2007 ANNUAL REPORT OF OPERATIONS AND MAINTENANCE ACTIVITIES

FORMER SINCLAIR REFINERY SITE
OPERABLE UNIT ONE
CENTRAL ELEVATED LANDFILL AREA

WELLSVILLE, NEW YORK

Prepared For

Atlantic Richfield Company
A BP affiliated company
28100 Torch Parkway, MC 2S
Warrenville, IL 60555-3938

Prepared By

On-Site Technical Services, Inc.
72 Railroad Avenue
Wellsville, New York 14895
Ph: 585-593-1824

Atlantic Richfield Company

28100 Torch Parkway
Warrenville, IL 60555

February 11, 2008

Mr. Michael J. Negrelli
Remedial Project Manager
U.S. Environmental Protection Agency
Region 2
290 Broadway Avenue
NYC SB2 – 20th Floor
New York, New York 10007-1866

RE: 2007 Annual Report of Operation and Maintenance Activities
Central Elevated Landfill Area
Former Sinclair Refinery Site –Operable Unit 1
Wellsville, New York

Dear Mr. Negrelli:

Attached herewith are two copies of the *2007 Annual Report of Operations and Maintenance Activities* for the Central Elevated Landfill Area at the Former Sinclair Refinery Site, Operable Unit 1 (OU1) in Wellsville, New York. The report presents a discussion of the operation and maintenance activities that occurred at this area of OU1 during 2007.

If you have any questions regarding this submittal, please do not hesitate to contact me at (630) 836-6955.

Sincerely,

Joseph P. Sontchi, CPG
Environmental Business Manager
Atlantic Richfield Company, a BP affiliated company

cc: (w/ attachments)
M. Moore, NYSDEC
Martin Schmidt, URS
Eric Larson, Atlantic Richfield
J. Palmer, On-Site Technical Services
David A. Howe, Public Library, Wellsville, NY
File

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1.0 OVERVIEW

1.1 Introduction

This document presents the 2007 Annual Report of the Operation and Maintenance Activities for the Central Elevated Landfill Area (CELA) at the Former Sinclair Refinery Site Operable Unit 1 (OU1) located in the Town of Wellsville, New York, (please see Figure 1a). This document has been prepared by On-Site Technical Services, Inc. (On-Site), of Wellsville, New York for the Atlantic Richfield Company (Atlantic Richfield*).* Operation and Maintenance procedures for this project are detailed in the *Operations and Maintenance Plan for Central Elevated Landfill Area and Refinery Surface Soils, Wellsville, New York,* dated April 1993 (O&M Plan), prepared by GeoSyntec Consultants (GeoSyntec), Atlanta, Georgia. An electronic copy of this report is included as Appendix A.

1.2 Project Background

An Administrative Order of Consent (AOC), between Atlantic Richfield and the United States Environmental Protection Agency (USEPA) dated May 1, 1992, provided that Atlantic Richfield remediate the CELA and excavate certain surface soils in sections of Operable Unit 2 (OU2). To accomplish the CELA remediation, a contract to construct a soil-bentonite cutoff wall and a RCRA cap over the consolidated wastes at the CELA was awarded to Geo-Con, Inc., Monroeville, Pennsylvania, in spring 1992. The contractor mobilized in May 1992 and the final project inspection was conducted on July 7, 1993 (please see Figure 1b for site features). The excavation of surface soils in OU2 was completed by a combination of Geo-Con and Bakers of Jericho Hill, Inc., Alfred, New York. The surface soil remedy included removal of defined soils to an approximate depth of one foot at several locations on the Site, and backfilling with a 12-inch layer of approved borrow material.

Subsection 38 of the AOC provided that Atlantic Richfield prepares an O&M plan for operations and maintenance of the CELA and defined surface soils. GeoSyntec prepared the O&M Plan in April 1993. The O&M Plan has been modified since 1993, with concurrence from the USEPA, on specific requirements, which are discussed in this report. O&M of the defined surface soil excavation areas is covered under routine OU2 operations. Some OU2 Phase II remedial action construction activities were conducted during 2007 within refinery surface soil areas, but no change in land use occurred.

1.3 Report Format

The remainder of this report is organized as follows.

- Section 2 outlines the currently approved operation requirements.
- Section 3 presents the currently approved maintenance requirements.
- Section 4 details O&M activities completed during 2007.
- Section 5 provides the results of 2007 monitoring activities.
- Section 6 presents the conclusions and recommendations.

2.0 OPERATIONS REQUIREMENTS

2.1 Inspection Requirements

The O&M Plan outlines the following visual inspections to be performed on a quarterly basis, or following any extreme natural event, which may jeopardize the integrity of the project components.

CELA Cap Vegetative Cover: visually inspect for erosion; stressed vegetation; sediment build-up; local subsidence or loss of grade; water ponding; turf height; evidence of activity of burrowing animals; growth of trees, weeds or undesirable vegetation; evidence of fires or vandalism; perform soil pH test (every three years); evidence of unauthorized traffic on cover; and slope instability or sloughing.

Gas Vent System: visually inspect for excess sediment accumulation and vegetative growth over the vent pipes; erosion or washout around the vent pipes; and damage to vent pipes due to vandalism, cap traffic, or natural disaster.

Open Well Piezometers: visually inspect for excess sediment accumulation and any vegetative growth over the protective cover; erosion around the surface casing/CELA Cap interface; proper function of the protective cover cap and lock; excess rust on the surface casing and lock; ponding between protective casing and the riser pipe; or any evidence of vandalism, damage, or any conditions which would allow willful, negligent, or accidental discharge of any undesired substances into the piezometers.

Groundwater Monitoring Wells: visually inspect for excess sediment accumulation and any vegetative growth over the protective cover; erosion around the concrete surface seal; cracks in the concrete surface seal; separation between the concrete surface seal and the surface casing; proper function of the surface casing cap and lock; excess rust on

the surface casing and lock; ponding between the surface casing and the riser pipe; or any evidence of vandalism, damage, or any conditions which would allow willful, negligent, or accidental discharge of any undesired substances into the monitoring wells.

Surface Water Drainage System: visually inspect for any condition which would in any way impede, restrict, or redirect surface water drainage such as dislodged riprap; washouts; erosion; sediment accumulation; gullies and ruts in the drainage swales and appurtenances; excess rusting, holes, cracks, sediment accumulation; foreign objects; and washouts at the berm-culvert interface in the drainage culvert which penetrates the Genesee River Channelization Dike.

Security Fence: visually inspect for proper clearance between fence gates and the ground; proper function of gate lock and hinges; holes; excess rust; ruts or burrows beneath the fence; vegetation growing onto or through the fence; improper connection between posts and chain link mesh; loose posts; cracks in the post foundations; and general signs of deterioration.

2.2 Subsidence and Settlement Surveys

Twenty-five settlement plates, each consisting of a sleeved metal rod attached to a flat metal plate, incorporated into the cap design, are surveyed by a New York State licensed professional land surveyor to detect settlement or subsidence of the materials underlying the cap. Additionally, the survey includes visual monitoring with photographs by traversing the cap on foot looking for signs of differential settlement (ponding water, or zones where the ground is softer than surrounding areas). This survey was initially required twice a year to document differential and total settlement until such time that changes in measurements over a six month period were less than 0.02 ft. Upon achieving this standard, the O&M Plan provides for the reduction in survey frequency to once per year. The current survey frequency is once per year. Differential settlement is the change in elevation since the previous survey. Total (cumulative) settlement is the change in elevation since the 1992 baseline survey. The plan also provides that if a change in settlement exceeding 0.02 ft does not occur after two years, the frequency of surveying can be reduced to once every ten years.

2.3 Groundwater Observation Requirements

A total of 11 groundwater observation wells and six open well piezometers have been installed on and around the CELA. Section 6.2.3 of the O&M Plan provides that

groundwater wells be sampled quarterly for one year to establish baseline conditions and twice per year thereafter. Samples obtained from both upgradient and downgradient wells are used to determine if there is any statistical change in groundwater conditions.

The statistical analysis performed in 2000, as documented in the 2000 Annual Report of Operations and Maintenance Activities, recommended the groundwater sampling requirement be reduced to annual sampling starting in 2001. This recommendation was approved by the USEPA in a letter dated June 2001 (Appendix B), and was implemented in 2001. Fluid level measurements, including non-aqueous phase liquid (NAPL) measurements, have continued on a semi-annual basis due to seasonal fluctuations.

In 2002 Atlantic Richfield requested to discontinue dissolved metals and semi-volatile organic compound (SVOC) analysis and to continue total metals, volatile organic compounds (VOC) and field parameter testing. In a November 2002 letter (Appendix B), the USEPA approved the discontinuation of the dissolved metal analysis contingent upon New York State Department of Environmental Conservation (NYSDEC) collecting split samples during the 2003 sampling event. NYSDEC collected split samples as part of the 2003 sampling event and dissolved metal analysis was discontinued starting in 2004. Also, in a June 27, 2005 email from USEPA to Atlantic Richfield (Appendix B), the USEPA agreed to suspend SVOC analysis. SVOC analysis was discontinued starting with the 2005 sampling event. Therefore, the current groundwater sampling frequency is annual with analysis for total metals and VOCs.

Groundwater data is compared with historical data to evaluate fluctuation of constituents. Graphs are prepared for groundwater indicator parameters and other constituents of interest. Groundwater data is compared with federal Maximum Contaminant Levels (MCLs) and Drinking Water Equivalent Levels (DWELs).

2.4 Static Groundwater Elevations

Semi-annual static groundwater elevations are routinely evaluated in the observation wells and piezometers. Groundwater contour maps are constructed semi-annually and included in the annual report.

2.5 Piezometer Evaluation Program

The liquid level within the CELA is evaluated semi-annually to determine the apparent thickness of light non-aqueous phase liquid (LNAPL), if present, and to document that the

liquid level remains a minimum of 1 ft below the elevation of the tie-in of the CELA cap to the top of the slurry wall. The elevation of the top of the slurry wall varies from 1497 ft to 1501 ft. Also, if the accumulation of LNAPL in any of the piezometers is greater than 2 ft, it will be removed and properly disposed.

2.6 Gas Vent Evaluation

Each gas vent is evaluated semi-annually, using a Photo-Ionization Detector (PID) or Flame-Ionization Detector (FID), for emission of organic compounds. At least one monitoring event is conducted during the summer months. Results of the gas vent evaluation are recorded on a form located in Appendix C of the O&M Plan.

2.7 Storm Water Evaluation

To comply with the substantive requirements of a storm water discharge permit, a storm water grab sample is collected from the outfall of the 42-inch diameter drainage culvert semi-annually (shown on Figure 1b). The grab sample is collected following a storm event that is greater than 0.1 in. of precipitation and at least 72 hours has passed since the previous storm event of at least 0.1 in. of precipitation. Analytical parameter lists for this sampling are located in section 6.6.2 of the O&M Plan.

3.0 MAINTENANCE REQUIREMENTS

3.1 Vegetation

Vegetation is mowed during the summer months after the grass goes to seed and reaches a height of more than six inches. Mowing is not lower than four inches. Prior to winter, grass is allowed to grow to eight to twelve inches. Fertilizer is applied as needed, based on agronomic soil tests performed every three years. Lime is applied as necessary to maintain soil pH above 5.8. Replacement of eroded topsoil, reseeding, and mulching is performed on an as needed basis. Routine maintenance includes the removal of sediment and removal of woody or undesirable vegetation.

3.2 Gas Vent System

The only anticipated maintenance of the passive gas vent system is repair or replacement of standpipes in the event they are damaged.

3.3 Observation Wells and Open Well Piezometers

Routine maintenance of the observation wells and piezometers includes removal of sediment accumulation and vegetation from the casing surface; repair of erosion around the concrete surface seals; filling cracks in the concrete surface seal and casing; and replacement of the surface casing cap and locks.

3. 4 Surface Drainage Features

Routine maintenance of the riprap lining of the drainage swales, rock chutes, channels, and culvert inlet and outlet includes removal of accumulated woody vegetation and sediment; replacement of washed-out riprap; and mowing or removal of vegetation. Routine maintenance of the culvert includes removal of sediment build-up; removal of foreign objects; and restoration of washed-out soil at the berm/culvert interface.

3.5 Access Roads

Maintenance of the access roads is performed as needed and includes repairs due to water ponding; removal of woody growth; and addition of new aggregate to fill ruts or depressed areas.

3.6 Security Fence

Routine maintenance of the security fence includes the removal of soil below the fence gate to ensure proper clearance; repair or replacement of gate locks and hinges; repair of holes; replacement of soil whenever ruts or burrows occur below the fence; removal of vegetation growing onto or through the fence; resetting of connection between posts and chain link mesh; replacement of rusted chain link mesh; and securing of loose posts.

4.0 2007 OPERATIONS AND MAINTENANCE ACTIVITIES

4.1 Visual Inspections

Visual inspections of the CELA were completed on March 27, June 11, August 2, and November 5, 2007. The inspections consisted of a complete walk-through visual inspection and completion of the Inspection Checklists (please see Appendix C). A summary of the inspections are included in the following sections.

4.1.1 CELA Cap Vegetative Cover

The CELA cap was mowed three times during 2007, and the CELA side of the west dike was mowed once.

4.1.2 Gas Vent System

The gas vent system appears to be in good condition. No notable changes from previous conditions were observed during the 2007 inspections.

4.1.3 Open Well Piezometers

The six open well piezometers appear to be in good condition.

4.1.4 Groundwater Observation Wells

The 11 groundwater observation wells were inspected and are in good condition.

4.1.5 Surface Water Drainage System

The surface water drainage system is functioning as designed. Minimal vegetation continues to grow in the channels. No vegetation removal from the drainage channels was necessary during 2007.

4.1.6 Security Fence

The security fence is in overall excellent condition with no visible damage to the surrounding area at the base of the fence poles. All ground rods are properly bonded to the fence and ground posts.

4.2 2007 Monitoring Activities

4.2.1 Settlement Plate Survey

James Ball Land Surveyor of Wellsville, New York, surveyed the settlement plates on September 24, 2007. Settlement plate locations with the differential elevation data are presented in Figure 2. A tabular listing of survey data from 1992 to 2007 is included as Table 1. Figures 3A through 3E graphically exhibit total change in elevation from 1992 to 2007. Discussion of the survey results is presented in Section 5.1 of this report.

4.2.2 Groundwater Evaluation

On-Site performed annual groundwater sampling at the 11 observation wells (MWR-1 through MWR-11) between May 29 and June 4, 2007 (see Figure 1b for well locations). A battery powered submersible Groundwater Essentials RPS 10415 rental pump was utilized for purging and sampling the wells. Field parameters including pH, Conductivity, Turbidity, Dissolved Oxygen, Temperature and Oxidation Reduction Potential were measured throughout purge and at time of sampling (please see Table 9). Laboratory analysis of groundwater samples was performed by Accutest Laboratories of Dayton, New Jersey for total Target Analyte List metals (method 6010B) and Target Compound List VOCs (method 8260B). Discussion of groundwater conditions are presented in Section 5.3. Groundwater analytical results are presented in Tables 2 through 5. Groundwater sampling field parameter forms are included as Appendix D.

4.2.3 Liquid Level Evaluation

Static water levels were measured with an oil/water interface probe in the 11 observation wells and six piezometers during the annual groundwater sampling event on May 29, 2007 and during the static water level monitoring event on September 20, 2007. The static water levels are presented in Table 6 and water table contour maps for the May and September events are provided as Figures 4 and 5, respectively.

The static water level data were subtracted from the surveyed elevation of the top of the casing to calculate the water elevations as shown in Table 6. These data were plotted and contoured on a site base map to represent the potentiometric surface for the May 2007 monitoring event (Figure 4) and September 2007 monitoring event (Figure 5). Each contour represents a line of equivalent water elevation. The direction of groundwater flow is from higher to lower elevation approximately perpendicular to the contours. The O&M plan discusses determining both groundwater flow direction and rate. As presented on Figures 4 and 5, the direction of groundwater flow is generally towards the CELA; however, the presence of the slurry wall restricts flow across the landfill. The soil-bentonite slurry wall is designed to restrict groundwater flow with a hydraulic conductivity of 1×10^{-7} cm/sec or less.

LNAPL was detected in monitoring well MWR-02 during the May/June 2007 annual groundwater sampling event at an apparent thickness of 1.02 feet. MWR-02 was socked prior to sampling with three 18-inch long absorbent socks. On June 4, 2007 immediately prior to sampling, the three 18" socks were removed from MWR-02, fully

saturated with LNAPL (please see Table 12). During the static water level monitoring event in September 2007, LNAPL was measured at approximately 0.29" in MWR-02; however no removal was performed at this time. Additional discussion of liquid level monitoring is provided in Section 5.2.

4.2.4 Gas Vent Evaluation

The fourteen gas vents were evaluated with a Mini Rae Photo Ionization Detector (PID) on August 1 and September 20, 2007 (see Figure 1b for locations). Prior to use, the PID was calibrated according to manufacturer specification with 100 ppm Isobutylene gas. PID readings were measured directly at the gas vent, and approximately five feet upwind and downwind of each vent. Weather conditions on August 1, 2007 were approximately 88°F, sunny with variable wind at approximately 0 to 5 mph from the east. Weather conditions on September 20, 2007 were approximately 75°F with light variable winds 0-5 mph. Emission levels at all upwind and downwind locations were at instrument background (0.1 ppm) during the evaluations. The gas vent evaluation data are included in Appendix E of this report.

4.2.5 Storm Water Evaluation

Two storm water samples were obtained from the CELA Outfall culvert at the North end of the CELA during 2007 (please see Figure 1b). The samples were collected on March 2 and on October 23, 2007.

The March 2, 2007 storm water sampling event is summarized as follows: The estimated flow through the culvert was 3 gallons per minute (gpm). The measured rainfall was 0.53 inches over 24 hours, and it had been greater than 7 days since the last storm event of at least 0.1 inches. Laboratory analysis for chemical parameters was performed by Accutest Laboratories (Accutest) of Dayton, New Jersey. Analysis for acute toxicity screening of Ceriodaphnia dubia and Pimephales promelas was performed by Severn Trent Laboratories, Inc (STL) of Westfield, Massachusetts.

The October 23, 2007 event is summarized as follows: The estimated flow was 2 gpm, the measured rainfall was 1.56 inches over 18 hours, and it had been 72 hours since the last storm event of at least 0.1 inches. Laboratory analysis for chemical parameters was performed by Accutest. Analysis for acute toxicity screening of Ceriodaphnia dubia and Pimephales promelas was performed by STL of Westfield, Massachusetts.

Discussion of storm water data are provided in section 5.4. Table 7 compares storm water results from 2004 to 2007. The laboratory reports from STL are included in Appendix F.

4.2.6 Soil pH and Agronomic Soil Test

Discontinuation of annual soil pH analysis but with continuation of agronomic soil testing (includes soil pH) every three years, was approved by USEPA via a June 27, 2005 email correspondence from USEPA to Atlantic Richfield (included in Appendix B). This change was based upon demonstrated stable soil pH values over several years. Agronomic soil testing was performed as scheduled during 2006 with results detailed in the 2006 CELA Annual Report. Agronomic soil testing is required again in 2009.

4.3 Maintenance Activities

Maintenance activities during 2007 included routine mowing of the cap. The CELA was mowed three times during 2007. During the third quarter CELA inspection, a wood chuck hole was observed adjacent to the pipe sleeve located at the Northwest end of the CELA. The woodchuck hole was back filled on October 31, 2007. No lime or fertilizer was added to the CELA in 2007. No topsoil was required to be replaced in 2007. No repairs to the vents, piping, monitoring wells, piezometers, drainage area or fence was required in 2007.

5.0 RESULTS

5.1 Settlement/Differential Elevation

The minimum, maximum and average changes in elevation (differential elevation) for the time period of October 2, 2006 through September 24, 2007 are 0.02 ft, -0.01 ft and 0.00 ft, respectively. Negative differential elevation represents settlement. The minimum, maximum and average differential elevation between the September 28, 2005 survey and September 24, 2007 are 0.01 ft, -0.04 ft and -0.01 ft, respectively. The O&M Plan provides that if settlement exceeding 0.02 ft does not occur after two years, the survey frequency can be reduced to once every 10 years. Between September 28, 2005 and September 24, 2007 settlement plate SP-15 exhibited the greatest differential settlement of (–0.04 ft), therefore the survey frequency will remain annual. Settlement plate locations with the 2006 to 2007 and the 2005 to 2007 elevation changes are presented as

Figure 2. Figures 3A through 3E graphically depict elevation change from 1992 to 2007. Table 1 exhibits the survey data from the 1992 baseline to 2007.

Based on visual observations of the cap no significant settlement was noted. The cap continues to have positive drainage with no observed areas of ponding water or abnormally soft ground.

5.2 Liquid Levels

5.2.1 Liquid Elevations vs. Slurry Wall Elevation

Liquid level elevation inside the slurry wall should be a minimum of 1 ft below the elevation of the top of the slurry wall. The slurry wall elevation varies between 1497 and 1501 ft. The highest water level measured inside the CELA slurry wall during 2007 was 1492.45 ft in P-2 on May 29, 2007. This level is well below the minimum of 1 ft below the top of the slurry wall and is consistent with historical measurements. The static water elevations and water table contours for May and September 2007 are presented as Figures 4 and 5, respectively and are consistent with historic levels.

5.2.2 LNAPL Thickness

Since 1993, LNAPL has been detected intermittently in observation wells MWR-02 and MWR-03 and piezometers P-4 and P-6. The maximum apparent LNAPL thickness of 1.02 ft was measured in MWR-02 during May 2007. The maximum apparent LNAPL thickness measured inside the slurry wall was 0.40 ft, measured in P-6 during August 1993. This measured thickness is well below the 2 ft thickness requiring removal. A graph of LNAPL thickness over time for each of the two wells and two piezometers is presented as Figure 6. Generally, it appears that LNAPL thicknesses have varied over time, with observation well MWR-02 consistently containing the most LNAPL. Historically LNAPL has been removed from wells using absorbent socks prior to each groundwater sampling event. In 2007, approximately 51.0 oz. of LNAPL were recovered from MWR-02 (please see Table 10).

5.3 Groundwater Conditions

5.3.1 MCL and DWEL Comparison

Since 1993, several metals, Bis (2-ethylhexyl) phthalate and Methylene Chloride have exceeded USEPA Maximum Contaminant Levels (MCLs) for potable water at one time or another. The 2007 annual groundwater sampling event was conducted between May 29

and June 4, 2007. Analytical results from the 11 observation wells sampled indicate various metal detections, and two VOC detections. The only VOCs detected in 2007 are cis -1, 2-dichloroethene (cDCE) and tetrachloroethene (TCE) at monitoring well MWR-11. The reported cDCE concentration is 0.00066 J mg/L and TCE is 0.00055 J mg/L.

The 2007 groundwater analytical results were compared to MCLs and Drinking Water Equivalent Levels (DWELs). Arsenic and chromium are the only parameters exceeding MCLs or DWELs during 2007. The table below lists the 2007 exceedances.

Parameter	Location	Result (mg/L)	MCL (mg/L)	DWEL (mg/L)
Arsenic	MWR-02	0.0491	0.01	0.01
Arsenic	MWR-08	0.015	0.01	0.01
Arsenic	MWR-10	0.0371	0.01	0.01
Chromium	MWR-11	0.24	0.1	0.1

Total Metals including antimony, arsenic, beryllium, cadmium, chromium, lead, and thallium; bis (2-ethylhexyl) phthalate (SVOC); and methylene chloride (VOC) have periodically exceeded MCLs in water samples collected from observation wells. Antimony has not exceeded the MCL since 1994, and has been non-detect since 1996. The maximum detected arsenic concentration exceeded the MCL for potable water (revised in 2001) every year since the 1993 baseline sampling, with exceedances periodically occurring at each well. Beryllium has exceeded the MCL three of 13 years of sampling, with the last exceedance occurring in 2006. Cadmium exceeded the MCL only four of the 13 years of sampling with the last exceedance during 2006. Total chromium exceeded the MCL every year except 2000 and 2001. Lead and methylene chloride have not exceeded their MCLs since 1995. Bis (2-ethylhexyl) phthalate has only exceeded the MCL three of the 13 years of sampling, with the last exceedance occurring in 1998. Thallium exceeded the MCL six of the 13 years of sampling, the last being 2003.

Table 2 compares frequency of detection, minimum detection, and maximum detection between the baseline sampling conducted in 1993 and the 2007 event. Table 3 presents the analytical results for each well from 2002 to 2007. Table 4 presents a comparison between the 2007 MWR-05 sample and its duplicate. Analytical results from the duplicate sample compare favorably with the original sample results.

After each well was sampled, the pump and tubing were cleaned using a three step washing procedure: (i) Liqui-Nox® soap and tap water wash; (ii) tap water rinse; followed by (iii) distilled water rinse. Equipment rinsate blanks were collected from the pump and tubing used at the end of the day. Equipment blanks were collected by: i)

following the cleaning procedure detailed above; ii) pumping laboratory provided de-ionized water through the pump and tubing; and iii) collecting the de-ionized water in sample bottles. Table 5 presents the equipment blank results as non-detect, with the exception of low level detections of Chloroform and Dichlorobromomethane, common laboratory contaminants.

5.3.2 Statistical Analysis

Antimony, arsenic, beryllium, cadmium and chromium are the parameters that have shown MCL exceedances since 2004. Therefore, these parameters were evaluated for statistical analysis. The evaluation included reviewing the last 16 results for each of these five parameters from the eleven monitoring wells, which includes data from 1996 through 2007 (Please see Table 8A). Monitoring well analytical results with two or more detections of a parameter were included in the statistics. From 1996 through 2007, beryllium was only detected in 2006; therefore statistics were not performed on this parameter. Parameters with two or more detections at a given monitoring well include: (i) antimony at MWR-06; (ii) arsenic at MWR-01, MWR-02, MWR-03, MWR-08, MWR-09 and MWR-10; (iii) cadmium at MWR-01, MWR-02, MWR-05 and MWR-09; and (iv) chromium at MWR-04, MWR-05, MWR-06, MWR-07, MWR-10 and MWR-11. Therefore, statistical analysis was performed on these 17 parameter/location combinations. In conducting this analysis, one-half the detection limit was used for non-detect results and field duplicate results were excluded. Table 8B presents the data used in the statistical analysis and includes one-half detection limit for non-detects.

The statistical analysis was conducted using the Mann-Kendall non-parametric method in accordance with *USEPA Data Quality Assessment: Statistical Methods for Practitioners EPA QA/G-9S*, dated February 2006. In this analysis, statistically significant negative or decreasing trends, at the 95% confidence level, have Mann-Kendall statistical results less than –38. A statistically significant positive or increasing trend in concentration has a Mann-Kendall statistical result greater than 38. A Mann-Kendall statistic equal to or between –38 and 38 indicates no statistical trend in concentrations at the 95% confidence level.

The statistical analysis showed the following results: (i) arsenic exhibits decreasing trends at MWR-01, MWR-02, MWR-03 and MWR-08; (ii) cadmium shows decreasing trends at MWR-02 and MWR-05; and (iii) no trend was observed at the other

parameter/location combinations tested. The statistical analysis is presented in Table 8C.

5.4 Storm Water Evaluation

One storm water sample (OF-0307) was obtained from the CELA surface water drainage channel outfall on March 2, 2007; chemical analysis was performed by Accutest and acute toxicity testing was performed by STL. A second stormwater sample (OF-1007) was collected on October 23, 2007; chemical analysis was performed by Accutest and acute toxicity testing was performed by STL.

The chemical analysis (inorganic compounds, Oil and Grease, pH and Wet Chemistry Parameters) of the storm water samples reported several analytes at or above detection limits. The 2007 storm water analytical results compare favorably with previous years data. Calcium is a common soil constituent and is routinely detected. Oil & Grease continues to be non-detect and pH remains in the mid to high seven range. Wet Chemistry parameters, including Total Dissolved Solids remain at acceptable levels. Table 7 presents the 2004 to 2007 storm water analytical results along with the NYSDEC Class A Surface Water Standards. Storm water analytical results continue to remain below the surface water standards.

Acute toxicity tests of OF-0307 and OF-1007 for the 48-hour static acute screening toxicity tests resulted in 0% mortality for Pimephales promelas (fathead minnows). Ceriodaphnia dubia March 2007 results are 0% mortality for the 48-hour test, while October 2007 results are 5% mortality for the 48-hour test. The laboratory control sample exhibited 0% mortality. Storm water acute toxicity laboratory reports are included as Appendix F of this report.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Inspections

Inspections of the CELA are being conducted on a quarterly basis. All groundwater observation wells, open well piezometers, gas vents, and pipe sleeves appear in good condition. Other physical aspects such as the fences, gates, CELA vegetative cover, and drainage swales are operating or growing properly and serve their function. Inspections will continue to be performed quarterly, consistent with the current O&M Plan.

6.2 Monitoring Programs

6.2.1 Groundwater Evaluation

Semivolatile Organic Compounds have been non-detect since 1998 and annual SVOC analysis was discontinued following the 2004 sampling event. VOCs are mostly non-detect with the occasional detection of cDCE, TCE, m&p Xylene and Toluene. In general, the results are consistent with historical data obtained from the Site. Various metals have historically been detected at the Site and were also observed in 2007. Statistical analysis of arsenic, chromium and nickel concentrations in groundwater indicate no statistically significant increase in concentration.

6.2.2 Other Evaluations

Other activities are being conducted, including: settlement plate evaluation; liquid level evaluation; gas vent evaluation; and storm water evaluation. These evaluations will continue as outlined in the current O&M Plan. The annual soil pH testing of the CELA Cap has been discontinued starting in 2005. Agronomic testing including soil pH will continue to be conducted every three years.

6.3 Maintenance

Maintenance continues to be conducted as indicated by the O&M Plan. Anticipated maintenance for 2008 includes routine mowing during the summer months and drainage channel vegetation abatement.

REFERENCES

"Operation and Maintenance Plan for Central Elevated Landfill Area and Areas of Remediated Refinery Surface Soils", GeoSyntec Consultants, April 1993.

"Statistical Evaluation of 1993 Groundwater Monitoring Data Sinclair Refinery Site Wellsville, New York", GeoSyntec Consultants, March 1994.

"Data Quality Assessment: Statistical Methods for Practitioners", EPA QA/G-9S. Office of Environmental Information. Washington DC, February 2006

Table 1

CELA Settlement Plate Elevations (1992-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft amsl)

PLATE	12/22/92 Survey			4/30/93 Survey			5/26/93 Survey			6/29/93 Survey			10/22/93 Survey			5/9/94 Survey		
	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total
SP-01	1512.86	0.00	0.00	1512.83	-0.03	-0.03	1512.83	0.00	-0.03	1512.83	0.00	-0.03	1512.83	0.00	-0.03	1512.85	0.02	-0.01
SP-02	1513.57	0.00	0.00	1513.55	-0.02	-0.02	1513.55	0.00	-0.02	1513.55	0.00	-0.02	1513.55	0.00	-0.02	1513.56	0.01	-0.01
SP-03	1521.66	0.00	0.00	1521.58	-0.08	-0.08	1521.55	-0.03	-0.11	1521.55	0.00	-0.11	1521.52	-0.03	-0.14	1521.50	-0.02	-0.16
SP-04	1512.58	0.00	0.00	1512.59	0.01	0.01	1512.45	-0.14	-0.13	1512.45	0.00	-0.13	1512.40	-0.05	-0.18	1512.40	0.00	-0.18
SP-05	1515.61	0.00	0.00	1515.58	-0.03	-0.03	1515.58	0.00	-0.03	1515.58	0.00	-0.03	1515.59	0.01	-0.02	1515.60	0.01	-0.01
SP-06	1520.62	0.00	0.00	1520.55	-0.07	-0.07				1520.55		-0.07	1520.53	-0.02	-0.09	1520.52	-0.01	-0.10
SP-07	1516.51	0.00	0.00	1516.44	-0.07	-0.07				1516.44		-0.07	1516.44	0.00	-0.07	1516.45	0.01	-0.06
SP-08	1519.93	0.00	0.00	1519.79	-0.14	-0.14	1519.78	-0.01	-0.15	1519.78	0.00	-0.15	1519.75	-0.03	-0.18	1519.73	-0.02	-0.20
SP-09	1523.64	0.00	0.00	1523.46	-0.18	-0.18	1523.46	0.00	-0.18	1523.46	0.00	-0.18	1523.42	-0.04	-0.22	1523.37	-0.05	-0.27
SP-10	1519.11	0.00	0.00	1519.04	-0.07	-0.07	1519.01	-0.03	-0.10	1519.01	0.00	-0.10	1518.98	-0.03	-0.13	1518.96	-0.02	-0.15
SP-11	1514.77	0.00	0.00	1514.64	-0.13	-0.13	1514.63	-0.01	-0.14	1514.63	0.00	-0.14	1514.60	-0.03	-0.17	1514.58	-0.02	-0.19
SP-12	1520.72	0.00	0.00	1520.66	-0.06	-0.06	1520.62	-0.04	-0.10	1520.62	0.00	-0.10	1520.60	-0.02	-0.12	1520.55	-0.05	-0.17
SP-13	1516.04	0.00	0.00	1516.07	0.03	0.03				1516.07		0.03	1516.06	-0.01	0.02	1516.07	0.01	0.03
SP-14	1517.55	0.00	0.00	1517.49	-0.06	-0.06	1517.46	-0.03	-0.09	1517.46	0.00	-0.09	1517.42	-0.04	-0.13	1517.37	-0.05	-0.18
SP-15	1522.68	0.00	0.00	1522.58	-0.10	-0.10	1522.56	-0.02	-0.12	1522.56	0.00	-0.12	1522.53	-0.03	-0.15	1522.46	-0.07	-0.22
SP-16	1518.96	0.00	0.00	1518.91	-0.05	-0.05	1518.91	0.00	-0.05	1518.91	0.00	-0.05	1518.88	-0.03	-0.08	1518.86	-0.02	-0.10
SP-17	1513.50	0.00	0.00	1513.54	0.04	0.04	1513.48	-0.06	-0.02	1513.48	0.00	-0.02	1513.48	0.00	-0.02	1513.49	0.01	-0.01
SP-18	1520.70	0.00	0.00	1520.63	-0.07	-0.07	1520.57	-0.06	-0.13	1520.57	0.00	-0.13	1520.54	-0.03	-0.16	1520.47	-0.07	-0.23
SP-19	1515.53	0.00	0.00	1515.54	0.01	0.01	1515.52	-0.02	-0.01	1515.52	0.00	0.01	1515.50	-0.02	-0.01	1515.49	-0.01	-0.02
SP-20	1518.22	0.00	0.00	1518.20	-0.02	-0.02	1518.18	-0.02	-0.04	1518.18	0.00	-0.04	1518.13	-0.05	-0.09	1518.08	-0.05	-0.14
SP-21	1523.34	0.00	0.00	1523.23	-0.11	-0.11	1523.19	-0.04	-0.15	1523.19	0.00	-0.15	1523.13	-0.06	-0.21	1523.05	-0.08	-0.29
SP-22	1519.65	0.00	0.00	1519.61	-0.04	-0.04	1519.58	-0.03	-0.07	1519.58	0.00	-0.07	1519.54	-0.04	-0.11	1519.52	-0.02	-0.13
SP-23	1513.60	0.00	0.00	1513.52	-0.08	-0.08	1513.53	0.01	-0.07	1513.53	0.00	-0.07	1513.50	-0.03	-0.10	1513.50	0.00	-0.10
SP-24	1515.16	0.00	0.00	1515.10	-0.06	-0.06	1515.10	0.00	-0.06	1515.10	0.00	-0.06	1515.09	-0.01	-0.07	1515.08	-0.01	-0.08
SP-25	1515.44	0.00	0.00	1515.44	0.00	0.00	1515.44	0.00	0.00	1515.44	0.00	0.00	1515.44	0.00	0.00	1515.45	0.01	0.01
				Max.	**-0.18**	**-0.18**	**Max.**	**-0.14**	**-0.18**	**Max.**	**0.00**	**-0.18**	**Max.**	**-0.06**	**-0.22**	**Max.**	**-0.08**	**-0.29**
				Min.	**0.04**	**0.04**	**Min.**	**0.01**	**0.00**	**Min.**	**0.00**	**0.03**	**Min.**	**0.01**	**0.02**	**Min.**	**0.02**	**0.03**
				Avg.	**-0.06**	**-0.06**	**Avg.**	**-0.02**	**-0.07**	**Avg.**	**0.00**	**-0.08**	**Avg.**	**-0.02**	**-0.10**	**Avg.**	**-0.02**	**-0.12**

Please see page 4 for notes.

Table 1

CELA Settlement Plate Elevations (1992-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft amsl)

PLATE	12/1/94 Survey			10/19/95 Survey			10/14/96 Survey			10/13/98 Survey			10/1/99 Survey			4/7/00 Survey		
	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total
SP-01	1512.86	0.01	0.00	1512.83	-0.03	-0.03	1512.83	0.00	-0.03	1512.83	0.00	-0.03	1512.81	-0.02	-0.05	1512.79	-0.02	-0.07
SP-02	1513.56	0.00	-0.01	1513.54	-0.02	-0.03	1513.54	0.00	-0.03	1513.53	-0.01	-0.04	1513.51	-0.02	-0.06	1513.50	-0.01	-0.07
SP-03	1521.50	0.00	-0.16	1521.45	-0.05	-0.21	1521.44	-0.01	-0.22	1521.40	-0.04	-0.26	1521.38	-0.02	-0.28	1521.35	-0.03	-0.31
SP-04	1512.42	0.02	-0.16	1512.39	-0.03	-0.19	1512.39	0.00	-0.19	1512.37	-0.02	-0.21	1512.35	-0.02	-0.23	1512.33	-0.02	-0.25
SP-05	1515.60	0.00	-0.01	1515.57	-0.03	-0.04	1515.56	-0.01	-0.05	1515.52	-0.04	-0.09	1515.51	-0.01	-0.10	1515.47	-0.04	-0.14
SP-06	1520.51	-0.01	-0.11	1520.45	-0.06	-0.17	1520.44	-0.01	-0.18	1520.39	-0.05	-0.23	1520.36	-0.03	-0.26	1520.34	-0.02	-0.28
SP-07	1516.45	0.00	-0.06	1516.42	-0.03	-0.09	1516.42	0.00	-0.09	1516.39	-0.03	-0.12	1516.37	-0.02	-0.14	1516.35	-0.02	-0.16
SP-08	1519.71	-0.02	-0.22	1519.65	-0.06	-0.28	1519.64	-0.01	-0.29	1519.59	-0.05	-0.34	1519.58	-0.01	-0.35	1519.53	-0.05	-0.40
SP-09	1523.36	-0.01	-0.28	1523.29	-0.07	-0.35	1523.27	-0.02	-0.37	1523.20	-0.07	-0.44	1523.16	-0.04	-0.48	1523.13	-0.03	-0.51
SP-10	1518.95	-0.01	-0.16	1518.90	-0.05	-0.21	1518.89	-0.01	-0.22	1518.82	-0.07	-0.29	1518.80	-0.02	-0.31	1518.76	-0.04	-0.35
SP-11	1514.57	-0.01	-0.20	1514.51	-0.06	-0.26	1514.49	-0.02	-0.28	1514.43	-0.06	-0.34	1514.41	-0.02	-0.36	1514.38	-0.03	-0.39
SP-12	1520.54	-0.01	-0.18	1520.45	-0.09	-0.27	1520.44	-0.01	-0.28	1520.34	-0.10	-0.38	1520.31	-0.03	-0.41	1520.27	-0.04	-0.45
SP-13	1516.08	0.01	0.04	1516.04	-0.04	0.00	1516.05	0.01	0.01	1516.00	-0.05	-0.04	1515.98	-0.02	-0.06	1515.94	-0.04	-0.10
SP-14	1517.36	-0.01	-0.19	1517.28	-0.08	-0.27	1517.27	-0.01	-0.28	1517.18	-0.09	-0.37	1517.16	-0.02	-0.39	1517.12	-0.04	-0.43
SP-15	1522.44	-0.02	-0.24	1522.33	-0.11	-0.35	1522.32	-0.01	-0.36	1522.18	-0.14	-0.50	1522.13	-0.05	-0.55	1522.10	-0.03	-0.58
SP-16	1518.86	0.00	-0.10	1518.80	-0.06	-0.16	1518.80	0.00	-0.16	1518.73	-0.07	-0.23	1518.70	-0.03	-0.26	1518.68	-0.02	-0.28
SP-17	1513.51	0.02	0.01	1513.45	-0.06	-0.05	1513.47	0.02	-0.03	1513.43	-0.04	-0.07	1513.42	-0.01	-0.08	1513.40	-0.02	-0.10
SP-18	1520.45	-0.02	-0.25	1520.33	-0.12	-0.37	1520.31	-0.02	-0.39	1520.17	-0.14	-0.53	1520.12	-0.05	-0.58	1520.09	-0.03	-0.61
SP-19	1515.51	0.02	0.00	1515.44	-0.07	-0.07	1515.45	0.01	-0.06	1515.39	-0.06	-0.12	1515.38	-0.01	-0.13	1515.36	-0.02	-0.15
SP-20	1518.07	-0.01	-0.15	1517.98	-0.09	-0.24	1517.96	-0.02	-0.26	1517.88	-0.08	-0.34	1517.86	-0.02	-0.36	1517.84	-0.02	-0.38
SP-21	1523.03	-0.02	-0.31	1522.91	-0.12	-0.43	1522.90	-0.01	-0.44	1522.78	-0.12	-0.56	1522.75	-0.03	-0.59	1522.73	-0.02	-0.61
SP-22	1519.53	0.01	-0.12	1519.44	-0.09	-0.21	1519.45	0.01	-0.20	1519.36	-0.09	-0.29	1519.34	-0.02	-0.31	1519.32	-0.02	-0.33
SP-23	1513.51	0.01	-0.09	1513.44	-0.07	-0.16	1513.41	-0.03	-0.19	1513.39	-0.02	-0.21	1513.39	0.00	-0.21	1513.37	-0.02	-0.23
SP-24	1515.08	0.00	-0.08	1515.00	-0.08	-0.16	1515.01	0.01	-0.15	1514.96	-0.05	-0.20	1514.94	-0.02	-0.22	1514.92	-0.02	-0.24
SP-25	1515.45	0.00	0.01	1515.38	-0.07	-0.06	1515.39	0.01	-0.05	1515.33	-0.06	-0.11	1515.32	-0.01	-0.12	1515.31	-0.01	-0.13
	Max.	**-0.02**	**-0.31**	**Max.**	**-0.12**	**-0.43**	**Max.**	**-0.03**	**-0.44**	**Max.**	**-0.14**	**-0.56**	**Max.**	**-0.05**	**-0.59**	**Max.**	**-0.05**	**-0.61**
	Min.	**0.02**	**0.04**	**Min.**	**-0.02**	**0.00**	**Min.**	**0.02**	**0.01**	**Min.**	**0.00**	**-0.03**	**Min.**	**0.00**	**-0.05**	**Min.**	**-0.01**	**-0.07**
	Avg.	**0.00**	**-0.12**	**Avg.**	**-0.07**	**-0.19**	**Avg.**	**-0.01**	**-0.19**	**Avg.**	**-0.06**	**-0.25**	**Avg.**	**-0.02**	**-0.28**	**Avg.**	**-0.03**	**-0.30**

Please see page 4 for notes.

Table 1

CELA Settlement Plate Elevations (1992-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft amsl)

PLATE	9/28/00 Survey			10/31/01 Survey			10/28/02 Survey			10/07/03 Survey			10/07/04 Survey			
	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Total	Elevation	Differential	Two Year Differential	Total
SP-01	1512.80	0.01	-0.06	1512.81	0.01	-0.05	1512.78	-0.03	-0.08	1512.78	0.00	-0.08	1512.78	0.00	0.00	-0.08
SP-02	1513.51	0.01	-0.06	1513.51	0.00	-0.06	1513.48	-0.03	-0.09	1513.49	0.01	-0.08	1513.48	-0.01	0.00	-0.09
SP-03	1521.36	0.01	-0.30	1521.36	0.00	-0.30	1521.34	-0.02	-0.32	1521.32	-0.02	-0.34	1521.32	0.00	-0.02	-0.34
SP-04	1512.34	0.01	-0.24	1512.34	0.00	-0.24	1512.32	-0.02	-0.26	1512.31	-0.01	-0.27	1512.32	0.01	0.00	-0.26
SP-05	1515.50	0.03	-0.11	1515.48	-0.02	-0.13	1515.47	-0.01	-0.14	1515.45	-0.02	-0.16	1515.45	0.00	-0.02	-0.16
SP-06	1520.36	0.02	-0.26	1520.35	-0.01	-0.27	1520.33	-0.02	-0.29	1520.31	-0.02	-0.31	1520.31	0.00	-0.02	-0.31
SP-07	1516.37	0.02	-0.14	1516.36	-0.01	-0.15	1516.35	-0.01	-0.16	1516.34	-0.01	-0.17	1516.34	0.00	-0.01	-0.17
SP-08	1519.54	0.01	-0.39	1519.53	-0.01	-0.40	1519.52	-0.01	-0.41	1519.50	-0.02	-0.43	1519.50	0.00	-0.02	-0.43
SP-09	1523.15	0.02	-0.49	1523.14	-0.01	-0.50	1523.12	-0.02	-0.52	1523.10	-0.02	-0.54	1523.09	-0.01	-0.03	-0.55
SP-10	1518.78	0.02	-0.33	1518.76	-0.02	-0.35	1518.74	-0.02	-0.37	1518.72	-0.02	-0.39	1518.71	-0.01	-0.03	-0.40
SP-11	1514.40	0.02	-0.37	1514.37	-0.03	-0.40	1514.36	-0.01	-0.41	1514.35	-0.01	-0.42	1514.35	0.00	-0.01	-0.42
SP-12	1520.29	0.02	-0.43	1520.27	-0.02	-0.45	1520.25	-0.02	-0.47	1520.22	-0.03	-0.50	1520.21	-0.01	-0.04	-0.51
SP-13	1515.98	0.04	-0.06	1515.97	-0.01	-0.07	1515.96	-0.01	-0.08	1515.94	-0.02	-0.10	1515.94	0.00	-0.02	-0.10
SP-14	1517.15	0.03	-0.40	1517.11	-0.04	-0.44	1517.11	0.00	-0.44	1517.08	-0.03	-0.47	1517.07	-0.01	-0.04	-0.48
SP-15	1522.11	0.01	-0.57	1522.09	-0.02	-0.59	1522.07	-0.02	-0.61	1522.03	-0.04	-0.65	1522.01	-0.02	-0.06	-0.67
SP-16	1518.69	0.01	-0.27	1518.68	-0.01	-0.28	1518.65	-0.03	-0.31	1518.63	-0.02	-0.33	1518.62	-0.01	-0.03	-0.34
SP-17	1513.42	0.02	-0.08	1513.41	-0.01	-0.09	1513.41	0.00	-0.09	1513.39	-0.02	-0.11	1513.39	0.00	-0.02	-0.11
SP-18	1520.10	0.01	-0.60	1520.07	-0.03	-0.63	1520.04	-0.03	-0.66	1520.00	-0.04	-0.70	1519.99	-0.01	-0.05	-0.71
SP-19	1515.38	0.02	-0.13	1515.35	-0.03	-0.16	1515.34	-0.01	-0.17	1515.31	-0.03	-0.22	1515.31	0.00	-0.03	-0.22
SP-20	1517.85	0.01	-0.37	1517.83	-0.02	-0.39	1517.83	0.00	-0.39	1517.79	-0.04	-0.43	1517.76	-0.03	-0.07	-0.46
SP-21	1522.75	0.02	-0.59	1522.70	-0.05	-0.64	1522.68	-0.02	-0.66	1522.65	-0.03	-0.69	1522.64	-0.01	-0.04	-0.70
SP-22	1519.33	0.01	-0.32	1519.31	-0.02	-0.34	1519.29	-0.02	-0.36	1519.26	-0.03	-0.39	1519.26	0.00	-0.03	-0.39
SP-23	1513.40	0.03	-0.20	1513.39	-0.01	-0.21	1513.39	0.00	-0.21	1513.37	-0.02	-0.23	1513.38	0.01	-0.01	-0.22
SP-24	1514.95	0.03	-0.21	1514.94	-0.01	-0.22	1514.94	0.00	-0.22	1514.91	-0.03	-0.25	1514.92	0.01	-0.02	-0.24
SP-25	1515.34	0.03	-0.10	1515.30	-0.04	-0.14	1515.30	0.00	-0.14	1515.28	-0.02	-0.16	1515.29	0.01	-0.01	-0.15
	Max.	**0.01**	**-0.60**	**Max.**	**-0.05**	**-0.64**	**Max.**	**-0.03**	**-0.66**	**Max.**	**-0.04**	**-0.70**	**Max.**	**-0.03**	**-0.07**	**-0.71**
	Min.	**0.04**	**-0.06**	**Min.**	**0.00**	**-0.05**	**Min.**	**0.00**	**-0.08**	**Min.**	**0.01**	**-0.08**	**Min.**	**0.01**	**0.00**	**-0.08**
	Avg.	**0.02**	**-0.28**	**Avg.**	**-0.02**	**-0.30**	**Avg.**	**-0.01**	**-0.31**	**Avg.**	**-0.02**	**-0.34**	**Avg.**	**0.00**	**-0.03**	**-0.34**

Please see page 4 for notes.

Table 1

CELA Settlement Plate Elevations (1992-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft amsl)

PLATE	09/28/05 Survey				10/2/06 Survey				9/24/07 Survey			
	Elevation	Differential	Two Year Differential	Total	Elevation	Differential	Two Year Differential	Total	Elevation	Differential	Two Year Differential	Total
SP-01	1512.78	0.00	0.00	-0.08	1512.77	-0.01	-0.01	-0.09	1512.78	0.01	0.00	-0.08
SP-02	1513.48	0.00	-0.01	-0.09	1513.47	-0.01	-0.01	-0.10	1513.47	0.00	-0.01	-0.10
SP-03	1521.31	-0.01	-0.01	-0.35	1521.30	-0.01	-0.02	-0.36	1521.32	0.02	0.01	-0.34
SP-04	1512.30	-0.02	-0.01	-0.28	1512.29	-0.01	-0.03	-0.29	1512.31	0.02	0.01	-0.27
SP-05	1515.44	-0.01	-0.01	-0.17	1515.42	-0.02	-0.03	-0.19	1515.43	0.01	-0.01	-0.18
SP-06	1520.30	-0.01	-0.01	-0.32	1520.29	-0.01	-0.02	-0.33	1520.30	0.01	0.00	-0.32
SP-07	1516.33	-0.01	-0.01	-0.18	1516.32	-0.01	-0.02	-0.19	1516.33	0.01	0.00	-0.18
SP-08	1519.49	-0.01	-0.01	-0.44	1519.47	-0.02	-0.03	-0.46	1519.47	0.00	-0.02	-0.46
SP-09	1523.08	-0.01	-0.02	-0.56	1523.06	-0.02	-0.03	-0.58	1523.05	-0.01	-0.03	-0.59
SP-10	1518.69	-0.02	-0.03	-0.42	1518.68	-0.01	-0.03	-0.43	1518.68	0.00	-0.01	-0.43
SP-11	1514.32	-0.03	-0.03	-0.45	1514.31	-0.01	-0.04	-0.46	1514.32	0.01	0.00	-0.45
SP-12	1520.21	0.00	-0.01	-0.51	1520.19	-0.02	-0.02	-0.53	1520.20	0.01	-0.01	-0.52
SP-13	1515.93	-0.01	-0.01	-0.11	1515.93	0.00	-0.01	-0.11	1515.93	0.00	0.00	-0.11
SP-14	1517.07	0.00	-0.01	-0.48	1517.05	-0.02	-0.02	-0.50	1517.06	0.01	-0.01	-0.49
SP-15	1522.02	0.01	-0.01	-0.66	1521.99	-0.03	-0.02	-0.69	1521.98	-0.01	-0.04	-0.70
SP-16	1518.63	0.01	0.00	-0.33	1518.61	-0.02	-0.01	-0.35	1518.61	0.00	-0.02	-0.35
SP-17	1513.38	-0.01	-0.01	-0.12	1513.37	-0.01	-0.02	-0.13	1513.37	0.00	-0.01	-0.13
SP-18	1519.99	0.00	-0.01	-0.71	1519.97	-0.02	-0.02	-0.73	1519.96	-0.01	-0.03	-0.74
SP-19	1515.32	0.01	0.01	-0.21	1515.31	-0.01	0.00	-0.22	1515.31	0.00	-0.01	-0.22
SP-20	1517.76	0.00	-0.03	-0.46	1517.74	-0.02	-0.02	-0.48	1517.76	0.02	0.00	-0.46
SP-21	1522.64	0.00	-0.01	-0.70	1522.63	-0.01	-0.01	-0.71	1522.63	0.00	-0.01	-0.71
SP-22	1519.26	0.00	0.00	-0.39	1519.24	-0.02	-0.02	-0.41	1519.24	0.00	-0.02	-0.41
SP-23	1513.37	-0.01	0.00	-0.23	1513.36	-0.01	-0.02	-0.24	1513.36	0.00	-0.01	-0.24
SP-24	1514.90	-0.02	-0.01	-0.26	1514.89	-0.01	-0.03	-0.27	1514.89	0.00	-0.01	-0.27
SP-25	1515.27	-0.02	-0.01	-0.17	1515.26	-0.01	-0.03	-0.18	1515.27	0.01	0.00	-0.17
	Max.	**-0.03**	**-0.03**	**-0.71**	**Max.**	**-0.03**	**-0.04**	**-0.73**	**Max.**	**-0.01**	**-0.04**	**-0.74**
	Min.	**0.01**	**0.01**	**-0.08**	**Min.**	**0.00**	**0.00**	**-0.09**	**Min.**	**0.02**	**0.01**	**-0.08**
	Avg.	**-0.01**	**-0.01**	**-0.35**	**Avg.**	**-0.01**	**-0.02**	**-0.36**	**Avg.**	**0.00**	**-0.01**	**-0.36**

NOTES:
1) Differential is the change in elevation from the previous survey.
2) Total is the total change in elevation from the 12/22/92 baseline survey.
3) Negative numbers indicate decrease in elevation (settlement).
4) Maximum, Minimum and Average indicate the maximum, minumum and average settlement.
5) Data from 12/22/92 through 5/26/93 developed by GeoSyntec Consultants.
6) Data from settlement plates SP-6,7 and 13 not available from 5/26/93 survey.
7) Between 5/26/93 and 6/29/93, extension rods were installed through the settlement plate pipe sleeves.
8) Surveys conducted on 12/22/92, 4/30/93 and 5/26/93 were measured from the base of the settlement plate. All following surveys were measured from the top of the extension rods. Data on this table for the 12/22/92, 4/30/93 and 5/26/93 surveys has been corrected to correlate with the other surveys. The correction was made by assuming no change between the 5/26/93 and 6/29/93 surveys and adding the difference between these two surveys to the 12/22/92, 4/30/93 and 5/26/93 surveyed elevations.

Please see page 4 for notes.

Table 2

Comparison of 1993 Baseline Groundwater Data to 2007 Groundwater Data
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	1993 Baseline Detection Frequency[1]	2007 Detection Frequency	1993 Minimum Detection[1]	2007 Minimum Detection[1]	1993 Maximum Detection[1]	2007 Maximum Detection[1]	2007 Frequency of MCL[2] Exceedance	MCL[2]
Aluminum	42/44	0/11	0.231	0.2 U	17.789	0.2 U		
Antimony	2/44	0/11	0.068	0.006 U	0.083	0.006 U		0.006
Arsenic	36/44	3/11	0.012	0.015	0.16	0.0491	3	0.01
Arsenic, dissolved	4/44	NA	0.01		0.056			
Barium	18/44	3/11	0.241	0.239	0.763	0.416		2
Barium, dissolved	9/44	NA	0.232		0.398			
Beryllium	11/44	0/11	0.007	0.001 U	0.009	0.001 U		0.004
Cadmium	16/44	0/11	0.005	0.004 U	0.08	0.004 U		0.005
Calcium	33/44	11/11	16.1	11	48.33	38.8		
Calcium, dissolved	28/44	NA	15.96		46.08			
Chromium	29/44	3/11	0.015	0.0613	11.2	0.24	1	0.1
Chromium, dissolved	3/44	NA	0.005		0.014			
Cobalt	2/44	0/11	0.003	0.05 U	0.025	0.05 U		
Copper	10/44	0/11	0.026	0.025 U	0.153	0.025 U		1.3
Copper, dissolved	4/44	NA	0.026		0.042			
Iron	44/44	11/11	0.6	0.111	65.2	35.7		
Iron, dissolved	32/44	NA	0.104		22.6			
Lead	28/44	0/11	0.005	0.003 U	0.7	0.003 U		0.015
Lead, dissolved	8/44	NA	0.004		1.003			
Magnesium	38/44	9/11	4.71	5.1	63.581	25.7		
Magnesium, dissolved	36/44	NA	6.07		61.021			
Manganese	42/44	9/11	0.212	0.402	16.013	11.7		
Manganese, dissolved	43/44	NA	0.193		14.98			
Nickel	8/44	1/11	0.04	0.0643	0.2	0.0643		
Nickel, dissolved	3/44	NA	0.054		0.118			
Potassium	14/44	0/11	1.87	10 U	59.34	10 U		
Potassium, dissolved	12/44	NA	1.72		5			
Selenium	2/44	0/11	0.08	0.01 U	0.1	0.01 U		0.05
Silver	5/44	0/11	0.017	0.01 U	0.473	0.01 U		
Silver, dissolved	1/44	NA	0.015		0.015			
Sodium	39/44	6/11	6.5	10.7	23.37	24.6		
Sodium, dissolved	39/44	NA	5		20.02			
Thallium	6/44	0/11	0.132	0.01 U	0.396	0.01 U		0.002
Thallium, dissolved	1/44	NA	0.156		0.156			
Vanadium	1/44	0/11	0.061	0.05 U	0.061	0.05 U		
Zinc	27/44	0/11	0.022	0.02 U	0.2	0.02 U		
Zinc, dissolved	7/44	NA	0.023		0.063			
Benzo(a)anthracene	1/44	NA	0.001		0.001			
bis(2-Ethylhexyl) phthalate	2/44	NA	0.005		0.007			0.006
Di-n-butylphthalate	9/44	NA	0.0009		0.005			
Di-n-octylphthalate	1/44	NA	0.001		0.001			
Naphthalene	1/44	NA	0.001		0.001			
Pyrene	1/44	NA	0.008		0.008			
1,1-Dichloroethane	1/44	0/11	0.001	0.001 U	0.001	0.001 U		
Acetone	3/44	0/11	0.006	0.01 U	0.019	0.01 U		
Benzene	1/44	0/11	0.0009	0.001 U	0.0009	0.001 U		0.005
cis/trans1,2-Dichloroethene	1/44	NA	0.002		0.002			0.07
Dichloromethane (Methylene chloride)	4/44	0/11	0.001	0.002 U	1.342	0.002 U		0.005
Tetrachloroethene	1/44	1/11	0.002	0.00058	0.002	0.00058		0.005

Notes:

[1] Geosyntec, 1994

[2] USEPA Maximum Contaminent Level

NA - Not analyzed

1/44 = 1 detection limit out of 44 samples

U - Concentration not detected at specified detection limit

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/19/2002 MWR-01	4/24/2003 MWR-01	6/15/2004 MWR-01	7/7/2005 MWR-01	5/31/2006 MWR-01	5/30/2007 MWR-01
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.089	0.006 U
Arsenic	0.01 U	0.01 U	0.0126	0.005	0.008 U	0.008 U
Barium	0.251	0.256	0.245	0.21	0.2 U	0.2 U
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.0201	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.008	0.004 U
Calcium	39.4	39.6	36.8	34.3	31.8	27.7
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	2.3	1.28	2.91	1.54	1	1.02
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	28.6	28.4	25	22.7	21.6	20.5
Manganese	15.8	15.7	14	13.5	12.5	11.7
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2 U	2 U	5 U	5 U	5 U	10 U
Selenium	0.0129	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	17.3	21.6	23.2	24.3	23.5	23.1
Thallium	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.0221	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/19/2002 MWR-01	4/24/2003 MWR-01	6/15/2004 MWR-01	7/7/2005 MWR-01	5/31/2006 MWR-01	5/30/2007 MWR-01
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.0005 J	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.0011	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/19/2002 MWR-02	4/24/2003 MWR-02	6/17/2004 MWR-02	7/12/2005 MWR-02	6/2/2006 MWR-02	6/4/2007 MWR-02
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U
Arsenic	0.0562	0.0579	0.0532	0.005 U	0.0501	0.0491
Barium	0.48	0.505	0.458	0.2 U	0.416	0.416
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Calcium	41.4	43.1	39.8	5 U	34.3	30.3
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	41.9	44.9	40.7	0.1 U	37.2	35.7
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	33.7	37.3	31.4	5 U	27	25.7
Manganese	7.3	8.28	7.98	0.015 U	7.69	7.74
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2.21	2.25	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	12.9	18.2	18.7	5 U	21.3	21.5
Thallium	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/19/2002 MWR-02	4/24/2003 MWR-02	6/17/2004 MWR-02	7/12/2005 MWR-02	6/2/2006 MWR-02	6/4/2007 MWR-02
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.00033 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-03	4/24/2003 MWR-03	6/17/2004 MWR-03	7/12/2005 MWR-03	6/1/2006 MWR-03	6/4/2007 MWR-03
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U
Arsenic	0.01 U	0.01 U	0.0124	0.01	0.008 U	0.008 U
Barium	0.22	0.236	0.251	0.286	0.243	0.257
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Calcium	31.5	34.6	41.4	43.6	35.7	33.2
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	2.4	3.06	3.7	3.97	3.66	3.59
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	17.7	20.3	23.2	24.8	21.9	21.6
Manganese	2.02	2.39	3	3.31	2.73	2.87
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2.06	2.15	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	9.63	12.2	12.2	12.5	11.2	10.7
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-03	4/24/2003 MWR-03	6/17/2004 MWR-03	7/12/2005 MWR-03	6/1/2006 MWR-03	6/4/2007 MWR-03
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.00071 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-04	4/23/2003 MWR-04	6/16/2004 MWR-04	7/11/2005 MWR-04	6/1/2006 MWR-04	6/1/2007 MWR-04
Inorganic Compounds						
Aluminum	0.112	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U
Arsenic	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U
Barium	0.104	0.1	0.2 U	0.2 U	0.2 U	0.2 U
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Calcium	17.2	21.2	17.9	17.5	16	17.6
Chromium	0.225	0.01 U	0.01 U	0.01 U	0.01 U	0.0697
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	0.591	0.1 U	0.1 U	0.125	0.1 U	0.171
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	5.15	6.22	5 U	5 U	5 U	5.1
Manganese	3.63	3.75	3.12	0.971	0.665	3.27
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2 U	2 U	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	8.09	10.2	8.23	8.59	8.06	10 U
Thallium	0.03 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-04	4/23/2003 MWR-04	6/16/2004 MWR-04	7/11/2005 MWR-04	6/1/2006 MWR-04	6/1/2007 MWR-04
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-05	4/23/2003 MWR-05	6/16/2004 MWR-05	7/11/2005 MWR-05	6/1/2006 MWR-05	6/1/2007 MWR-05
Inorganic Compounds						
Aluminum	0.293	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U
Arsenic	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U
Barium	0.0867	0.0878	0.2 U	0.2 U	0.2 U	0.2 U
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Calcium	14.6	17.7	15.7	83.6	12.9	11
Chromium	0.14	0.0348	0.0247	0.01 U	0.0197	0.0613
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	1.1	0.231	0.137	0.267	0.166	0.488
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	4.32	5.43	5 U	66.7	5 U	5 U
Manganese	0.68	0.345	0.371	0.0777	0.0198	0.015 U
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2 U	2 U	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	8.57	10.5	9.4	174	8.35	10 U
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-05	4/23/2003 MWR-05	6/16/2004 MWR-05	7/11/2005 MWR-05	6/1/2006 MWR-05	6/1/2007 MWR-05
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.00033 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-06	4/23/2003 MWR-06	6/16/2004 MWR-06	7/11/2005 MWR-06	6/1/2006 MWR-06	5/31/2007 MWR-06
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.0057	0.0517	0.006 U
Arsenic	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U
Barium	0.108	0.105	0.2 U	0.2 U	0.2 U	0.2 U
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.0104	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.0044	0.004 U
Calcium	20.8	22.5	26.9	28.9	26.8	26.2
Chromium	0.0594	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	2.15	0.386	0.996	3.29	3.19	3.85
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	6.82	7.61	8.8	9.61	9.79	9.45
Manganese	3.35	3.32	5	7.03	6.76	6.82
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2 U	2 U	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	7.7	9.1	7.35	7.68	7.89	10 U
Thallium	0.03 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.0059	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-06	4/23/2003 MWR-06	6/16/2004 MWR-06	7/11/2005 MWR-06	6/1/2006 MWR-06	5/31/2007 MWR-06
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.00061 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-07	4/23/2003 MWR-07	6/16/2004 MWR-07	7/7/2005 MWR-07	6/1/2006 MWR-07	5/31/2007 MWR-07
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.2 U	0.2 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.0082	0.006 U
Arsenic	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U
Barium	0.0531	0.0668	0.2 U	0.2 U	0.2 U	0.2 U
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Calcium	34.9	15.9	17.7	15.9	14.6	14.3
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	0.176	0.1 U	0.1 U	0.409	0.1 U	0.111
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	7.45	4.99	5.15	5 U	5 U	5 U
Manganese	1.2	0.455	0.877	2.58	0.24	0.402
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2.79	2 U	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	5.02	10.3	9.39	9.93	9.33	10 U
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/18/2002 MWR-07	4/23/2003 MWR-07	6/16/2004 MWR-07	7/7/2005 MWR-07	6/1/2006 MWR-07	5/31/2007 MWR-07
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.00062 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/17/2002 MWR-08	4/22/2003 MWR-08	6/15/2004 MWR-08	7/7/2005 MWR-08	5/31/2006 MWR-08	5/30/2007 MWR-08
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.0252	0.006 U
Arsenic	0.01 U	0.01 U	0.0086	0.005 U	0.008 U	0.015
Barium	0.0927	0.121	0.2 U	0.2 U	0.2 U	0.2 U
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.0044	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Calcium	17.2	22.8	21	18.2	18.4	19.8
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	3.07	4.35	3.37	2.69	3.07	6.27
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	19	29.2	22.8	18.3	18.4	18.6
Manganese	2.99	3.28	3.07	2.81	2.91	2.16
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2 U	2 U	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	6.84	8.58	8.13	7.7	7.09	10 U
Thallium	0.03 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/17/2002 MWR-08	4/22/2003 MWR-08	6/15/2004 MWR-08	7/7/2005 MWR-08	5/31/2006 MWR-08	5/30/2007 MWR-08
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.0004 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/17/2002 MWR-09	4/22/2003 MWR-09	6/15/2004 MWR-09	7/6/2005 MWR-09	5/31/2006 MWR-09	5/31/2007 MWR-09
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.0506	0.006 U
Arsenic	0.0123	0.0238	0.005 U	0.016	0.0202	0.008 U
Barium	0.228	0.269	0.2 U	0.215	0.2	0.2 U
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.0103	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.0043	0.004 U
Calcium	51.5	48.2	42.7	38.5	36	38.8
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	11.6	17.1	8.35	11.7	11.9	9.63
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	26.2	28.2	21.6	21	20.3	20.2
Manganese	6.77	8.66	9.05	7.71	6.67	5.63
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2.74	2.51	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	15.2	18.7	20.5	20.4	16.8	15.7
Thallium	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0094 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0094 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0094 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/17/2002 MWR-09	4/22/2003 MWR-09	6/15/2004 MWR-09	7/6/2005 MWR-09	5/31/2006 MWR-09	5/31/2007 MWR-09
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0094 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.00045 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/17/2002 MWR-10	4/22/2003 MWR-10	6/15/2004 MWR-10	7/6/2005 MWR-10	5/31/2006 MWR-10	5/31/2007 MWR-10
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.0605	0.006 U
Arsenic	0.0586	0.0437	0.045	0.0475	0.0373	0.0371
Barium	0.384	0.326	0.245	0.228	0.251	0.239
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.0131	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.0055	0.004 U
Calcium	38.7	36.1	33.6	31.6	30.7	29.9
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.02 U	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	33.4	25.1	14.2	13.3	18.7	17
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	24.4	24.2	23.4	20.6	19.1	19.3
Manganese	14.2	12.1	8.46	7.68	8.43	7.82
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	2 U	2 U	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	20.1	21.4	22.8	24.8	21.9	20.3
Thallium	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0095 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0095 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0095 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/17/2002 MWR-10	4/22/2003 MWR-10	6/15/2004 MWR-10	7/6/2005 MWR-10	5/31/2006 MWR-10	5/31/2007 MWR-10
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0095 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	0.005 U	0.005 U	0.00041 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/17/2002 MWR-11	4/22/2003 MWR-11	6/17/2004 MWR-11	7/7/2005 MWR-11	5/31/2006 MWR-11	5/30/2007 MWR-11
Inorganic Compounds						
Aluminum	0.1 U	0.1 U	0.2 U	0.2 U	0.1 U	0.2 U
Antimony	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U
Arsenic	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U
Barium	0.115	0.0936	0.2 U	0.2 U	0.2 U	0.2 U
Beryllium	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Cadmium	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Calcium	26.4	28	28.1	27.3	25.5	24
Chromium	0.836	0.122	0.193	0.604	0.21	0.24
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper	0.021	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U
Iron	3.92	0.584	0.781	2.79	0.942	0.974
Lead	0.005 U	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U
Magnesium	6.36	6.79	6.12	6.04	5.78	5.85
Manganese	0.0182	0.0121	0.0152	0.0454	0.0241	0.015 U
Mercury	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.144	0.0766	0.105	0.218	0.079	0.0643
Potassium	4.03	3.34	5 U	5 U	5 U	10 U
Selenium	0.01 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	30.8	28.3	30.2	29	27.7	24.6
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc	0.02 U	0.02 U	0.02 U	0.0374	0.02 U	0.02 U
Volatile Organic Compounds						
1,1,1-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,2-Dichloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
1,4-Dichlorobenzene	0.0094 U	0.0093 U	0.002 U			
2-Butanone (MEK)	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-Hexanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
4-Methyl-2-pentanone	0.010 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	0.020 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	0.005 U	0.005 U				
Bromoform	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U
Bromomethane	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	0.010 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon tetrachloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.005 U	0.00067 J	0.0012	0.00095 J	0.00066 J
cis-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorobromomethane			0.001 U	0.001 U	0.001 U	0.001 U

Please see page 22 for notes.

Table 3

Groundwater Analytical Results (2002-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	4/17/2002 MWR-11	4/22/2003 MWR-11	6/17/2004 MWR-11	7/7/2005 MWR-11	5/31/2006 MWR-11	5/30/2007 MWR-11
VOC's Continued						
Dichloromethane (Methylene chloride)	0.005 U	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U
Ethyl benzene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Phenol	0.0094 U	0.0093 U	0.005 U			
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Tetrachloroethene	0.005 U	0.005 U	0.00047 J	0.00083 J	0.00057 J	0.00058 J
Toluene	0.005 U	0.005 U	0.00068 J	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U

Notes:
U - Concentration not detected at specified detection limit
J - Estimated value

Table 4

2007 Groundwater Field Duplicate Sample Comparison
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	MWR05-0507	DUP1-0507
Inorganic Compounds		
Aluminum	0.2 U	0.2 U
Antimony	0.006 U	0.006 U
Arsenic	0.008 U	0.008 U
Barium	0.2 U	0.2 U
Beryllium	0.001 U	0.001 U
Cadmium	0.004 U	0.004 U
Calcium	11	10.6
Chromium	0.0613	0.063
Cobalt	0.05 U	0.05 U
Copper	0.025 U	0.025 U
Iron	0.488	0.501
Lead	0.003 U	0.003 U
Magnesium	5 U	5 U
Manganese	0.015 U	0.015 U
Mercury	0.0002 U	0.0002 U
Nickel	0.04 U	0.04 U
Potassium	10 U	10 U
Selenium	0.01 U	0.01 U
Silver	0.01 U	0.01 U
Sodium	10 U	10 U
Thallium	0.01 U	0.01 U
Vanadium	0.05 U	0.05 U
Zinc	0.02 U	0.02 U
Volatile Organic Compounds		
1,1,1-Trichloroethane	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	0.001 U	0.001 U
1,1,2-Trichloroethane	0.001 U	0.001 U
1,1-Dichloroethane	0.001 U	0.001 U
1,1-Dichloroethene	0.001 U	0.001 U
1,2-Dichloroethane	0.001 U	0.001 U
1,2-Dichloropropane	0.001 U	0.001 U
2-Butanone (MEK)	0.01 U	0.01 U
2-Hexanone	0.005 U	0.005 U
4-Methyl-2-pentanone	0.005 U	0.005 U
Acetone	0.01 U	0.01 U
Benzene	0.001 U	0.001 U
Bromoform	0.004 U	0.004 U
Bromomethane	0.002 U	0.002 U
Carbon disulfide	0.002 U	0.002 U
Carbon tetrachloride	0.001 U	0.001 U
Chlorobenzene	0.001 U	0.001 U
Chloroethane	0.001 U	0.001 U
Chloroform	0.001 U	0.001 U
Chloromethane	0.001 U	0.001 U

Parameter	MWR05-0507	DUP1-0507
cis-1,2-Dichloroethene	0.001 U	0.001 U
cis-1,3-Dichloropropene	0.001 U	0.001 U
Dibromochloromethane	0.001 U	0.001 U
Dichlorobromomethane	0.001 U	0.001 U
Dichloromethane (Methylene chloride)	0.002 U	0.002 U
Ethyl benzene	0.001 U	0.001 U
m&p-Xylene	0.001 U	0.001 U
o-Xylene	0.001 U	0.001 U
Styrene	0.005 U	0.005 U
Tetrachloroethene	0.001 U	0.001 U
Toluene	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.001 U	0.001 U
trans-1,3-Dichloropropene	0.001 U	0.001 U
Trichloroethene	0.001 U	0.001 U
Vinyl chloride	0.001 U	0.001 U

Notes:
U - Concentration not detected at specified detection limit

Table 5

2007 Field Equipment Rinsate Blank Results
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	EB1-0507
Inorganic Compounds	
Aluminum	0.2 U
Antimony	0.006 U
Arsenic	0.008 U
Barium	0.2 U
Beryllium	0.001 U
Cadmium	0.004 U
Calcium	5 U
Chromium	0.01 U
Cobalt	0.05 U
Copper	0.025 U
Iron	0.1 U
Lead	0.003 U
Magnesium	5 U
Manganese	0.015 U
Mercury	0.0002 U
Nickel	0.04 U
Potassium	10 U
Selenium	0.01 U
Silver	0.01 U
Sodium	10 U
Thallium	0.01 U
Vanadium	0.05 U
Zinc	0.02 U
Volatile Organic Compounds	
1,1,1-Trichloroethane	0.001 U
1,1,2,2-Tetrachloroethane	0.001 U
1,1,2-Trichloroethane	0.001 U
1,1-Dichloroethane	0.001 U
1,1-Dichloroethene	0.001 U
1,2-Dichloroethane	0.001 U
1,2-Dichloropropane	0.001 U
2-Butanone (MEK)	0.01 U
2-Hexanone	0.005 U
4-Methyl-2-pentanone	0.005 U
Acetone	0.01 U
Benzene	0.001 U
Bromoform	0.004 U
Bromomethane	0.002 U
Carbon disulfide	0.002 U
Carbon tetrachloride	0.001 U

Parameter	EB1-0507
VOC's Continued	
Chlorobenzene	0.001 U
Chloroethane	0.001 U
Chloroform	0.0018
Chloromethane	0.001 U
cis-1,2-Dichloroethene	0.001 U
cis-1,3-Dichloropropene	0.001 U
Dibromochloromethane	0.001 U
Dichlorobromomethane	0.00078 J
Dichloromethane (Methylene chloride)	0.002 U
Ethyl benzene	0.001 U
m&p-Xylene	0.001 U
o-Xylene	0.001 U
Styrene	0.005 U
Tetrachloroethene	0.001 U
Toluene	0.001 U
trans-1,2-Dichloroethene	0.001 U
trans-1,3-Dichloropropene	0.001 U
Trichloroethene	0.001 U
Vinyl chloride	0.001 U

Notes:
U - Concentration not detected at specified detection limit
J - Estimated value

Table 6

2007 Liquid Level Monitoring
Former Sinclair Refinery Site (OU-1)
Wellsville, New York

DATE	WELL	DTW (ft)	DTP (ft)	Water Elevation (ft. amsl)	Comment
5/29/2007	MWR-01	10.18		1491.86	
5/29/2007	MWR-02	15.88	14.86	1490.60	3 socks installed
5/29/2007	MWR-03	15.01		1491.58	
5/29/2007	MWR-04	14.71		1492.81	
5/29/2007	MWR-05	13.68		1493.94	
5/29/2007	MWR-06	12.97		1495.53	
5/29/2007	MWR-07	12.22		1496.07	
5/29/2007	MWR-08	13.25		1495.35	
5/29/2007	MWR-09	11.25		1494.21	
5/29/2007	MWR-10	8.94		1493.31	trace iron on probe
5/29/2007	MWR-11	12		1499.30	
5/29/2007	P-01	17.14		1492.09	
5/29/2007	P-02	19.92		1492.45	trace iron on probe
5/29/2007	P-03	17.8		1492.38	
5/29/2007	P-04	17.24		1492.21	
5/29/2007	P-05	13.64		1492.17	trace iron on probe
5/29/2007	P-06	20.15		1492.06	
9/20/2007	MWR-01	10.38		1491.66	
9/20/2007	MWR-02	15.28	14.99	1491.20	
9/20/2007	MWR-03	15.1		1491.49	
9/20/2007	MWR-04	14.81		1492.71	
9/20/2007	MWR-05	14.96		1492.66	
9/20/2007	MWR-06	12.8		1495.70	
9/20/2007	MWR-07	12.17		1496.12	
9/20/2007	MWR-08	13.25		1495.35	
9/20/2007	MWR-09	11.73		1493.73	
9/20/2007	MWR-10	9.33		1492.92	
9/20/2007	MWR-11	12.46		1498.84	
9/20/2007	P-01	17.37		1491.86	
9/20/2007	P-02	20.24		1492.13	
9/20/2007	P-03	18.14		1492.04	
9/20/2007	P-04	17.55		1491.90	
9/20/2007	P-05	13.9		1491.91	
9/20/2007	P-06	20.37		1491.84	

Notes:
DTW - Depth to Water
DTP - Depth to Product (LNAPL)
ft amsl - Feet above mean sea level

Table 7

Storm Water Analytical Results (2004-2007)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L except where noted)

Parameter	7/27/2004 OF-0704	6/6/2005 OF-0605	3/9/2006 OF-0306	12/1/2006 OF-1206	3/2/2007 OF-0307	10/23-24/2007 OF-1007	NYSDEC Class A Surface Water Standard[1]
Inorganic Compounds							
Arsenic	0.005 U	0.005 U	0.008 U	0.008 U	0.008 U	0.008 U	0.05
Barium	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1
Calcium	37	29.9	21.8	45.3	19.3	34.6	
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05
Lead	0.003 U	0.003 U	0.003 U	0.003 U	0.0038	0.003 U	0.05
Magnesium	6.49	5.25	5 U	9.41	5 U	5.25	35
Magnesium, dissolved	6.45	5 U	5 U	9.54	5 U	5.08	
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0004 U	0.0002 U	0.0002 U	0.0007
Selenium	0.005 U	0.005 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05
Oil & Grease							
Oil & Grease	5 U	5.2 U	5.1 U	5.1 U	5 U	5 U	
pH							
Field pH (std. units)	7.72	7.98	7.6	7.78	7.6	7.73	6.5-8.5
Wet Chemistry							
Biochemical Oxygen Demand	2 U	2 U	6.1	2 U	3.7	2 U	
Chemical Oxygen Demand	20 U	20 U		20 U	44.6	20 U	
Cyanide	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	9
Nitrate Nitrogen	4.2	5.4	0.86	1.2	1.4	3.3	10
Nitrate-Nitrite	4.2	5.4	0.86	1.2	1.4	3.3	10
Nitrite Nitrogen	0.01 U	0.01	0.01 U	0.01 U	0.01 U	0.01 U	1
Phosphorus	0.08	0.11		0.05 U	0.13	0.14	
Total Dissolved Solids	143	108	76	156	62	109	500
Total Kjeldahl Nitrogen	0.29	0.57		0.53	0.8	0.37	
Total Organic Carbon (TOC)	1.9	2.9	10.3	2.9	4.8	2.2	
Total Suspended Solids	4 U	4	20	4 U	6	5	
Acute Toxicity							
Ceriodaphnia dubia (24-H) (% Mortality)	5	ND	0	0	NA	NA	
Ceriodaphnia dubia (48-H) (% Mortality)	5	ND	0	10	0	5	
Pimephales promelas (24-H) (% Mortality)	ND	ND	0	0	NA	NA	
Pimephales promelas (48-H) (% Mortality)	ND	ND	0	2.5	0	0	

Notes:
[1] New York State Department of Environmental Conservation 6 NYCRR Parts 700-706 Class A Surface Water Standard
U - Not detected at specified detection limit
ND - Non detect (0% Mortality)
NA - Not Analyzed

Table 8A

Select Groundwater Analytical Results (1996-2007)
Former Sinclair Refinery Site OU1
(mg/L)

MWR-01

Parameter	10/29/1996	5/23/1997	10/24/1997	5/27/1998	9/25/1998	5/6/1999	10/22/1999	4/20/2000	10/11/2000	5/9/2001	4/19/2002	4/24/2003	6/15/2004	7/7/2005	5/31/2006	5/30/07	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.089	0.006 U	1
Arsenic	0.031	0.025 U	0.01 U	0.0235	0.0104	0.0205	0.0112	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0126	0.005	0.008 U	0.008 U	7
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0201	0.001 U	1
Cadmium	0.002 U	0.019	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.008	0.004 U	2
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0

MWR-02

Parameter	10/29/1996	5/23/1997	10/24/1997	5/28/1998	9/25/1998	5/7/1999	10/21/1999	4/20/2000	10/12/2000	5/9/2001	4/19/2002	4/24/2003	6/17/2004	7/12/2005	6/2/2006	6/4/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0
Arsenic	0.083	0.06	0.0655	0.0678	0.0765	0.0447	0.0681	0.0697	0.0557	0.0496	0.0562	0.0579	0.0532	0.005 U	0.0501	0.0491	15
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0
Cadmium	0.07	0.019	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	2
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0

MWR-03

Parameter	10/29/1996	5/23/1997	10/23/1997	5/28/1998	9/24/1998	5/6/1999	10/21/1999	4/20/2000	10/11/2000	5/8/2001	4/18/2002	4/24/2003	6/17/2004	7/12/2005	6/1/2006	6/4/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0
Arsenic	0.025 U	0.025	0.0121	0.0153	0.0203	0.01 U	0.0128	0.01 U	0.0129	0.01 U	0.01 U	0.01 U	0.0124	0.01	0.008 U	0.008 U	8
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0
Cadmium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0

MWR-04

Parameter	10/29/1996	5/23/1997	10/23/1997	5/28/1998	9/24/1998	5/6/1999	10/21/1999	4/20/2000	10/11/2000	5/7/2001	4/18/2002	4/23/2003	6/16/2004	7/11/2005	6/1/2006	6/1/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0
Arsenic	0.025 U	0.025 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0
Cadmium	0.002 U	0.012	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	1
Chromium	0.05	0.019	0.0269	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.225	0.01 U	0.01 U	0.01 U	0.01 U	0.0697	5

MWR-05

Parameter	10/28/1996	5/22/1997	10/23/1997	5/27/1998	9/24/1998	5/6/1999	10/21/1999	4/20/2000	10/11/2000	5/7/2001	4/18/2002	4/23/2003	6/16/2004	7/11/2005	6/1/2006	6/1/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0
Arsenic	0.025 U	0.025 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0
Cadmium	0.06	0.008	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	2
Chromium	0.01 U	0.082	0.01 U	0.0111	0.0508	0.0567	0.0414	0.0114	0.01 U	0.0303	0.14	0.0348	0.0247	0.01 U	0.0197	0.0613	12

MWR-06

Parameter	10/28/1996	5/22/1997	10/23/1997	5/27/1998	9/24/1998	5/6/1999	10/21/1999	4/19/2000	10/11/2000	5/8/2001	4/18/2002	4/23/2003	6/16/2004	7/11/2005	6/1/2006	5/31/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.0057	0.0517	0.006 U	2
Arsenic	0.025 U	0.025 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0104	0.001 U	1
Cadmium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.0044	0.004 U	1
Chromium	0.05	0.169	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0594	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	3

Table 8A

Select Groundwater Analytical Results (1996-2007)
Former Sinclair Refinery Site OU1
(mg/L)

MWR-07

Parameter	10/28/1996	5/22/1997	10/23/1997	5/27/1998	9/24/1998	5/5/1999	10/20/1999	4/19/2000	10/10/2000	5/7/2001	4/18/2002	4/23/2003	6/16/2004	7/7/2005	6/1/2006	5/31/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.0082	0.006 U	1
Arsenic	0.025 U	0.025 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0
Cadmium	0.05	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	1
Chromium	0.06	0.268	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	2

MWR-08

Parameter	10/29/1996	5/23/1997	10/23/1997	5/27/1998	9/24/1998	5/6/1999	10/22/1999	4/20/2000	10/12/2000	5/1/2001	4/17/2002	4/22/2003	6/15/2004	7/7/2005	5/31/2006	5/30/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.0252	0.006 U	1
Arsenic	0.025 U	0.025 U	0.0159	0.0191	0.0257	0.01 U	0.0107	0.0106	0.0167	0.01 U	0.01 U	0.01 U	0.0086	0.005 U	0.008 U	0.015	9
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0044	0.001 U	1
Cadmium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0
Chromium	0.05	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	1

MWR-09

Parameter	10/28/1996	5/22/1997	10/22/1997	5/26/1998	10/13/1998	5/5/1999	10/20/1999	4/19/2000	10/10/2000	5/1/2001	4/17/2002	4/22/2003	6/15/2004	7/6/2005	5/31/2006	5/31/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.0506	0.006 U	1
Arsenic	0.025 U	0.025 U	0.0264	0.0253	0.0432	0.0146	0.0261	0.0184	0.0278	0.0112	0.0123	0.0238	0.005 U	0.016	0.0202	0.008 U	12
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0103	0.001 U	1
Cadmium	0.07	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.0043	0.004 U	2
Chromium	0.05	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	1

MWR-10

Parameter	10/28/1996	5/22/1997	10/22/1997	5/26/1998	10/13/1998	5/5/1999	10/20/1999	4/19/2000	10/10/2000	5/1/2001	4/17/2002	4/22/2003	6/15/2004	7/6/2005	5/31/2006	5/31/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.0605	0.006 U	1
Arsenic	0.033	0.053	0.0453	0.0402	0.0426	0.0319	0.035	0.0304	0.0359	0.0448	0.0586	0.0437	0.045	0.0475	0.0373	0.0371	16
Beryllium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0131	0.001 U	1
Cadmium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.0055	0.004 U	1
Chromium	0.07	0.055	0.0617	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	3

MWR-11

Parameter	10/28/1996	5/21/1997	10/22/1997	5/26/1998	10/13/1998	5/5/1999	10/20/1999	4/19/2000	10/10/2000	5/8/2001	4/17/2002	4/22/2003	6/17/2004	7/7/2005	5/31/2006	5/30/2007	Number of Detections
Antimony	0.001 U	0.001 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.006 U	0.06 U	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0
Arsenic	0.025 U	0.025 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0
Beryllium	0.002 U	0.026	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	1
Cadmium	0.002 U	0.002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0
Chromium	0.4	0.193	4.45	0.0837	0.19	0.174	0.0902	0.0378	0.0998	0.0597	0.836	0.122	0.193	0.604	0.21	0.24	16

Notes:
U - Concentration not detected at the specified detection limit.
Select results include the results for parameters that have exceeded the USEPA MCL since 2004.

Table 8B

Groundwater Analytical Results 1996-2007 Used in Statistical Analysis
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-01

Parameter	10/29/1996	5/23/1997	10/24/1997	5/27/1998	9/25/1998	5/6/1999	10/22/1999	4/20/2000	10/11/2000	5/9/2001	4/19/2002	4/24/2003	6/15/2004	7/7/2005	5/31/2006	5/30/2007	Detections
Arsenic	0.031	0.0125	0.005	0.0235	0.0104	0.0205	0.0112	0.005	0.005	0.005	0.005	0.005	0.0126	0.005	0.004	0.004	7
Cadmium	0.001	0.019	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.008	0.002	2

MWR-02

Parameter	10/29/1996	5/23/1997	10/24/1997	5/28/1998	9/25/1998	5/7/1999	10/21/1999	4/20/2000	10/12/2000	5/9/2001	4/19/2002	4/24/2003	6/17/2004	7/12/2005	6/2/2006	6/4/2007	Detections
Arsenic	0.083	0.06	0.0655	0.0678	0.0765	0.0447	0.0681	0.0697	0.0557	0.0496	0.0562	0.0579	0.0532	0.0025	0.0501	0.0491	15
Cadmium	0.07	0.019	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.002	0.002	2

MWR-03

Parameter	10/29/1996	5/23/1997	10/23/1997	5/28/1998	9/24/1998	5/6/1999	10/21/1999	4/20/2000	10/11/2000	5/8/2001	4/18/2002	4/24/2003	6/17/2004	7/12/2005	6/1/2006	6/4/2007	Detections
Arsenic	0.0125	0.025	0.0121	0.0153	0.0203	0.005	0.0128	0.005	0.0129	0.005	0.005	0.005	0.0124	0.01	0.004	0.004	8

MWR-04

Parameter	10/29/1996	5/23/1997	10/23/1997	5/28/1998	9/24/1998	5/6/1999	10/21/1999	4/20/2000	10/11/2000	5/7/2001	4/18/2002	4/23/2003	6/16/2004	7/11/2005	6/1/2006	6/1/2007	Detections
Chromium	0.05	0.019	0.0269	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.225	0.005	0.005	0.005	0.005	0.0697	5

MWR-05

Parameter	10/28/1996	5/22/1997	10/23/1997	5/27/1998	9/24/1998	5/6/1999	10/21/1999	4/20/2000	10/11/2000	5/7/2001	4/18/2002	4/23/2003	6/16/2004	7/11/2005	6/1/2006	6/1/2007	Detections
Cadmium	0.06	0.008	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.002	0.002	2
Chromium	0.005	0.082	0.005	0.0111	0.0508	0.0567	0.0414	0.0114	0.005	0.0303	0.14	0.0348	0.0247	0.005	0.0197	0.0613	12

MWR-06

Parameter	10/28/1996	5/22/1997	10/23/1997	5/27/1998	9/24/1998	5/6/1999	10/21/1999	4/19/2000	10/11/2000	5/8/2001	4/18/2002	4/23/2003	6/16/2004	7/11/2005	6/1/2006	5/31/2007	Detections
Antimony	0.0005	0.0005	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.003	0.03	0.03	0.0025	0.0057	0.0517	0.003	2
Chromium	0.05	0.169	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.0594	0.005	0.005	0.005	0.005	0.005	3

MWR-07

Parameter	10/28/1996	5/22/1997	10/23/1997	5/27/1998	9/24/1998	5/5/1999	10/20/1999	4/19/2000	10/10/2000	5/7/2001	4/18/2002	4/23/2003	6/16/2004	7/7/2005	6/1/2006	5/31/2007	Detections
Chromium	0.06	0.268	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	2

MWR-08

Parameter	10/29/1996	5/23/1997	10/23/1997	5/27/1998	9/24/1998	5/6/1999	10/22/1999	4/20/2000	10/12/2000	5/1/2001	4/17/2002	4/22/2003	6/15/2004	7/7/2005	5/31/2006	5/30/2007	Detections
Arsenic	0.0125	0.0125	0.0159	0.0191	0.0257	0.005	0.0107	0.0106	0.0167	0.005	0.005	0.005	0.0086	0.0025	0.004	0.015	9

MWR-09

Parameter	10/28/1996	5/22/1997	10/22/1997	5/26/1998	10/13/1998	5/5/1999	10/20/1999	4/19/2000	10/10/2000	5/1/2001	4/17/2002	4/22/2003	6/15/2004	7/6/2005	5/31/2006	5/31/2007	Detections
Arsenic	0.0125	0.0125	0.0264	0.0253	0.0432	0.0146	0.0261	0.0184	0.0278	0.0112	0.0123	0.0238	0.0025	0.016	0.0202	0.004	12
Cadmium	0.07	0.001	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.0043	0.002	2

MWR-10

Parameter	10/28/1996	5/22/1997	10/22/1997	5/26/1998	10/13/1998	5/5/1999	10/20/1999	4/19/2000	10/10/2000	5/1/200	4/17/2002	4/22/2003	6/15/2004	7/6/2005	5/31/2006	5/31/2007	Detections
Arsenic	0.033	0.053	0.0453	0.0402	0.0426	0.0319	0.035	0.0304	0.0359	0.0448	0.0586	0.0437	0.045	0.0475	0.0373	0.0371	16
Chromium	0.07	0.055	0.0617	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	3

MWR-11

Parameter	10/28/1996	5/21/1997	10/22/1997	5/26/1998	10/13/1998	5/5/1999	10/20/1999	4/19/2000	10/10/2000	5/8/2001	4/17/2002	4/22/2003	6/17/2004	7/7/2005	5/31/2006	5/30/2007	Detections
Chromium	0.4	0.193	4.45	0.0837	0.19	0.174	0.0902	0.0378	0.0998	0.0597	0.836	0.122	0.193	0.604	0.21	0.24	16

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-01 Arsenic

Date	10/29/96	05/23/97	10/24/97	05/27/98	09/25/98	05/06/99	10/22/99	04/20/00	10/11/00	05/09/01	04/19/02	04/24/03	06/15/04	07/07/05	05/31/06	05/30/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.031	0.0125	0.005	0.0235	0.0104	0.0205	0.0112	0.005	0.005	0.005	0.005	0.005	0.0126	0.005	0.004	0.004	Count "+"	Count "-"
0.0125		0	-	+	-	+	-	-	-	-	-	-	+	-	-	-	3	11
0.005			0	+	+	+	+	0	0	0	0	0	+	0	-	-	5	2
0.0235				0	-	-	-	-	-	-	-	-	-	-	-	-	0	12
0.0104					0	+	+	-	-	-	-	-	+	-	-	-	3	8
0.0205						0	-	-	-	-	-	-	-	-	-	-	0	10
0.0112							0	-	-	-	-	-	+	-	-	-	1	8
0.005								0	0	0	0	0	+	0	-	-	1	2
0.005									0	0	0	0	+	0	-	-	1	2
0.005										0	0	0	+	0	-	-	1	2
0.005											0	0	+	0	-	-	1	2
0.005												0	+	0	-	-	1	2
0.0126													0	-	-	-	0	3
0.005														0	-	-	0	2
0.004															0	0	0	0
0.004																0	0	0
																	17	66
																	Total "+"	Total "-"

-49
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

RESULT: Since S < 38 (critical value) & > -38 = FALSE
DECREASING TREND

From Table A-1, $z_{0.95}$ (critical value) = 1.645

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]\}$

Where: t_1 = number of tied samples in the first group = 7

t_2 = number of tied samples in second group = 2

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0091

p-value = 0.9909

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 448.00

z_o = -2.3623

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-01 Cadmium

Date	10/29/96	05/23/97	10/24/97	05/27/98	09/25/98	05/06/99	10/22/99	04/20/00	10/11/00	05/09/01	04/19/02	04/24/03	06/15/04	07/07/05	05/31/06	05/30/07			
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
Result	0.001	0.019	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.008	0.002	Count "+"	Count "-"	
0.019		0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14	
0.0025			0	0	0	0	0	0	0	0	0	0	-	-	+	-	1	3	
0.0025				0	0	0	0	0	0	0	0	0	-	-	+	-	1	3	
0.0025					0	0	0	0	0	0	0	0	-	-	+	-	1	3	
0.0025						0	0	0	0	0	0	0	-	-	+	-	1	3	
0.0025							0	0	0	0	0	0	-	-	+	-	1	3	
0.0025								0	0	0	0	0	-	-	+	-	1	3	
0.0025									0	0	0	0	-	-	+	-	1	3	
0.0025										0	0	0	-	-	+	-	1	3	
0.0025											0	0	-	-	+	-	1	3	
0.0025												0	-	-	+	-	1	3	
0.002													0	0	+	0	1	0	
0.002														0	+	0	1	0	
0.008															0	-	0	1	
0.002																0			
																	12	45	-33
																	Total "+"	Total "-"	S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

RESULT: Since S < 38 (critical value) & > -38 = TRUE

STABLE / NO TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]\}$

Where: t_1 = number of tied samples in the first group = 10

t_2 = number of tied samples in second group = 3

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0375

p-value = 0.9625

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

$V(S) =$ 364.67

$z_o =$ -1.7805

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-02 Arsenic

Date	10/29/96	05/23/97	10/24/97	05/28/98	09/25/98	05/07/99	10/21/99	04/20/00	10/12/00	05/09/01	04/19/02	04/24/03	06/17/04	07/12/05	06/02/06	06/04/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.083	0.06	0.0655	0.0678	0.0765	0.0447	0.0681	0.0697	0.0557	0.0496	0.0562	0.0579	0.0532	0.0025	0.0501	0.0491	Count "+"	Count "-"
0.06		0	+	+	+	-	+	+	-	-	-	-	-	-	-	-	5	9
0.0655			0	+	+	-	+	+	-	-	-	-	-	-	-	-	4	9
0.0678				0	+	-	+	+	-	-	-	-	-	-	-	-	3	9
0.0765					0	-	-	-	-	-	-	-	-	-	-	-	0	11
0.0447						0	+	+	+	+	+	+	+	-	+	+	9	1
0.0681							0	+	-	-	-	-	-	-	-	-	1	8
0.0697								0	-	-	-	-	-	-	-	-	0	8
0.0557									0	-	+	+	-	-	-	-	2	5
0.0496										0	+	+	+	-	+	-	4	2
0.0562											0	+	-	-	-	-	1	4
0.0579												0	-	-	-	-	0	4
0.0532													0	-	-	-	0	3
0.0025														0	+	+	2	0
0.0501															0	-	0	1
0.0491																0	0	0
																	31	74
																	Total "+"	Total "-"

-43
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

RESULT: Since S < 38 (critical value) & > -38 = TRUE
DECREASING TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots \text{ up to } t_g]\}$

Where: t_1 = number of tied samples in the first group = 0

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0239

p-value = 0.9761

$z_o = S - \text{sign}(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 493.33

z_o = -1.9810

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-02 Cadmium

Date	10/29/96	05/23/97	10/24/97	05/28/98	09/25/98	05/07/99	10/21/99	04/20/00	10/12/00	05/09/01	04/19/02	04/24/03	06/17/04	07/12/05	06/02/06	06/04/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.07	0.019	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.002	0.002	Count "+"	Count "-"
0.019		0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14
0.0025			0	0	0	0	0	0	0	0	0	0	-	-	-	-	0	4
0.0025				0	0	0	0	0	0	0	0	0	-	-	-	-	0	4
0.0025					0	0	0	0	0	0	0	0	-	-	-	-	0	4
0.0025						0	0	0	0	0	0	0	-	-	-	-	0	4
0.0025							0	0	0	0	0	0	-	-	-	-	0	4
0.0025								0	0	0	0	0	-	-	-	-	0	4
0.0025									0	0	0	0	-	-	-	-	0	4
0.0025										0	0	0	-	-	-	-	0	4
0.0025											0	0	-	-	-	-	0	4
0.0025												0	-	-	-	-	0	4
0.002													0	0	0	0	0	0
0.002														0	0	0	0	0
0.002															0	0	0	0
0.002																0	0	0
																	0	54
																	Total "+"	Total "-"

-54
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0019

p-value = 0.9981

RESULT: Since S < 38 (critical value) & > -38 = TRUE
DECREASING TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]\}$

Where: t_1 = number of tied samples in the first group = 10

t_2 = number of tied samples in second group = 4

g = the number of tied sample groups

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 359.67

z_o = -2.9001

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-03 Arsenic

Date	10/29/96	05/23/97	10/23/97	05/28/98	09/24/98	05/06/99	10/21/99	04/20/00	10/11/00	05/08/01	04/18/02	04/24/03	06/17/04	07/12/05	06/01/06	06/04/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.0125	0.025	0.0121	0.0153	0.0203	0.005	0.0128	0.005	0.0129	0.005	0.005	0.005	0.0124	0.01	0.004	0.004	Count "+"	Count "-"
0.025		0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14
0.0121			0	+	+	-	+	-	+	-	-	-	+	-	-	-	5	8
0.0153				0	+	-	-	-	-	-	-	-	-	-	-	-	1	11
0.0203					0	-	-	-	-	-	-	-	-	-	-	-	0	11
0.005						0	+	0	+	0	0	0	+	+	-	-	4	2
0.0128							0	-	+	-	-	-	-	-	-	-	1	8
0.005								0	+	0	0	0	+	+	-	-	3	2
0.0129									0	-	-	-	-	-	-	-	0	7
0.005										0	0	0	+	+	-	-	2	2
0.005											0	0	+	+	-	-	2	2
0.005												0	+	+	-	-	2	2
0.0124													0	-	-	-	0	3
0.01														0	-	-	0	2
0.004															0	0	0	0
0.004																0	0	0
																	20	74
																	Total "+"	Total "-"

-54
S (difference in total "+" and "-")

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots \text{ up to } t_g]\}$

Where: t_1 = number of tied samples in the first group = 5
t_2 = number of tied samples in second group = 2
g = the number of tied sample groups

n (number of samples) = 16
From Table A-12a, critical value = 38
From Table A-1, $z_{0.95}$ (critical value) = 1.645
p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0059
p-value = 0.9941

RESULT: Since S < 38 (critical value) & > -38 = FALSE
DECREASING TREND

$z_o = S - \text{sign}(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 475.67
z_o = -2.5218

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result
Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-04 Chromium

Date	10/29/96	05/23/97	10/23/97	05/28/98	09/24/98	05/06/99	10/21/99	04/20/00	10/11/00	05/07/01	04/18/02	04/23/03	06/16/04	07/11/05	06/01/06	06/01/07			
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
Result	0.05	0.019	0.0269	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.225	0.005	0.005	0.005	0.005	0.0697	Count "+"	Count "-"	
0.019		0	+	-	-	-	-	-	-	-	+	-	-	-	-	+	3	11	
0.0269			0	-	-	-	-	-	-	-	+	-	-	-	-	+	2	11	
0.005				0	0	0	0	0	0	0	+	0	0	0	0	+	2	0	
0.005					0	0	0	0	0	0	+	0	0	0	0	+	2	0	
0.005						0	0	0	0	0	+	0	0	0	0	+	2	0	
0.005							0	0	0	0	+	0	0	0	0	+	2	0	
0.005								0	0	0	+	0	0	0	0	+	2	0	
0.005									0	0	+	0	0	0	0	+	2	0	
0.005										0	+	0	0	0	0	+	2	0	
0.225											0	-	-	-	-	-	0	5	
0.005												0	0	0	0	+	1	0	
0.005													0	0	0	+	1	0	
0.005														0	0	+	1	0	
0.005															0	+	1	0	
0.0697																0	0	0	
																	23	27	-4
																	Total "+"	Total "-"	S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.3936

p-value = 0.6064

RESULT: Since S < 38 (critical value) & > -38 = TRUE
STABLE / NO TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]\}$

Where: t_1 = number of tied samples in the first group = 11

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 328.33

z_o = -0.2759

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-05 Cadmium

Date	10/28/96	05/22/97	10/23/97	05/27/98	09/24/98	05/06/99	10/21/99	04/20/00	10/11/00	05/07/01	04/18/02	04/23/03	06/16/04	07/11/05	06/01/06	06/01/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.06	0.008	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.002	0.002	Count "+"	Count "-"
0.008		0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14
0.0025			0	0	0	0	0	0	0	0	0	0	-	-	-	-	0	4
0.0025				0	0	0	0	0	0	0	0	0	-	-	-	-	0	4
0.0025					0	0	0	0	0	0	0	0	-	-	-	-	0	4
0.0025						0	0	0	0	0	0	0	-	-	-	-	0	4
0.0025							0	0	0	0	0	0	-	-	-	-	0	4
0.0025								0	0	0	0	0	-	-	-	-	0	4
0.0025									0	0	0	0	-	-	-	-	0	4
0.0025										0	0	0	-	-	-	-	0	4
0.0025											0	0	-	-	-	-	0	4
0.0025												0	-	-	-	-	0	4
0.002													0	0	0	0	0	0
0.002														0	0	0	0	0
0.002															0	0	0	0
0.002																0	0	0
																	0	54
																	Total "+"	Total "-"

-54
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

RESULT: Since S < 38 (critical value) & > -38 = TRUE
DECREASING TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]\}$

Where: t_1 = number of tied samples in the first group = 10

t_2 = number of tied samples in second group = 4

g = the number of tied sample groups

From Table A-1, $z_{0.95}$ (critical value) = 1.645

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0019

p-value = 0.9981

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

$V(S) =$ 359.67

$z_o =$ -2.9001

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-05 Chromium

Date	10/28/96	05/22/97	10/23/97	05/27/98	09/24/98	05/06/99	10/21/99	04/20/00	10/11/00	05/07/01	04/18/02	04/23/03	06/16/04	07/11/05	06/01/06	06/01/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.005	0.082	0.005	0.0111	0.0508	0.0567	0.0414	0.0114	0.005	0.0303	0.14	0.0348	0.0247	0.005	0.0197	0.0613	Count "+"	Count "-"
0.082		0	-	-	-	-	-	-	-	-	+	-	-	-	-	-	1	13
0.005			0	+	+	+	+	+	0	+	+	+	+	0	+	+	11	0
0.0111				0	+	+	+	+	-	+	+	+	+	-	+	+	10	2
0.0508					0	+	-	-	-	-	+	-	-	-	-	+	3	8
0.0567						0	-	-	-	-	+	-	-	-	-	+	2	8
0.0414							0	-	-	-	+	-	-	-	-	+	2	7
0.0114								0	-	+	+	+	+	-	+	+	6	2
0.005									0	+	+	+	+	0	+	+	6	0
0.0303										0	+	+	-	-	-	+	3	3
0.14											0	-	-	-	-	-	0	5
0.0348												0	-	-	-	+	1	3
0.0247													0	-	-	+	1	2
0.005														0	+	+	2	0
0.0197															0	+	1	0
0.0613																0	0	0
																	49	53
																	Total "+"	Total "-"

-4
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

RESULT: Since S < 38 (critical value) & > -38 = TRUE

From Table A-1, $z_{0.95}$ (critical value) = 1.645

STABLE / NO TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots \text{ up to } t_g]\}$

Where: t_1 = number of tied samples in the first group = 4

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.4090

p-value = 0.591

$z_o = S - \text{sign}(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 484.67

z_o = -0.2271

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-06 Antimony

Date	10/28/96	5/22/97	10/23/97	5/27/98	9/24/98	5/6/99	10/21/99	4/19/00	10/11/00	5/8/01	4/18/02	4/23/03	6/16/04	7/11/05	6/1/06	5/31/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.0005	0.0005	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.003	0.03	0.03	0.0025	0.0057	0.0517	0.003	Count "+"	Count "-"
0.0005		0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	0
0.03			0	0	0	0	0	0	0	-	0	0	-	-	+	-	1	4
0.03				0	0	0	0	0	0	-	0	0	-	-	+	-	1	4
0.03					0	0	0	0	0	-	0	0	-	-	+	-	1	4
0.03						0	0	0	0	-	0	0	-	-	+	-	1	4
0.03							0	0	0	-	0	0	-	-	+	-	1	4
0.03								0	0	-	0	0	-	-	+	-	1	4
0.03									0	-	0	0	-	-	+	-	1	4
0.003										0	+	+	-	+	+	0	4	1
0.03											0	0	-	-	+	-	1	3
0.03												0	-	-	+	-	1	3
0.0025													0	+	+	+	3	0
0.0057														0	+	-	1	1
0.0517															0	-	0	1
0.003																0	0	0
																	31	37
																	Total "+"	Total "-"

-6
S (difference in total "+" and "-")

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots \text{ up to } t_g]\}$

Where: t_1 = number of tied samples in the first group = 9
t_2&t_3 = number of tied samples in 2nd & 3rd group = 2
g = the number of tied sample groups

n (number of samples) = 16
From Table A-12a, critical value = 38
From Table A-1, $z_{0.05}$ (critical value) = 1.645
p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.3632
p-value = 0.6368

RESULT: Since S < 38 (critical value) & > -38 = TRUE
STABLE / NO TREND

$z_o = S - \text{sign}(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 399.33
z_o = -0.3503

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-06 Chromium

Date	10/28/96	05/22/97	10/23/97	05/27/98	09/24/98	05/06/99	10/21/99	04/19/00	10/11/00	05/08/01	04/18/02	04/23/03	06/16/04	07/11/05	06/01/06	05/31/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.05	0.169	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.0594	0.005	0.005	0.005	0.005	0.005	Count "+"	Count "-"
0.169		0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14
0.005			0	0	0	0	0	0	0	0	+	0	0	0	0	0	1	0
0.005				0	0	0	0	0	0	0	+	0	0	0	0	0	1	0
0.005					0	0	0	0	0	0	+	0	0	0	0	0	1	0
0.005						0	0	0	0	0	+	0	0	0	0	0	1	0
0.005							0	0	0	0	+	0	0	0	0	0	1	0
0.005								0	0	0	+	0	0	0	0	0	1	0
0.005									0	0	+	0	0	0	0	0	1	0
0.005										0	+	0	0	0	0	0	1	0
0.0594											0	-	-	-	-	-	0	5
0.005												0	0	0	0	0	0	0
0.005													0	0	0	0	0	0
0.005														0	0	0	0	0
0.005															0	0	0	0
0.005																0	0	0
																	8	19
																	Total "+"	Total "-"

-11
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

RESULT: Since S < 38 (critical value) & > -38 = TRUE

From Table A-1, $z_{0.95}$ (critical value) = 1.645

STABLE / NO TREND

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.2119

p-value = 0.7881

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]\}$

Where: t_1 = number of tied samples in the first group = 13

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 224.67

z_o = -0.8006

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-07 Chromium

Date	10/28/96	05/22/97	10/23/97	05/27/98	09/24/98	05/05/99	10/20/99	04/19/00	10/10/00	05/07/01	04/18/02	04/23/03	06/16/04	07/07/05	06/01/06	05/31/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.06	0.268	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	Count "+"	Count "-"
0.268		0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14
0.005			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.005				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.005					0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.005						0	0	0	0	0	0	0	0	0	0	0	0	0
0.005							0	0	0	0	0	0	0	0	0	0	0	0
0.005								0	0	0	0	0	0	0	0	0	0	0
0.005									0	0	0	0	0	0	0	0	0	0
0.005										0	0	0	0	0	0	0	0	0
0.005											0	0	0	0	0	0	0	0
0.005												0	0	0	0	0	0	0
0.005													0	0	0	0	0	0
0.005														0	0	0	0	0
0.005															0	0	0	0
0.005																0	0	0
																	0	14
																	Total "+"	Total "-"

-14
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

RESULT: Since S < 38 (critical value) & > -38 = TRUE
STABLE / NO TREND

$V(S) = 1/18[n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]]$

Where: t_1 = number of tied samples in the first group = 14

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.1170

p-value = 0.883

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 159.67

z_o = -1.1871

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-08 Arsenic

Date	10/29/96	05/23/97	10/23/97	05/27/98	09/24/98	05/06/99	10/22/99	04/20/00	10/12/00	05/01/01	04/17/02	04/22/03	06/15/04	07/07/05	05/31/06	05/30/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.0125	0.0125	0.0159	0.0191	0.0257	0.005	0.0107	0.0106	0.0167	0.005	0.005	0.005	0.0086	0.0025	0.004	0.015	Count "+"	Count "-"
0.0125		0	+	+	+	-	-	-	+	-	-	-	-	-	-	+	5	9
0.0159			0	+	+	-	-	-	+	-	-	-	-	-	-	-	3	10
0.0191				0	+	-	-	-	-	-	-	-	-	-	-	-	1	11
0.0257					0	-	-	-	-	-	-	-	-	-	-	-	0	11
0.005						0	+	+	+	0	0	0	+	-	-	+	5	2
0.0107							0	-	+	-	-	-	-	-	-	+	2	7
0.0106								0	+	-	-	-	-	-	-	+	2	6
0.0167									0	-	-	-	-	-	-	-	0	7
0.005										0	0	0	+	-	-	+	2	2
0.005											0	0	+	-	-	+	2	2
0.005												0	+	-	-	+	2	2
0.0086													0	-	-	+	1	2
0.0025														0	+	+	2	0
0.004															0	+	1	0
0.015																0	0	0
																	28	71
																	Total "+"	Total "-"

-43
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

RESULT: Since S < 38 (critical value) & > -38 = FALSE
DECREASING TREND

$V(S) = 1/18[n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots \text{ up to } t_g]]$

Where: t_1 = number of tied samples in the first group = 2

t_2 = number of tied samples in second group = 4

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0228

p-value = 0.9772

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

$V(S) = 483.67$

$z_o = -2.0007$

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-09 Arsenic

Date	10/28/96	05/22/97	10/22/97	05/26/98	10/13/98	05/05/99	10/20/99	04/19/00	10/10/00	05/01/01	04/17/02	04/22/03	06/15/04	07/06/05	05/31/06	05/31/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.0125	0.0125	0.0264	0.0253	0.0432	0.0146	0.0261	0.0184	0.0278	0.0112	0.0123	0.0238	0.0025	0.016	0.0202	0.004	Count "+"	Count "-"
0.0125		0	+	+	+	+	+	+	+	-	-	+	-	+	+	-	10	4
0.0264			0	-	+	-	-	-	+	-	-	-	-	-	-	-	2	11
0.0253				0	+	-	+	-	+	-	-	-	-	-	-	-	3	9
0.0432					0	-	-	-	-	-	-	-	-	-	-	-	0	11
0.0146						0	+	+	+	-	-	+	-	+	+	-	6	4
0.0261							0	-	+	-	-	-	-	-	-	-	1	8
0.0184								0	+	-	-	+	-	-	+	-	3	5
0.0278									0	-	-	-	-	-	-	-	0	7
0.0112										0	+	+	-	+	+	-	4	2
0.0123											0	+	-	+	+	-	3	2
0.0238												0	-	-	-	-	0	4
0.0025													0	+	+	+	3	0
0.016														0	+	-	1	1
0.0202															0	-	0	1
0.004																0	0	0
																	36	69
																	Total "+"	Total "-"

-33
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

p-value = $(P(Z > z_0) = 1 - z_p$, where z_p from Table A-1 = 0.0630

p-value = 0.937

RESULT: Since S < 38 (critical value) & > -38 = TRUE
STABLE / NO TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]\}$

Where: t_1 = number of tied samples in the first group = 2

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 492.33

z_o = -1.5323

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-09 Cadmium

Date	10/28/96	05/22/97	10/22/97	05/26/98	10/13/98	05/05/99	10/20/99	04/19/00	10/10/00	05/01/01	04/17/02	04/22/03	06/15/04	07/06/05	05/31/06	05/31/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.07	0.001	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.0043	0.002	Count "+"	Count "-"
0.001		0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	0
0.0025			0	0	0	0	0	0	0	0	0	0	-	-	+	-	1	3
0.0025				0	0	0	0	0	0	0	0	0	-	-	+	-	1	3
0.0025					0	0	0	0	0	0	0	0	-	-	+	-	1	3
0.0025						0	0	0	0	0	0	0	-	-	+	-	1	3
0.0025							0	0	0	0	0	0	-	-	+	-	1	3
0.0025								0	0	0	0	0	-	-	+	-	1	3
0.0025									0	0	0	0	-	-	+	-	1	3
0.0025										0	0	0	-	-	+	-	1	3
0.0025											0	0	-	-	+	-	1	3
0.0025												0	-	-	+	-	1	3
0.002													0	0	+	0	1	0
0.002														0	+	0	1	0
0.0043															0	-	0	1
0.002																0	0	0
																	26	31
																	Total "+"	Total "-"

-5
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.3783

p-value = 0.6217

RESULT: Since S < 38 (critical value) & > -38 = TRUE

STABLE / NO TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots$ up to $t_g]\}$

Where: t_1 = number of tied samples in the first group = 10

t_2 = number of tied samples in second group = 3

g = the number of tied sample groups

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 364.67

z_o = -0.3142

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S*, dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-10 Arsenic

Date	10/28/96	05/22/97	10/22/97	05/26/98	10/13/98	05/05/99	10/20/99	04/19/00	10/10/00	05/01/01	04/17/02	04/22/03	06/15/04	07/06/05	05/31/06	05/31/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.033	0.053	0.0453	0.0402	0.0426	0.0319	0.035	0.0304	0.0359	0.0448	0.0586	0.0437	0.045	0.0475	0.0373	0.0371	Count "+"	Count "-"
0.033		+	+	+	+	-	+	-	+	+	+	+	+	+	+	+	13	2
0.053			-	-	-	-	-	-	-	-	+	-	-	-	-	-	1	13
0.0453				-	-	-	-	-	-	-	+	-	-	+	-	-	2	11
0.0402					+	-	-	-	-	+	+	+	+	+	-	-	6	6
0.0426						-	-	-	-	+	+	+	+	+	-	-	5	6
0.0319							+	-	+	+	+	+	+	+	+	+	9	1
0.035								-	+	+	+	+	+	+	+	+	8	1
0.0304									+	+	+	+	+	+	+	+	8	0
0.0359										+	+	+	+	+	+	+	7	0
0.0448											+	-	+	+	-	-	3	3
0.0586												-	-	-	-	-	0	5
0.0437													+	+	-	-	2	2
0.045														+	-	-	1	2
0.0475															-	-	0	2
0.0371																0	0	0
																	65	54
																	Total "+"	Total "-"

11 — S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

RESULT: Since S < 38 (critical value) & > -38 = TRUE

STABLE / NO TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots \text{ up to } t_g]\}$

Where: t_1 = number of tied samples in the first group = 0

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.6736

p-value = 0.3264

$z_o = S - sign(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 493.33

z_o = 0.4502

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S,* dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-10 Chromium

Date	10/28/96	05/22/97	10/22/97	05/26/98	10/13/98	05/05/99	10/20/99	04/19/00	10/10/00	05/01/01	04/17/02	04/22/03	06/15/04	07/06/05	05/31/06	05/31/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.07	0.055	0.0617	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	Count "+"	Count "-"
0.055		0	+	-	-	-	-	-	-	-	-	-	-	-	-	-	1	13
0.0617			0	-	-	-	-	-	-	-	-	-	-	-	-	-	0	13
0.005				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.005					0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.005						0	0	0	0	0	0	0	0	0	0	0	0	0
0.005							0	0	0	0	0	0	0	0	0	0	0	0
0.005								0	0	0	0	0	0	0	0	0	0	0
0.005									0	0	0	0	0	0	0	0	0	0
0.005										0	0	0	0	0	0	0	0	0
0.005											0	0	0	0	0	0	0	0
0.005												0	0	0	0	0	0	0
0.005													0	0	0	0	0	0
0.005														0	0	0	0	0
0.005															0	0	0	0
0.005																0	0	0
																	1	26
																	Total "+"	Total "-"

-25
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

From Table A-1, $z_{0.95}$ (critical value) = 1.645

RESULT: Since S < 38 (critical value) & > -38 = TRUE

STABLE / NO TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots \text{ up to } t_g]\}$

Where: t_1 = number of tied samples in the first group = 13

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0418

p-value = 0.9582

$z_o = S - \text{sign}(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 224.67

z_o = -1.7346

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S*, dated February 2006

Table 8C

Statistical Analysis of Groundwater Data 1996-2007
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-11 Chromium

Date	10/28/96	05/21/97	10/22/97	05/26/98	10/13/98	05/05/99	10/20/99	04/19/00	10/10/00	05/08/01	04/17/02	04/22/03	06/17/04	07/07/05	05/31/06	05/30/07		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	0.4	0.193	4.45	0.0837	0.19	0.174	0.0902	0.0378	0.0998	0.0597	0.836	0.122	0.193	0.604	0.21	0.24	Count "+"	Count "-"
0.193		0	+	-	-	-	-	-	-	-	+	-	0	+	+	+	5	8
4.45			0	-	-	-	-	-	-	-	-	-	-	-	-	-	0	13
0.0837				0	+	+	+	-	+	-	+	+	+	+	+	+	10	2
0.19					0	-	-	-	-	-	+	-	+	+	+	+	5	6
0.174						0	-	-	-	-	+	-	+	+	+	+	5	5
0.0902							0	-	+	-	+	+	+	+	+	+	7	2
0.0378								0	+	+	+	+	+	+	+	+	8	0
0.0998									0	-	+	+	+	+	+	+	6	1
0.0597										0	+	+	+	+	+	+	6	0
0.836											0	-	-	-	-	-	0	5
0.122												0	+	+	+	+	4	0
0.193													0	+	+	+	3	0
0.604														0	-	-	0	2
0.21															0	+	1	0
0.24																0	0	0
																	60	44
																	Total "+"	Total "-"

16
S (difference in total "+" and "-")

n (number of samples) = 16

From Table A-12a, critical value = 38

RESULT: Since S < 38 (critical value) & > -38 = TRUE

From Table A-1, $z_{0.05}$ (critical value) = 1.645

STABLE / NO TREND

$V(S) = 1/18\{n(n-1)(2n+5) - [t_1(t_1-1)(2t_1+5)+[t_2(t_2-1)(2t_2+5)+\ldots \text{ up to } t_g]\}$

Where: t_1 = number of tied samples in the first group = 2

t_2 = number of tied samples in second group = 0

g = the number of tied sample groups

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.7517

p-value = 0.2483

$z_o = S - \text{sign}(S) / V(S)^{0.5}$ Where: sign(S) = 1 if S > 0, 0 if S = 0, and -1 if S < 0

V(S) = 492.33

z_o = 0.6760

Conclusion 1: Since test statistics z_0 < critical value (1.645) = TRUE
do not reject result

Conclusion 2: Since p-value > significance level (0.05) = TRUE
do not reject result

Reference: *USEPA Data Quality Assessment: Statistical Methods for Practitioner EPA QA/G-9S*, dated February 2006

Table 9

2007 Groundwater Monitoring Field Parameters
Former Sinclair Refinery Site (OU-1)
Wellsville, New York

Monitoring Well	Date	pH (s.u.)	Conductivity (us/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP (mV)
MWR-01	30-May-07	7.65	504	4.49	0.41	11.93	-106.8
MWR-02	4-Jun-07	7.4	640	1.21	0.31	10.22	-126.7
MWR-03	4-Jun-07	7.42	433	2.14	0.3	10.68	-56.5
MWR-04	1-Jun-07	7.29	181	3.68	0.27	13.9	-74.9
MWR-05	1-Jun-07	7.4	130	3.57	1.78	8.99	-43.4
MWR-06	31-May-07	7.48	282	5.71	0.4	11.13	-81
MWR-07	31-May-07	7.1	175	0.76	0.44	11.56	-40.9
MWR-08	30-May-07	7.97	304	1.84	0.55	10.25	-133.2
MWR-09	31-May-07	7.74	499	3.1	0.44	11.58	-116.7
MWR-10	31-May-07	8.04	494	19.6	0.45	12.63	-86.2
MWR-11	30-May-07	7.34	354	7.42	6.57	10.18	-48.7

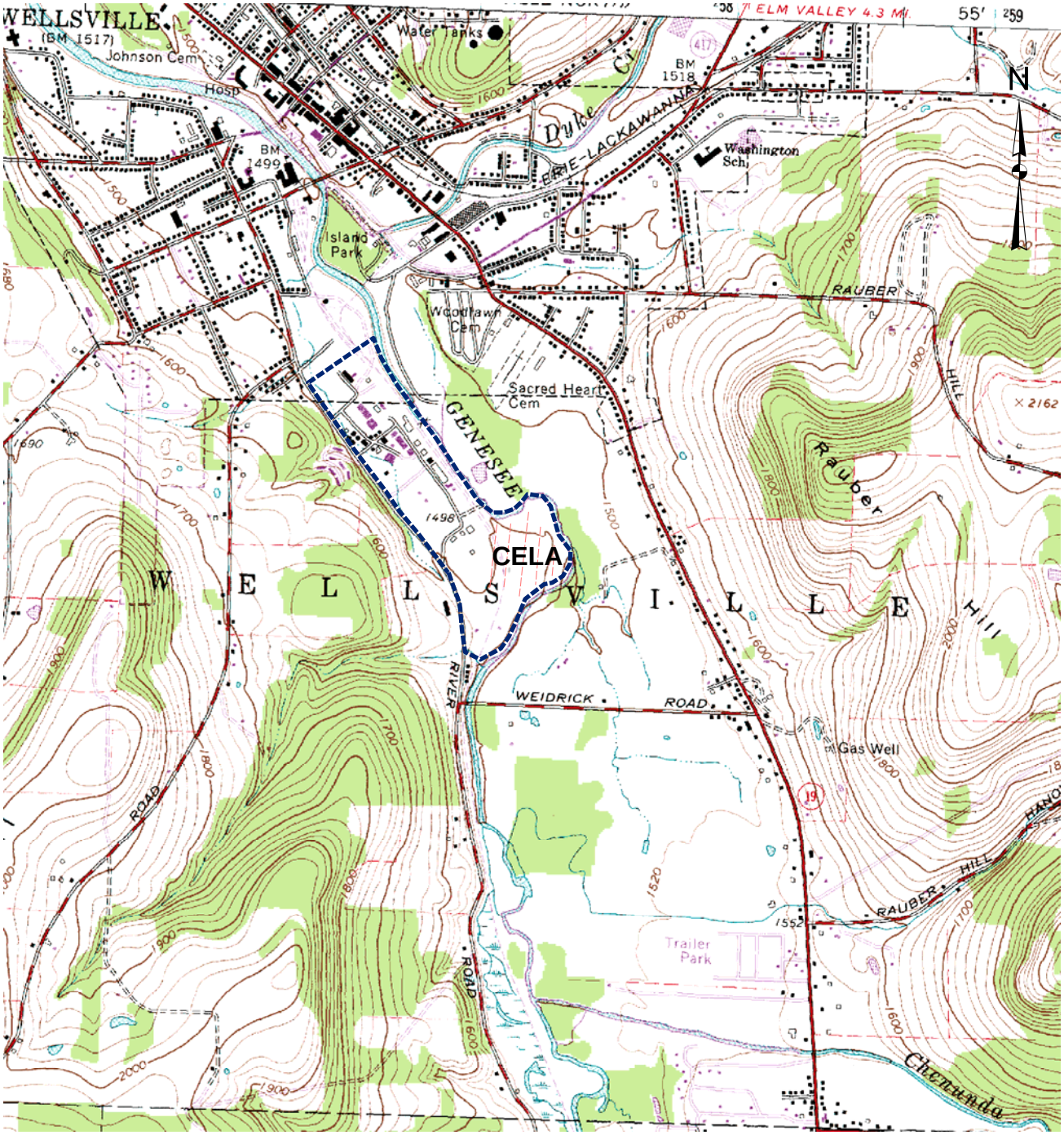
Table 10

2007 LNAPL Measurements and Removal
Former Sinclair Refinery Site (OU-1)
Wellsville, New York

Date	Depth to LNAPL (ft)	Depth to Water (ft)	Apparent LNAPL Thickness (ft)	Comment	Sock LNAPL Saturation (in)	Approximate LNAPL Removed (oz)
MWR-2						
5/29/2007	14.86	15.88	1.02	3 18" socks installed	NA	NA
6/4/2007	NM	15.02	NM	3 18" socks removed - fully saturated	36"	51.0
				2007 Total LNAPL Removed (oz):		**51.0**

Notes:
The approximate quantities of LNAPL removed are based on the length of sock saturation and the manufacturers information indicates that 18" sock absorbs 17oz of NAPL.
Example: Four fully saturated 18" socks (4x17oz = 68oz NAPL)
NM -- Not measured

SITE LOCATION



SOURCE: WELLSVILLE SOUTH, NY USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, DATED 1965.

Legend

Approximate Site Boundary

2,000 1,000 0 2,000 Feet

1 inch equals 2,000 feet

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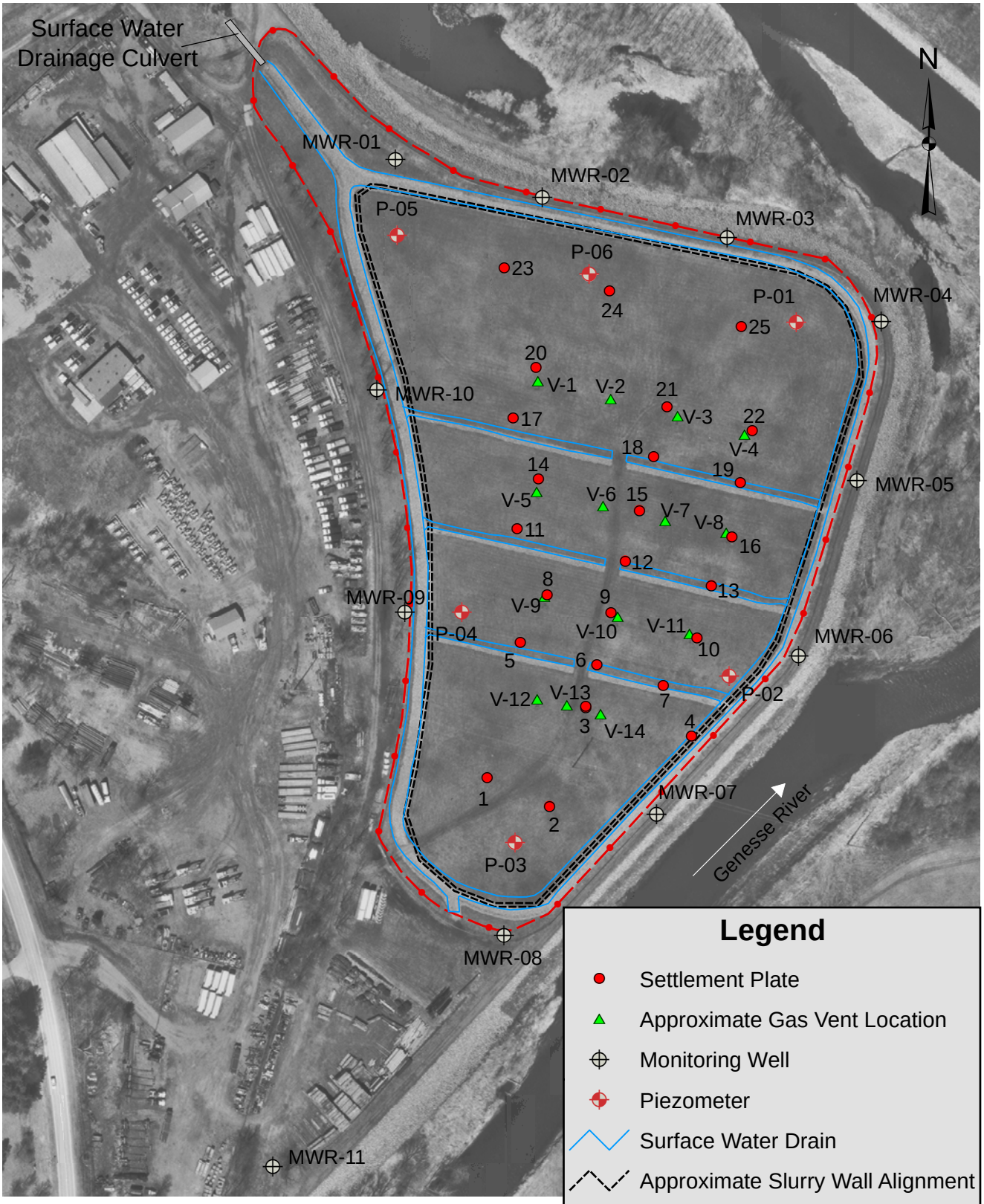
FIGURE NO.	1a
PROJECT	WELLSVILLE OU-1
DOCUMENT NO.	2007 CELA REPORT
FILE NO.	SITELOC.MXD

N:\ARCO_WLSV\OU1REPORTS\2007CELAREPORT\FIGURES\SITELOC.MXD

SITE FEATURES



1999 AERIAL PHOTOGRAPH

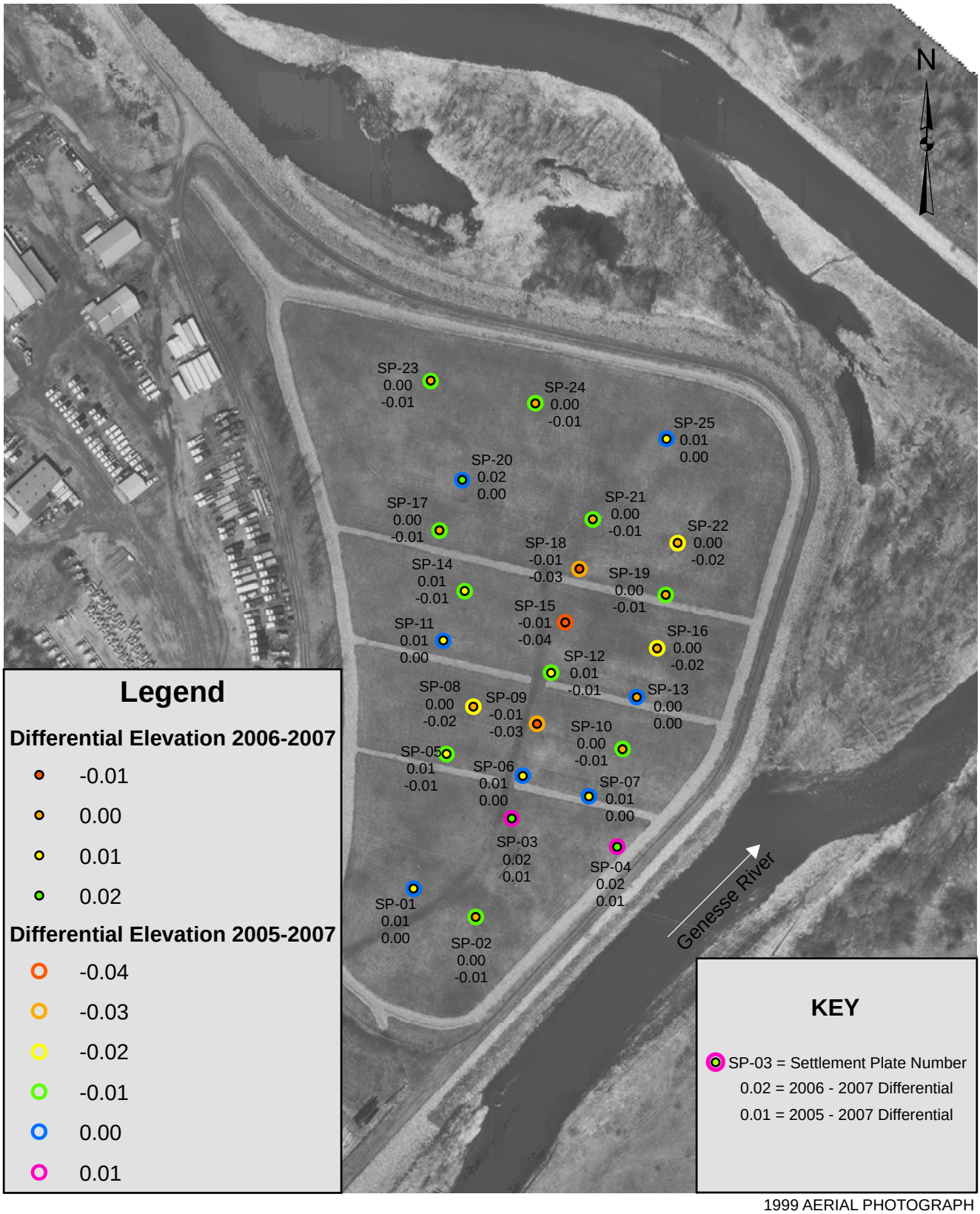
ON-SITE TECHNICAL SERVICES, INC.

72 Railroad Avenue Wellsville, NY 14895

FIGURE NO.	1b
PROJECT	WELLSVILLE OU-1
DOCUMENT	2007 CELA REPORT
FILE NO.	SITEFEATURES.MXD

N:\ARCO_WLSV\OU1REPORTS\2007CELA\FIGURES\SITEFEATURES.MXD

CELA DIFFERENTIAL ELEVATIONS



Legend

Differential Elevation 2006-2007

- -0.01
- 0.00
- 0.01
- 0.02

Differential Elevation 2005-2007

- -0.04
- -0.03
- -0.02
- -0.01
- 0.00
- 0.01

KEY

SP-03 = Settlement Plate Number
0.02 = 2006 - 2007 Differential
0.01 = 2005 - 2007 Differential

1999 AERIAL PHOTOGRAPH

200 100 0 200 Feet

1 inch equals 200 feet

NOTE: NEGATIVE DIFFERENTIALS INDICATE A DECREASE IN ELEVATION

ON-SITE TECHNICAL SERVICES, INC.

72 Railroad Avenue Wellsville, NY 14895

FIGURE NO.	2
PROJECT	WELLSVILLE OU-1
DOCUMENT	2007 CELA REPORT
FILE NO.	SETTLE07.MXD

N:\ARCO_WLSV\OU1REPORTS\2007CELA\FIGURES\SETTLE07.MXD

FIGURE 3A
CHANGE IN ELEVATION 1992-2007

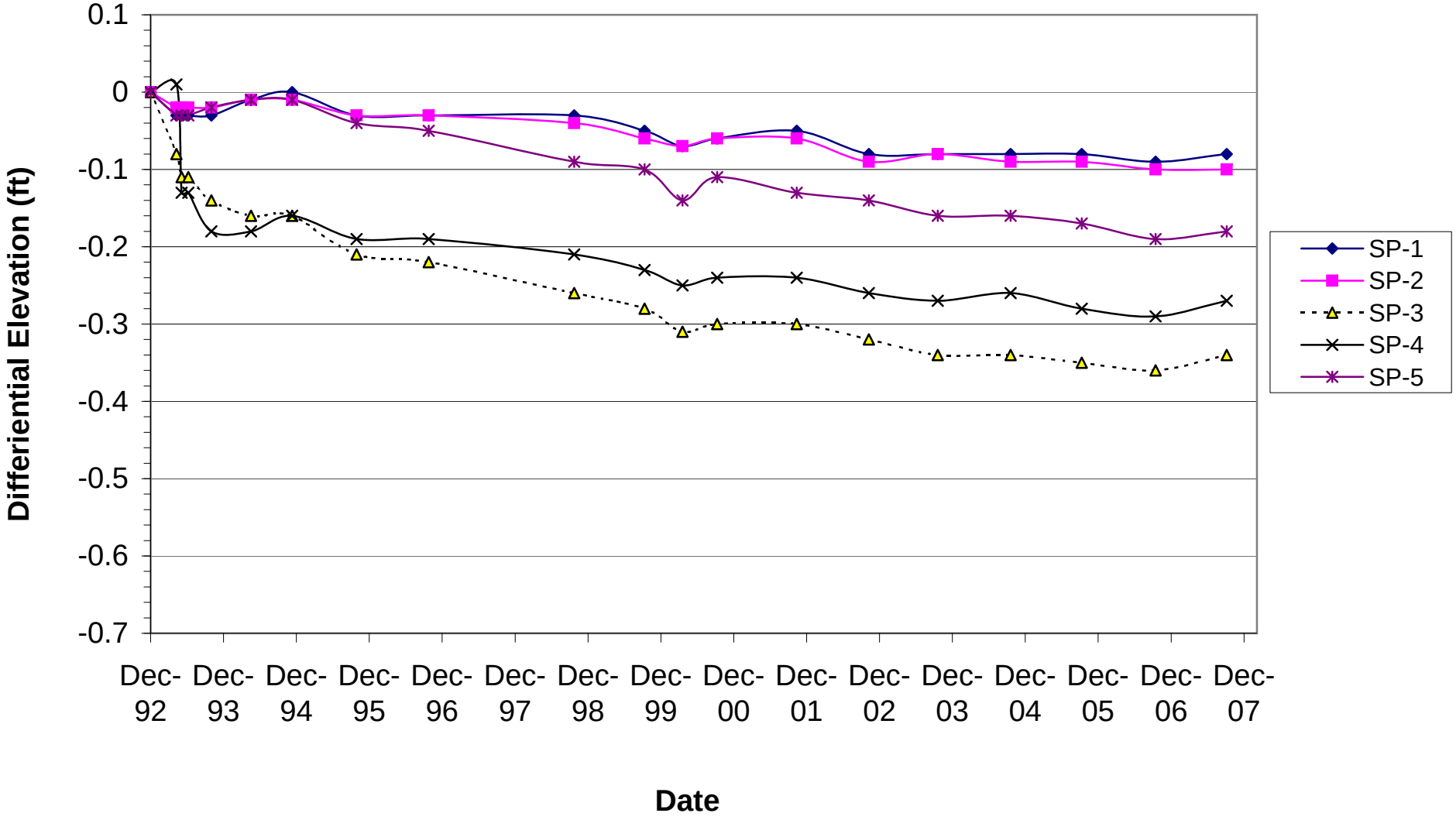


FIGURE 3B
CHANGE IN ELEVATION 1992-2007

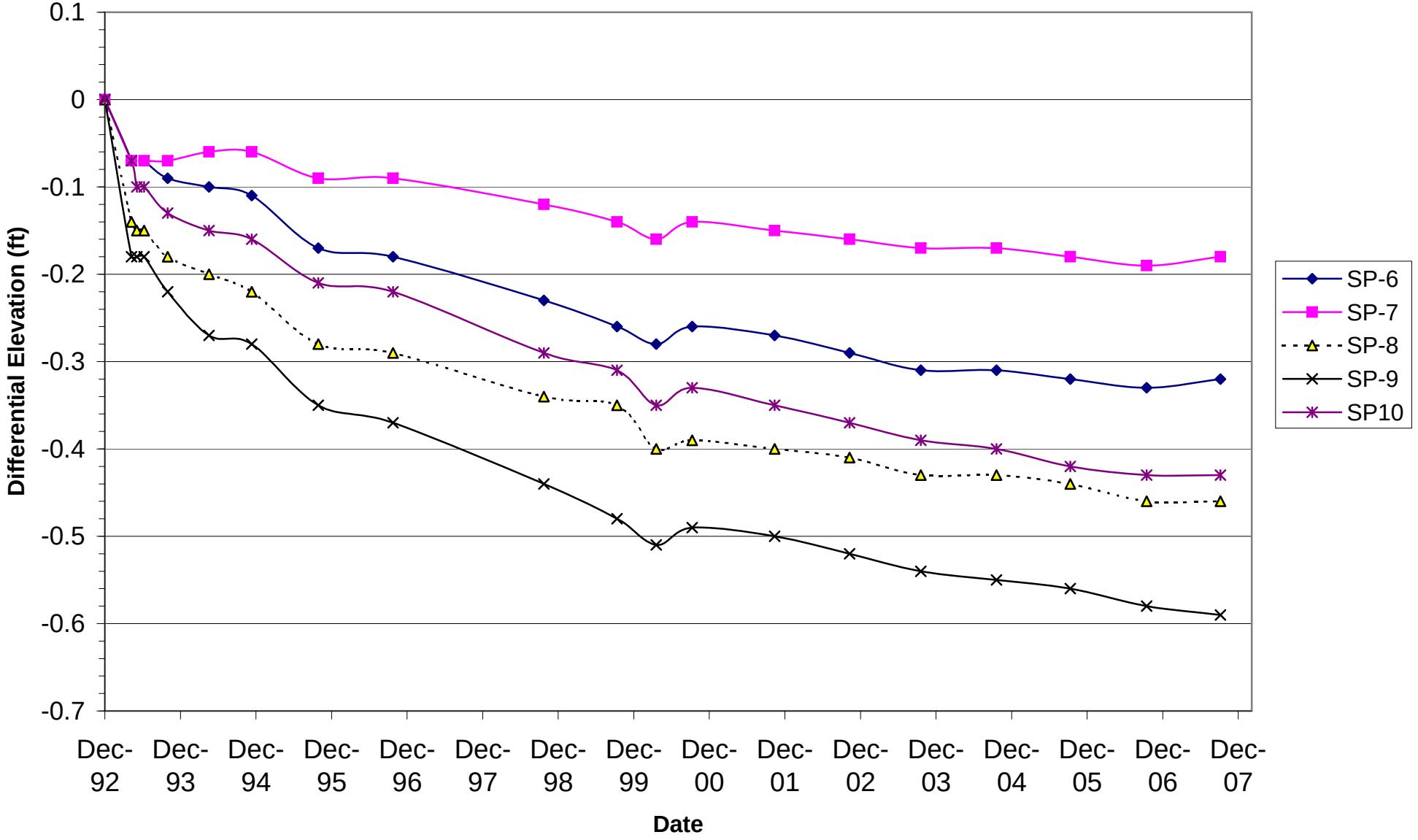


FIGURE 3C
CHANGE IN ELEVATION 1992-2007

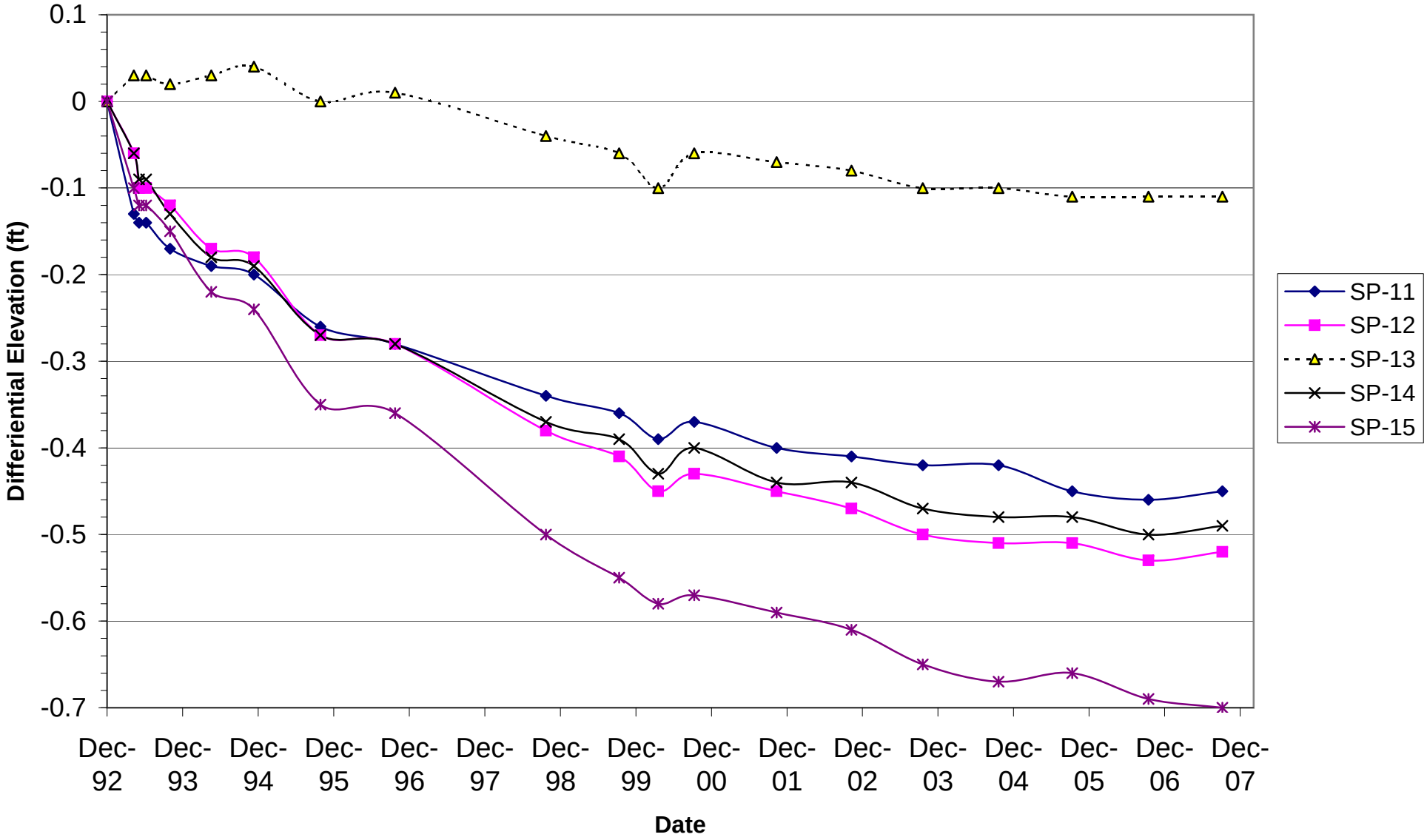


FIGURE 3D
CHANGE IN ELEVATION 1992-2007

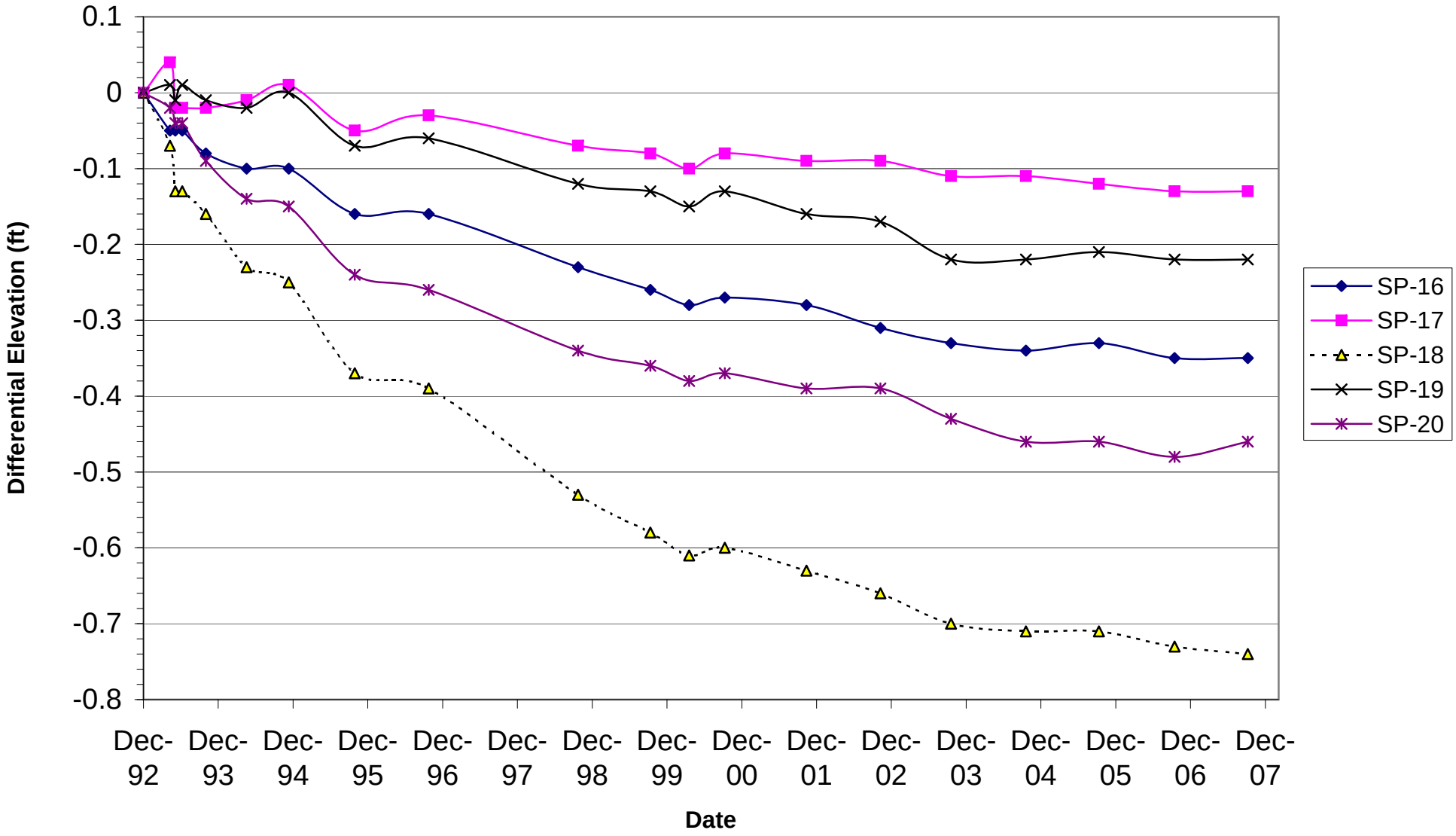
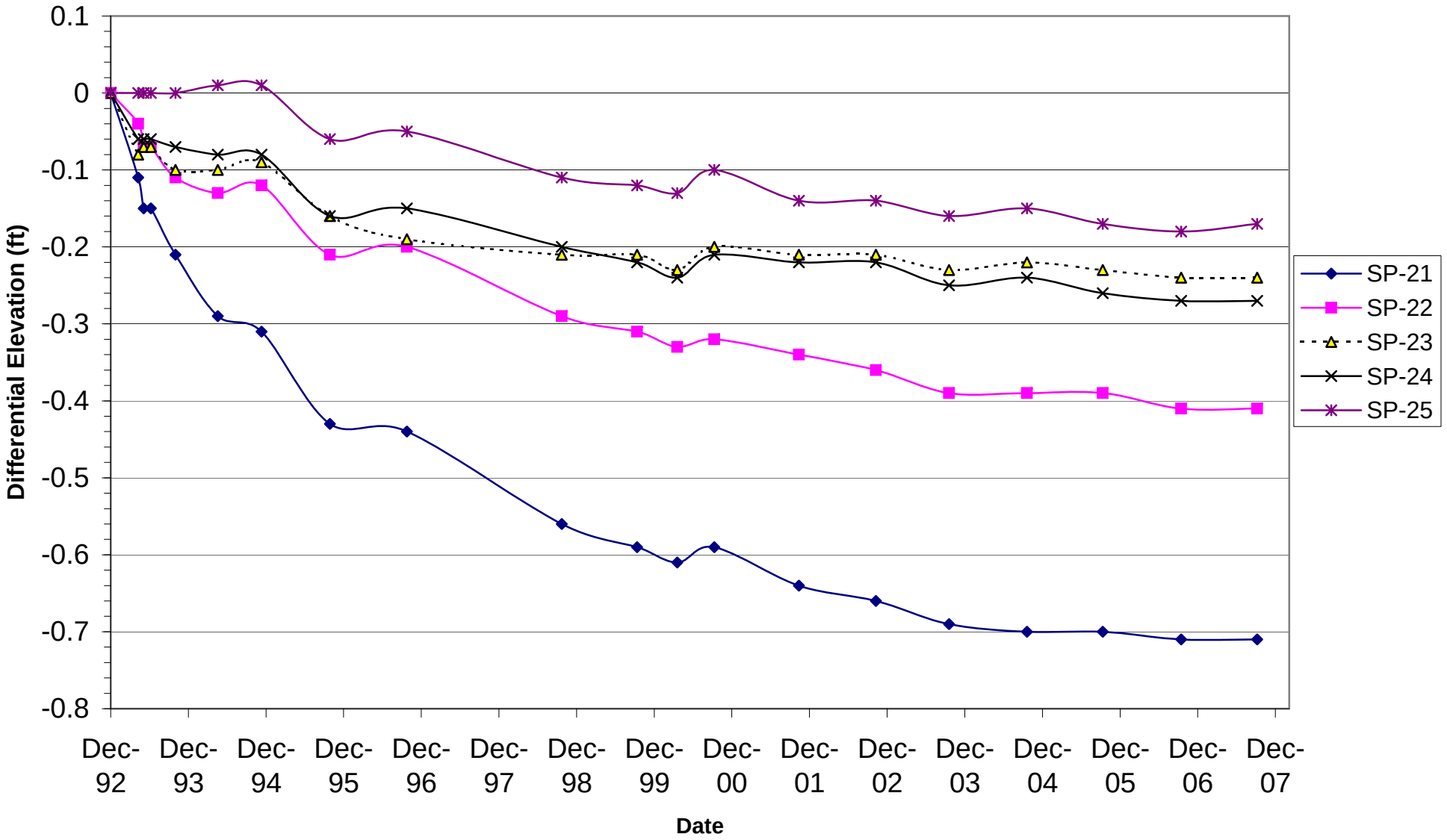
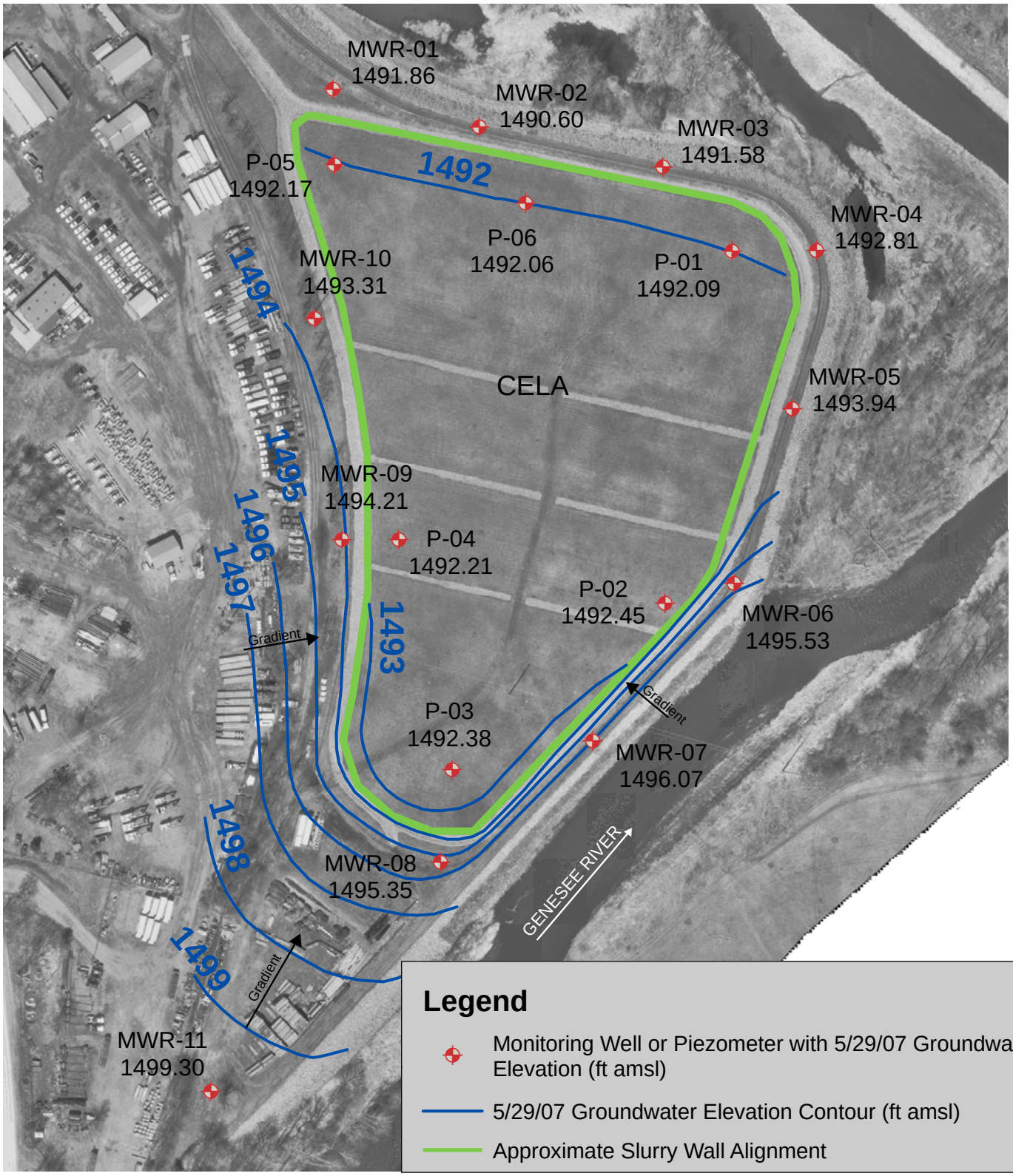


FIGURE 3E
CHANGE IN ELEVATION 1992-2007



MAY 29, 2007 WATER TABLE CONTOUR MAP



1999 AERIAL PHOTOGRAPH

ON-SITE TECHNICAL SERVICES, INC.

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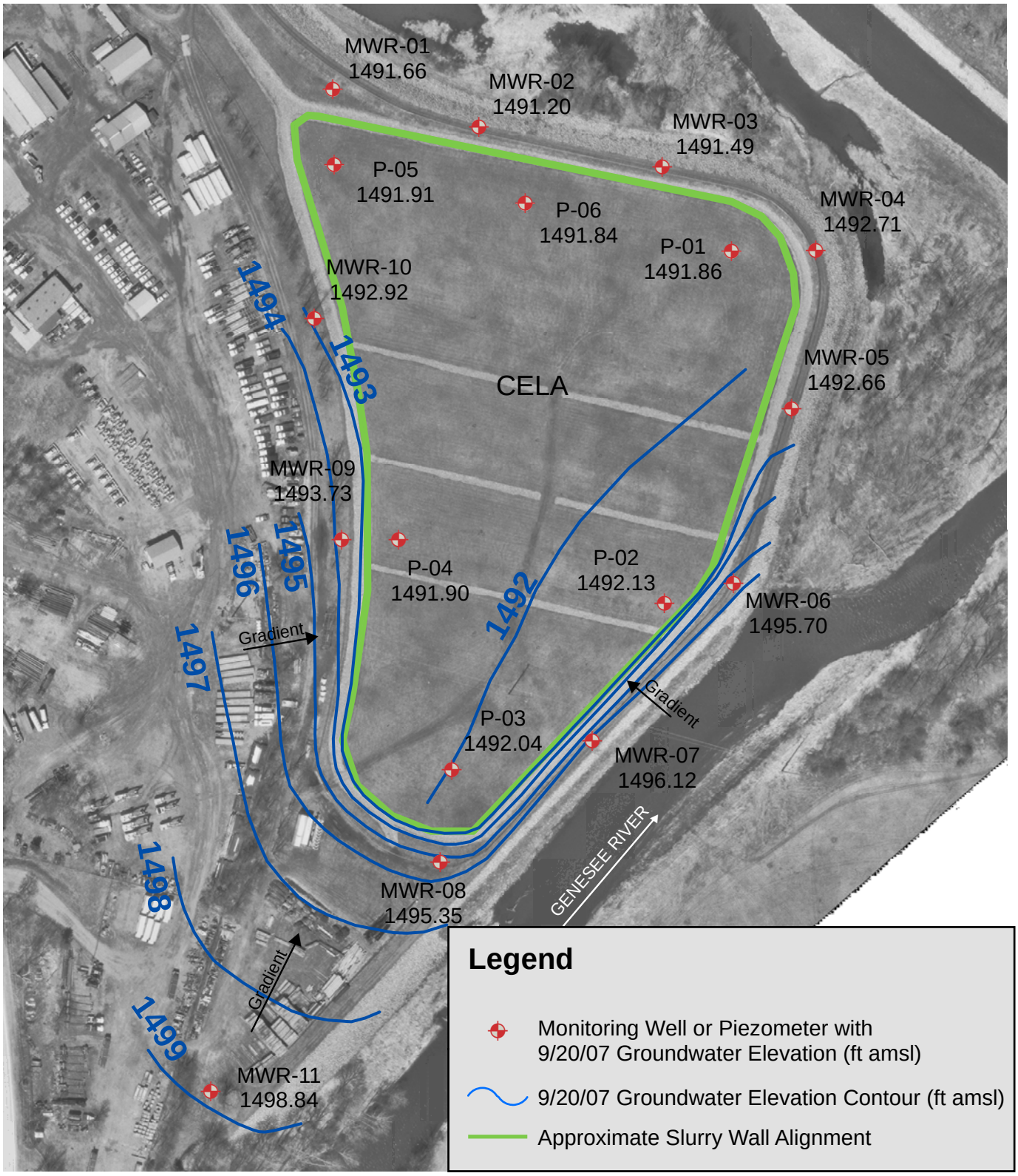
FIGURE NO.	4
PROJECT	WELLSVILLE OU-1
DOCUMENT	2007 CELA REPORT
FILE NO.	FIG4.MXD

N:\ARCO_WLSV\OU1 REPORTS\2007CELA REPORT\FIGURES\FIG4.MXD

SEPTEMBER 20, 2007 WATER TABLE CONTOUR MAP



Legend

- Monitoring Well or Piezometer with 9/20/07 Groundwater Elevation (ft amsl)
- 9/20/07 Groundwater Elevation Contour (ft amsl)
- Approximate Slurry Wall Alignment

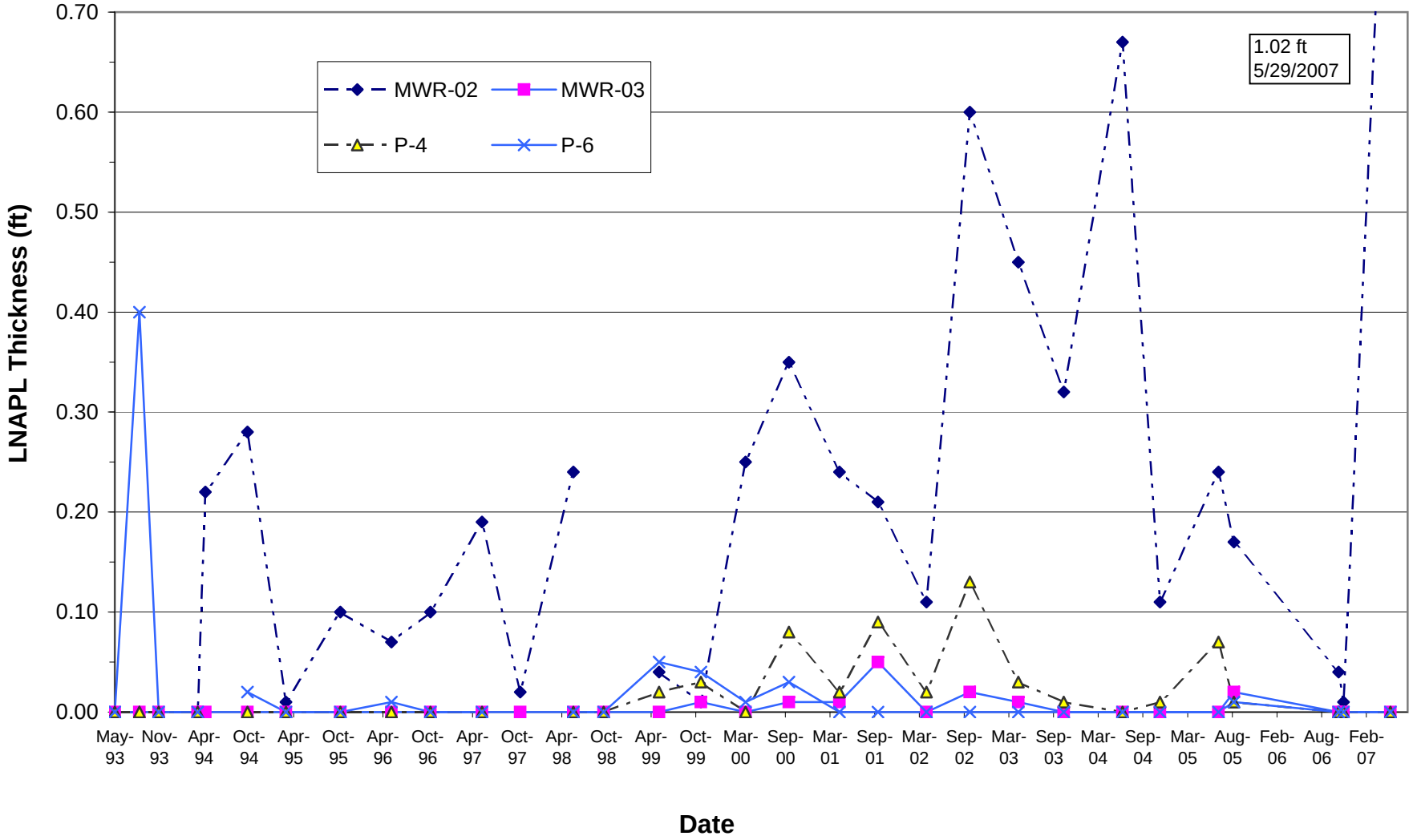
ON-SITE TECHNICAL SERVICES, INC.
72 Railroad Avenue Wellsville, NY 14895

FIGURE NO.	5
PROJECT	WELLSVILLE OU-1
DOCUMENT	2007 CELA REPORT
FILE NO.	FIG5.MXD

N:\ARCO_WLSV\OU1 REPORTS\2007CELA REPORT\FIGURES\FIG5.MXD

Figure 6

LNAPL Thickness 1993-2007



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

JUN 28 200

BY FEDEX

Terry Moore
Environmental Manager
BP/ARCO Environmental Remediation, L.L.C.
2300 West Plano Parkway, Room PRC-J1633
Plano, TX 75075-8499

Re: Sinclair Refinery Site, Wellsville, New York; Annual Reporting Requirements - OU1.

Dear Mr. Moore:

This is in response to your letter to the U.S. Environmental Protection Agency (EPA) dated April 18, 2001 whereby you request modification of the annual reporting requirements associated with the Central Elevated Landfill Area and Partial River Channelization (OU1) at the Sinclair Refinery Site in Wellsville, New York. Specifically, you request that water quality measurements (chemical analysis of water samples) be performed once per year in the Spring instead of the current Spring and Fall schedule. The reasoning behind your request is that statistical analysis of groundwater quality data show no significant trends in groundwater quality over time.

Upon EPA's review of your request, and in consultation with the New York State Department of Environmental Conservation (NYSDEC), EPA approves this modification to the annual reporting requirements. However, as you state in your letter, fluid level measurements, including non-aqueous phase liquid (NAPL) measurements, will continue on a semi-annual basis due to seasonal fluctuations and all other parameters will continue to be performed in accordance with the schedule set forth in the OU1 Operation and Maintenance Plan.

If you have any questions on this matter, please call me at (212) 637-4278.

Sincerely yours,

Michael J. Negrelli
Remedial Project Manager
New York Remediation Branch

cc: M. Brekhus - BP/ARCO (Los Angeles)
D. Keenan - NYSDEC
C. Berns - EPA/ORC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

NOV 0 8 2002

BY FEDEX

Terry Moore
Environmental Manager
BP/ARCO Environmental Remediation, L.L.C.
1701 Summit Avenue, Suite 2
Plano, TX 75074

Re: Sinclair Refinery Site, Wellsville, New York

Dear Mr. Moore:

This letter is in response to the Atlantic Richfield Company's ("ARCO's") letter to the U.S. Environmental Protection Agency ("EPA"), dated April 24, 2002, regarding proposed modifications to certain Operation and Maintenance (O&M) requirements for the first operable unit (OU1) at the Sinclair Refinery site in Wellsville, New York. Specifically, ARCO's letter requests modifications to the frequency of elevation surveys of the river channel and banks associated with OU1 and discontinuation of analyzing dissolved metals in the annual ground water sampling (total metals will continue to be analyzed).

ARCO notes that the O&M Manual for OU1 states that the frequency of surveying of cross sections of the dikes will depend on significant changes in surveying data (the elevation surveys of the river bed have no corresponding mention of changing the frequency based on observations). Surveys performed by ARCO annually for the past ten years have indicated no significant changes in survey data for either the dike cross sections or river bed. Accordingly, EPA approves modifying the survey frequency from annually to every five years. As ARCO notes in its letter, annual inspections and periodic patrols following high water events shall continue.

ARCO also requests a discontinuation of the analysis for dissolved metals in the annual ground water sampling. This request is based on recent sampling events showing metals to be below MCLs and a good correlation between dissolved and total metals concentrations (ARCO will continue to perform total metals analysis annually). Therefore, EPA approves of ARCO's proposal to discontinue dissolved metals analysis in the annual ground water sampling at OU1. However, at the request of the New York State Department of Environmental Conservation (NYSDEC), this approval shall be effective starting with the 2003 annual sampling event in order to allow the NYSDEC to collect split samples during the 2002 sampling event. Please contact Maurice Moore at the NYSDEC regional office (716-851-7220) at least two weeks prior to the sampling event in order to make arrangements.

If you have any questions on this matter, please contact me at (212) 637-4278 or by email at negrelli.mike@epa.gov.

Sincerely yours,

Michael J. Negrelli

Michael J.Negrelli
Remedial Project Manager
New York Remediation Branch

cc: Wayne Mizerak - NYSDEC
Maurice Moore - NYSDEC/R.9

-----Original Message-----
From: Negrelli.Mike@epamail.epa.gov
[mailto:Negrelli.Mike@epamail.epa.gov]
Sent: Monday, June 27, 2005 4:08 PM
To: Hufford, Walter
Cc: mfmoore@gw.dec.state.ny.us
Subject: OU1 Monitoring

Walt-
After discussion with Maurice, we agree to ARCO's proposal to suspend SVOC analysis from the CELA monitoring program as they have been non-detect since 1998. However, EPA reserves the right to have SVOC analysis resume should conditions at the CELA change at some point in the future that would lead us to believe the analysis should be resumed. Further, I believe we have previously agreed to your request to changing the soil pH analysis from annually to every three years, both in the CELA monitoring program and partial river channelization monitoring program. Please inform Jerry Palmer and Jon Brandis at On-Site Health and Safety of this determination.

If you have any questions on this matter, please do not hesitate to contact me.

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR VEGETATIVE COVER

Completed By: S. Watson Sheet 1 of 6

Title: Field tech Date: 3-27-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
A. VEGETATIVE COVER	
1. Erosion ✓	
2. Stressed Vegetation ✓	
3. Sediment Build-Up ✓	
4. Local Subsidence or Loss of Grade ✓	
5. Water Ponding ✓	
6. Turf Height ✓	
7. Burrowing Animals *	
8. Weeds or Undesirable Vegetation ✓	
9. Evidence of Fires or Vandalism ✓	
10. Soil pH Check ✓	
11. Unauthorized Traffic ✓	
12. Slope Instability or Sloughing ✓	

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

* Possible mole infestation at crossovers (southern most & center) east side.

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GAS VENT SYSTEM

Completed By: S. Watson Sheet 2 of 6

Title: Field tech Date: 3-27-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
B. GAS VENT SYSTEM	
1. Excess Sediment Build-Up and Vegetation Growth Over Vent Pipes	✓
2. Erosion or Washout Around Vent Pipes	✓
3. Damaged Vent Pipe	✓

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR OPEN WELL PIEZOMETERS

Completed By: S. Watson Sheet 3 of 6

Title: Field tech Date: 3-27-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
C. OPEN WELL PIEZOMETERS	
1. Excess Sediment Build-Up and Vegetation Growth Over Casing	✓
2. Erosion or Washout Around Piezometer Casings	✓
3. Proper Functioning of the Protective Cover Cap and Lock (Test)	✓
4. Excess Rust on the Surface Casing and Lock	✓
5. Ponding Between Protective Casing and Riser Pipe	✓

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GROUND-WATER MONITORING WELLS

Completed By: S. Watson Sheet 4 of 6

Title: Field tech Date: 3-27-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
D. GROUND-WATER MONITORING WELLS	
1. Excess Sediment-Buildup and Vegetation Growth Over the Surface Casing	✓
2. Erosion Around the Concrete Surface Seal	✓
3. Cracks in the Concrete Surface Seal	✓
4. Separation Between the Concrete Surface Seal and the Surface Casing	✓
5. Proper Function of the Surface Casing Cap and Lock	✓
6. Excess Rust on the Surface Casing and Lock	✓
7. Ponding Between the Surface Casing and the Riser Pipe	✓

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST SURFACE WATER DRAINAGE SYSTEM

Completed By: S. Watson Sheet 5 of 6

Title: Field tech Date: 3-27-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
E. SURFACE-WATER DRAINAGE SYSTEMS	
1. Dislodged Riprap ✓	
2. Washouts ✓	
3. Erosion ✓	
4. Sediment Build-Up on Riprap ✓	
5. Gullies and Ruts ✓	
6. Excess Rusting of Drainage Culvert ✓	
7. Holes and Cracks in Drainage Culvert ✓	
8. Sediment Build-Up in Drainage Culvert ✓	
9. Foreign Objects ✓	
10. Washout at Berm/Culvert Interface ✓	

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST SECURITY FENCE

Completed By: S. Watson Sheet 6 of 6

Title: Field tech Date: 3-27-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Regular
( ) Immediately after heavy storm (2 in. in 24 hour)
( ) Other (explain)

Item Description — Condition*/Remarks

F. SECURITY FENCE

1. Proper Clearance (8 in. (200 mm) Between Fence Gate and the Ground ✓
2. Proper Function of Gate Lock and Hinges ✓
3. Holes ✓
4. Excess Rust ✓
5. Ruts or Burrows Beneath the Fence ✓
6. Vegetation Growing Onto or Through the Fence ✓
7. Improper Connection Between Posts and Chain Link Mesh ✓
8. Loose Posts ✓
9. Cracks in the Post Foundation ✓
10. General Signs of Deterioration ✓

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR VEGETATIVE COVER

Completed By: Kevin Dye Sheet 1 of 6

Title: Field Tech Date: 6-11-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
A. VEGETATIVE COVER	
1. Erosion	✓
2. Stressed Vegetation	✓
3. Sediment Build-Up	✓
4. Local Subsidence or Loss of Grade	✓
5. Water Ponding	✓
6. Turf Height	✓
7. Burrowing Animals	✓
8. Weeds or Undesirable Vegetation	✓
9. Evidence of Fires or Vandalism	✓
10. Soil pH Check	✓
11. Unauthorized Traffic	✓
12. Slope Instability or Sloughing	✓

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed): Woodchuck holes

1. Section 4 Around 8" well casing

2. Section 4 at TOP

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GAS VENT SYSTEM

Completed By: Kevin Dye Sheet 2 of 6

Title: Field Tech Date: 6-11-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
B. GAS VENT SYSTEM	
1. Excess Sediment Build-Up and Vegetation Growth Over Vent Pipes	✓
2. Erosion or Washout Around Vent Pipes	✓
3. Damaged Vent Pipe	✓

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR OPEN WELL PIEZOMETERS

Completed By: Kevin Dye Sheet 3 of 6

Title: Field Tech Date: 6-11-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
C. OPEN WELL PIEZOMETERS	
1. Excess Sediment Build-Up and Vegetation Growth Over Casing ✓	
2. Erosion or Washout Around Piezometer Casings ✓	
3. Proper Functioning of the Protective Cover Cap and Lock (Test) ✓	
4. Excess Rust on the Surface Casing and Lock ✓	
5. Ponding Between Protective Casing and Riser Pipe ✓	

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GROUND-WATER MONITORING WELLS

Completed By: Kevin Dietz Sheet 4 of 6

Title: Field Tech. Date: 6-11-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
D. GROUND-WATER MONITORING WELLS	
1. Excess Sediment-Buildup and Vegetation Growth Over the Surface Casing	✓
2. Erosion Around the Concrete Surface Seal	✓
3. Cracks in the Concrete Surface Seal	✓
4. Separation Between the Concrete Surface Seal and the Surface Casing	✓
5. Proper Function of the Surface Casing Cap and Lock	✓
6. Excess Rust on the Surface Casing and Lock	✓
7. Ponding Between the Surface Casing and the Riser Pipe	✓

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST SURFACE WATER DRAINAGE SYSTEM

Completed By: Kevin Ryf Sheet 5 of 6

Title: Field Tech Date: 6-11-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
E. SURFACE-WATER DRAINAGE SYSTEMS	
1. Dislodged Riprap	✓
2. Washouts	✓
3. Erosion	✓
4. Sediment Build-Up on Riprap	✓
5. Gullies and Ruts	✓
6. Excess Rusting of Drainage Culvert	✓
7. Holes and Cracks in Drainage Culvert	✓
8. Sediment Build-Up in Drainage Culvert	✓
9. Foreign Objects	✓
10. Washout at Berm/Culvert Interface	✓

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST SECURITY FENCE

Completed By: Kevin Dé Sheet 6 of 6

Title: Field Tech Date: 6/11-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Regular
( ) Immediately after heavy storm (2 in. in 24 hour)
( ) Other (explain)

Item Description	Condition*/Remarks
F. SECURITY FENCE	
1. Proper Clearance (8 in. (200 mm) Between Fence Gate and the Ground	✓
2. Proper Function of Gate Lock and Hinges	✓
3. Holes	✓
4. Excess Rust	✓
5. Ruts or Burrows Beneath the Fence	✓
6. Vegetation Growing Onto or Through the Fence	✓
7. Improper Connection Between Posts and Chain Link Mesh	✓
8. Loose Posts	✓
9. Cracks in the Post Foundation	✓
10. General Signs of Deterioration	✓

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR VEGETATIVE COVER

Completed By: Kevin Dye Sheet 1 of 6

Title: Field Tech Date: 8-2-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
A. VEGETATIVE COVER	
1. Erosion ✓	
2. Stressed Vegetation ✓	
3. Sediment Build-Up ✓	
4. Local Subsidence or Loss of Grade ✓	
5. Water Ponding ✓	
6. Turf Height ✓	
7. Burrowing Animals ✓	
8. Weeds or Undesirable Vegetation ✓	
9. Evidence of Fires or Vandalism ✓	
10. Soil pH Check ✓	
11. Unauthorized Traffic ✓	
12. Slope Instability or Sloughing ✓	

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

✓ — wood chuck Holes located Atop of 3rd Section Cent & 3rd Section at Bottom of 8" well Ctng.

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GAS VENT SYSTEM

Completed By: Kevin Dye Sheet 2 of 6

Title: Field Tech Date: 8-2-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
B. GAS VENT SYSTEM	
1. Excess Sediment Build-Up and Vegetation Growth Over Vent Pipes	✓
2. Erosion or Washout Around Vent Pipes	✓
3. Damaged Vent Pipe	✓
white Vent Pipe in 3rd Section Tore at Base	

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR OPEN WELL PIEZOMETERS

Completed By: Kerry Dye Sheet 3 of 6

Title: Field Tech Date: 8-2-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
C. OPEN WELL PIEZOMETERS	
1. Excess Sediment Build-Up and Vegetation Growth Over Casing ✓	
2. Erosion or Washout Around Piezometer Casings ✓	
3. Proper Functioning of the Protective Cover Cap and Lock (Test) ✓	
4. Excess Rust on the Surface Casing and Lock ✓	
5. Ponding Between Protective Casing and Riser Pipe ✓	

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GROUND-WATER MONITORING WELLS

Completed By: Kevin Rye Sheet 4 of 6

Title: Field Tech Date: 8-2-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(✓) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
D. GROUND-WATER MONITORING WELLS	
1. Excess Sediment-Buildup and Vegetation Growth Over the Surface Casing ✓	
2. Erosion Around the Concrete Surface Seal ✓	
3. Cracks in the Concrete Surface Seal ✓	
4. Separation Between the Concrete Surface Seal and the Surface Casing ✓	
5. Proper Function of the Surface Casing Cap and Lock ✓	
6. Excess Rust on the Surface Casing and Lock ✓	
7. Ponding Between the Surface Casing and the Riser Pipe ✓	

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST SURFACE WATER DRAINAGE SYSTEM

Completed By: Kevin Dye Sheet 5 of 6

Title: Field Tech Date: 8-2-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
E. SURFACE-WATER DRAINAGE SYSTEMS	
1. Dislodged Riprap	✓
2. Washouts	✓
3. Erosion	✓
4. Sediment Build-Up on Riprap	✓
5. Gullies and Ruts	✓
6. Excess Rusting of Drainage Culvert	✓
7. Holes and Cracks in Drainage Culvert	✓
8. Sediment Build-Up in Drainage Culvert	✓
9. Foreign Objects	✓
10. Washout at Berm/Culvert Interface	✓

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST SECURITY FENCE

Completed By: Kevin DE Sheet 6 of 6

Title: Field Tech Date: 8-2-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Regular
( ) Immediately after heavy storm (2 in. in 24 hour)
( ) Other (explain)

Item Description	Condition*/Remarks
F. SECURITY FENCE	
1. Proper Clearance (8 in. (200 mm) Between Fence Gate and the Ground	✓
2. Proper Function of Gate Lock and Hinges	✓
3. Holes	✓
4. Excess Rust	✓
5. Ruts or Burrows Beneath the Fence	✓
6. Vegetation Growing Onto or Through the Fence	✓
7. Improper Connection Between Posts and Chain Link Mesh	✓
8. Loose Posts	✓
9. Cracks in the Post Foundation	✓
10. General Signs of Deterioration	✓

---

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR VEGETATIVE COVER

Completed By: Scott Watson / Kevin Dye Sheet 1 of 6

Title: _____ Date: 11/5/07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
A. VEGETATIVE COVER	
1. Erosion ✓	
2. Stressed Vegetation ✓	
3. Sediment Build-Up ✓	
4. Local Subsidence or Loss of Grade ✓	
5. Water Ponding ✓	
6. Turf Height ✓	
7. Burrowing Animals ✓	
8. Weeds or Undesirable Vegetation ✓	
9. Evidence of Fires or Vandalism ✓	
10. Soil pH Check ✓	
11. Unauthorized Traffic ✓	
12. Slope Instability or Sloughing ✓	

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* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GAS VENT SYSTEM

Completed By: S Watson / K. Dye Sheet 2 of 6

Title: _____ Date: 11-5-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
B. GAS VENT SYSTEM	
1. Excess Sediment Build-Up and Vegetation Growth Over Vent Pipes	✓
2. Erosion or Washout Around Vent Pipes	✓
3. Damaged Vent Pipe	✓

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR OPEN WELL PIEZOMETERS

Completed By: S. Watson / K. Dye Sheet 3 of 6

Title: _____ Date: 11-5-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
C. OPEN WELL PIEZOMETERS	
1. Excess Sediment Build-Up and Vegetation Growth Over Casing	✓
2. Erosion or Washout Around Piezometer Casings	✓
3. Proper Functioning of the Protective Cover Cap and Lock (Test)	✓
4. Excess Rust on the Surface Casing and Lock	✓
5. Ponding Between Protective Casing and Riser Pipe	✓

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GROUND-WATER MONITORING WELLS

Completed By: J. Watson / K. Dye Sheet 4 of 6

Title: _____ Date: 11-5-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
D. GROUND-WATER MONITORING WELLS	
1. Excess Sediment-Buildup and Vegetation Growth Over the Surface Casing	✓
2. Erosion Around the Concrete Surface Seal	✓
3. Cracks in the Concrete Surface Seal	✓
4. Separation Between the Concrete Surface Seal and the Surface Casing	✓
5. Proper Function of the Surface Casing Cap and Lock	✓
6. Excess Rust on the Surface Casing and Lock	✓
7. Ponding Between the Surface Casing and the Riser Pipe	✓

* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST SURFACE WATER DRAINAGE SYSTEM

Completed By: S. Watson / K. Dye Sheet 5 of 6

Title: _____ Date: 11-5-07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Quarterly
( ) Other (explain)

Item Description	Condition*/Remarks
E. SURFACE-WATER DRAINAGE SYSTEMS	
1. Dislodged Riprap	✓
2. Washouts	✓
3. Erosion	✓
4. Sediment Build-Up on Riprap	✓
5. Gullies and Ruts	✓
6. Excess Rusting of Drainage Culvert	✓
7. Holes and Cracks in Drainage Culvert	✓
8. Sediment Build-Up in Drainage Culvert	✓
9. Foreign Objects	✓
10. Washout at Berm/Culvert Interface	✓

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* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST SECURITY FENCE

Completed By: J. Watson / K. Dye Sheet 6 of 6

Title: _____ Date: 11-05-02

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Regular
( ) Immediately after heavy storm (2 in. in 24 hour)
( ) Other (explain)

Item Description	Condition*/Remarks
F. SECURITY FENCE	
1. Proper Clearance (8 in. (200 mm) Between Fence Gate and the Ground	✓
2. Proper Function of Gate Lock and Hinges	✓
3. Holes	✓
4. Excess Rust	✓
5. Ruts or Burrows Beneath the Fence	✓
6. Vegetation Growing Onto or Through the Fence	✓
7. Improper Connection Between Posts and Chain Link Mesh	✓
8. Loose Posts	✓
9. Cracks in the Post Foundation	✓
10. General Signs of Deterioration	✓

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* Indicate satisfactory condition with a check; briefly describe conditions other than satisfactory; use additional sheets if more space is needed.

Recommendations for maintenance or repair (attach additional sheets as needed):

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 5/30/07

Monitoring Well: MWR-1 **Sample ID:** MWR01-0507 **Arrival Time:** 1320

Weather Conditions

Temp. 85 ° F (✓) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: n/a Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint) : OK Well Label :

Comment:

Depth & Purging Information

0.65 1 well volume = 15 gallons

Static Water Depth: 10.17 ft Well Depth: 33.29 ft Start Purge: 1340

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic Pumping Rate: 500 ml/28 sec

Start Sampling: 1445 Purging Duration: 1hr. 5min. Volume Removed: 55 gals.

556

Meter YSI ~~600 QS Ashtead #~~05D2374AW **Field Parameters** 05020C011331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
17	1400	Switch to cell		30.4				10.33
26.5	1410	7.90	504	14.0	1.03	11.42	-102.6	10.36
34	1420	7.66	504	9.22	0.66	11.79	-106.0	10.33
42.5	1430	7.62	504	6.14	0.53	11.67	-107.0	10.33
46	1435	7.67	504	5.73	0.45	11.94	-107.1	
50.5	1440	7.66	504	4.75	0.43	11.96	-107.1	
55	1445	7.65	504	4.49	0.41	11.93	-106.8	↓

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : clear/colorless

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (✓) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments :

Analysis Requested: VOC's / Metals Number of Containers: 4

Well Sampling Completion: Time 1530 Date 5/30 Samplers M. Babbitt / K. Dye

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 6/4/07

Monitoring Well: MWR-02 **Sample ID:** MWR02-0507 **Arrival Time:** 0935

Weather Conditions

Temp: 60 ° F ( ) Sunny ( ) Drizzle ( ) Light Rain (✓) Med. Rain ( ) Hvy. Rain (✓) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: n/a Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint) : _____ Well Label : _____

Comment: _____

1 well volume = 15.5 gal.

Depth & Purging Information

Static Water Depth: 15.02 ft Well Depth: 38.80 ft Start Purge: 0945

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic Pumping Rate: 24 s. / 500 ml

Start Sampling: 1040 Purging Duration: 55 min. Volume Removed: 27.5 gals.

Meter YSI ~~600 QS~~ 556 Ashtead # 05D2374AW Field Parameters Hach 2100P = 05020C011331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
0	0955	switch to cell		4.57				
10	1005	7.59	653	1.79	1.45	10.61	-128.3	
15	1015	7.52	646	1.28	0.63	10.43	-127.9	15.18
20	1025	7.45	642	1.30	0.44	10.31	-125.2	
22.5	1030	7.43	642	1.22	0.36	10.35	-126.6	
25	1035	7.42	641	1.23	0.35	10.27	-126.7	
27.5	1040	7.40	640	1.21	0.31	10.22	-126.7	

Stabilization Criteria: 3 consecutive readings ±0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : Clear/Colorless

Sample Odor: (Y) (N) explain: Hydrocarbon odor

Final sample oil sheen: ( ) None ( ) Light (✓) Med ( ) Heavy ( ) NAPL

Other Observations / Comments : 3 socks removed - fully saturated.

Analysis Requested: VOCs / Metals Number of Containers: 4

Well Sampling Completion: Time 1105 Date 6/4/07 Samplers M Babbitt / K. Dye.

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 6/4/07

Monitoring Well: MWR-03 **Sample ID:** MWR03-0507 **Arrival Time:** 0745

Weather Conditions

Temp. 60° F ( ) Sunny (✓) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain (✓) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: n/a Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: no label

Comment: 1 well volume = 10 gl.

Depth & Purging Information

Static Water Depth: 14.94 ft Well Depth: 29.98 ft Start Purge: 0810

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic . Pumping Rate: 285./500 ml

Start Sampling: 0905 Purging Duration: 55 min. Volume Removed: 27.5 gals.

Meter YSI ~~600 QS Ashtead~~ 556 #05D2374AW **Field Parameters** Hach2100P - 05020C011331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
7.5	0825			21.8				15.05
12.5	0835	7.56	443	8.19	0.89	10.69	-37.6	15.05
17.5	0845	7.54	440	6.03	.53	10.79	-47.1	15.05
22.5	0855	7.46	436	3.32	0.34	10.68	-51.7	15.05
25	0900	7.44	435	3.14	0.32	10.47	-54.4	15.05
27.5	0905	7.42	433	2.14	0.30	10.68	-56.5	

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color: clear/colorless.

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (✓) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments:

Analysis Requested: VOCs/metals Number of Containers: 4

Well Sampling Completion: Time 0930 Date 6/4 Samplers M Babbitt / K Dye

MS/MSD

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 6/1/07

Monitoring Well: MWR-04 **Sample ID:** MWR4-0507 **Arrival Time:** 0945

Weather Conditions

Temp. 75° F (✓) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint) : OK Well Label : OK

Comment:

Depth & Purging Information

1 well volume = 7 gl.

Static Water Depth: 14.72 ft Well Depth: 25.30 ft Start Purge: 0950

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic Pumping Rate: 30 sec / 500ml ~~Stamper Bottle~~ KD

Start Sampling: 1045 Purging Duration: 55min Volume Removed: 27.5 gals.

Meter YSI ~~600 QS~~ 556 Ashtead # 05D2374AW Field Parameters Hach2100P = 05020C011331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
7.5	~~0955~~ 1005	Switch	to Cell	223				14.86
12.5	1015	7.30	174	12.2	.65	13.64	-69.8	14.83
17.5	1025	7.29	179	7.05	.41	13.42	-74.8	14.85
22.5	1035	7.27	183	4.76	.29	13.79	-70.9	14.84
25.0	1040	7.26	181	3.68	.26	14.61	-73.9	Pulled
27.5	1045	7.29	181		.27	13.90	-74.9	

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : Clear / Colorless

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (✓) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments :

Analysis Requested: VOCs + Metals Number of Containers: 8

Well Sampling Completion: Time 1105 Date 6-1-07 Samplers KD & M. Rabbitt

MS/MSD

Dup 1

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 6-1-07

Monitoring Well: MW-5 **Sample ID:** MW5-0807 **Arrival Time:** 0810

Weather Conditions

Temp. 65 ° F (X) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint) : OK Well Label : OK

Comment:

1 well volume = 11 gal.

Depth & Purging Information

Static Water Depth: 13.65 ft Well Depth: 31.27 ft Start Purge: 0820

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic Pumping Rate: 233/500ml

Start Sampling: 0915 Purging Duration: 55min. Volume Removed: 27.5 gals.

Meter YSI ~~600 QS Ashtead~~ 556 #05D2374AW Field Parameters Hach 2100P = 05020C011331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
5	0830	Switch	to Cell	52.5				13.75
10	0840	8.19	129	21.2	1.83	9.12	-47.5	13.75
15	0850	7.89	129	4.31	1.78	9.06	-49.8	13.75
20	0900	7.64	129	22.7	1.77	4.00	-48.0	13.75
22.5	0905	7.48	130	4.70	1.77	8.89	-45.9	13.75
25	0910	7.43	130	4.25	1.77	4.10	-44.5	13.75
27.5	0915	7.40	130	3.57	1.78	8.99	-43.4	13.75

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : clear/colorless

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (✓) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments :

Analysis Requested: VOCs/Metals Number of Containers: 4

Well Sampling Completion: Time 0940 Date 6/1/07 Samplers M. Babbitt/K. Dye

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 5/31/07

Monitoring Well: MWR-06 **Sample ID:** MWR06-0507 **Arrival Time:** 1345

Weather Conditions

Temp. 85° F (✓) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: n/a Pro. casing/lock: OK Surface pad: n/a

Well Visibility (paint) : n/a Well Label : n/a

Comment: 1 well volume = 13 g.

Depth & Purging Information

Static Water Depth: 12.97 ft Well Depth: 32.93 ft Start Purge: 1355

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic Pumping Rate: 30 sec / 500 ml ~~5 Gal Bottle~~

Start Sampling: 1455 Purging Duration: 1hr Volume Removed: 30.0 gals.

Meter YSI ~~600 QS~~ Ashtead #05D2374AW (556) Field Parameters Hach2100P = 05020C01133I

Purge (gal)	Time	pH	Conductivity (µs/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
10.0	1415	Switch	to Cell	68.0				13.05
15.0	1425	7.74	286	24.7	1.14	9.24	-68.2	13.08
20.0	1435	7.60	285	16.1	.55	11.35	-86.4	13.05
25.0	1445	7.54	284	8.32	0.48	10.92	-83.0	13.05
27.5	1450	7.51	284	6.82	0.44	10.83	-81.8	13.05
30.0	1455	7.48	282	5.71	0.40	11.13	-81.0	13.05

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : Clear / Colorless

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (✓) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments :

Analysis Requested: VOC's + Metals Number of Containers: 14

Well Sampling Completion: Time 1530 Date 5-31-07 Samplers KDE - M. Rabbitt

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 5/31/07

Monitoring Well: MWR-07 **Sample ID:** MWR07-0507 **Arrival Time:** 1200

Weather Conditions

Temp. 85 ° F (✓) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: n/a Pro. casing/lock: OK Surface pad: n/a

Well Visibility (paint) : _____ Well Label : n/a

Comment: _____

measured from outer casing

1 well volume = 17 g.

Depth & Purging Information

Static Water Depth: 12.30 ft Well Depth: 38.28 ft Start Purge: 1210

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic Pumping Rate: 500ml / 27 sec

Start Sampling: 1300 Purging Duration: _____ Volume Removed: _____ gals.

Meter YSI ~~600 QS Ashtead #~~ 05D2374AW SSL **Field Parameters** Hach 2100P = 05020C011331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
5	1220	Switch to cell		16.7				13.20
10	1230	7.56	184	8.31	1.33	12.56	-34.9	13.21
15	1240	7.28	181	1.93	0.75	12.42	-39.8	13.20
20	1250	7.14	176	2.98	0.56	11.88	-36.3	13.20
22.5	1255	7.11	174	1.44	.47	11.68	-40.8	13.21
25.0	1300	7.10	175	.76	.44	11.56	-40.9	Pulled

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : Clear / colorless

Sample Odor: (Y) (N) explain: _____

Final sample oil sheen: (X) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments : _____

Analysis Requested: VOC's / Metals Number of Containers: 4

Well Sampling Completion: Time 1340 Date 5/31/07 Samplers M. Babbitt / K. Dye

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 5/30/07

Monitoring Well: MWR-08 **Sample ID:** MWR8-0507 **Arrival Time:** 1135

Weather Conditions

Temp. 75 ° F (✓) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: n/a Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint) : OK Well Label :

Comment:

Depth & Purging Information

1 well volume = 10.4

Static Water Depth: 13.25 ft Well Depth: 29.31 ft Start Purge: 1150

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic Pumping Rate: 275/500ml

Start Sampling: ~~1150~~ 1245 Purging Duration: 55 min. Volume Removed: 37.5 gals.

Meter YSI ~~600 QS Ashtead #05D2874AW~~ 556 Field Parameters HACH 2100P = ~~05070C012410~~ 05020C011331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
7.5	1200	Switch to cell		28.1				13.44
13.5	1210	8.41	301	15.8	1.56	11.89	-107.6	13.44
19.5	1220	6.16	302	8.27	.98	12.17	-128.5	13.44
25.5	1230	8.04	303	2.70	0.74	10.40	-133.4	13.53
31.5	1235	8.01	303	1.91	.65	10.11	-134.5	13.58
34.5	1240	7.99	304	1.84	.59	10.28	-134.3	13.60
37.5	1245	7.97	304		.55	10.25	-133.2	Pulled

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : clear/colorless

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (✓) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments :

Analysis Requested: VOC's, metals Number of Containers: 4

Well Sampling Completion: Time 1310 Date 5/30 Samplers M. Babbitt / K. Dye.

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 5/31/07

Monitoring Well: MWR-9 **Sample ID:** MWR09-0507 **Arrival Time:** 1025

Weather Conditions

Temp. 80 ° F (✓) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: n/a Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint) : OK Well Label :

Comment:

measured from outer casing

1 well volume = 14 g.

Depth & Purging Information

Static Water Depth: 11.29 ft Well Depth: 33.19 ft Start Purge: 1020

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) 500 ml

Purging/Sampling Method: (✓) Submersible ( ) Peristaltic Pumping Rate: 28 Sec / ~~Stamina Bottle~~

Start Sampling: 1105 Purging Duration: 55 min. Volume Removed: 22.5 gals.

Meter YSI ~~600 QS Ashtead~~ 556 # 05D2374AW **Field Parameters** Hach 2100P = 05020C011331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
5	1030	Switch to Cell		2.14				11.58
10	1040	7.85	493	2.53	0.72	11.59	-115.2	11.59
15	1050	7.77	496	2.15	.53	11.84	-115.3	11.60
20	1100	7.74	498	3.46	0.45	11.43	-114.8	11.59
22.5	1105	7.74	499	3.10	.44	11.58	-116.7	Pulled
25	1110							
27.5	1115							

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : Clear/colorless

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (✓) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments :

Analysis Requested: VOC's / Metals Number of Containers: 4

Well Sampling Completion: Time 1155 Date 5-31-07 Samplers M Babbitt / K. Dye

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 5-31-07

Monitoring Well: MWR-12 **Sample ID:** MWR10-0507 **Arrival Time:** 0810

Weather Conditions

Temp. 65 ° F (X) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: NA Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint) : OK Well Label : OK

Comment:

measured from Outer Casing

Depth & Purging Information

1 well vol 15 GAL

Static Water Depth: 8.97 ft Well Depth: 32.30 ft Start Purge: 0815

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (X) Submersible ( ) Peristaltic Pumping Rate: 500ml/29 sec

Start Sampling: 0930 Purging Duration: 1hr. 15 min. Volume Removed: 37.5 gals.

Meter ~~YSI 600 QS Ashtead~~ 556 #05023744W **Field Parameters** 05020C011331 Hatch 2100P Turbidity

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
15.0	0845	Switch	to Cell	78.3				10.23
20.0	0855	8.18	487	33.3	1.13	11.06	-73.6	10.20
25.0	0905	8.08	488	34.8	1.21	11.22	-73.8	10.23
30.0	0915	8.24	493	28.0	1.39	11.36	-85.3	10.22
32.5	0920	8.10	493	23.1	.48	12.27	-85.1	10.20
35.0	0925	8.07	494	20.4	.44	12.56	-85.4	Pulled
37.5	0930	8.04	494	19.6	.45	12.63	-86.2	

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : Clear / Colorless

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (X) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments :

Analysis Requested: VOCs + Metals Number of Containers: 4

Well Sampling Completion: Time 1000 Date 5-31-07 Samplers K. O'F - M. Rabbitt

On-Site Technical Services, Inc.

Low Flow Groundwater Purging and Sampling

Project: Wellsville OU-1 **Date:** 5-30-07

Monitoring Well: MWR-11 **Sample ID:** MWR-110507 **Arrival Time:** 0915

Weather Conditions

Temp. 65 ° F (X) Sunny ( ) Drizzle ( ) Light Rain ( ) Med. Rain ( ) Hvy. Rain ( ) Cloudy ( ) Snow

Well Condition Checklist

Bump posts: NA Pro. casing/lock: ok Surface pad: ok

Well Visibility (paint) : ok Well Label : ok

Comment: soft bottom

Depth & Purging Information

0.65 1well volume = 10.3

Static Water Depth: 12.03 ft Well Depth: 27.85 ft Start Purge: 0945

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N)

Purging/Sampling Method: (X) Submersible ( ) Peristaltic Pumping Rate: 22s/500 ml

Start Sampling: 1045 Purging Duration: 1 hr. Volume Removed: 29 gals.

Meter YSI ~~600 QS Ashtead~~ 556 # 05D2374AW Field Parameters Hach 2100P: 05020C012331

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
7	1005	switch to cell		37.7				13.73
14	1015	7.20	354	69.9	7.79	10.60	-56.5	13.52
19	1025	7.34	353	16.6	7.05	10.28	-58.7	13.82
24	1035	7.37	353	8.10	6.83	10.24	-57.0	14.00
26.5	1040	7.35	353	11.0	6.60	10.00	-54.9	14.06
29	1045	7.34	354	7.42	6.57	10.18	-48.7	

Stabilization Criteria: 3 consecutive readings ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity

Final sample clarity\color : clear/colorless

Sample Odor: (Y) (N) explain:

Final sample oil sheen: (✓) None ( ) Light ( ) Med ( ) Heavy ( ) NAPL

Other Observations / Comments :

Analysis Requested: VOC's/Metals Number of Containers: 4

Well Sampling Completion: Time 1050 Date 5/30 Samplers M. Babbitt / K. Nigro

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

GAS VENT MONITORING

Completed By: K. Dye / S. Wilson Sheet 1 of 1

Title: Field Tech / Senior Tech Date: 8-1-7

Verified By: _____

Title: _____ Date: _____

Type of Monitoring (check only one):

(X) Semi-Annual
( ) Other (explain)
( ) Type of Monitoring Device

Gas Vent Identification	Upwind Reading	Downwind Reading	Gas Venting Reading
V-1	0.1	0.1	48.2
V-2	0.1	0.1	6.7
V-3	0.1	0.1	10.4
V-4	0.1	0.1	0.1
V-5	0.1	0.1	0.1
V-6	0.1	0.1	0.1
V-7	0.1	0.1	0.1
V-8	0.1	0.1	0.1
V-9	0.1	0.1	0.1
V-10	0.1	0.1	16.8
V-11	0.1	0.1	38.0
V-12	0.1	0.1	0.1
V-13	0.1	0.1	0.1
V-14	0.1	0.1	0.1

COMMENTS OR PERIMETER FENCE MONITORING RESULTS (Attach additional sheets if required):

WIND: EAST TO WEST 1-2 mph / 0-5 mph 88° F

BACKGROUND: 0.1

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

GAS VENT MONITORING

Completed By: K. Dye / S. Watson Sheet 1 of 1

Title: _____ Date: 9-20-07

Verified By: _____

Title: _____ Date: _____

Type of Monitoring (check only one):

(X) Semi-Annual
( ) Other (explain)
( ) Type of Monitoring Device

Gas Vent Identification	Upwind Reading	Downwind Reading	Gas Venting Reading
V-1	0.1	0.1	35.1
V-2	0.1	0.1	0.1
V-3	0.1	0.1	0.1
V-4	0.1	0.1	0.1
V-5	0.1	0.1	0.1
V-6	0.1	0.1	0.1
V-7	0.1	0.1	2.4
V-8	0.1	0.1	1.3
V-9	0.1	0.1	0.1
V-10	0.1	0.1	0.1
V-11	0.1	0.1	0.1
V-12	0.1	0.1	0.1
V-13	0.1	0.1	0.1
V-14	0.1	0.1	0.1

0.1 Background

COMMENTS OR PERIMETER FENCE MONITORING RESULTS (Attach additional sheets if required):

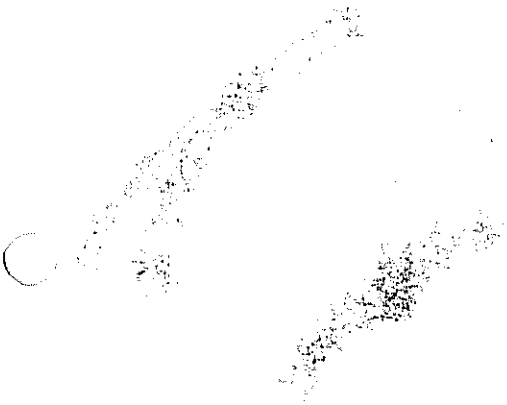
75°F 0-5 mpH wind variable

Return Address:

STL Westfield
Westfield Executive Park
53 Southampton Road
Westfield, MA 01085

Ship To:

ON-SITE HEALTH AND SAFETY
c/o: MR. JON BRANDES
72 RAILROAD AVE
WELLSVILLE, NY 14895



Job: 360-8691-1

ANALYTICAL REPORT

Job Number: 360-8691-1

Job Description: Stormwater Toxicity

For:
On-Site Health and Safety
72 Railroad Ave
Wellsville, NY 14895

Attention: Mr. Jon Brandes

Joseph A. Chimi Jr.

Joe Chimi
Report Production Representative
jchimi@stl-inc.com
03/05/2007

Project Manager: Becky Mason

The test results in this report meet all NELAC requirements for accredited parameters. Any exceptions to NELAC requirements are noted in this report. Pursuant to NELAC, this report may not be reproduced except in full, and with written approval from the laboratory. STL Westfield Certifications and Approvals: MADEP MA014, RIDOH57, CTDPH 0494, VT DECWSD, NH DES 253903-A, NELAP FL E87912 TOX, NELAP NJ MA008 TOX, NELAP NY 10843, NY DOH 10843.

Severn Trent Laboratories, Inc.
STL Westfield Westfield Executive Park 53 Southampton Road,
Westfield, MA 01085
Tel (413) 572-4000 Fax (413) 572-3707 www.stl-inc.com

METHOD SUMMARY

Client: On-Site Health and Safety

Job Number: 360-8691-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Toxicity 48 hour- Pimephales promelas-Fresh water	STL WFD	EPA 821-R-02-013	

LAB REFERENCES:

STL WFD = STL Westfield

METHOD REFERENCES:

EPA - US Environmental Protection Agency

METHOD / ANALYST SUMMARY

Client: On-Site Health and Safety

Job Number: 360-8691-1

Method	Analyst	Analyst ID
EPA 821-R-02-013	Nicholas, Joel	JN

SAMPLE SUMMARY

Client: On-Site Health and Safety

Job Number: 360-8691-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
360-8691-1	OU1	Water	03/02/2007 1000	03/03/2007 1302

On Site Health and Safety
Wellsville OU1 Stormwater

360-8691

STL Westfield
Westfield Executive Park
53 Southampton Rd
Westfield, MA 01085

Tel 413-572-4000
Fax 413-572-3707
www.stl-inc.com

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION

I certify under penalty of law that this document and all ATTACHMENTS were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on: 03/05/07
(Date)

[Authorized Signature]

Joel Nicholas Department Supervisor
[Print or Type Name and Title]

Severn Trent Laboratories, Inc.
[Print or Type Name of Bioassay Laboratory]

Telephone Contact
If you have any questions, please contact Joel Nicholas, STL Westfield, at (413)572-4000.

- ☐ Acute Toxicity Report
- ☐ Chronic Toxicity Report
- X Storm Water Toxicity Report
- ☐ Screening Test Report
- ☐ Toxicity Identification Evaluation (TIE)

SEVERN TRENT STL

ACUTE TOXICITY TEST REPORT

Ceriodaphnia dubia

Severn Trent Laboratories - Westfield
53 Southampton Road
Westfield, MA 01085

Aquatic Toxicology - Biology Department

job#: 360-8691

SAMPLE AND TEST IDENTIFICATION

CLIENT NAME:	Wellsville 0U1		SPDES PERMIT#:	N/A
SAMPLING DATE:	3/2/2007	10:00	DILUTION WATER:	MHSF Lab Water
ORGANISM:	*Ceriodaphnia dubia*		LOCATION:	0U1
ORIGIN:	STL-Westfield In-house Cultures		TEST TYPE:	48 Hour ACUTE
AGE and DOB:	<24 hrs. old	3/2/07 1535 - 3/3/07 1330	SAMPLE TYPE:	Unchlorinated
TEST START:	3/3/2007	13:30	SAMPLE METHOD:	Grab
TEST END:	3/5/2007	11:30		

STATISTICAL ENDPOINT: LC_{50}, TUa

TEST RESULTS

	LC_{50}	TUa	A-NOEC
Concentration with statistical difference (LC50, TUa) TUa = 100%/LC50 (%) Acute-No Oberved Effect Concentration (A-NOEC)	>100%	AA	100.00%

	95% confidence Limits: Lower	Upper
STATISTICAL METHOD: Spearman-Karber	N/A	N/A

SURVIVAL DATA SUMMARY

SURVIVAL (%)

Date		Lab Control		6.25%	12.50%	25%	50%	100%
3/4/2007	24 hr.	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%
3/5/2007	48 hr.	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%

GENERAL CHEMISTRY - INIT EFFLUENT SAMPLE

DISSOLVED OXYGEN:	8.8 mg/L	RESIDUAL CHLORINE:	<0.05 mg/L
CONDUCTIVITY:	156 S/cm	DISSOLVED OXYGEN	
pH:	7.7	AFTER AERATION:	N/A mg/L

All methods and guidelines used were consistant witht the protocol from Short-terms Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012.

All acceptable method criteria were met: 90% or greater survival in the control(s). YES (y/n)

JN
Analyst Initials

Primary Data Review
JN 3/5/07
(Initial/Date)

Secondary Data Review
GRB 3/5/07
(Initial/Date)

JN: Joel Nicholas
GRB: Gary Benoit
MN: Melissa Niquette

SEVERN TRENT STL

ACUTE TOXICITY TEST REPORT

Pimephales promelas

Severn Trent Laboratories - Westfield
53 Southampton Road
Westfield, MA 01085

Aquatic Toxicology - Biology Department

job#: 360-8691

SAMPLE AND TEST IDENTIFICATION

CLIENT NAME:	Wellsville 0U1	SPDES PERMIT#:	N/A
SAMPLING DATE:	3/2/2007 10:00	DILUTION WATER:	MHSF Lab Water
ORGANISM:	*Pimephales promelas*	LOCATION:	0U1
ORIGIN:	Aquatic Bio Systems (Colorado)	TEST TYPE:	48 Hour ACUTE
AGE and DOB:	6 Days 2/25/07	SAMPLE TYPE:	Unchlorinated
TEST START:	3/3/2007 13:25	SAMPLE METHOD:	Grab
TEST END:	3/5/2007 11:25		

STATISTICAL ENDPOINT: LC_{50}, TUa

TEST RESULTS

	LC_{50}	TUa	A-NOEC
Concentration with statistical difference (LC_{50}, TUa) TUa = 100%/LC50 (%)	>100%	AA	100.0%
Acute-No Oberved Effect Concentration (A-NOEC)			

STATISTICAL METHOD: Spearman-Karber	95% confidence Limits:	Lower	Upper
		N/A	N/A

SURVIVAL DATA

SURVIVAL (%)

DATE		Lab Control		6.25%	12.50%	25%	50%	100%
3/4/2007	24 hr.	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%
3/5/2007	48 hr.	100.0%		97.5%	100.0%	100.0%	100.0%	100.0%

GENERAL CHEMISTRY SUMMARY- INIT EFFLUENT SAMPLE

DISSOLVED OXYGEN:	8.8 mg/L	RESIDUAL CHLORINE:	<0.05 mg/L
CONDUCTIVITY:	156 S/cm	DISSOLVED OXYGEN	
pH:	7.7	AFTER AERATION:	N/A mg/L

All methods and guidelines used were consistant witht the protocol from Short-terms Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012.

All acceptable method criteria were met: 90% or greater survival in the control(s). YES (y/n)

JN
Analyst Initials

Primary Data Review
JN 3/5/07
(Initial/Date)

Secondary Data Review
GRB 3/5/07
(Initial/Date)

PS: Pat Sullivan
JN: Joel Nicholas
GRB: Gary Benoit

TOXICOLOGICAL EVALUATION SUMMARY

1.0 METHOD PROCEDURES

The Analytical and Toxicological methods used in this toxicity test followed the procedures outlined in the EPA manual entitled "Methods for Measuring the Acute Toxicity of Effluents Receiving Waters to Freshwater and Marine Organisms", fifth edition, EPA 821-R-02-012, October 2002, as well as the specific protocols outlined by the facility's NPDES permit.

2.0 TOXICITY TESTS

The toxicity test involved preparing a series of effluent concentrations by dilution with receiving stream water. The laboratory control water (Moderately Hard Synthetic water) can be used as an alternative diluent when a receiving stream is not available or exhibits known toxicity. Groups of test organisms are exposed to the varying effluent concentrations, as well as to receiving water and laboratory control water for a forty-eight and or ninety-six hour period. The resultant assay data is used to determine the median lethal concentration (LC_{50}) and the Acute No Observed Effect Concentration (A-NOEC) of the effluent at the time of sampling. The LC_{50} is defined as the effluent concentration which causes mortality to 50% of the test organism population. The A-NOEC is defined as the concentration at which 90% or more of the organisms survive. TUa is defined as $100/LC_{50}$ value. If the LC_{50} is >100, the TUa value is reported as AA.

3.0 TOXICITY TEST PROCEDURES

The toxicity test is conducted using static assay techniques. A minimum of five effluent concentrations, a receiving stream and a laboratory control are used for each species tested. The species tested varies by NPDES permit and the regulatory agency in charge. Generally an invertabrate (Ceriodaphnia sp.) and vertabrate (Pimephales sp.) are used. Four replicates of five organisms were used for each concentration in the Ceriodaphnia dubia assay, and four replicates with ten organisms for the Pimephales promelas assay. The Ceriodaphnia dubia are placed in 30mL vessels with 25mL of test solution per replicate. The Pimephales promelas are placed in 250mL vessels with 200mL of test solution per replicate. Test exposure can vary from twenty-four hours to ninety-six hours depending on the test objectives and the requirements of the regulatory authority. The end-point required for assays is lethality. The test organisms were considered dead if there was no response observed after gentle prodding. Observations of survival are made at twenty-four hour intervals during the assay. Test organisms are fed two hours prior to test initiation and at the forty-eight hour renewal (when applicable).

Measurements of dissolved oxygen, pH, temperature and specific conductance are performed every twenty-four hours on each effluent concentration, receiving stream and laboratory control water.

Total Residual chlorine is analyzed on each effluent and receiving stream sample upon receipt in the laboratory. Effluent samples containing residual chlorine are de-chlorinated using a 10% solution of Sodium Thiosulfate prior to use in the toxicity test.

4.0 QUALITY ASSURANCE

The quality assurance protocol for this type of toxicity test dictates that reference toxicants be analyzed on a monthly basis. The data obtained from these analyses are used to assess the validity of the assay and the health and condition of the organisms. Sodium chloride and or Potassium chloride are used as the reference toxicant(s) for these toxicity tests. The values for these tests must fall within acceptable laboratory criteria.

The acceptance criteria of 90% survival must be met in the test control.

Reporting toxicity test results ensures that all requirements of the NELAC Standards have been met.

5.0 STATISTICAL RESULTS AND RAW DATA

The summary report outlines the LC_{50} and A-NOEC values for each species tested in the bioassay.
All raw bench sheet data can be found in Appendix A, computer printouts of the statistical modeling for the LC_{50} can be found in Appendix B, and the results of any additional chemical analysis (when applicable) and chains of custody can be found in Appendix C.

SEVERN TRENT STL

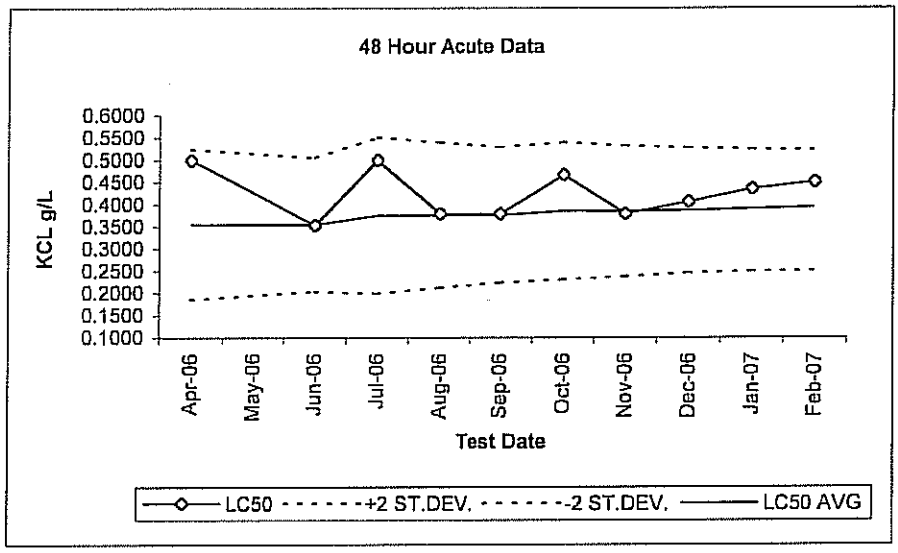
TEST ORGANISM HATCHING LOG

STL Westfield
53 Southampton Road
Westfield, Massachusetts

Species:	C.dubia
Hatching Date and Time:	3/2/07 1535 - 3/3/07 1330
Number of Organisms:	120
Analyst:	JN/GRB/MN
Comments:	Wellsville 0U1 Stormwater
	360-8691

STL-WESTFIELD REFERENCE TOXICANT LC50

Ceriodaphnia dubia



48 Hour Modified Acute Toxicity Data For 1g/L KCL Ceriodaphnia dubia

Date	LC50 (g/L KCL)	95% Confidence (lower)	(upper)	AVG.LC50 (g/L KCL)	Method	+2 STD	-2STD
Apr-06	0.5000	0.2892	0.3762	0.3185	S-K	0.4085	0.2647
Jun-06	0.3536	N/A	N/A	0.3548	S-K	0.5237	0.1860
Jul-06	0.5000	0.4016	0.6225	0.3546	S-K	0.5057	0.2036
Aug-06	0.3789	N/A	N/A	0.3754	S-K	0.5517	0.1991
Sep-06	0.3789	0.4016	0.6225	0.3758	S-K	0.5391	0.2126
Oct-06	0.4665	0.3322	0.4322	0.3762	S-K	0.5289	0.2234
Nov-06	0.3789	0.3322	0.4322	0.3852	S-K	0.5401	0.2303
Dec-06	0.4061	0.3536	0.6156	0.0000	S-K	0.5317	0.2376
Jan-07	0.4353	0.3561	0.5321	0.3864	S-K	0.5272	0.2457
Feb-07	0.4506	0.3764	0.5395	0.3945	S-K	0.5224	0.2505

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel:970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 2/26/07

SPECIES: *Pimephales promelas*

AGE: 1 day

LIFE STAGE: Larvae

HATCH DATE: 2/25/07

BEGAN FEEDING: 2/26/07

FOOD: *Artemia* sp.

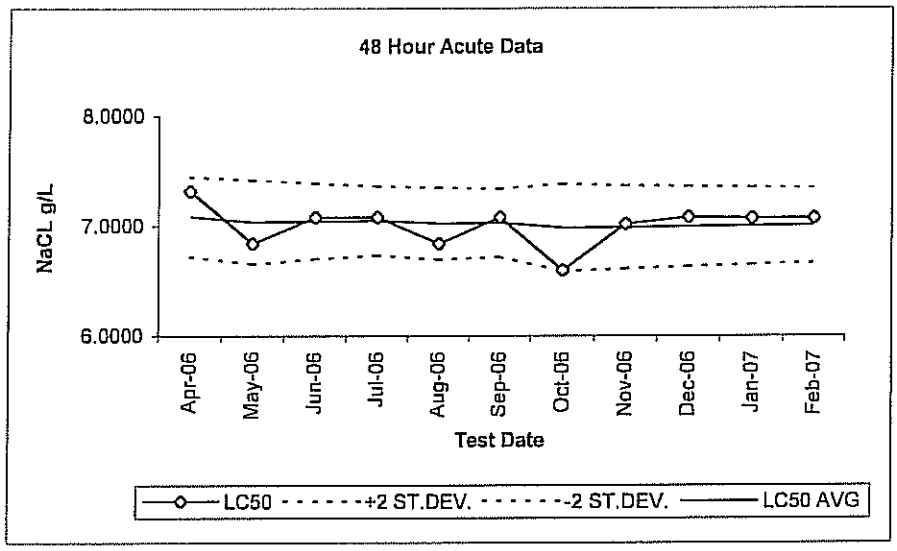
Water Chemistry Record:	Current	Range
TEMPERATURE:	25°C	--
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	127 mg/l	--
TOTAL ALKALINITY (as $CaCO_3$):	90 mg/l	--
pH:	7.26	--

Comments:

Facility Supervisor

STL-WESTFIELD REFERENCE TOXICANT LC50

Pimphales promelas



48 Hour Acute Toxicity Data For
20g/L NaCL
Pimephales promelas

Date	LC50 (g/L KCL)	95% Confidence (lower)	(upper)	AVG.LC50 (g/L KCL)	Method	+2 STD	-2STD
Apr-06	7.3200	N/A*	N/A	7.0855	S-K	7.4478	6.7231
May-06	6.8400	N/A	N/A	7.0364	S-K	7.4194	6.6534
Jun-06	7.0800	6.8422	7.8320	7.0436	S-K	7.3880	6.6992
Jul-06	7.0800	6.3840	7.3076	7.0488	S-K	7.3644	6.7332
Aug-06	6.8400	N/A	N/A	7.0227	S-K	7.3501	6.6953
Sep-06	7.0800	N/A	N/A	7.0291	S-K	7.3377	6.7205
Oct-06	6.5976	6.3784	7.3140	6.9859	S-K	7.3849	6.5870
Nov-06	7.0170	N/A	N/A	6.9888	S-K	7.3677	6.6099
Dec-06	7.0800	5.9964	7.2590	6.9964	S-K	7.3615	6.6313
Jan-07	7.0710	N/A	N/A	7.0021	S-K	7.3541	6.6501
Feb-07	7.0710	6.737	7.4216	7.0070	S-K	7.3472	6.6668

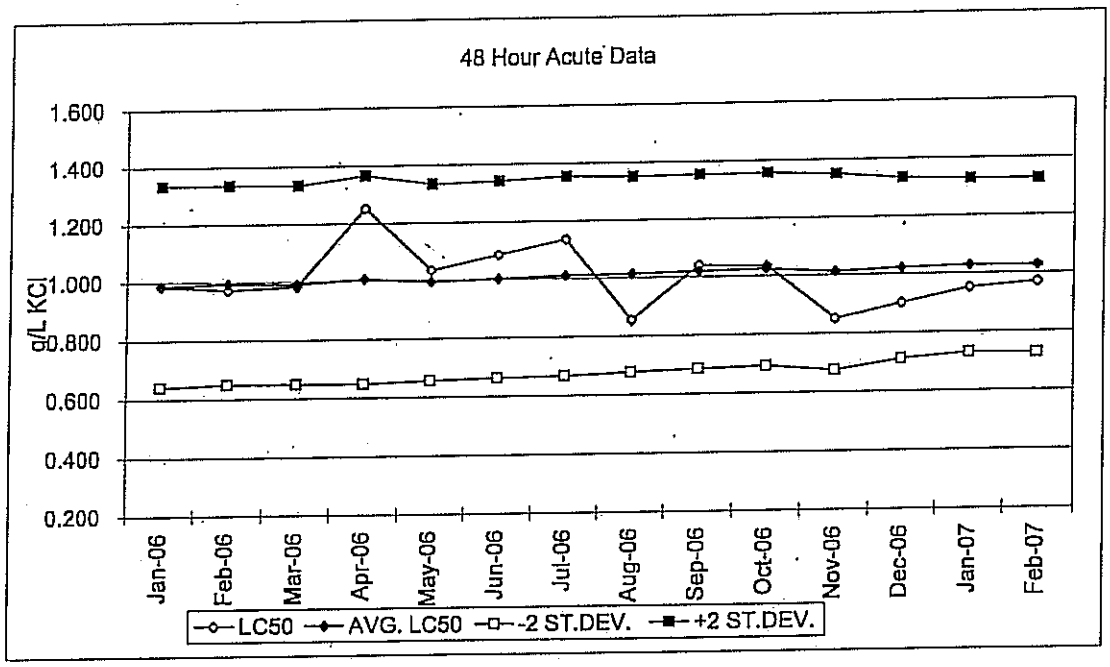
N/A = Limit not determined by Spearman-Karber

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

REFERENCE TOXICANT LC50

Pimephales promelas



48 HOUR ACUTE TOXICITY DATA FOR

Pimephales promelas

DATE	LC50 (g/L KCl)	95% CONFIDENCE (upper)	(lower)	AVG.LC50 (g/L KCl)	METHOD	+2 STD	-2 STD
Sep 06	1.040	1.189	0.901	1.020	SPKR	1.354389915	0.685681609
Oct 06	1.035	1.166	0.919	1.025	SPKR	1.357018635	0.692792413
Nov 06	0.851	0.951	0.751	1.012	PROBIT	1.350029087	0.67478196
Dec 06	0.901	1.015	0.800	1.022	SPKR	1.333301706	0.711152199
Jan 07	0.951	1.074	0.843	1.029	SPKR	1.327436526	0.730256426
Feb 07	0.970	1.092	0.861	1.027	PROBIT	1.326826791	0.727961399

APPENDIX A

Raw Data

8691

ACUTE TOXICITY REPORT - STL WESTFIELD

Facility Name: On Site Health & Safety Wellsville 0U1 Stormwater
Dilution Water: MHSF Lab Water
Test Initiation: 3/3/07 @ 1225 (Date/Time)

NPDES Permit No.: NA
Analyst (s): JN/GRB/MN
Test Termination: 3/5/07 @ 1130 (DATE / TIME)

WATER QUALITY CHEMISTRY

EFFLUENT CONC. %	DISSOLVED OXYGEN mg/L Hours 0	24	48	72	96	pH *mn 3/07 Hours 0	24	48	72	96	CONDUCTIVITY Hours 0	24	48	72	96	TEMPERATURE C Hours 0	24	48	72	96
Lab Control	8.3	7.6	7.0			8.3	7.4	7.7			289	311	335			25	23	23		
6.25%	7.7	7.7	7.1			7.9	7.8	7.7			301	321	341			25	23	23		
12.50%	7.9	7.7	6.9			7.8	7.8	7.3			302	316	338			25	23	23		
25.00%	7.8	7.6	7.0			7.8	7.8	7.8			290	297	315			25	23	23		
50.00%	8.3	7.6	7.1			7.8	7.8	7.7			241	254	274			25	23	23		
100.00%	8.8	7.5	6.9			7.7	7.7	7.7			156	175	192			25	23	23		

SPECIES: *Ceriodaphnia dubia* (1330 / 1130) AGE: <24hrs

EFFLUENT CONC.	Lab Control				6.25%				12.50%				25.00%				50.00%				100.00%			
HOURS	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96
SURVIVAL PER REPLICATE A	S	S			S	S			S	S			S	S			S	S			S	S		
B	S	S			S	S			S	S			S	S			S	S			S	S		
C	S	S			S	S			S	S			S	S			S	S			S	S		
D	S	S			S	S			S	S			S	S			S	S			S	S		
% MORTALITY			0				0				0				0				0				0	

SPECIES: *P.promelas* (1325 / 1125) AGE: 1a days

EFFLUENT CONC.	Lab Control				6.25%				12.50%				25.00%				50.00%				100.00%			
HOURS	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96
SURVIVAL PER REPLICATE A	10	10			10	10			10	10			10	10			10	10			10	10		
B	10	10			10	10			10	10			10	10			10	10			10	10		
C	10	10			10	9			10	10			10	10			10	10			10	10		
D	10	10			10	10			10	10			10	10			10	10			10	10		
% MORTALITY			0				2.5				0				0				0				0	

D.O.meter: YSI Md.5000/probe Md 5905
Conductivity meter: Fisher Scl. SN#221105570.

pH meter: Accumet Md#AR15/probe 13-620-181

O:/dcontrol/lab benchsheets/Biology/BIOACUTE-2005

APPENDIX B

Statistical Modeling

MINIMUM REQUIRED TRIM IS TOO LARGE: 99.5,SO SK IS NOT CALCULABLE.

SPEARMAN-KARBER

TRIM: .00%
LC50: .000
95% CONFIDENCE LIMITS
ARE UNRELIABLE.

CONC. %	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
6.25	40.	1.	2.50	.3729D-08
12.50	40.	0.	.00	.9095D-10
25.00	40.	0.	.00	.9095D-10
50.00	40.	0.	.00	.9095D-10
100.00	40.	0.	.00	.9095D-10

THE BINOMIAL TEST SHOWS THAT 100.00 AND +INFINITY CAN BE USED AS STATISTICALLY
SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 100.0000 PERCENT.
THE LC50 FOR THIS DATA SET IS GREATER THAN 100.00

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISCALLY SOUND RESULTS.

DATE: 03/03/07 TEST NUMBER: 8691 DURATION: 48 hours
SAMPLE: OU1 Stormwater SPECIES: P.promelas

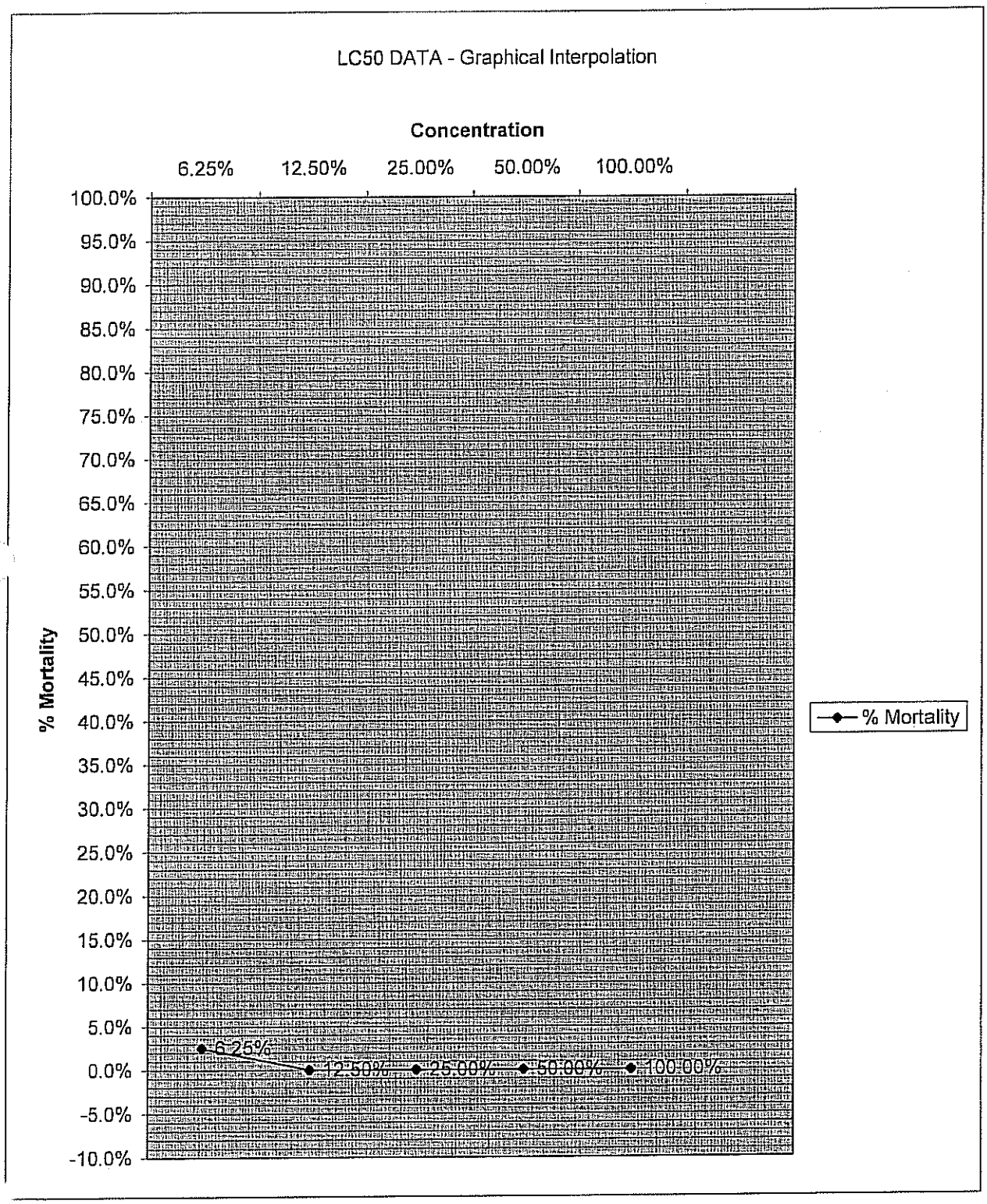
METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	*******	100.000	*******	*******
MAA	*******	*******	*******	*******
PROBIT	*******	*******	*******	*******
SPEARMAN	.000	*******	*******	*******

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

**** = LIMIT DOES NOT EXIST

Client: **Wellsville 0U1 Stormwater**
Job#: 360-8691
Species: *P.promelas*

LC50: >100% 48 hour



MINIMUM REQUIRED TRIM IS TOO LARGE: 100.0,SO SK IS NOT CALCULABLE.

SPEARMAN-KARBER

TRIM: .00%
LC50: .000
95% CONFIDENCE LIMITS
ARE UNRELIABLE.

CONC. %	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
6.25	20.	0.	.00	.9537D-04
12.50	20.	0.	.00	.9537D-04
25.00	20.	0.	.00	.9537D-04
50.00	20.	0.	.00	.9537D-04
100.00	20.	0.	.00	.9537D-04

THE BINOMIAL TEST SHOWS THAT 100.00 AND +INFINITY CAN BE USED AS STATISTICALLY
SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 99.9999 PERCENT.
THE LC50 FOR THIS DATA SET IS GREATER THAN 100.00

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISCALLY SOUND RESULTS.

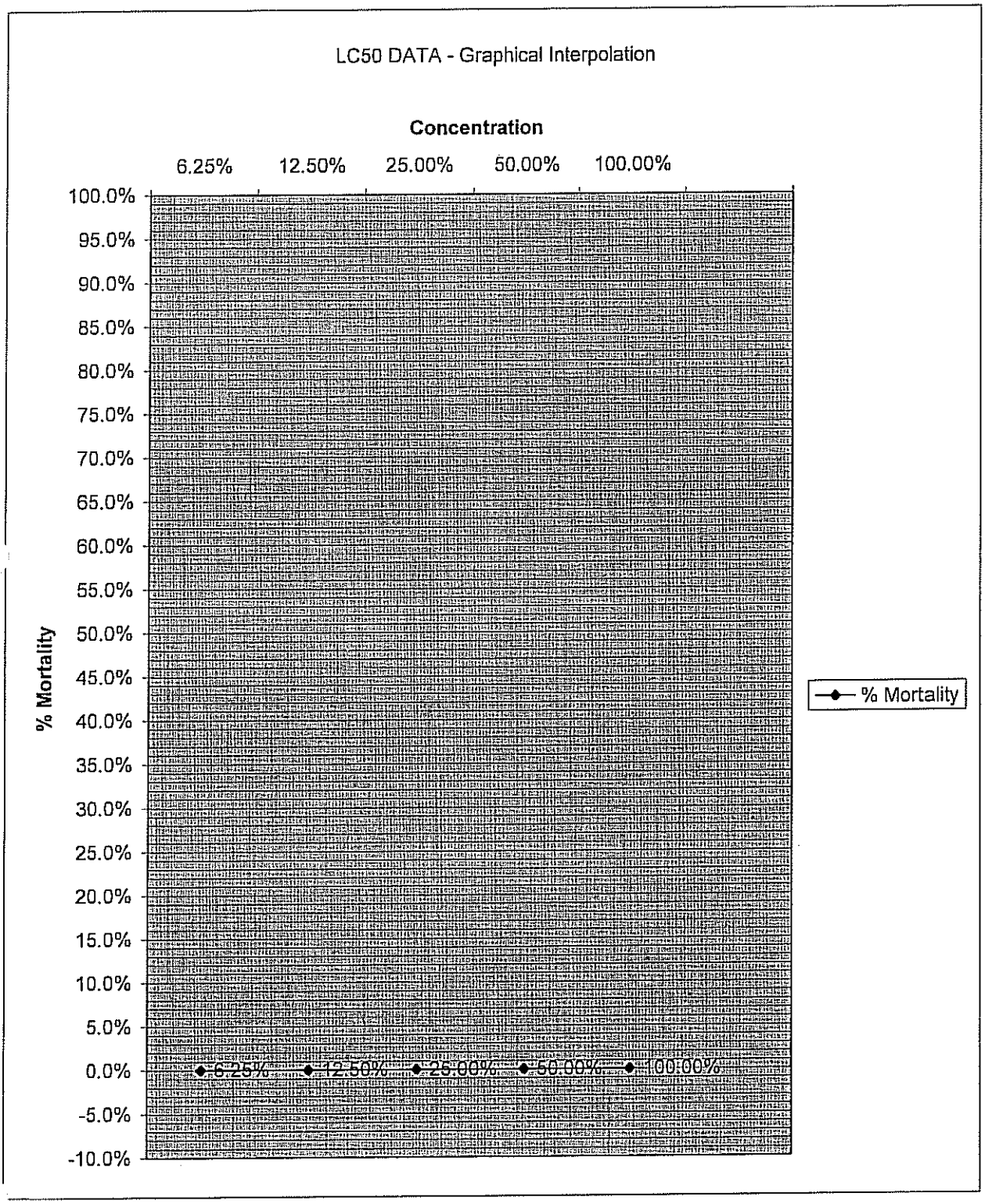
DATE: 03/03/07 TEST NUMBER: 8691 DURATION: 48 hours
SAMPLE: OU1 Stormwater SPECIES: C.dubia

METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	*******	100.000	*******	*******
MAA	*******	*******	*******	*******
PROBIT	*******	*******	*******	*******
SPEARMAN	.000	*******	*******	*******

**** = LIMIT DOES NOT EXIST

Client: **Wellsville 0U1 Stormwater**
Job#: 360-8691
Species: *C.dubia*

LC50: >100% 48 hour



APPENDIX C

Chemical Report and/or Chain of Custody

LOGIN SAMPLE RECEIPT CHECK LIST

Client: On-Site Health and Safety

Job Number: 360-8691-1

Login Number: 8691

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	1.4 C
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	NA	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Severn Trent Laboratories, Inc.
Chain of Custody Form

SEVERN TRENT STL

34301

•53 Southampton Road
Westfield, MA 01085
(P) 413-572-4000
(F) 413-572-3707
STL Westfield

•148 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871
STL Billerica / Service Center

Client: On-Site Technical Services
Address: 72 Railroad Ave.
Wellsville, NY 14895
Phone: 585-593-1824 Fax: 585-593-7471

Project #: Former Sinclair Refinery OU-1
Project Manager: Jon Brandes
Work ID: NA
Contact: Jon Brandes

Job# 8691 | Quote# | PO#

Requested Turnaround Time (PLEASE SPECIFY)
STANDARD X
RUSH ____ (Lab Approval Required)

Regulatory Classification
NPDES ____ Drinking Water ____
RCRA ____ MCP GW1/S1 ____
Other ____

Special Report Format
QA/QC Report ____
DQE (MCP) Rpt ____
DEP Form(s) ____

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water, NPDES
6000-series for groundwater, soil, waste
8000-series for groundwater, soil, waste
Use comments section to further define.

Comments (Special Instructions)
Please print legibility. If the analytical requests are not clearly defined on the chain-of-custody, the turnaround time will begin after all questions have been satisfactorily answered.

Sample Type Codes
WW-Wastewater DW-Drinking water SW-Surface water
LW-Lab water GW-Groundwater A-Air
S-Solid / Soil SL-Sludge O-Oil Z-Other

Sample ID	Sample Type	Sampler's Initials	Date Time Collected	Grab	Comp.	# Containers	Plastic(P) or Glass(G)	Preservative: NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Na2S2O3	None / 4° C	Volatiles 524 /624 /8260	Volatiles 601 /602 /8021	Semivoa 525 /625 /8270	PCB / Pest / Herbicide	EPH / VPH	DRO / GRO / ETPH	Metals 6010 / 200.7	Mercury 245.1 / 7470-71	General Chemistry	Bacteriological	Toxicity	Oil & Grease / TOC	Radchem / Other
OF-0307	SW	SW	1000	X		2	P				1			2											2		

Page 24 of 24

Sampled by (print): Scott R. Watson
Signature: R. W

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
R. W	3-2-07	1200		3/3/07	1302
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Cooler? (Y) / N
MADEP Requirement Samples iced? (Y) / N
Temp @ receipt: 1.4 °C
Preservation / pH checked? Y / (N)
By: / Date: /

STL WESTFIELD
FedEx P. Sat. 7929 4300 8454

Page 1 of 1

White = Lab file Yellow = Report copy Pink = Customer copy
STL-8245 (1000)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 360-13118-1

Job Description: Stormwater Toxicity

For:
On-Site Health and Safety
72 Railroad Ave
Wellsville, NY 14895

Attention: Mr. Jon Brandes

Joseph A. Clemens Jr.

Designee for
Becky C Mason
Project Manager II
becky.mason@testamericainc.com
11/07/2007

TestAmerica Laboratories, Inc.
TestAmerica Westfield Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085
Tel (413) 572-4000 Fax (413) 572-3707 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

METHOD SUMMARY

Client: On-Site Health and Safety

Job Number: 360-13118-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Toxicity 48 hour- Pimephales promelas-Fresh water	TAL WFD	EPA 821-R-02-013	
Toxicity 48 hour-Ceriodaphnia dubia-Fresh water	TAL WFD	EPA 821-R-02-013	

Lab References:

TAL WFD = TestAmerica Westfield

Method References:

EPA = US Environmental Protection Agency

METHOD / ANALYST SUMMARY

Client: On-Site Health and Safety

Job Number: 360-13118-1

Method	Analyst	Analyst ID
EPA 821-R-02-013	Nicholas, Joel	JN

SAMPLE SUMMARY

Client: On-Site Health and Safety

Job Number: 360-13118-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
360-13118-1	OF-1007	Water	10/24/2007 0755	10/25/2007 0950

On-Site Health and Safety
72 Railroad Ave
Wellsville, NY 14895

360-13118

Test America, Inc.
Westfield Executive Park
53 Southampton Rd
Westfield, MA 01085

Tel 413-572-4000
Fax 413-572-3707

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION

I certify under penalty of law that this document and all ATTACHMENTS were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on: November 7, 2007
(Date)

[Authorized Signature]

Joel Nicholas Department Supervisor
[Print or Type Name and Title]

TestAmerica, Inc.
[Print or Type Name of Bioassay Laboratory]

Telephone Contact
If you have any questions, please contact Joel Nicholas, TestAmerica, at (413)572-4000.

- x Acute Toxicity Report
- ☐ Chronic Toxicity Report
- x Storm Water Toxicity Report
- ☐ Screening Test Report

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ACUTE TOXICITY TEST REPORT

Ceriodaphnia dubia

TestAmerica, Inc.
53 Southampton Road
Westfield, MA 01085

Aquatic Toxicology - Biology Department

job#: 360-13118

SAMPLE AND TEST IDENTIFICATION

CLIENT NAME:	On-Site Health and Safety	SPDES PERMIT#:	N/A
SAMPLING DATE:	10/24/2007	DILUTION WATER:	MHSF Lab Water
ORGANISM:	*Ceriodaphnia dubia*	LOCATION:	Wellsville
ORIGIN:	TestAmerica In-house Cultures	TEST TYPE:	48 Hour ACUTE
AGE and DOB:	<24 hrs. old	SAMPLE TYPE:	Unchlorinated
TEST START:	10/25/2007 13:35	SAMPLE METHOD:	Grab
TEST END:	10/27/2007 13:30		

STATISTICAL ENDPOINT: LC_{50}, TUa

TEST RESULTS

	%LC50	TUa	A-NOEC
Concentration with statistical difference (LC50, TUa) TUa = 100%/LC50 (%) Acute-No Observed Effect Concentration (A-NOEC)	>100%	<1.0	100.00%

STATISTICAL METHOD: Spearman-Karber	95% confidence limits for: Lower	Upper
	N/A	N/A

MORTALITY DATA SUMMARY

% MORTALITY

48hr Percent Mortality	Lab Control	6.25%	12.50%	25%	50%	100%
	0.0%	0.0%	0.0%	5.0%	5.0%	5.0%

GENERAL CHEMISTRY - INIT EFFLUENT SAMPLE

DISSOLVED OXYGEN:	8.6 mg/L	RESIDUAL CHLORINE:	<0.05 mg/L
CONDUCTIVITY:	212 S/cm	DISSOLVED OXYGEN AFTER AERATION:	N/A mg/L
pH:	7.9		

All methods and guidelines used were consistant witht the protocol from Short-terms Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012.

All acceptable method criteria were met: 90% or greater survival in the control(s). YES (y/n)

JN
Analyst Initials

Primary Data Review
JN 11/7/07
(Initial/Date)

Secondary Data Review
GRB 11/7/07
(Initial/Date)

JN: Joel Nicholas
GRB: Gary Benoit

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ACUTE TOXICITY TEST REPORT

Pimephales promelas

TestAmerica, Inc.
53 Southampton Road
Westfield, MA 01085

Aquatic Toxicology - Biology Department

job#: 360-13118

SAMPLE AND TEST IDENTIFICATION

CLIENT NAME:	On-Site Health and Safety	SPDES PERMIT#:	N/A
SAMPLING DATE:	10/24/2007	DILUTION WATER:	MHSF Lab Water
ORGANISM:	*Pimephales promelas*	LOCATION:	Wellsville
ORIGIN:	Aquatic Bio Systems (Colorado)	TEST TYPE:	48 Hour ACUTE
AGE and DOB:	<48hrs	SAMPLE TYPE:	Unchlorinated
TEST START:	10/25/2007 14:30	SAMPLE METHOD:	Grab
TEST END:	10/27/2007 13:30		

STATISTICAL ENDPOINT: $LC_{50,}$ TUa

TEST RESULTS

	LC_{50}	TUa	A-NOEC
Concentration with statistical difference (LC50, TUa) TUa = 100%/LC50 (%) Acute-No Oberved Effect Concentration (A-NOEC)	>100%	<1.0	100.00%

STATISTICAL METHOD: Spearman-Karber

95% confidence Limits	Lower	Upper
	N/A	N/A

MORTALITY DATA SUMMARY % MORTALITY

48hr Percent Mortality		Lab Control		6.25%	12.50%	25%	50%	100%	
		0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	

GENERAL CHEMISTRY - INIT EFFLUENT SAMPLE

DISSOLVED OXYGEN:	8.6 mg/L	RESIDUAL CHLORINE:	<0.05 mg/L
CONDUCTIVITY:	212 S/cm	DISSOLVED OXYGEN AFTER AERATION:	N/A mg/L
pH:	7.9		

All methods and guidelines used were consistant witht the protocol from Short-terms Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012.

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JN
Analyst Initials

Primary Data Review
JN 11/7/07
(Initial/Date)

Secondary Data Review
(Initial/Date)

JN: Joel Nicholas
GRB: Gary Benoit

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TEST ORGANISM HATCHING LOG

TestAmerica, Inc.
53 Southampton Road
Westfield, Massachusetts

Species: C.dubia

Hatching Date and Time: 10/24/07 1645 - 10/25/07 1335

Number of Organisms: ~200

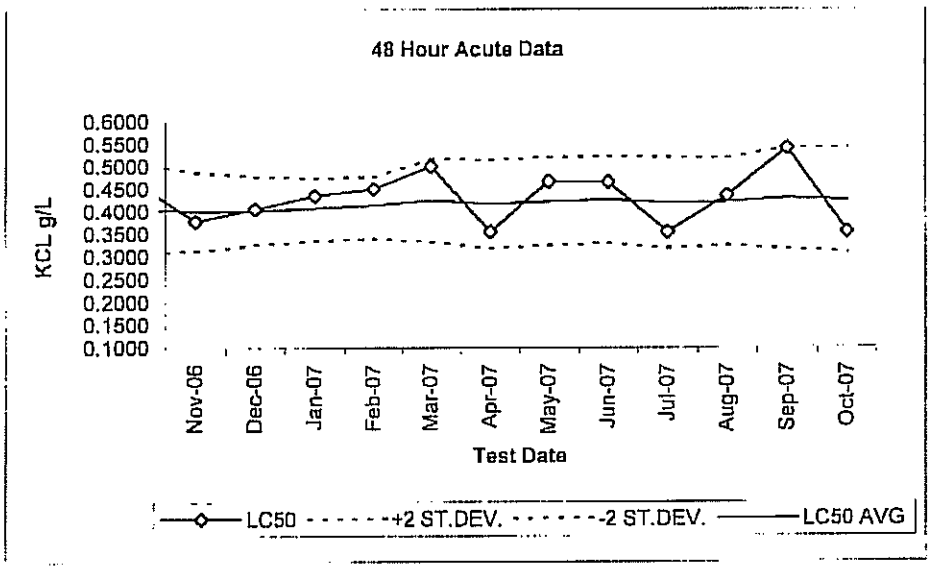
Analyst: JN/GRB

Comments: On Site Health and Safety: Wellsville
360-13118
MCP101207B

REFERENCE TOXICANT LC50

Ceriodaphnia dubia

TestAmerica, Inc.
53 Southampton Road
Westfield, Massachusetts



48 Hour Modified Acute Toxicity Data For 1g/L KCL *Ceriodaphnia dubia*

Date	LC50 (g/L KCL)	95% Confidence (lower)	(upper)	AVG.LC50 (g/L KCL)	Method	+2 STD	-2STD
Nov-06	0.3789	0.4016	0.6225	0.4081	S-K	0.4884	0.3132
Dec-06	0.4061	0.3322	0.4322	0.4008	S-K	0.4779	0.3259
Jan-07	0.4353	0.3322	0.4322	0.4019	S-K	0.4751	0.3342
Feb-07	0.4506	0.3536	0.6156	0.0000	S-K	0.4763	0.3392
Mar-07	0.5000	0.3561	0.5321	0.4136	S-K	0.5165	0.3324
Apr-07	0.3536	0.3830	0.5395	0.6528	S-K	0.5147	0.3183
May-07	0.4670	0.3764	0.5783	0.4216	S-K	0.5195	0.3237
Jun-07	0.4653	0.3561	0.5321	0.4256	S-K	0.5221	0.3290
Jul-07	0.3536	N/A	N/A	0.4196	S-K	0.5206	0.3185
Aug-07	0.4353	0.3561	0.5321	0.4208	S-K	0.5179	0.3237
Sep-07	0.5400	0.4323	0.6643	0.4293	S-K	0.5423	0.3163
Oct-07	0.3536	N/A	N/A	0.4242	S-K	0.5399	0.3086

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel:970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 10/24/07

SPECIES: *Pimephales promelas*

AGE: N/A

LIFE STAGE: Embryo

HATCH DATE: 10/24/07

BEGAN FEEDING: N/A

FOOD: N/A

Water Chemistry Record:	Current	Range
TEMPERATURE:	24°C	--
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	132 mg/l	--
TOTAL ALKALINITY (as $CaCO_3$):	90 mg/l	--
pH:	7.35	--

Comments:

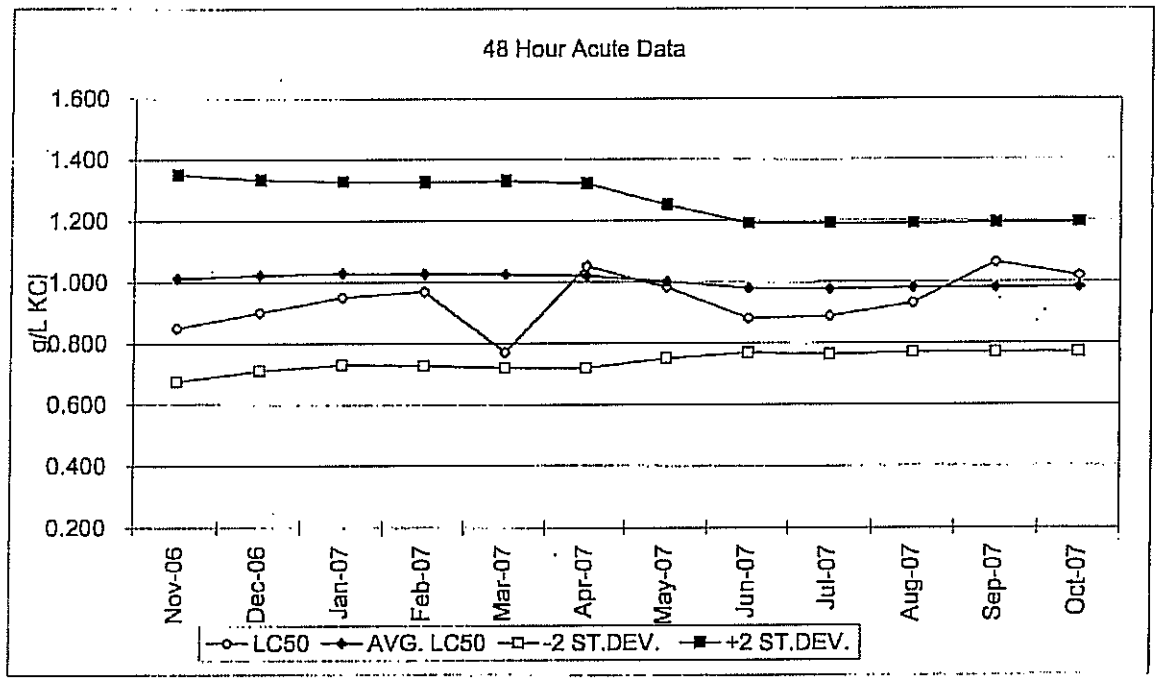
Facility Supervisor

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

REFERENCE TOXICANT LC50

Pimephales promelas



48 HOUR ACUTE TOXICITY DATA FOR

Pimephales promelas

DATE	LC50 (g/L KCl)	95% CONFIDENCE (upper)	(lower)	AVG.LC50 (g/L KCl)	METHOD	+2 STD	-2 STD
May 07	0.983	1.109	0.871	1.002	SPKR	1.2524	0.7510
Jun 07	0.883	0.991	0.786	0.981	PROBIT	1.1921	0.7698
Jul 07	0.890	1.006	0.787	0.978	SPKR	1.1924	0.7637
Aug 07	0.933	1.053	0.827	0.981	SPKR	1.1910	0.7710
Sep 07	1.064	1.200	0.944	0.982	PROBIT	1.1941	0.7707
Oct 07	1.020	1.150	0.905	0.984	SPKR	1.1963	0.7717

TOXICOLOGICAL EVALUATION SUMMARY

1.0 METHOD PROCEDURES

The Analytical and Toxicological methods used in this toxicity test followed the procedures outlined in the EPA manual entitled "Methods for Measuring the Acute Toxicity of Effluents Receiving Waters to Freshwater and Marine Organisms", fifth edition, EPA 821-R-02-012, October 2002, as well as the specific protocols outlined by the facility's NPDES permit.

2.0 TOXICITY TESTS

The toxicity test involved preparing a series of effluent concentrations by dilution with receiving stream water. The laboratory control water (Moderately Hard Synthetic water) can be used as an alternative diluent when a receiving stream is not available or exhibits known toxicity. Groups of test organisms are exposed to the varying effluent concentrations, as well as to receiving water and laboratory control water for a forty-eight and or ninety-six hour period. The resultant assay data is used to determine the median lethal concentration (LC_{50}) and the Acute No Observed Effect Concentration (A-NOEC) of the effluent at the time of sampling. The LC_{50} is defined as the effluent concentration which causes mortality to 50% of the test organism population. The A-NOEC is defined as the concentration at which 90% or more of the organisms survive. TUa is defined as $100/LC_{50}$ value. If the LC_{50} is >100, the TUa value is reported as AA.

3.0 TOXICITY TEST PROCEDURES

The toxicity test is conducted using static assay techniques. A minimum of five effluent concentrations, a receiving stream and a laboratory control are used for each species tested. The species tested varies by NPDES permit and the regulatory agency in charge. Generally an invertabrate (Ceriodaphnia sp.) and vertabrate (Pimephales sp.) are used. Four replicates of five organisms were used for each concentration in the Ceriodaphnia dubia assay, and four replicates with ten organisms for the Pimephales promelas assay. The Ceriodaphnia dubia are placed in 30mL vessels with 25mL of test solution per replicate. The Pimephales promelas are placed in 250mL vessels with 200mL of test solution per replicate. Test exposure can vary from twenty-four hours to ninety-six hours depending on the test objectives and the requirements of the regulatory authority. The end-point required for assays is lethality. The test organisms were considered dead if there was no response observed after gentle prodding. Observations of survival are made at twenty-four hour intervals during the assay. Test organisms are fed two hours prior to test initiation and at the forty-eight hour renewal (when applicable).

Measurements of dissolved oxygen, pH, temperature and specific conductance are performed every twenty-four hours on each effluent concentration, receiving stream and laboratory control water.

Total Residual chlorine is analyzed on each effluent and receiving stream sample upon receipt in the laboratory. Effluent samples containing residual chlorine are de-chlorinated using a 10% solution of Sodium Thiosulfate prior to use in the toxicity test.

4.0 QUALITY ASSURANCE

The quality assurance protocol for this type of toxicity test dictates that reference toxicants be analyzed on a monthly basis. The data obtained from these analyses are used to assess the validity of the assay and the health and condition of the organisms. Sodium chloride and or Potassium chloride are used as the reference toxicant(s) for these toxicity tests. The values for these tests must fall within acceptable laboratory criteria.

The acceptance criteria of 90% survival must be met in the test control.

Reporting toxicity test results ensures that all requirements of the NELAC Standards have been met.

5.0 STATISTICAL RESULTS AND RAW DATA

The summary report outlines the LC_{50} and A-NOEC values for each species tested in the bioassay.
All raw bench sheet data can be found in Appendix A, computer printouts of the statistical modeling for the LC_{50} can be found in Appendix B, and the results of any additional chemical analysis (when applicable) and chains of custody can be found in Appendix C.

ACUTE TOXICITY REPORT - TestAmerica WESTFIELD

Facility Name:	On-Site Health and Safety	NPDES Permit No.:	N/A
Dilution Water:	MHSF Lab Control	Analyst (s):	JN/GRB/CL
Test Initiation:	10/25/07 @ 1335 / 1430 (Date/Time)	Test Termination:	10/29/07 (DATE) 1330 (TIME)

WATER QUALITY CHEMISTRY

EFFLUENT CONC. %	DISSOLVED OXYGEN mg/L Hours 0	24	48	72	96	pH Hours 0	24	48	72	96	CONDUCTIVITY Hours 0	24	48	72	96	TEMPERATURE C Hours 0	24	48	72	96
Lab Control	8.9	7.5	7.1			7.0	7.7	8.1			276	280	295			25	25	24		
6.25%	8.9	7.7	7.3			7.9	7.8	8.0			273	281	324			25	25	24		
12.50%	8.6	7.2	7.3			8.0	7.9	8.0			267	272	330			25	25	24		
25.00%	8.4	7.6	6.9			7.9	7.9	8.1			256	270	312			25	25	24		
50.00%	9.0	7.6	5.6			7.9	7.9	8.2			240	260	288			25	25	24		
100.00%	8.6	7.2	7.2			7.9	7.9	8.1			212	210	241			25	25	24		
DO Reading After Setup:	2hr:		4hr:		6hr:	8hr:														

SPECIES: *Ceriodaphnia dubia* (1335) / (1330) AGE: <24hrs MCP 101207B

EFFLUENT CONC. %		Lab Control								6.25%				12.50%				25.00%				50.00%				100.00%			
HOURS		24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96
SURVIVAL PER REPLICATE	A	5	5			5*				5	5			5	5			4	4			4	4			5	5		
	B	5	5			5*				5	5			5	5			5	5			5	5			5	5		
	C	5	5			5*				5	5			5	5			5	5			5	5			5	5		
	D	5	5			—				5	5			5	5			5	5			5	5			5	4		
% MORTALITY				0		* GRB 10/29/07						0				0				5				5				5	

SPECIES: *P.promelas* (1430) / (1330) AGE: <48 hours old

EFFLUENT CONC.		Lab Control								6.25%				12.50%				25.00%				50.00%				100.00%			
HOURS		24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96	24	48	72	96
SURVIVAL PER REPLICATE	A	10	10							10	10			10	10			10	10			10	10			10	10		
	B	10	10							10	10			10	10			10	10			10	10			10	10		
	C	10	10							10	10			10	10			10	10			10	10			10	10		
	D	10	10							10	10			10	10			10	10			10	10			10	10		
% MORTALITY				0								0				0				0				0				0	

D.O.meter: YSI Md.5000/probe Md 5905 pH meter: Accumet Md#AR15/probe 13-620-181
Conductivity meter: Fisher Sci. SN#221105570.

APPENDIX B

Statistical Modeling

MINIMUM REQUIRED TRIM IS TOO LARGE: 95.0,SO SK IS NOT CALCULABLE.

SPEARMAN-KARBER

TRIM: .00%
LC50: .000
95% CONFIDENCE LIMITS
ARE UNRELIABLE.

CONC. %	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
6.25	20.	0.	.00	.9537D-04
12.50	20.	0.	.00	.9537D-04
25.00	20.	1.	5.00	.2003D-02
50.00	20.	1.	5.00	.2003D-02
100.00	20.	1.	5.00	.2003D-02

THE BINOMIAL TEST SHOWS THAT 100.00 AND +INFINITY CAN BE USED AS STATISTICALLY
SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 99.9980 PERCENT.
THE LC50 FOR THIS DATA SET IS GREATER THAN 100.00

THE MOVING AVERAGE METHOD CANNOT BE USED WITH THIS DATA SET BECAUSE NO SPAN WHICH PRODUCES AVERAGE ANGLES BRACKETING 45 DEGREES ALSO USES TWO PERCENT DEAD BETWEEN 0 AND 100 PERCENT.

NO CONVERGENCE IN 25 ITERATIONS. PROBIT METHOD PROBABLY CAN NOT BE USE WITH THIS SET OF DATA.

DATE: 10/25/07 TEST NUMBER: 13118 DURATION: 48 hours
SAMPLE: Wellsville SPECIES: C.dubia

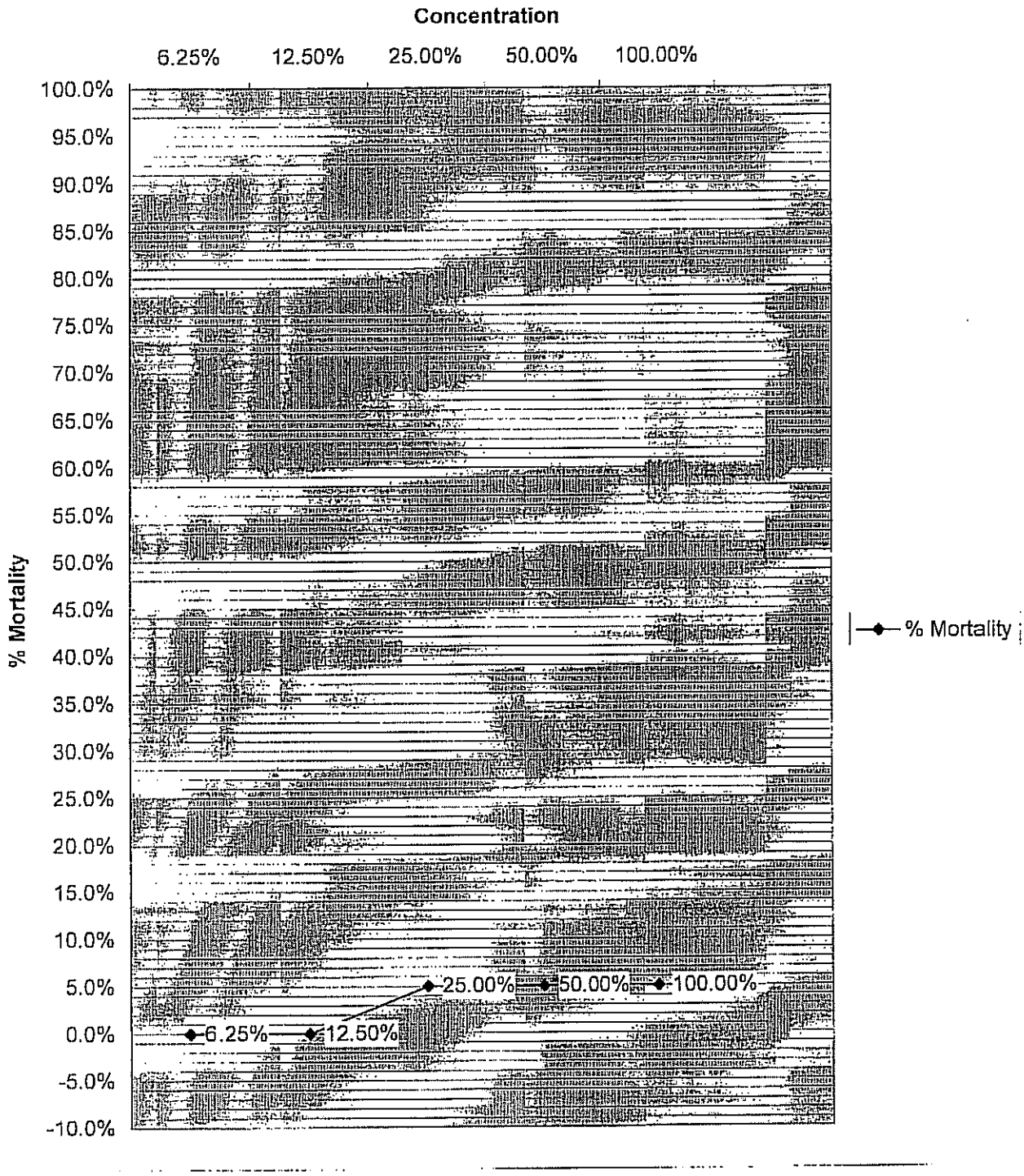
METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	*******	100.000	*******	*******
MAV	*******	*******	*******	*******
PROBIT	*******	*******	*******	*******
SPEARMAN	.000	*******	*******	*******

**** = LIMIT DOES NOT EXIST

Client: **On-Site Health and Safety**
Job#: 360-13118
Species: *C.dubia*

LC50: >100% 48 hour

LC50 DATA - Graphical Interpolation



MINIMUM REQUIRED TRIM IS TOO LARGE: 100.0,SO SK IS NOT CALCULABLE.

SPEARMAN-KARBER

TRIM: .00%
LC50: .000
95% CONFIDENCE LIMITS
ARE UNRELIABLE.

CONC. %	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
6.25	40.	0.	.00	.9095D-10
12.50	40.	0.	.00	.9095D-10
25.00	40.	0.	.00	.9095D-10
50.00	40.	0.	.00	.9095D-10
100.00	40.	0.	.00	.9095D-10

THE BINOMIAL TEST SHOWS THAT 100.00 AND +INFINITY CAN BE USED AS STATISTICALLY
SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 100.0000 PERCENT.
THE LC50 FOR THIS DATA SET IS GREATER THAN 100.00

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISCALLY SOUND RESULTS.

DATE: 10/25/07 TEST NUMBER: 13118 DURATION: 48 hours
SAMPLE: Wellsville SPECIES: P.promelas

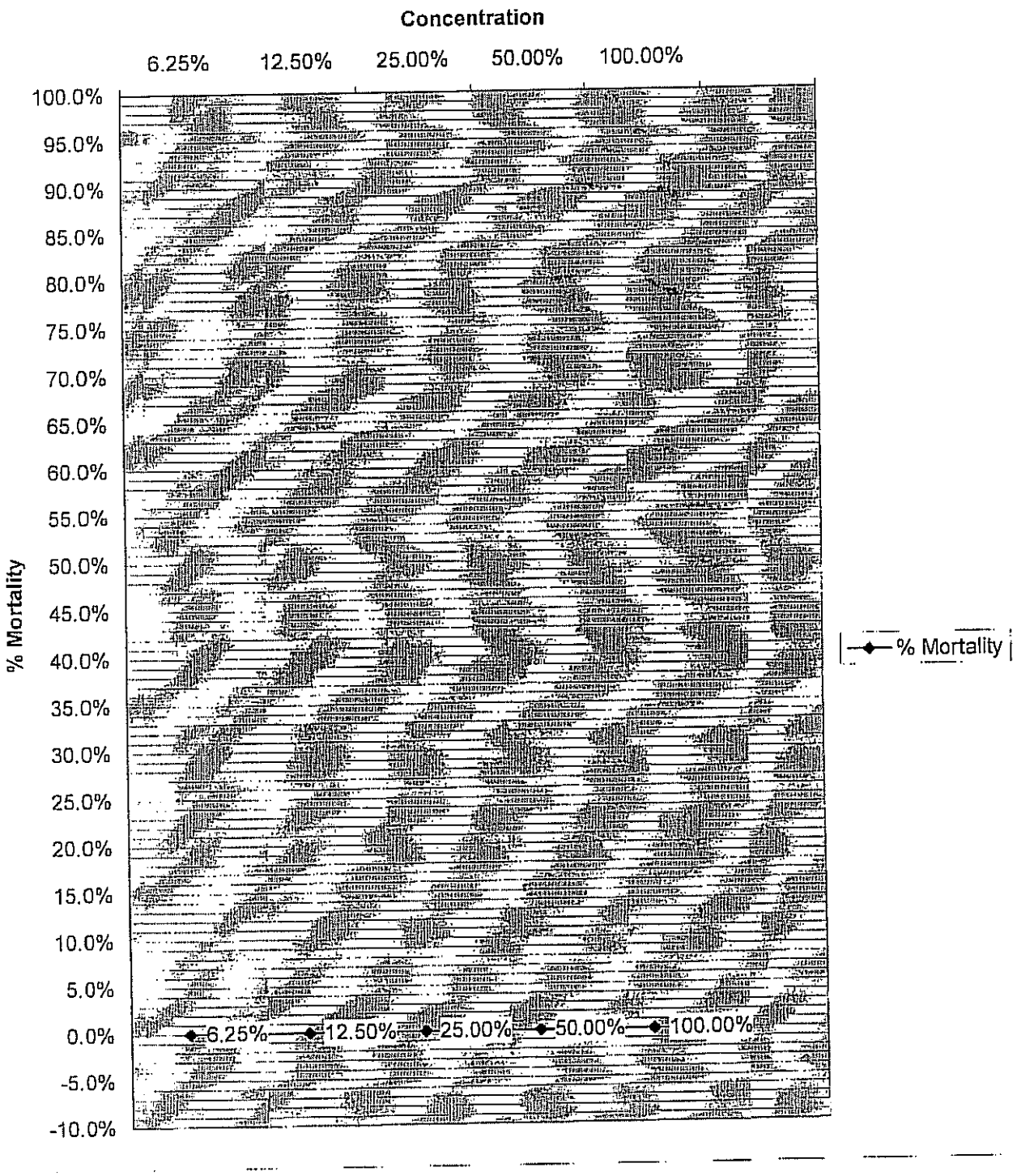
METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	*******	100.000	*******	*******
MAA	*******	*******	*******	*******
PROBIT	*******	*******	*******	*******
SPEARMAN	.000	*******	*******	*******

**** = LIMIT DOES NOT EXIST

Client: **On-Site Health and Safety**
Job#: 360-13118
Species: *P.promelas*

LC50: >100% 48 hour

LC50 DATA - Graphical Interpolation



APPENDIX C

Chemical Report and/or Chain of Custody

Login Sample Receipt Check List

Client: On-Site Health and Safety

Job Number: 360-13118-1

Login Number: 13118
List Source: TestAmerica Westfield
Creator: Tremblay, Kara R
List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	1.0 C
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Severn Trent Laboratories, Inc.
Chain of Custody Form

SEVERN TRENT STL

34304

•53 Southampton Road
Westfield, MA 01085
(P) 413-572-4000
(F) 413-572-3707
STL Westfield

•149 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871
STL Billerica / Service Center

Client: ON-SITE TECHNICAL SERVICES
Address: 72 RAILROAD AVE.
Wellsville, NY 14895
Phone: 585-593-1824 Fax: 585-593-7471

Project #: Former Sinclair Refinery OU-1
Project Manager: Jon Brandes
Work ID: NA
Contact: Jon Brandes

Job#: 3118 Quote#: PO#:

Requested Turnaround Time (PLEASE SPECIFY)
STANDARD ____ RUSH ____ (Lab Approval Required)

Regulatory Classification
NPDES ____ Drinking Water ____
RCRA ____ MCP GW1/S1 ____
Other ____

Special Report Format
QA/QC Report ____
DQE (MCP) Rpt ____
DEP Form(s) ____

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water, NPDES
6000-series for groundwater, soil, waste
8000-series for groundwater, soil, waste
Use comments section to further define.

Comments (Special Instructions)
Please print legibility. If the analytical requests are not clearly defined on the chain-of-custody, the turnaround time will begin after all questions have been satisfactorily answered.

Sample Type Codes
WW-Wastewater DW-Drinking water SW-Surface water
LW-Lab water GW-Groundwater A-Air
S-Solid / Soil SL-Sludge O-Oil Z-Other

10/24/07 Date

Sample ID	Sample Type	Sampler's Initials	Time Collected	Grab	Comp.	# Containers	Plastic(P) or Glass(G)	Preservative: NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Na2S2O3	None / 4° C	Volatiles 524 /624 /8260	Volatiles 601 /602 /8021	Semivoa 525 /625 /8270	PCB / Pest / Herbicide	EPH / VPH	DRO / GRO / ETPH	Metals 6010 / 200.7	Mercury 245.1 / 7470-71	General Chemistry	Bacteriological	Toxicity	Oil & Grease / TOC	Radchem / Other
OF-1007	SW	SW	0755	X		2	P							2											2		

ICRT 10/25/07

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Sampled by (print): Scott R. Watson 10-24-07 0755
Signature: Scott R. Watson

Relinquished by: Scott R. Watson Date: 10-24-07 Time: 1200
Received by: Kara Fremlay Date: 10/25/07 Time: 0950

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Cooler (Y) / N
MADEP Requirement Samples Iced (Y) / N
Temp @ receipt: 1.0°C 0.4°C °C
Preservation pH checked? Y (N)
By: Date:

STL WESTFIELD
FedEx P.o/n 7982 9329 3140

White = Lab file Yellow = Report copy Pink = Customer copy
STL-8245 (1000)