☑ Grass ☑ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks

7. **Bulges** ☐ Location shown on site map ☑ Bulges not evident
   Areal extent_____ Height_____
   Remarks

8. **Wet Areas/Water Damage** ☑ Wet areas/water damage not evident
- ☐ Wet areas ☐ Location shown on site map Areal extent_____
- ☐ Ponding ☐ Location shown on site map Areal extent_____
- ☐ Seeps ☐ Location shown on site map Areal extent_____
- ☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☑ No evidence of slope instability
Areal extent_____
Remarks Possible erosion on east edge of Chute #3.

B. Benches ☑ Applicable ☐ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks Flow bypassing along east edge of Downchute #3 (from Bench 3B)

2. **Bench Breached** ☐ Location shown on site map ☑ N/A or okay
Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☑ N/A or okay
Remarks_____

C. Letdown Channels ☑ Applicable ☐ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent ~15 sf Depth ~6 in.
Remarks In lower portion of Downchute #3 other Chutes (#1, 2, 4) OK.

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent ~50 sf Depth below/beside gabion
Remarks Along east edge of Downchute #3 (below former repair area at Bench 3B)
sediments washing out in perimeter ditch below Chute #3

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks See #3 above (erosion) - along east side of downchute #3

5. **Obstructions** Type_____ ☑ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☑ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☑ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☑ Passive
☐ Properly secured/locked ☑ Functioning ☐ Routinely sampled ☑ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks 15 passive gas vents

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☑ Properly secured/locked ☐ Functioning ☑ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☑ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☑ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☑ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☑ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☑ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☑ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☑ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☑ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☑ Erosion not evident
   Remarks_____

3. **Outlet Works** ☑ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☑ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☑ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☑ Applicable ☐ N/A

1. **Siltation** ☑ Location shown on site map ☐ Siltation not evident
   Areal extent ~50 lf Depth <2 in
   Remarks sedimentation in South perim. ditch - at base of Downchute #3, and between manholes MH-1E and MH-1F.

2. **Vegetative Growth** ☐ Location shown on site map ☑ N/A
   ☑ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☑ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☑ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☑ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☑ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☑ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks Not directly inspected

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☑ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks

C. Treatment System ☐ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____
   _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____
   _____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____
   _____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____
   _____

D. Monitoring Data

1. Monitoring Data
   ☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

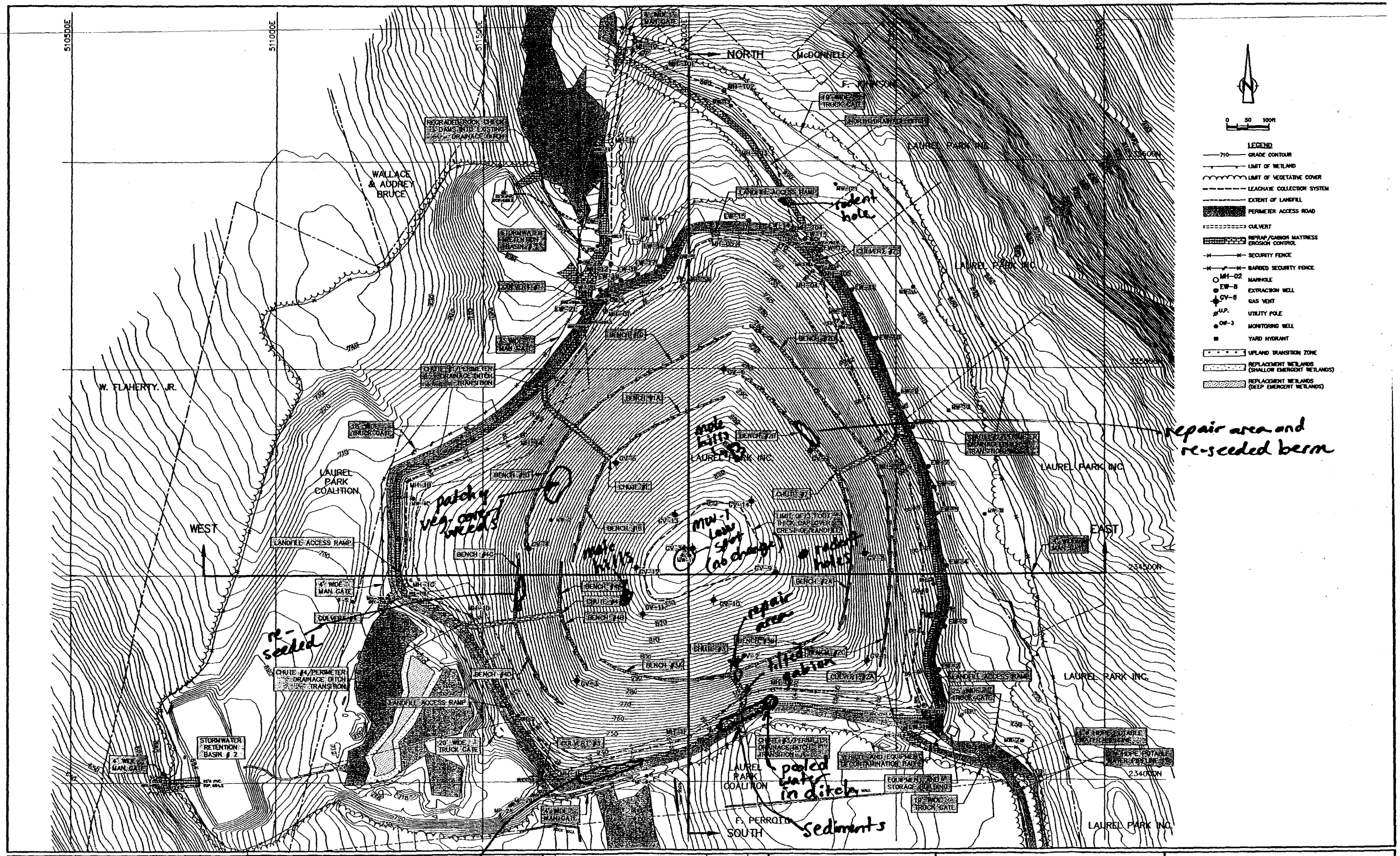
XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.



sand / sediments in perim. ditch

No	Revision	Date	Initial
0	AS RECORDED – REVISION 1	OCT/98	SAW

Approved

LAUREL PARK, INC. SITE
NAUGATUCK, CONNECTICUT

LANDFILL CAP

FINAL CONTOUR PLAN – 1998

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by: JRV	Scale: 1"=100'	Date: OCTOBER 1998	File No: / Rev No: 0
Designed by: SAW			
Checked by: SAW	Field book:	Project No: 6972	Drawing No: G-4A (Sheet 29A of 38)

Attachment 2
Site Inspection Photos
June 6, 2003

Photo 1	Western slope of landfill, from top, facing west.
Photo 2	MW-1 at top of cap, facing east.
Photo 3	Slight flow in Bench #2A, and minor vegetation, facing south.
Photo 4	Bench #2B, facing northwest – area of repair and re-vegetation on right.
Photo 5	Downchute #4, from top facing west.
Photo 6	Downchute #3 and transition to perimeter ditch, viewed from southern access road.
Photo 7	Sedimentation in southern perimeter ditch near manhole MH-1E, facing west.
Photo 8	Erosion repair area at MH-10/outlet from north drainage ditch.

Photo 1 Western slope of landfill, from top, facing west.

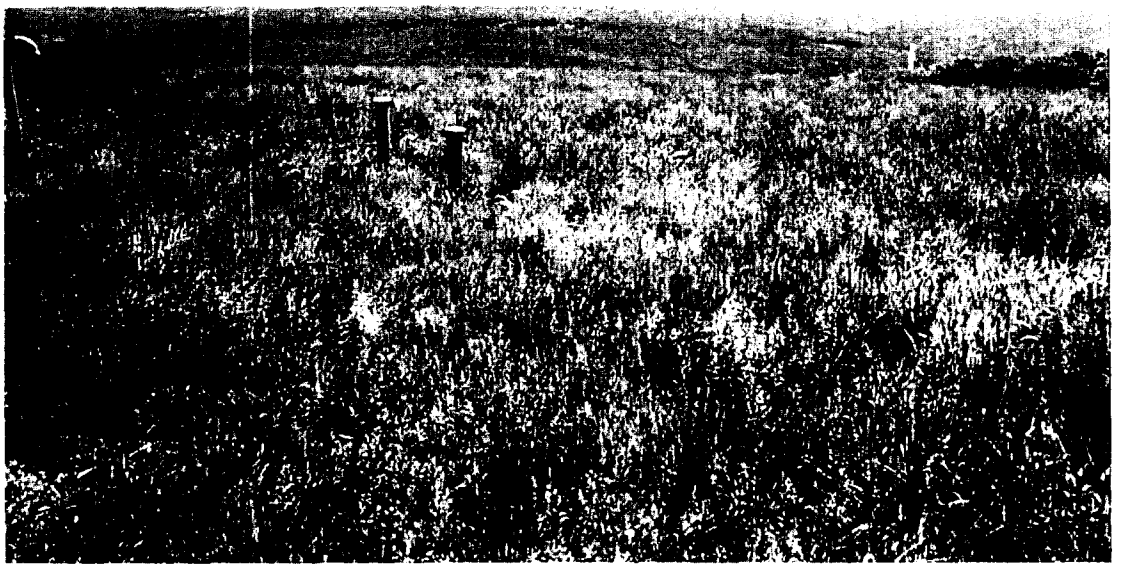


Photo 2 MW-1 at top of cap, facing east.

Originals in color.

Photo 3 Slight flow in Bench #2A, and minor vegetation, facing south.

Photo 4 Bench #2B, facing northwest – area of repair and re-vegetation on right.

Originals in color.

Photo 5 Downchute #4, from top facing west.

Photo 6 Downchute #3 and transition to perimeter ditch, viewed from southern access road.

Originals in color.

Photo 7 Sedimentation in southern perimeter ditch near manhole MH-1E, facing west.

Photo 8 Erosion repair area at MH-10/outlet from north drainage ditch.

Originals in color.