2009 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

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1.0 OVERVIEW

1.1 Introduction

This document presents the 2009 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 with subsequent updates. 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. No change in land use occurred at the former refinery surface soil areas during 2009.

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 2009.
- Section 5 provides the results of 2009 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. 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.

In a letter dated October 5, 2009, Atlantic Richfield proposed that the annual settlement plate survey be suspended until after the RCRA cell is constructed on top of the existing CELA for placement of impacted soils from the Phase II remedial action activities at Operable Unit 2 (OU2) and operation and maintenance requirements for the combined area are determined. In an e-mail dated October 8, 2009, the EPA agreed with the proposal to temporarily suspend the annual survey.

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 2009 OPERATIONS AND MAINTENANCE ACTIVITIES

4.1 Visual Inspections

Visual inspections of the CELA were completed on March 13, May 18, August 18 and October 19, 2009. 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 five times during 2009.

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 2009 inspections.

4.1.3 Open Well Piezometers

The six open well piezometers were inspected and appear 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 2009.

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 2009 Monitoring Activities

4.2.1 Settlement Plate Survey

As stated in Section 2.1, the settlement plate survey has been temporarily suspended until after the construction of the additional cell on top of the CELA that will contain impacted soils from the Phase II remedial action construction activities at OU2.

Based on visual observations, the cap continues to have positive drainage with no areas of ponding water or abnormally soft ground. Quarterly visual inspections of the CELA cap are continuing as required. Any signs of differential settlement will be immediately addressed.

4.2.2 Groundwater Evaluation

On-Site performed annual groundwater sampling at the 11 observation wells (MWR-01 through MWR-11) between May 26 and May 28, 2009 (see Figure 1b for well locations). A SS Geosub rental pump from Geotech 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 8). Laboratory analysis of groundwater samples was performed by Lancaster Laboratories of Lancaster, Pennsylvania 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 1 through 4. Groundwater sampling field 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 21, 2009 and during the static water level monitoring event on October 6, 2009. The static water levels are presented in Table 5 and water table contour maps for the May and October 2009 events are provided as Figures 2 and 3, 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 5. These data were plotted and contoured on a site base map to represent the potentiometric surface for the May 2009 monitoring event (Figure 2) and October 2009 monitoring event (Figure 3). 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.

Light Non-Aqueous Phase Liquid (LNAPL) was detected at MWR-02, which was socked three times prior to sampling with a total of eleven 18-inch absorbent socks. On May 21, 2009 three socks were installed at MWR-02 after groundwater level monitoring was complete. The socks were removed, fully saturated, on May 22, 2009 and four more socks were installed. On May 27, 2009 the second set of socks were removed, again fully saturated, and four new socks were installed. Prior to sampling MWR-02 on May 28, 2009, the last set of socks were removed with approximately two inches of saturation on each of the four socks. Based on the manufacturer information that each sock absorbs approximately 17 ounces of NAPL, the total approximate amount of LNAPL removed from MWR-02 by socking is 127 fluid ounces. 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 14, 2009 and September 17, 2009 (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 14, 2009 were approximately 79°F, sunny with variable winds at approximately 0 to 5 mph from the west. Weather conditions on September 17, 2009 were approximately 60°F with light variable winds at approximately 0 to 5 mph. Emission levels at all upwind and downwind locations were 0.0 ppm during the evaluations, with the exception of V-1 downward reading of 5.8 ppm on August 14, 2009. Gas vent evaluation data are included in Appendix E of this report.

4.2.5 Storm Water Evaluation

Several attempts were made during 2009 to obtain storm water samples from the CELA Outfall culvert, but the sampling criteria was not met while personnel were on site.

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 2009 (please see Appendix F). Agronomic soil and soil pH testing is required again in 2012.

4.3 Maintenance Activities

Maintenance activities during 2009 included routine mowing of the cap. The CELA was mowed five times during 2009. During the second quarter 2009 inspection both entrance gates were readjusted for proper clearance. No other repairs were required in 2009.

5.0 RESULTS

5.1 Liquid Levels

5.1.1 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 2009 was 1492.38 ft in P-2 on May 21, 2009. 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 October 2009 are presented as Figures 2 and 3, respectively and are consistent with historic levels.

5.1.2 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 4. During 2009, LNAPL was detected at MWR-02 in both May and October monitoring events with an apparent thickness of 0.47 ft and 0.49 ft, respectively. 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 2009, approximately 127 oz. of LNAPL was recovered from MWR-02 (please see Table 9).

5.2 Groundwater Conditions

5.2.1 MCL and DWEL Comparison

Table 1 compares frequency of detection, minimum detection, and maximum detection between the baseline sampling conducted in 1993 and the 2009 event. Table 2 presents the analytical results for each well from 2003 to 2009. Table 3 presents a comparison between the 2009 MWR-10 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. An equipment rinsate blank was collected from the pump and tubing used for sampling. The equipment blank was 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 Barium, Copper, Magnesium and Manganese, which are not site constituents of concern.

Since 1993, several metals, Bis (2-ethylhexyl) phthalate and Methylene Chloride have exceeded USEPA Maximum Contaminant Levels (MCLs) at one time or another. The 2009 annual groundwater sampling event was conducted between May 26, 2009 and May 28, 2009. Analytical results from the 11 observation wells sampled indicate various metal detections. VOCs were not detected in 2009.

The 2009 groundwater analytical results were compared to MCLs and New York State Department of Environmental Conservation (NYSDEC) Class GA Groundwater Standards (NYSDEC Class GA Standards). Arsenic and chromium are the only parameters exceeding MCLs or DWELs during 2009. The table below lists the 2009 exceedances.

Sample ID	Parameter	Sample Result (mg/L)	USEPA MCL (mg/L)	NYSDEC Class GA Standard (mg/L)
MWR02-0509	Arsenic	0.058	0.01	0.02
MWR04-0509	Antimony	0.0109 J	0.006	0.003
MWR09-0509	Arsenic	0.0174 J	0.01	0.025
MWR10-0509	Arsenic	0.0311	0.01	0.025
DUP1-0509	Arsenic	0.0278	0.01	0.025
MWR11-0509	Chromium	0.282	0.1	0.05

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. This is the first year that Antimony has exceeded the MCL since 1994, and also the first year it has been detected 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. Total chromium has exceeded the MCL every year except 2000 and 2001.

5.2.2 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 metals from the eleven monitoring wells, which includes data from 1997 through 2009 (Please see Table 7A). Monitoring well analytical results with two or more detections of an individual metal were included in the statistics. From 1997 through 2009, 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; and (iii) Chromium at MWR-04, MWR-05 and MWR-11. Therefore, statistical analysis was performed on these ten metal/location combinations. In conducting this analysis, one-half the detection limit was used for non-detect results and field duplicate results were excluded. Table 7B 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, MWR-08 and MWR-09; and (ii) No trend has been observed at the other metal/location combinations tested. The statistical analysis is presented in Table 7C.

5.3 Storm Water Evaluation

Storm water samples were not obtained from the CELA surface water drainage channel outfall in 2009 as indicated in Section 4.2.5. Table 6 presents the 2005 to 2008 storm water analytical results along with the NYSDEC Class A Surface Water Standards.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Inspections

Inspections of the CELA are being conducted on a quarterly basis. 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

In general, the 2009 groundwater analytical results are consistent with recent historical data obtained from the Site. Various metals have historically been detected at the Site and were also observed in 2009. Statistical analysis of Antimony, Arsenic and Chromium concentrations in groundwater indicate a combination of decreasing and stable trends. VOCs continue to be non-detect.

6.2.2 Other Evaluations

Other activities are being conducted, including: liquid level evaluation; gas vent evaluation; and storm water evaluation. These evaluations will continue as outlined in the current O&M Plan. As previously communicated to the USEPA and NYSDEC, construction activities are scheduled for 2010 to use the northern portion of the CELA as

a spoil reuse area as part of OU2 Phase II remedial activities. The construction activities will effect some of the CELA O&M activities. Revised O&M procedures are planned to be developed following completion of remedial construction.

6.3 Maintenance

Maintenance continues to be conducted as indicated by the O&M Plan. Anticipated maintenance for 2010 includes routine mowing during the summer months.

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

Comparison of 1993 Baseline Groundwater Data
to 2009 Groundwater Data
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	1993 Baseline Detection Frequency[1]	2009 Detection Frequency	1993 Minimum Detection[1]	2009 Minimum Detection	1993 Maximum Detection[1]	2009 Maximum Detection	2009 Frequency of MCL[2] Exceedances	MCL[2]
Aluminum	42/44	0/11	0.231	0.0802 U	17.789	0.0802 U		
Antimony	2/44	1/11	0.068	0.0109	0.083	0.0109	1	0.006
Arsenic	36/44	3/11	0.012	0.0174	0.16	0.058	3	0.01
Arsenic, dissolved	4/44	NA	0.01	NA	0.056	NA		
Barium	18/44	11/11	0.241	0.0403	0.763	0.381	0	2
Barium, dissolved	9/44	NA	0.232	NA	0.398	NA		
Beryllium	11/44	0/11	0.007	0.0014 U	0.009	0.0014 U	0	0.004
Cadmium	16/44	0/11	0.005	0.002 U	0.08	0.002 U	0	0.005
Calcium	33/44	11/11	16.1	14	48.33	41		
Calcium, dissolved	28/44	NA	15.96	NA	46.08	NA		
Chromium	29/44	3/11	0.015	0.0085	11.2	0.282	1	0.1
Chromium, dissolved	3/44	NA	0.005	NA	0.014	NA		
Cobalt	2/44	2/11	0.003	0.0022	0.025	0.0025		
Copper	10/44	2/11	0.026	0.0044	0.153	0.0082	0	1.3
Copper, dissolved	4/44	NA	0.026	NA	0.042	NA		
Iron	44/44	10/11	0.6	0.24	65.2	37.2		
Iron, dissolved	32/44	NA	0.104	NA	22.6	NA		
Lead	28/44	0/11	0.005	0.0069 U	0.7	0.0069 U	0	0.015
Lead, dissolved	8/44	NA	0.004	NA	1.003	NA		
Magnesium	38/44	11/11	4.71	4.16	63.581	24.5		
Magnesium, dissolved	36/44	NA	6.07	NA	61.021	NA		
Manganese	42/44	11/11	0.212	0.0312	16.013	11.7		
Manganese, dissolved	43/44	NA	0.193	NA	14.98	NA		
Nickel	8/44	4/11	0.04	0.0071	0.2	0.206		
Nickel, dissolved	3/44	NA	0.054	NA	0.118	NA		
Potassium	14/44	11/11	1.87	1.28	59.34	3.95		
Potassium, dissolved	12/44	NA	1.72	NA	5	NA		
Selenium	2/44	0/11	0.08	0.0089 U	0.1	0.0089 U	0	0.05
Silver	5/44	1/11	0.017	0.0024	0.473	0.0024		
Silver, dissolved	1/44	NA	0.015	NA	0.015	NA		
Sodium	39/44	11/11	6.5	6.39	23.37	29.3		
Sodium, dissolved	39/44	NA	5	NA	20.02	NA		
Thallium	6/44	0/11	0.132	0.014 U	0.396	0.014 U	0	0.002
Thallium, dissolved	1/44	NA	0.156	NA	0.156	NA		
Vanadium	1/44	0/11	0.061	0.0025 U	0.061	0.0025 U		
Zinc	27/44	0/11	0.022	0.0081 U	0.2	0.0081 U		
Zinc, dissolved	7/44	NA	0.023	NA	0.063	NA		
Benzo(a)anthracene	1/44	NA	0.001	NA	0.001	NA		
bis(2-Ethylhexyl) phthalate	2/44	NA	0.005	NA	0.007	NA	0	0.006
Di-n-butylphthalate	9/44	NA	0.0009	NA	0.005	NA		
Di-n-octylphthalate	1/44	NA	0.001	NA	0.001	NA		
Naphthalene	1/44	NA	0.001	NA	0.001	NA		
Pyrene	1/44	NA	0.008	NA	0.008	NA		
1,1-Dichloroethane	1/44	0/11	0.001	0.001 U	0.001	0.001 U		
Acetone	3/44	0/11	0.006	0.006 U	0.019	0.006 U		
Benzene	1/44	0/11	0.0009	0.0005 U	0.0009	0.0005 U	0	0.005
cis/trans1,2-Dichloroethene	1/44	NA	0.002	NA	0.002	NA	0	0.07
Dichloromethane (Methylene chloride)	4/44	0/11	0.001	0.002 U	1.342	0.002 U	0	0.005
Tetrachloroethene	1/44	0/11	0.002	0.0008 U	0.002	0.0008 U	0	0.005

Notes:

[1] Geosyntec, 1994

[2] Unites States Environmental Protection Agency Maximum Contaminant Level

NA - Not analyzed

1/44 - 1 parameter detection out of 44 samples

U - Concentration not detected at specified detection limit

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-01 5/27/2009
Inorganic Compounds							
Aluminum	0.1 U	0.1 U	0.2 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.089	0.006 U	0.0097 U	0.0097 U
Arsenic	0.01 U	0.0126	0.005	0.008 U	0.008 U	0.0102 U	0.0072 U
Barium	0.256	0.245	0.21	0.2 U	0.2 U	0.172	0.164
Beryllium	0.005 U	0.005 U	0.005 U	0.0201	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.008	0.004 U	0.002 U	0.002 U
Calcium	39.6	36.8	34.3	31.8	27.7	30.4	28.3
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0085 J
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0022 J	0.0022 J
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0044 J
Iron	1.28	2.91	1.54	1	1.02	1.16	1.43
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	28.4	25	22.7	21.6	20.5	19.4	18.8
Manganese	15.7	14	13.5	12.5	11.7	13.3	11.7
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0056 U	0.0018 U
Potassium	2 U	5 U	5 U	5 U	10 U	1.74	1.37
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	21.6	23.2	24.3	23.5	23.1	24.2	22
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0048 J	0.0025 U
Zinc	0.02 U	0.02 U	0.0221	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-01 5/27/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.0005 J	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.0011	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/30/2008	MWR-02 5/28/2009
Inorganic Compounds							
Aluminum	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0.0097 U	0.0097 U
Arsenic	0.0579	0.0532	0.005 U	0.0501	0.0491	0.0524	0.058
Barium	0.505	0.458	0.2 U	0.416	0.416	0.365	0.381
Beryllium	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.002 U	0.002 U
Calcium	43.1	39.8	5 U	34.3	30.3	36.7	31
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0034 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	44.9	40.7	0.1 U	37.2	35.7	40.3	37.2
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	37.3	31.4	5 U	27	25.7	25.1	24.5
Manganese	8.28	7.98	0.015 U	7.69	7.74	8.74	8.03
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0056 U	0.0018 U
Potassium	2.25	5 U	5 U	5 U	10 U	1.62	1.77
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0024 J
Sodium	18.2	18.7	5 U	21.3	21.5	20.9	20.9
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0025 U	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/30/2008	MWR-02 5/28/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.00033 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-03 5/28/2009
Inorganic Compounds							
Aluminum	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0.0097 U	0.0097 U
Arsenic	0.01 U	0.0124	0.01	0.008 U	0.008 U	0.0128 J	0.0072 U
Barium	0.236	0.251	0.286	0.243	0.257	0.23	0.204
Beryllium	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.002 U	0.002 U
Calcium	34.6	41.4	43.6	35.7	33.2	33.6	27.8
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0034 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	3.06	3.7	3.97	3.66	3.59	3.97	1.99
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	20.3	23.2	24.8	21.9	21.6	19.9	16.6
Manganese	2.39	3	3.31	2.73	2.87	2.82	2.45
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0056 U	0.0018 U
Potassium	2.15	5 U	5 U	5 U	10 U	2.12	1.87
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	12.2	12.2	12.5	11.2	10.7	11.2	10.6
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0025 U	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-03 5/28/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.00071 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-04 5/28/2009
Inorganic Compounds							
Aluminum	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0.0097 U	0.0109 J
Arsenic	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0.0102 U	0.0072 U
Barium	0.1	0.2 U	0.2 U	0.2 U	0.2 U	0.0762	0.0617
Beryllium	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.002 U	0.002 U
Calcium	21.2	17.9	17.5	16	17.6	15.7	15.5
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.0697	0.0287	0.0034 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	0.1 U	0.1 U	0.125	0.1 U	0.171	0.131 J	0.0522 U
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	6.22	5 U	5 U	5 U	5.1	4.42	4.23
Manganese	3.75	3.12	0.971	0.665	3.27	2.88	1.5
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0071 J	0.0071 J
Potassium	2 U	5 U	5 U	5 U	10 U	1.23	1.28
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	10.2	8.23	8.59	8.06	10 U	7.88	9.38
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0025 U	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-04 5/28/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-05 5/28/2009
Inorganic Compounds							
Aluminum	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0.0097 U	0.0097 U
Arsenic	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0.0102 U	0.0072 U
Barium	0.0878	0.2 U	0.2 U	0.2 U	0.2 U	0.0472	0.0584
Beryllium	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.002 U	0.002 U
Calcium	17.7	15.7	83.6	12.9	11	11.5	14
Chromium	0.0348	0.0247	0.01 U	0.0197	0.0613	0.094	0.0378
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	0.231	0.137	0.267	0.166	0.488	0.603	0.24
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	5.43	5 U	66.7	5 U	5 U	3.28	4.16
Manganese	0.345	0.371	0.0777	0.0198	0.015 U	0.0327	0.0312
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0595	0.0261
Potassium	2 U	5 U	5 U	5 U	10 U	1.11	1.34
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	10.5	9.4	174	8.35	10 U	8.01	9.54
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0025 U	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-05 5/28/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.00033 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-06 5/27/2009
Inorganic Compounds							
Aluminum	0.1 U	0.2 U	0.1 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.0057	0.0517	0.006 U	0.0097 U	0.0097 U
Arsenic	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0.0102 U	0.0072 U
Barium	0.105	0.2 U	0.2 U	0.2 U	0.2 U	0.12	0.103
Beryllium	0.005 U	0.005 U	0.005 U	0.0104	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.0044	0.004 U	0.002 U	0.002 U
Calcium	22.5	26.9	28.9	26.8	26.2	25.9	21.8
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0034 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	0.386	0.996	3.29	3.19	3.85	3.87	3.41
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	7.61	8.8	9.61	9.79	9.45	9.21	8.16
Manganese	3.32	5	7.03	6.76	6.82	6.59	5.87
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000085 J
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0056 U	0.0018 U
Potassium	2 U	5 U	5 U	5 U	10 U	1.74	1.67
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	9.1	7.35	7.68	7.89	10 U	8.87	8.95
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.003 J	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-06 5/27/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.00061 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-07 5/27/2009
Inorganic Compounds							
Aluminum	0.1 U	0.2 U	0.2 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.0082	0.006 U	0.0097 U	0.0097 U
Arsenic	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0.0102 U	0.0072 U
Barium	0.0668	0.2 U	0.2 U	0.2 U	0.2 U	0.0507	0.0403
Beryllium	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.002 U	0.002 U
Calcium	15.9	17.7	15.9	14.6	14.3	17.2	15.1
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0034 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	0.1 U	0.1 U	0.409	0.1 U	0.111	0.114 J	0.562
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	4.99	5.15	5 U	5 U	5 U	4.56	4.21
Manganese	0.455	0.877	2.58	0.24	0.402	0.884	1.49
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0056 U	0.0018 U
Potassium	2 U	5 U	5 U	5 U	10 U	1.72	1.84
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	10.3	9.39	9.93	9.33	10 U	9.89	9.74
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0025 U	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/29/2008	MWR-07 5/27/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.00062 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/28/2008	MWR-08 5/27/2009
Inorganic Compounds							
Aluminum	0.1 U	0.1 U	0.2 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.0252	0.006 U	0.0097 U	0.0097 U
Arsenic	0.01 U	0.0086	0.005 U	0.008 U	0.015	0.0102 U	0.0072 U
Barium	0.121	0.2 U	0.2 U	0.2 U	0.2 U	0.0965	0.0954
Beryllium	0.005 U	0.005 U	0.005 U	0.0044	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.002 U	0.002 U
Calcium	22.8	21	18.2	18.4	19.8	23.6	21.8
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0034 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	4.35	3.37	2.69	3.07	6.27	2.44	2.38
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	29.2	22.8	18.3	18.4	18.6	19.2	18
Manganese	3.28	3.07	2.81	2.91	2.16	2.36	2.7
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0056 U	0.0074 J
Potassium	2 U	5 U	5 U	5 U	10 U	2.13	1.86
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	8.58	8.13	7.7	7.09	10 U	7.07	6.39
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0025 U	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/28/2008	MWR-08 5/27/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.0004 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/28/2008	MWR-09 5/26/2009
Inorganic Compounds							
Aluminum	0.1 U	0.1 U	0.2 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.0506	0.006 U	0.0097 U	0.0097 U
Arsenic	0.0238	0.005 U	0.016	0.0202	0.008 U	0.0162 J	0.0174 J
Barium	0.269	0.2 U	0.215	0.2	0.2 U	0.162	0.206
Beryllium	0.005 U	0.005 U	0.005 U	0.0103	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.0043	0.004 U	0.002 U	0.002 U
Calcium	48.2	42.7	38.5	36	38.8	34.9	38.7
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0034 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	17.1	8.35	11.7	11.9	9.63	8.74	12.4
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	28.2	21.6	21	20.3	20.2	16.9	20
Manganese	8.66	9.05	7.71	6.67	5.63	4.5	6.06
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000063 J
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0056 U	0.0018 U
Potassium	2.51	5 U	5 U	5 U	10 U	2.57	2.32
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	18.7	20.5	20.4	16.8	15.7	13.9	14
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0025 U	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0094 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0094 U	0.002 U					
1,4-Dichlorobenzene	0.0094 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/28/2008	MWR-09 5/26/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0094 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.00045 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/28/2008	MWR-10 5/26/2009
Inorganic Compounds							
Aluminum	0.1 U	0.1 U	0.2 U	0.1 U	0.2 U	0.0802 U	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.0605	0.006 U	0.0097 U	0.0097 U
Arsenic	0.0437	0.045	0.0475	0.0373	0.0371	0.0381	0.0311
Barium	0.326	0.245	0.228	0.251	0.239	0.228	0.242
Beryllium	0.005 U	0.005 U	0.005 U	0.0131	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.0055	0.004 U	0.002 U	0.002 U
Calcium	36.1	33.6	31.6	30.7	29.9	30.4	29.6
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0034 U
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0021 U
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0027 U	0.0027 U
Iron	25.1	14.2	13.3	18.7	17	17	19.4
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	24.2	23.4	20.6	19.1	19.3	17.7	16.7
Manganese	12.1	8.46	7.68	8.43	7.82	7.33	7.79
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.0056 U	0.0018 U
Potassium	2 U	5 U	5 U	5 U	10 U	1.66	1.3
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	21.4	22.8	24.8	21.9	20.3	20.3	17.8
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0031 J	0.0025 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0095 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0095 U	0.002 U					
1,4-Dichlorobenzene	0.0095 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/28/2008	MWR-10 5/26/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0095 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Toluene	0.005 U	0.00041 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/28/2008	MWR-11 5/26/2009
Inorganic Compounds							
Aluminum	0.1 U	0.2 U	0.2 U	0.1 U	0.2 U	0.0964 J	0.0802 U
Antimony	0.06 U	0.005 U	0.005 U	0.006 U	0.006 U	0.0097 U	0.0097 U
Arsenic	0.01 U	0.005 U	0.005 U	0.008 U	0.008 U	0.0102 U	0.0072 U
Barium	0.0936	0.2 U	0.2 U	0.2 U	0.2 U	0.0736	0.107
Beryllium	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U	0.0009 U	0.0014 U
Cadmium	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.002 U	0.002 U
Calcium	28	28.1	27.3	25.5	24	24.3	41
Chromium	0.122	0.193	0.604	0.21	0.24	0.309	0.282
Cobalt	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0021 U	0.0025 J
Copper	0.02 U	0.025 U	0.025 U	0.025 U	0.025 U	0.0063 J	0.0082 J
Iron	0.584	0.781	2.79	0.942	0.974	1.5	1.68
Lead	0.005 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0069 U	0.0069 U
Magnesium	6.79	6.12	6.04	5.78	5.85	5.82	9.2
Manganese	0.0121	0.0152	0.0454	0.0241	0.015 U	0.0129	0.0503
Mercury	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000056 U	0.000056 U
Nickel	0.0766	0.105	0.218	0.079	0.0643	0.102	0.206
Potassium	3.34	5 U	5 U	5 U	10 U	3.93	3.95
Selenium	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.0107 U	0.0089 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022 U	0.0023 U
Sodium	28.3	30.2	29	27.7	24.6	23.7	29.3
Thallium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.014 U	0.014 U
Vanadium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0025 U	0.0025 U
Zinc	0.02 U	0.02 U	0.0374	0.02 U	0.02 U	0.0081 U	0.0081 U
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,1-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
1,2-Dichlorobenzene	0.0093 U	0.002 U					
1,2-Dichloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	0.0093 U	0.002 U					
1,4-Dichlorobenzene	0.0093 U	0.002 U					
2-Butanone (MEK)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U
2-Hexanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
4-Methyl-2-pentanone	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.003 U	0.003 U
Acetone	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.006 U	0.006 U
Benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Bromodichloromethane	0.005 U					0.001 U	0.001 U
Bromoform	0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U
Bromomethane	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon disulfide	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.001 U	0.001 U
Carbon tetrachloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloroethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
Chloromethane	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.005 U	0.00067 J	0.0012	0.00095 J	0.00066 J	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	0.005 U	0.001 U	0.001 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		
Dichloromethane (Methylene chloride)	0.005 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Please see page 22 for notes.

Table 2

Groundwater Analytical Results 2004-2009
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	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 5/28/2008	MWR-11 5/26/2009
VOC's Continued							
Ethyl benzene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
m&p-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
o-Xylene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U		
Phenol	0.0093 U	0.005 U					
Styrene	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.001 U	0.001 U
Tetrachloroethene	0.005 U	0.00047 J	0.00083 J	0.00057 J	0.00058 J	0.0008 U	0.0008 U
Toluene	0.005 U	0.00068 J	0.001 U	0.001 U	0.001 U	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0008 U	0.0008 U
trans-1,3-Dichloropropene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)						0.0008 U	0.0008 U

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

Table 3

2009 Field Duplication Analytical Results
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	MWR10-0509	DUP1-0509
Inorganic Compounds		
Aluminum	0.0802 U	0.0802 U
Antimony	0.0097 U	0.0097 U
Arsenic	0.0311	0.0278
Barium	0.242	0.243
Beryllium	0.0014 U	0.0014 U
Cadmium	0.002 U	0.002 U
Calcium	29.6	28.9
Chromium	0.0034 U	0.0034 U
Cobalt	0.0021 U	0.0021 U
Copper	0.0027 U	0.0027 U
Iron	19.4	19.3
Lead	0.0069 U	0.0069 U
Magnesium	16.7	16.4
Manganese	7.79	7.81
Mercury	0.000056 U	0.000056 U
Nickel	0.0018 U	0.0069 J
Potassium	1.3	1.26
Selenium	0.0089 U	0.0089 U
Silver	0.0023 U	0.0023 U
Sodium	17.8	17.2
Thallium	0.014 U	0.014 U
Vanadium	0.0025 U	0.0025 U
Zinc	0.0081 U	0.0081 U
Volatile Organic Compounds		
1,1,1-Trichloroethane	0.0008 U	0.0008 U
1,1,2,2-Tetrachloroethane	0.001 U	0.001 U
1,1,2-Trichloroethane	0.0008 U	0.0008 U
1,1-Dichloroethane	0.001 U	0.001 U
1,1-Dichloroethene	0.0008 U	0.0008 U
1,2-Dichloroethane	0.001 U	0.001 U
1,2-Dichloropropane	0.001 U	0.001 U
2-Butanone (MEK)	0.003 U	0.003 U
2-Hexanone	0.003 U	0.003 U
4-Methyl-2-pentanone	0.003 U	0.003 U
Acetone	0.006 U	0.006 U
Benzene	0.0005 U	0.0005 U
Bromodichloromethane	0.001 U	0.001 U
Bromoform	0.001 U	0.001 U
Bromomethane	0.001 U	0.001 U
Carbon disulfide	0.001 U	0.001 U
Carbon tetrachloride	0.001 U	0.001 U
Chlorobenzene	0.0008 U	0.0008 U
Chloroethane	0.001 U	0.001 U
Chloroform	0.0008 U	0.0008 U
Chloromethane	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.0008 U	0.0008 U
cis-1,3-Dichloropropene	0.001 U	0.001 U
Dibromochloromethane	0.001 U	0.001 U
Dichloromethane (Methylene chloride)	0.002 U	0.002 U

Parameter	MWR10-0509	DUP1-0509
VOC's Continued		
Ethyl benzene	0.0008 U	0.0008 U
Styrene	0.001 U	0.001 U
Tetrachloroethene	0.0008 U	0.0008 U
Toluene	0.0007 U	0.0007 U
trans-1,2-Dichloroethene	0.0008 U	0.0008 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
Xylenes (total)	0.0008 U	0.0008 U

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

Table 4

2009 Field Equipment Rinsate Blank Analytical Results
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L)

Parameter	EB1-0509
Inorganic Compounds	
Aluminum	0.0802 U
Antimony	0.0097 U
Arsenic	0.0072 U
Barium	0.0027 J
Beryllium	0.0014 U
Cadmium	0.002 U
Calcium	0.0702 U
Chromium	0.0034 U
Cobalt	0.0021 U
Copper	0.0135
Iron	0.0522 U
Lead	0.0069 U
Magnesium	0.0238 J
Manganese	0.0027 J
Mercury	0.000056 U
Nickel	0.0018 U
Potassium	0.239 U
Selenium	0.0089 U
Silver	0.0023 U
Sodium	0.433 U
Thallium	0.014 U
Vanadium	0.0025 U
Zinc	0.0081 U
Volatile Organic Compounds	
1,1,1-Trichloroethane	0.0008 U
1,1,2,2-Tetrachloroethane	0.001 U
1,1,2-Trichloroethane	0.0008 U
1,1-Dichloroethane	0.001 U
1,1-Dichloroethene	0.0008 U
1,2-Dichloroethane	0.001 U
1,2-Dichloropropane	0.001 U
2-Butanone (MEK)	0.003 U
2-Hexanone	0.003 U
4-Methyl-2-pentanone	0.003 U
Acetone	0.006 U
Benzene	0.0005 U
Bromodichloromethane	0.001 U
Bromoform	0.001 U
Bromomethane	0.001 U
Carbon disulfide	0.001 U
Carbon tetrachloride	0.001 U
Chlorobenzene	0.0008 U
Chloroethane	0.001 U
Chloroform	0.0008 U
Chloromethane	0.001 U
cis-1,2-Dichloroethene	0.0008 U
cis-1,3-Dichloropropene	0.001 U
Dibromochloromethane	0.001 U
Dichloromethane (Methylene chloride)	0.002 U

Parameter	EB1-0509
VOC's Continued	
Ethyl benzene	0.0008 U
Styrene	0.001 U
Tetrachloroethene	0.0008 U
Toluene	0.0007 U
trans-1,2-Dichloroethene	0.0008 U
trans-1,3-Dichloropropene	0.001 U
Trichloroethene	0.001 U
Vinyl chloride	0.001 U
Xylenes (total)	0.0008 U

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

Table 5

2009 Liquid Level Monitoring
Former Sinclair Refinery Site (OU-1)
Wellsville, New York

Well	Depth to Water (ft)	Depth to Product (ft)	Water Elevation (ft amsl)
May 21, 2009			
MWR-01	10.2		1491.84
MWR-02	15.29	14.82	1491.19
MWR-03	14.88		1491.71
MWR-04	14.43		1493.09
MWR-05	13.69		1493.93
MWR-06	12.95		1495.55
MWR-07	13.18		1495.11
MWR-08	13.36		1495.24
MWR-09	11.42		1494.04
MWR-10	10.13		1492.12
MWR-11	10.68		1500.62
P-01	17.16		1492.07
P-02	19.99		1492.38
P-03	17.91		1492.27
P-04	17.32		1492.13
P-05	13.69		1492.12
P-06	20.14		1492.07
October 6, 2009			
MWR-01	10.49		1491.55
MWR-02	15.47	14.98	1491.01
MWR-03	15.34		1491.25
MWR-04	14.58		1492.94
MWR-05	14.29		1493.33
MWR-06	13.25		1495.25
MWR-07	13.21		1495.08
MWR-08	13.89		1494.71
MWR-09	12.01		1493.45
MWR-10	10.73		1491.52
MWR-11	11.07		1500.23
P-01	17.85		1491.38
P-02	20.25		1492.12
P-03	18.17		1492.01
P-04	17.58		1491.87
P-05	13.97		1491.84
P-06	20.17		1492.04

Table 6

Storm Water Analytical Results (2005-2008)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(mg/L except where noted)

Parameter	6/6/2005 OF-0605	3/9/2006 OF-0306	12/1/2006 OF-1206	3/2/2007 OF-0307	10/24/2007 OF-1007	8/6/08 OF-0808	Class A Standard[1]
Inorganic Compounds							
Arsenic	0.005 U	0.008 U	0.008 U	0.008 U	0.008 U	0.0102 U	0.05
Barium	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.54**	1
Calcium	29.9	21.8	45.3	19.3	34.6	56.7	
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.05
Lead	0.003 U	0.003 U	0.003 U	0.0038	0.003 U	0.0069 U	0.05
Magnesium	5.25	5 U	9.41	5 U	5.25	**47.9**	35
Magnesium, dissolved	5 U	5 U	9.54	5 U	5.08	4.21	
Mercury	0.0002 U	0.0002 U	0.0004 U	0.0002 U	0.0002 U	0.000056 U	0.0007
Selenium	0.005 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0107 U	0.01
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0022U	0.05
Oil & Grease							
Oil & Grease	5.2 U	5.1 U	5.1 U	5 U	5 U	2.7 J	
pH							
Field pH (std. units)	7.98	7.6	7.78	7.6	7.73	8.11	6.5-8.5
Wet Chemistry							
Biochemical Oxygen Demand	2 U	6.1	2 U	3.7	2 U	3.7 U	
Chemical Oxygen Demand	20 U		20 U	44.6	20 U	5	
Cyanide	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.005 U	9
Nitrate Nitrogen	5.4	0.86	1.2	1.4	3.3	1.9	10
Nitrate-Nitrite	5.4	0.86	1.2	1.4	3.3	2.1	10
Nitrite Nitrogen	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.015 U	1
Phosphorus	0.11		0.05 U	0.13	0.14	0.08 U	
Total Dissolved Solids	108	76	156	62	109	102	500
Total Kjeldahl Nitrogen	0.57		0.53	0.8	0.37	0.5 U	
Total Organic Carbon (TOC)	2.9	10.3	2.9	4.8	2.2	2.6	
Total Suspended Solids	4	20	4 U	6	5	3 U	
Acute Toxicity							
Ceriodaphnia dubia (24-H) (% Mortality)	ND	0	0	NA	NA	NA	
Ceriodaphnia dubia (48-H) (% Mortality)	ND	0	10	0	5	50	
Pimephales promelas (24-H) (% Mortality)	ND	0	0	NA	NA	NA	
Pimephales promelas (48-H) (% Mortality)	ND	0	2.5	0	0	2.5	

Notes:
[1] New York State Department of Environmental Conservation 6 NYCRR Parts 700-706 Class A Surface Water Standard
Concentrations in **bold** exceed Class A Standards
U - Concentration not detected at specified detection limit
ND - Non detect (0% Mortality)
NA - Not Analyzed
J - Estimated Value

Table 7A

Select Groundwater Analytical Results 1997-2009
Former Sinclair Refinery Site OU-1
(mg/L)

MWR-01

Parameter	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	5/29/2008	5/27/2009	Detections
Antimony	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	0.0097 U	0.0097 U	1
Arsenic	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	0.0102 U	0.0072 U	6
Beryllium	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	0.0009 U	0.0014 U	1
Cadmium	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	0.002 U	0.002 U	1
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	0.003 U	0.0085 J	1

MWR-02

Parameter	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	5/30/2008	5/28/2009	Detections
Antimony	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	0.0097 U	0.0097 U	0
Arsenic	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	0.0524	0.058	15
Beryllium	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	0.0009 U	0.0014 U	0
Cadmium	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	0.002 U	0.002 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	0.003 U	0.0034 U	0

MWR-03

Parameter	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	5/29/2008	5/28/2009	Detections
Antimony	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	0.0097 U	0.0097 U	0
Arsenic	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	0.0128 J	0.0072 U	8
Beryllium	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	0.0009 U	0.0014 U	0
Cadmium	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	0.002 U	0.002 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	0.003 U	0.0034 U	0

MWR-04

Parameter	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	5/29/2008	5/28/2009	Detections
Antimony	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	0.0097 U	0.0109 J	1
Arsenic	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	0.0102 U	0.0072 U	0
Beryllium	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	0.0009 U	0.0014 U	0
Cadmium	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	0.002 U	0.002 U	0
Chromium	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	0.0287	0.0034 U	4

MWR-05

Parameter	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	5/29/2008	5/28/2009	Detections
Antimony	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	0.0097 U	0.0097 U	0
Arsenic	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	0.0102 U	0.0072 U	0
Beryllium	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	0.0009 U	0.0014 U	0
Cadmium	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	0.002 U	0.002 U	0
Chromium	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	0.094	0.0378	13

MWR-06

Parameter	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	5/29/2008	5/27/2009	Detections
Antimony	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	0.0097 U	0.0097 U	2
Arsenic	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	0.0102 U	0.0072 U	0
Beryllium	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	0.0009 U	0.0014 U	1
Cadmium	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	0.002 U	0.002 U	1
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	0.0594	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.0034 U	1

Please see page 2 for notes.

Table 7A

Select Groundwater Analytical Results 1997-2009
Former Sinclair Refinery Site OU-1
(mg/L)

MWR-07

Parameter	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	5/29/2008	5/27/2009	Detections
Antimony	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	0.0097 U	0.0097 U	1
Arsenic	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	0.0102 U	0.0072 U	0
Beryllium	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	0.0009 U	0.0014 U	0
Cadmium	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	0.002 U	0.002 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	0.003 U	0.0034 U	0

MWR-08

Parameter	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	5/28/2008	5/27/2009	Detections
Antimony	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	0.0097 U	0.0097 U	1
Arsenic	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	0.0102 U	0.0072 U	6
Beryllium	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	0.0009 U	0.0014 U	1
Cadmium	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	0.002 U	0.002 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	0.003 U	0.0034 U	0

MWR-09

Parameter	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	5/28/2008	5/26/2009	Detections
Antimony	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	0.0097 U	0.0097 U	1
Arsenic	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	0.0162 J	0.0174 J	14
Beryllium	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	0.0009 U	0.0014 U	1
Cadmium	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	0.002 U	0.002 U	1
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	0.003 U	0.0034 U	0

MWR-10

Parameter	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	5/28/2008	5/26/2009	Detections
Antimony	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	0.0097 U	0.0097 U	1
Arsenic	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	0.0381	0.0311	16
Beryllium	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	0.0009 U	0.0014 U	1
Cadmium	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	0.002 U	0.002 U	1
Chromium	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	0.003 U	0.0034 U	1

MWR-11

Parameter	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	5/28/2008	5/26/2009	Detections
Antimony	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	0.0097 U	0.0097 U	0
Arsenic	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	0.0102 U	0.0072 U	0
Beryllium	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	0.0009 U	0.0014 U	0
Cadmium	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	0.002 U	0.002 U	0
Chromium	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	0.309	0.282	16

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

Please see page 2 for notes.

Table 7B

Groundwater Analytical Results 1997-2009 Used in Statistical Analysis
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-01

Parameter	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	5/29/2008	5/27/2009	Detections
Arsenic	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	0.005	0.0036	6

MWR-02

Parameter	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	5/30/2008	5/28/2009	Detections
Arsenic	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	0.0524	0.058	15

MWR-03

Parameter	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	5/29/2008	5/28/2009	Detections
Arsenic	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	0.0128 J	0.0036	8

MWR-04

Parameter	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	5/29/2008	5/28/2009	Detections
Chromium	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	0.0287	0.0017	4

MWR-05

Parameter	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	5/29/2008	5/28/2009	Detections
Chromium	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	0.094	0.0378	13

MWR-06

Parameter	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	5/29/2008	5/27/2009	Detections
Antimony	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.0025	0.0057	0.0517	0.03	0.00485	0.00485	2

MWR-08

Parameter	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	5/28/2008	5/27/2009	Detections
Arsenic	0.0159	0.0191	0.0257	0.005	0.0107	0.0106	0.0167	0.005	0.005	0.006	0.0086	0.0025	0.004	0.015	0.0051	0.0036	6

MWR-09

Parameter	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	5/28/2008	5/26/2009	Detections
Arsenic	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	0.0162 J	0.0174 J	14

MWR-10

Parameter	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	5/28/2008	5/26/2009	Detections
Arsenic	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	0.0381	0.0311	16

MWR-11

Parameter	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	5/28/2008	5/26/2009	Detections
Chromium	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	0.309	0.282	16

Table 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-01 Arsenic

Date	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	05/29/08	05/27/09		
Event	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**		
Result	**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**	**0.005**	**0.0036**	**Count "+"**	**Count "-"**
0.005		+	+	+	+	0	0	0	0	0	+	0	-	-	0	-	5	3
0.0235			-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14
0.0104				+	+	-	-	-	-	-	+	-	-	-	-	-	3	10
0.0205					-	-	-	-	-	-	-	-	-	-	-	-	0	12
0.0112						-	-	-	-	-	+	-	-	-	-	-	1	10
0.005							0	0	0	0	+	0	-	-	0	-	1	3
0.005								0	0	0	+	0	-	-	0	-	1	3
0.005									0	0	+	0	-	-	0	-	1	3
0.005										0	+	0	-	-	0	-	1	3
0.005											+	0	-	-	0	-	1	3
0.0126												-	-	-	-	-	0	5
0.005													-	-	0	-	0	3
0.004														0	+	-	1	1
0.004															+	-	1	0
0.005																-	0	0
																	16	73
																	Total "+"	Total "-"

-57
S (difference in total "+" and "-")

n (number of samples) = 16

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

From Table A-12a, critical value = 38

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

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

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

DECREASING TREND

t_2 = number of tied samples in second group = 2

p-value = $(P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.003098

g = the number of tied sample groups

p-value = 0.9969

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

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

V(S) = 448.00

z_o = -2.7402

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

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

Table 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-02 Arsenic

Date	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	05/30/08	05/28/09		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	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	0.0524	0.058	Count "+"	Count "-"
0.0655		+	+	-	+	+	-	-	-	-	-	-	-	-	-	-	4	11
0.0678			+	-	+	+	-	-	-	-	-	-	-	-	-	-	3	11
0.0765				-	-	-	-	-	-	-	-	-	-	-	-	-	0	13
0.0447					+	+	+	+	+	+	+	-	+	+	+	+	11	1
0.0681						+	-	-	-	-	-	-	-	-	-	-	1	10
0.0697							-	-	-	-	-	-	-	-	-	-	0	10
0.0557								-	+	+	-	-	-	-	-	+	3	6
0.0496									+	+	+	-	+	-	+	+	6	2
0.0562										+	-	-	-	-	-	+	2	5
0.0579											-	-	-	-	-	+	1	5
0.0532												-	-	-	-	+	1	4
0.0025													+	+	+	+	4	0
0.0501														-	+	+	2	1
0.0491															+	+	2	0
0.0524																+	1	0
																	40	79
																	Total "+"	Total "-"

-39
S (difference in total "+" and "-")

n (number of samples) = 16

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

From Table A-12a, critical value = 38

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

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

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

DECREASING TREND

t_2 = number of tied samples in second group = 0

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.035828

g = the number of tied sample groups

p-value = 0.96417

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

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

V(S) = 493.33

z_o = -1.8009

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 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-03 Arsenic

Date	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	05/29/08	05/28/09		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	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	0.0128	0.0036	Count "+"	Count "-"
0.0121		+	+	-	+	-	+	-	-	-	+	-	-	-	+	-	6	9
0.0153			+	-	-	-	-	-	-	-	-	-	-	-	-	-	1	13
0.0203				-	-	-	-	-	-	-	-	-	-	-	-	-	0	13
0.005					+	0	+	0	0	0	+	+	-	-	+	-	5	3
0.0128						-	+	-	-	-	-	-	-	-	0	-	1	9
0.005							+	0	0	0	+	+	-	-	+	-	4	3
0.0129								-	-	-	-	-	-	-	-	-	0	9
0.005									0	0	+	+	-	-	+	-	3	3
0.005										0	+	+	-	-	+	-	3	3
0.005											+	+	-	-	+	-	3	3
0.0124												-	-	-	+	-	1	4
0.01													-	-	+	-	1	3
0.004														0	+	-	1	1
0.004															+	-	1	1
0.0128																-	0	1
																	30	77	**-47**
																	Total "+"	Total "-"	S (difference in total "+" and "-")

n (number of samples) = 16

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

From Table A-12a, critical value = 38

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

Where: t_1 = number of tied samples in the first group = 5

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

DECREASING TREND

t_2 = number of tied samples in second group = 2

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.013804

t_3 = number of tied samples in second group = 2

p-value = 0.9862

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

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

V(S) = 474.67

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

z_o = -2.2032

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

Table 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-04 Chromium

Date	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	05/29/08	05/28/09		
Event	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**		
Result	**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**	**0.0287**	**0.0017**	**Count "+"**	**Count "-"**
0.0269		-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	3	12
0.005			0	0	0	0	0	0	+	0	0	0	0	+	+	-	3	1
0.005				0	0	0	0	0	+	0	0	0	0	+	+	-	3	1
0.005					0	0	0	0	+	0	0	0	0	+	+	-	3	1
0.005						0	0	0	+	0	0	0	0	+	+	-	3	1
0.005							0	0	+	0	0	0	0	+	+	-	3	1
0.005								0	+	0	0	0	0	+	+	-	3	1
0.005									+	0	0	0	0	+	+	-	3	1
0.225										-	-	-	-	-	-	-	0	7
0.005											0	0	0	+	+	-	2	1
0.005												0	0	+	+	-	2	1
0.005													0	+	+	-	2	1
0.005														+	+	-	2	1
0.0697															-	-	0	2
0.0287																-	0	1
																	32	32
																	Total "+"	Total "-"

0
S (difference in total "+" and "-")

n (number of samples) = 16

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

From Table A-12a, critical value = 38

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

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

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

STABLE / NO TREND

t_2 = number of tied samples in second group = 0

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.47802

g = the number of tied sample groups

p-value = 0.52198

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

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

V(S) = 328.33

z_o = -0.0552

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 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-05 Chromium

Date	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	05/29/08	05/28/09		
Event	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**		
Result	**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**	**0.094**	**0.0378**	**Count "+"**	**Count "-"**
0.005		+	+	+	+	+	0	+	+	+	+	0	+	+	+	+	13	0
0.0111			+	+	+	+	-	+	+	+	+	-	+	+	+	+	12	2
0.0508				+	-	-	-	-	+	-	-	-	-	+	+	-	4	9
0.0567					-	-	-	-	+	-	-	-	-	+	+	-	3	9
0.0414						-	-	-	+	-	-	-	-	+	+	-	3	8
0.0114							-	+	+	+	+	-	+	+	+	+	8	2
0.005								+	+	+	+	0	+	+	+	+	8	0
0.0303									+	+	-	-	-	+	+	+	5	3
0.14										-	-	-	-	-	-	-	0	7
0.0348											-	-	-	+	+	+	3	3
0.0247												-	-	+	+	+	3	2
0.005													+	+	+	+	4	0
0.0197														+	+	+	3	0
0.0613															+	-	1	1
0.094																-	0	1
																	70	46	**24**
																	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 = 3

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 = 0.8507

p-value = 0.14934

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

V(S) = 489.67

z_o = 1.0394

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 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-06 Antimony

Date	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	5/29/08	5/27/09		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	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	0.0045	0.00485	Count "+"	Count "-"
0.03		0	0	0	0	0	0	-	0	0	-	-	+	-	-	-	1	6
0.03			0	0	0	0	0	-	0	0	-	-	+	-	-	-	1	6
0.03				0	0	0	0	-	0	0	-	-	+	-	-	-	1	6
0.03					0	0	0	-	0	0	-	-	+	-	-	-	1	6
0.03						0	0	-	0	0	-	-	+	-	-	-	1	6
0.03							0	-	0	0	-	-	+	-	-	-	1	6
0.03								-	0	0	-	-	+	-	-	-	1	6
0.003									+	+	-	+	+	0	+	+	6	1
0.03										0	-	-	+	-	-	-	1	5
0.03											-	-	+	-	-	-	1	5
0.0025												+	+	+	+	+	5	0
0.0057													+	-	-	-	1	3
0.0517														-	-	-	0	3
0.003															+	+	2	0
0.0045																+	1	0
																	23	59
																	Total "+"	Total "-"

-36
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 = 9

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 = 0.03208

p-value = 0.96792

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

V(S) = 399.33

z_o = -1.8515

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 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-08 Arsenic

Date	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	05/28/08	05/27/09		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	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	0.005	0.0036	Count "+"	Count "-"
0.0159		+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	3	12
0.0191			+	-	-	-	-	-	-	-	-	-	-	-	-	-	1	13
0.0257				-	-	-	-	-	-	-	-	-	-	-	-	-	0	13
0.005					+	+	+	0	0	0	+	-	-	+	0	-	5	3
0.0107						-	+	-	-	-	-	-	-	+	-	-	2	9
0.0106							+	-	-	-	-	-	-	+	-	-	2	8
0.0167								-	-	-	-	-	-	-	-	-	0	9
0.005									0	0	+	-	-	+	0	-	2	3
0.005										0	+	-	-	+	0	-	2	3
0.005											+	-	-	+	0	-	2	3
0.0086												-	-	+	-	-	1	4
0.0025													+	+	+	+	4	0
0.004														+	+	-	2	1
0.015															-	-	0	2
0.005																-	0	1
																	26	83
																	Total "+"	Total "-"

-57
S (difference in total "+" and "-")

n (number of samples) = 16

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

From Table A-12a, critical value = 38

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

Where: t_1 = number of tied samples in the first group = 5

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

t_2 = number of tied samples in second group = 0

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.003934

g = the number of tied sample groups

p-value = 0.99607

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

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

V(S) = 476.67

z_o = -2.6566

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 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-09 Arsenic

Date	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	05/28/08	05/26/09		
Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Result	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	0.0162	0.0174	Count "+"	Count "-"
0.0264		-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	2	13
0.0253			+	-	+	-	+	-	-	-	-	-	-	-	-	-	3	11
0.0432				-	-	-	-	-	-	-	-	-	-	-	-	-	0	13
0.0146					+	+	+	-	-	+	-	+	+	-	+	+	8	4
0.0261						-	+	-	-	-	-	-	-	-	-	-	1	10
0.0184							+	-	-	+	-	-	+	-	-	-	3	7
0.0278								-	-	-	-	-	-	-	-	-	0	9
0.0112									+	+	-	+	+	-	+	+	6	2
0.0123										+	-	+	+	-	+	+	5	2
0.0238											-	-	-	-	-	-	0	6
0.0025												+	+	+	+	+	5	0
0.016													+	-	+	+	3	1
0.0202														-	-	-	0	3
0.004															+	+	2	0
0.0162																+	1	0
																	38	81
																	Total "+"	Total "-"

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

n (number of samples) = 16

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

From Table A-12a, critical value = 38

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

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

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

DECREASING TREND

t_2 = number of tied samples in second group = 0

p-value = ($P(Z > z_o) = 1 - z_p$, where z_p from Table A-1 = 0.0238

g = the number of tied sample groups

p-value = 0.97616

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

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

V(S) = 493.33

z_o = -1.9810

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 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-10 Arsenic

Date	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	05/28/08	05/26/09		
Event	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**		
Result	**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**	**0.0381**	**0.0311**	**Count "+"**	**Count "-"**
0.0453		-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	2	13
0.0402			+	-	-	-	-	+	+	+	+	+	-	-	-	-	6	8
0.0426				-	-	-	-	+	+	+	+	+	-	-	-	-	5	8
0.0319					+	-	+	+	+	+	+	+	+	+	+	-	10	2
0.035						-	+	+	+	+	+	+	+	+	+	-	9	2
0.0304							+	+	+	+	+	+	+	+	+	+	10	0
0.0359								+	+	+	+	+	+	+	+	-	8	1
0.0448									+	-	+	+	-	-	-	-	3	5
0.0586										-	-	-	-	-	-	-	0	7
0.0437											+	+	-	-	-	-	2	4
0.045												+	-	-	-	-	1	4
0.0475													-	-	-	-	0	4
0.0373														-	+	-	1	2
0.0371															+	-	1	1
0.0381																-	0	1
																	58	62	**-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

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 = 0.410911

p-value = 0.58909

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

V(S) = 493.33

z_o = -0.2251

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 7C

Statistical Analysis of Groundwater Data 1997-2009
Former Sinclair Refinery Site OU1
(mg/L with 1/2 detection limit for non-detects)

MWR-11 Chromium

Date	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	05/28/08	05/26/09		
Event	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**		
Result	**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**	**0.309**	**0.282**	**Count "+"**	**Count "-"**
4.45		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	15
0.0837			+	+	+	-	+	-	+	+	+	+	+	+	+	+	12	2
0.19				-	-	-	-	-	+	-	+	+	+	+	+	+	7	6
0.174					-	-	-	-	+	-	+	+	+	+	+	+	7	5
0.0902						-	+	-	+	+	+	+	+	+	+	+	9	2
0.0378							+	+	+	+	+	+	+	+	+	+	10	0
0.0998								-	+	+	+	+	+	+	+	+	8	1
0.0597									+	+	+	+	+	+	+	+	8	0
0.836										-	-	-	-	-	-	-	0	7
0.122											+	+	+	+	+	+	6	0
0.193												+	+	+	+	+	5	0
0.604													-	-	-	-	0	4
0.21														+	+	+	3	0
0.24															+	+	2	0
0.309																-	0	1
																	77	42	**35**
																	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

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

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 = 0.937096

p-value = 0.0629

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

V(S) = 493.33

z_o = 1.5308

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 8

2009 Groundwater 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-1	27-May-09	6.76	407	12.5	1.37	10.94	51.4
MWR-2	28-May-09	8.21	562	2.4	1.59	11.26	-97.3
MWR-3	28-May-09	7.29	332	2.16	1.49	11.26	30.5
MWR-4	28-May-09	7.09	159	1.44	1.77	9.82	52.3
MWR-5	28-May-09	6.92	150	6.68	1.49	8.52	73.1
MWR-6	27-May-09	7.33	234	4.28	1.51	8.32	7.0
MWR-7	27-May-09	7.81	169	0.8	1.42	9.57	-111.4
MWR-8	27-May-09	7.14	275	1.56	2.27	8.48	3.8
MWR-9	26-May-09	7.25	404	7.6	2.34	8.28	-4.3
MWR-10	26-May-09	7.38	378	6.72	2.09	9.42	-5.7
MWR-11	26-May-09	6.88	394	11.4	2.45	8.41	50.6

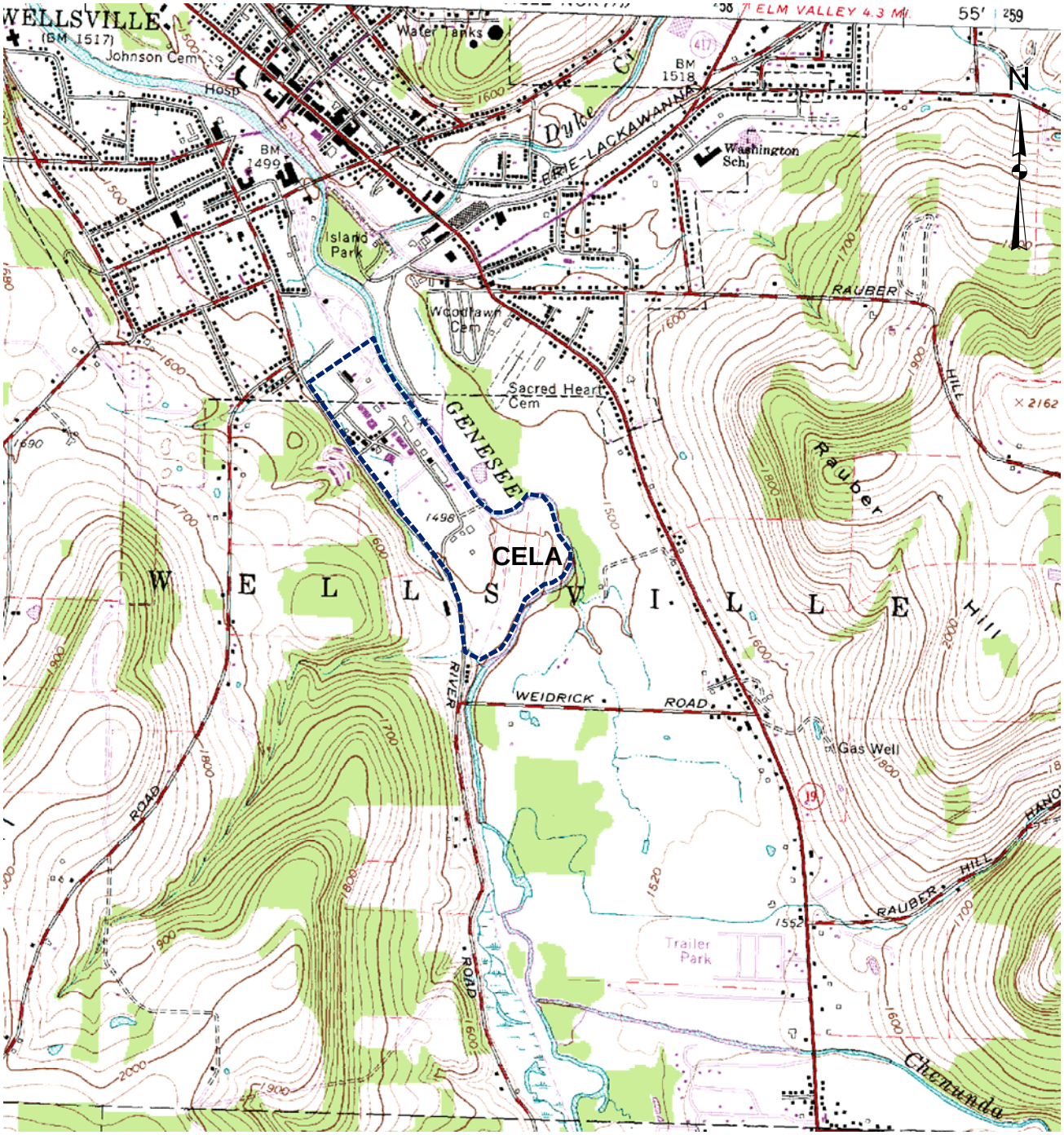
Table 9

2009 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-02						
5/21/2009	14.82	15.29	0.47	3 18" socks installed	NA	NA
5/22/2009	NM	NM	NM	3 18" socks removed - fully saturated	54	51
5/22/2009	NM	NM	NM	4 18" socks installed	NA	NA
5/27/2009	NM	NM	NM	4 18" socks removed - fully saturated	72	68
5/28/2009	NM	NM	NM	4 18" socks installed	NA	NA
5/28/2009	< 0.01	14.89	0.00	4 18" socks removed - 2" saturation	8	8
				2009 Total LNAPL Removed (oz):		**127**

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
NA - Not applicable

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 = 2,000 feet

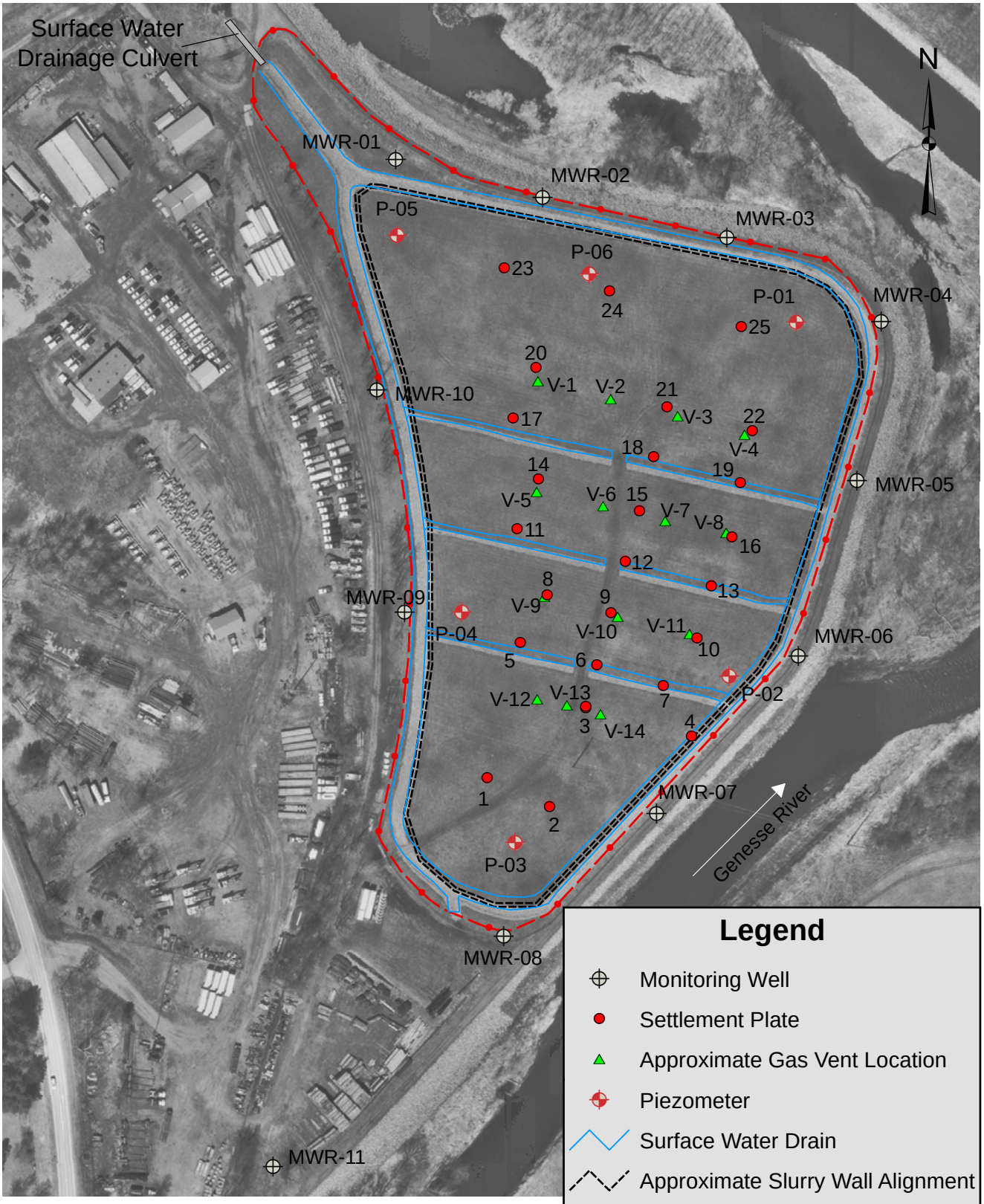
ON-SITE TECHNICAL SERVICES, INC.

72 Railroad Avenue Wellsville, NY 14895

FIGURE NO.	1a
PROJECT	WELLSVILLE OU-1
DOCUMENT NO.	2009 CELA REPORT
FILE NO.	SITELOC.MXD

N:\ARCO_WLSV\OU1REPORTS\2009CELAREPORT\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	2009 CELA REPORT
FILE NO.	SITEFEATURES.MXD

N:\ARCO_WLSV\OU1REPORTS\2009CELA\FIGURES\SITEFEATURES.MXD

MAY 21, 2009 WATER TABLE CONTOUR MAP

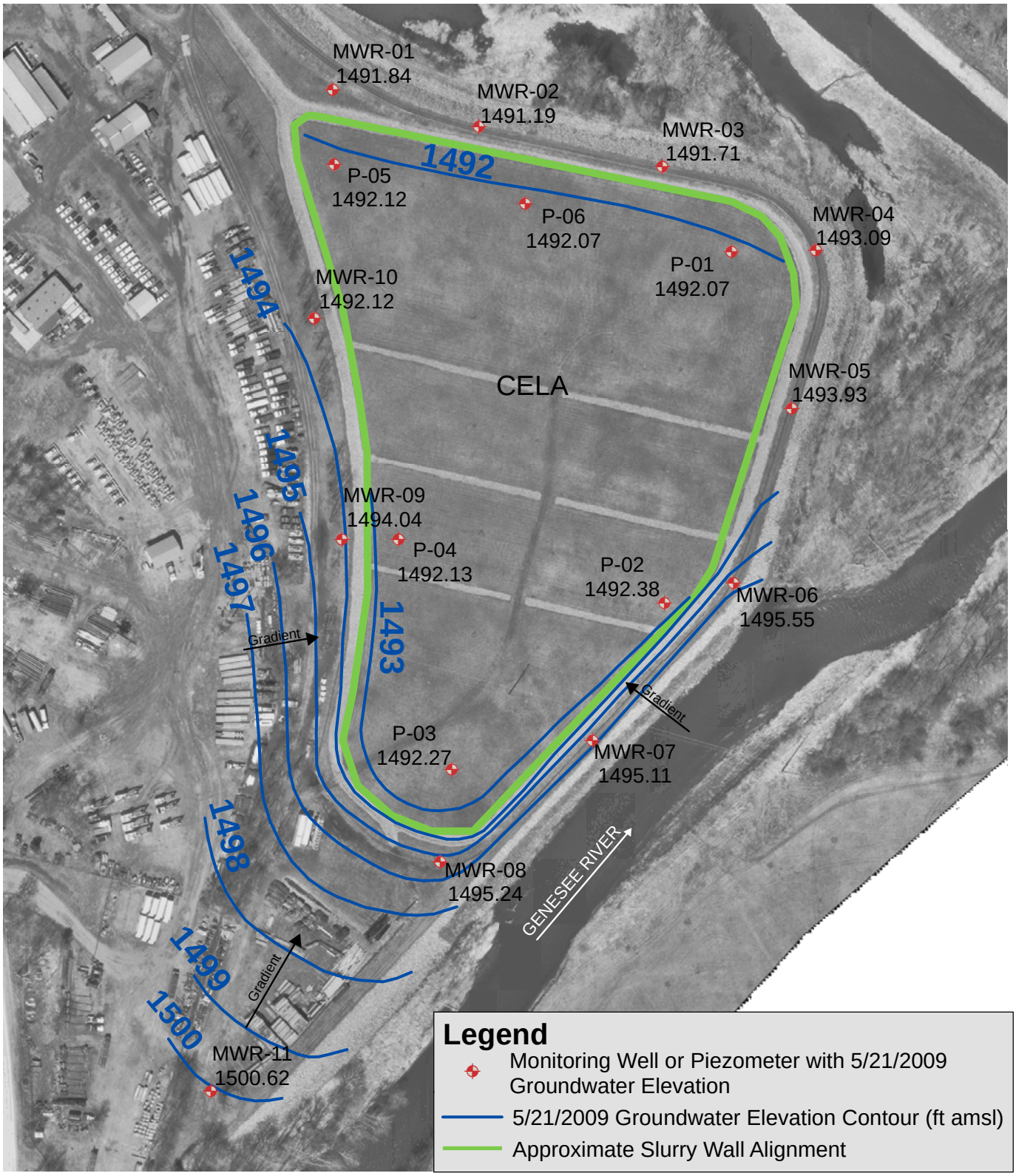


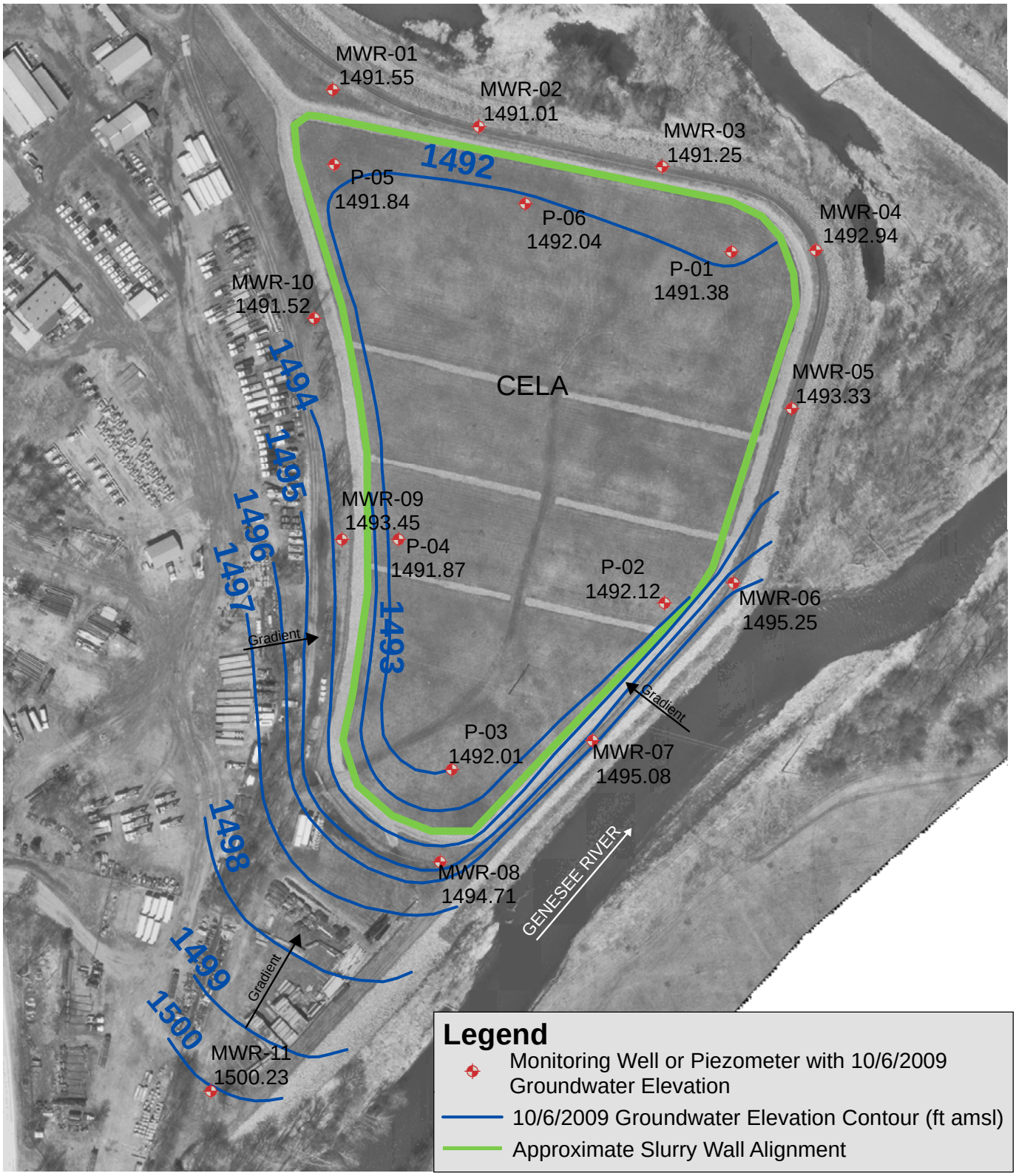
FIGURE NO.	2
PROJECT	WELLSVILLE OU-1
DOCUMENT	2009 CELA REPORT
FILE NO.	FIG2.MXD

ON-SITE TECHNICAL SERVICES, INC.

72 Railroad Avenue Wellsville, NY 14895

N:\ARCO_WLSV\OU1 REPORTS\2009CELA REPORT\FIGURES\FIG2.MXD

OCTOBER 6, 2009 WATER TABLE CONTOUR MAP



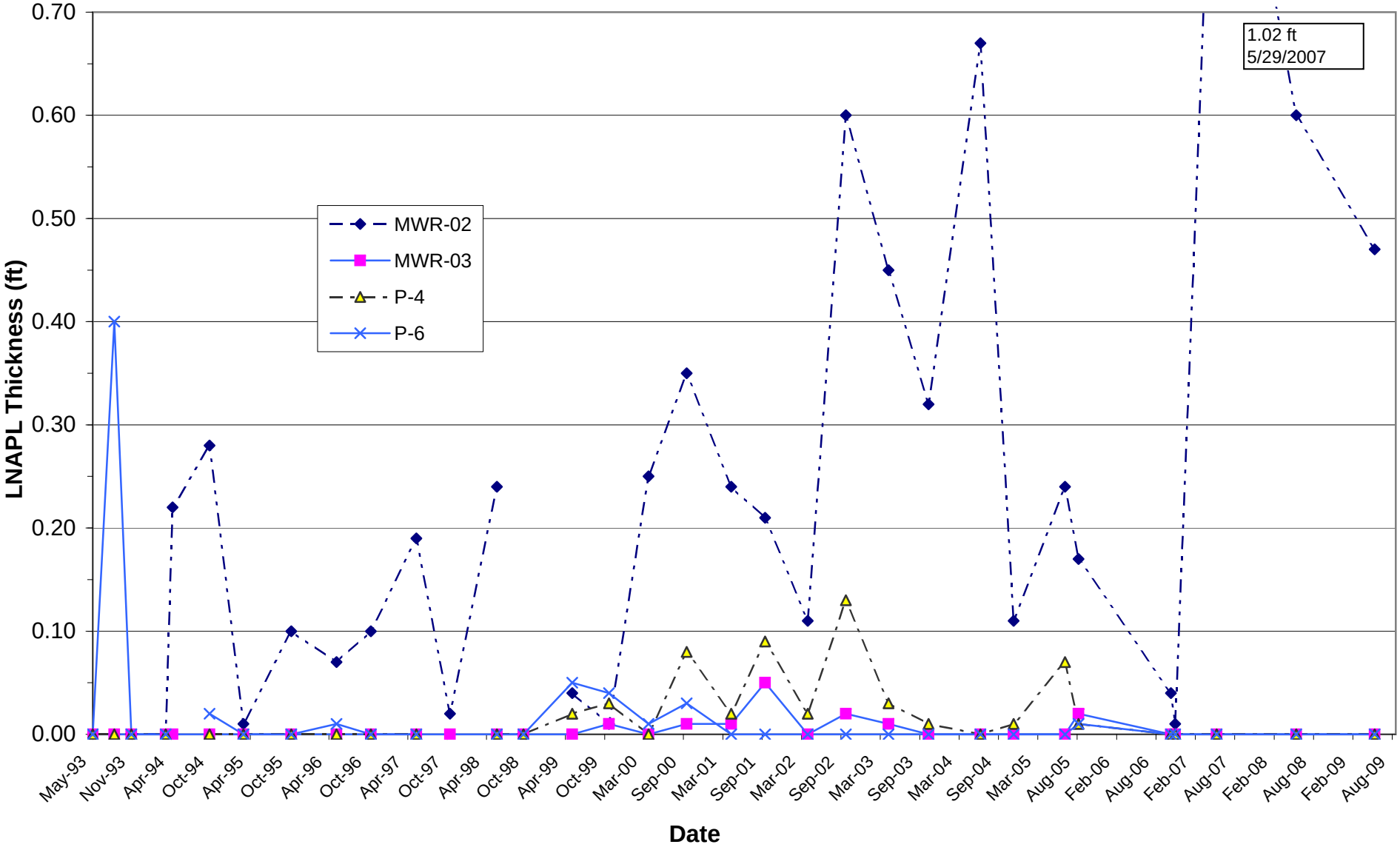
ON-SITE TECHNICAL SERVICES, INC.
72 Railroad Avenue Wellsville, NY 14895

FIGURE NO.	3
PROJECT	WELLSVILLE OU-1
DOCUMENT	2009 CELA REPORT
FILE NO.	FIG3.MXD

N:\ARCO_WLSV\OU1 REPORTS\2009CELA REPORT\FIGURES\FIG3.MXD

Figure 4

LNAPL Thickness 1993-2009



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.

Atlantic Richfield Company

Eric J. Larson
Project Manager

Remediation Management
1 W. Pennsylvania Avenue
Suite 440
Towson, MD 21204
Phone: (410) 825-2880
Mobile: (443) 807-6233
Fax: (410) 825-8675
E-Mail: eric.larson@bp.com

October 5, 2009

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

Suspension of CELA Cap Survey at Operable Unit 1
Former Sinclair Refinery Site
Wellsville, New York

Dear Mike:

As indicated in the *2008 Annual Report of Operation and Maintenance Activities Central Elevated Landfill Area* (CELA), Atlantic Richfield Company (ARC) is requesting suspension of the annual CELA cap survey at Operable Unit 1 (OU1) former Sinclair Refinery Site in Wellsville, New York.

CELA cap settlement plate surveying has been conducted since remedial construction was completed in 1992 as required by the operation and maintenance plan (O&M Plan). The O&M Plan provides that if a change in settlement exceeding 0.02 feet does not occur after two years, the frequency of surveys can be reduced to once every 10 years. Since 2005, the maximum two-year settlement has ranged between 0.03 feet and 0.04 feet. Also, based on visual observations, the cap continues to have positive drainage with no areas of ponding water or abnormally soft ground.

Based on surveying and visual observations conducted to date, the CELA cap does not exhibit abnormal settlement and should be considered stable. As you are aware, ARC will be constructing a RCRA Cell on top of the existing CELA in 2010 to place impacted soils from Operable Unit 2 Phase II remedial activities. ARC proposes that the annual settlement plate survey be suspended until after the new cell is constructed and operation and maintenance requirements for the combined area are determined. Quarterly visual inspections of the CELA cap will continue to be performed as required. Any signs of differential settlement will be immediately addressed.

If you have any questions regarding this letter, please do not hesitate to contact me at (443) 807-6233.

Sincerely,

Eric Larson
Project Manager

cc: Jonathan Brandes, On-Site Technical Services
Martin Schmidt, URS
File Copy

-----Original Message-----
From: Negrelli.Mike@epamail.epa.gov
[mailto:Negrelli.Mike@epamail.epa.gov]
Sent: Thursday, October 08, 2009 5:22 PM
To: Larson, Eric J
Cc: mfmoore@gw.dec.state.ny.us
Subject: Sinclair Refinery

Eric-
This email will serve as EPA's response to BP/ARCO's proposals to EPA in correspondence dated October 5, 2009 with respect to the ongoing remediation at the Sinclair Refinery Site in Wellsville, NY.

The first proposal entails the suspension of the annual CELA cap settlement plate surveying done under operation and maintenance activities for the OU1 remedial action. As past surveys have supported the overall stability of the cap, and given that an additional cell will be constructed on top of the CELA as part of 2010 construction activities, EPA agrees with the proposal to temporarily suspend the annual survey.

The second proposal involves the suspension of the annual groundwater quality monitoring laid out in ARCO's April 29, 2003 letter to EPA to monitor the groundwater conditions at the site on an interim basis while the Phase 2 remedy at the site was designed and constructed. Following our telephone conversation earlier today, both ARCO and EPA agree that another round of interim groundwater monitoring collected in 2009 will produce useful data in the evaluation of the Phase 2 groundwater remedy recently constructed and operating at the site. The frequency and nature of future groundwater monitoring events will be discussed in the near future as part of the operation, maintenance, and monitoring component of the Phase 2 remedial action.

Should you have any questions regarding these issues, please do not hesitate to contact me either by email or by phone at (212) 637-4278.

Mike Negrelli
Remedial Project Manager
New York Remediation Branch

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR VEGETATIVE COVER

Completed By: S. Watson / K. Dye Sheet 1 of 7

Title: Field Tech Date: 3-13-09

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):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GAS VENT SYSTEM

Completed By: S. Watson / K. Dye Sheet 2 of 7

Title: Field Tech Date: 3-13-09

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 7

Title: Field Tech Date: 3-13-09

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 / K. Dye Sheet 4 of 7

Title: Field Tech Date: 3-13-09

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 7

Title: Field Tech Date: 3-13-09

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 / K. Dye Sheet 6 of 7

Title: Field Tech Date: 3-13-09

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

VISUAL OBSERVATIONS OF SETTLEMENT

Completed By: S. Watson / K. Dye Sheet 7 of 7

Title: Field Tech Date: 3-13-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) Semi-Annual
( ) Other (explain)

SKETCH SHOWING LOCATION OF AREA OF CONCERN:

DESCRIPTION OF CONDITIONS* (use additional sheets as necessary):

* Attach photographic documentation.

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR VEGETATIVE COVER

Completed By: S. WATSON / K DYE Sheet 1 of 7

Title: Field Tech Date: 5-18-09

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 hole towards the center top of the 4 Quadrant or North Section of Cells. No visible signs of Occupant. Will check Briodicly.

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GAS VENT SYSTEM

Completed By: S. Watson / K Dye Sheet 2 of 7

Title: Field Tech Date: 5-18-09

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: K Dye / S. Watson Sheet 3 of 7

Title: Field Tech Date: 5-18-09

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 / K Dye Sheet 4 of 7

Title: Field Tech Date: 5-18-09

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 7

Title: Field Tech Date: 5-18-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(✓) 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 / K Dye Sheet 6 of 7

Title: Field Tech Date: 5-18-09

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

VISUAL OBSERVATIONS OF SETTLEMENT

Completed By: S Watson / K Oye Sheet 7 of 7

Title: Field Tech Date: 5-18-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) Semi-Annual
( ) Other (explain)

SKETCH SHOWING LOCATION OF AREA OF CONCERN:

DESCRIPTION OF CONDITIONS* (use additional sheets as necessary):

* Attach photographic documentation.

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR VEGETATIVE COVER

Completed By: S. Watson / K Dye Sheet 1 of 7

Title: Field Tech Date: 8-18-09

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 hole toward the center top of Fourth Quadrant or North section of CELA. No sign of occupant. Will check Periodically.

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR GAS VENT SYSTEM

Completed By: S. Watson / KD,E Sheet 2 of 7

Title: Field Tech Date: 8-18-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(✓) 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 / KO&E Sheet 3 of 7

Title: Field Tech Date: 8-18-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(✓) 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 / K. Dye Sheet 4 of 7

Title: Field Tech Date: 8-18-09

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 Oje Sheet 5 of 7

Title: Field Tech Date: 8-18-09

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 / KJE Sheet 6 of 7

Title: Field Tech Date: 8-18-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(✓) 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

VISUAL OBSERVATIONS OF SETTLEMENT

Completed By: S. Watson / K Oje Sheet 7 of 7

Title: Field Tech Date: 8-18-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) Semi-Annual
( ) Other (explain)

SKETCH SHOWING LOCATION OF AREA OF CONCERN:

DESCRIPTION OF CONDITIONS* (use additional sheets as necessary):

* Attach photographic documentation.

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

CELA INSPECTION CHECKLIST FOR VEGETATIVE COVER

Completed By: K Dye Sheet 1 of 7

Title: Field Tech Date: 10-19-09

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: K DVE Sheet 2 of 7

Title: Field Tech Date: 10-19-09

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: K Dye Sheet 3 of 7

Title: Field Tech Date: 10-19-09

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: K Dye. Sheet 4 of 7

Title: Field Tech Date: 10-19-09

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: K. Dye Sheet 5 of 7

Title: Field Tech Date: 10-19-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) 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: K Dye Sheet 6 of 7

Title: Field Tech Date: 10-19-09

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):

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

VISUAL OBSERVATIONS OF SETTLEMENT

Completed By: K DyE Sheet 7 of 7

Title: Field Tech Date: 10-19-09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) Semi-Annual
( ) Other (explain)

SKETCH SHOWING LOCATION OF AREA OF CONCERN:

DESCRIPTION OF CONDITIONS* (use additional sheets as necessary):

* Attach photographic documentation.

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-27-09

Monitoring Well: MWR-01 **Sample ID:** MWR01-0509 **Arrival Time:** 0800

Weather Conditions

Temp. 57° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: 0-5

Well Condition Checklist

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

Well Visibility (paint): ok Well Label: ok Comment:

Depth & Purging Information

SWL: 10.18 ft TD 33.30 ft Start Purge: 0815

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: Geo Tech 2665

Pumping Rate: 500ml/22sec Start Sampling: 0915 Purge Duration: 1hr Purge Vol: 34.0

Field Parameters

Meters: YSI 556 (sn: 06E251AP), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
15.0	0840	Switch	to cell	92.1				10.25
25.0	0900	6.76	407	25.0	1.53	10.97	55.0	10.27
28.0	0905	6.76	407	18.5	1.46	10.97	53.5	10.27
31.0	0910	6.76	407	16.0	1.40	10.94	52.0	10.25
34.0	0915	6.76	407	12.5	1.37	10.94	51.4	Rec'd

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain: Slight Hydrocarbon

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments: Purged good amount of Iron at start up.

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

Well Sampling Completion: Time 0935 Date 5-27-09 Samplers K Dye

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-28-09

Monitoring Well: MWR-02 **Sample ID:** MWR02-0509 **Arrival Time:** 1153

Weather Conditions

Temp. 66° F ( ) Sunny (X) Partly Cloudy ( ) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: 0-5

Well Condition Checklist

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

Well Visibility (paint): OK Well Label: OK Comment:

Depth & Purging Information

SWL: 14.89 ft TD 38.50 ft Start Purge: 1205

LNAPL Present: (Y) (X) Well Socked Prior to Purging: (Y) (N) How Many? 4 Sock Saturation: 2" up from Bottom of Sock

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Rental 2665

Pumping Rate: 500ml/14 sec Start Sampling: 1300 Purge Duration: 55 min Purge Vol: 35.0

Field Parameters

Meters: YSI 556 (sn: 06E2511AP), Hach 2100P (sn: 11131) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
17.0	1230	Switch	to Cell	4.17				14.99
23.0	1240	8.21	562	2.12	1.95	11.38	-89.9	14.99
26.0	1245	8.21	563	2.05	1.79	11.44	-93.9	14.99
29.0	1250	8.21	561	1.11	1.68	11.62	-95.3	14.99
32.0	1255	8.20	562	2.64	1.64	11.41	-97.0	Pulled
35.0	1300	8.21	562	2.40	1.59	11.26	-97.3	

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain: LNPL odor

Final Sample Oil Sheen: ( ) None (X) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

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

Well Sampling Completion: Time 1315 Date 5-28-09 Samplers KAE

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-28-09

Monitoring Well: MWR-03 **Sample ID:** MWR03-0509 **Arrival Time:** 1030

Weather Conditions

Temp. 65° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: 05

Well Condition Checklist

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

Well Visibility (paint): ok Well Label: ok Comment:

Depth & Purging Information

SWL: 14.86 ft TD 29.99 ft Start Purge: 1035

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Rental 2665

Pumping Rate: 500ml/19 sec Start Sampling: 1120 Purge Duration: 45min Purge Vol: 30.0

Field Parameters

Meters: YSI 556 (sn: 06E2511AP), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
15.0	1050	Switch to Cell		5.08				15.0
20.0	1100	7.27	333	3.64	1.72	11.12	38.1	15.0
23.0	1105	7.28	332	3.13	1.63	11.22	35.3	15.0
25.0	1110	7.28	332	2.68	1.55	11.33	34.2	15.0
28.0	1115	7.28	333	2.32	1.53	11.15	32.9	Pulled
30.0	1120	7.29	332	2.16	1.49	11.26	30.5	

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

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

Well Sampling Completion: Time 1150 Date 5-28-09 Samplers KJE

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-28-09

Monitoring Well: MWR-04 **Sample ID:** MWR04-0509 **Arrival Time:** 0853

Weather Conditions

Temp. 68° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: 0-5

Well Condition Checklist

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

Well Visibility (paint): OK Well Label: OK Comment:

Depth & Purging Information

SWL: 14.35 ft TD 25.24 ft Start Purge: 0900

LNAPL Present: (Y)(N) Well Socked Prior to Purging: (Y)(N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Rental 2665

Pumping Rate: 500 ml/11 sec Start Sampling: 0950 Purge Duration: 50 min Purge Vol: 37.0

Field Parameters

Meters: YSI 556 (sn: 06E2511AP), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
22.0	0925	Switch	to Cell	3.16				14.64
28.0	0935	7.09	159	2.35	1.96	9.86	53.7	14.63
31.0	0940	7.08	159	1.84	1.86	9.90	52.9	14.64
34.0	0945	7.09	159	1.36	1.81	9.77	52.0	14.64
37.0	0950	7.09	159	1.44	1.77	9.82	52.3	Piked

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

Analysis Requested: VOC's + Methods Number of Containers: 4

Well Sampling Completion: Time 1025 Date 5-28-09 Samplers K Dye

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-28-09

Monitoring Well: MWR-05 **Sample ID:** MWR05-0509 **Arrival Time:** 0725

Weather Conditions

Temp. 65° F ( ) Sunny ( ) Partly Cloudy ( ) Cloudy ( ) Light Rain (X) Heavy Rain ( ) Snow

Wind Conditions: 05

Well Condition Checklist

Bump posts: N/A Pro. casing/lock: OK Surface pad: OK

Well Visibility (paint): OK Well Label: OK Comment:

Depth & Purging Information

SWL: 13.74 ft TD 31.30 ft Start Purge: 0735

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Rental 2665

Pumping Rate: 500 ml / 9 sec Start Sampling: 0820 Purge Duration: 45 min Purge Vol: 39.0

Field Parameters

Meters: YSI 556 (sn: 06E251141), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (µs/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
15.0	0750	Switched to Cell		15.9				13.80
25.0	0800	6.90	150	13.5	1.58	8.29	78.4	13.80
33.0	0810	6.91	150	10.7	1.52	8.43	75.5	13.80
36.0	0815	6.91	150	8.86	1.46	8.54	74.0	13.80
39.0	0820	6.92	150	6.68	1.49	8.52	73.1	Rolled

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

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

Well Sampling Completion: Time 0850 Date 5-28-09 Samplers K DE

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-27-09

Monitoring Well: MW-06 **Sample ID:** MW06-0509 **Arrival Time:** 1305

Weather Conditions

Temp. 68 ° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: 0-5

Well Condition Checklist

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

Well Visibility (paint): ok Well Label: ok Comment:

Depth & Purging Information

SWL: 12.83 ft TD 33.20 ft Start Purge: 1315

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Rental

Pumping Rate: 500 ml/12 sec Start Sampling: 1400 Purge Duration: 45 min Purge Vol: 38.0

Field Parameters

Meters: YSI 556 (sn: 06E2511AP), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
15.0	1330	Sm'th	To Cell	15.7				14.10
25	1340	7.28	235	11.7	1.81	8.43	13.4	14.10
32	1350	7.31	234	7.54	1.69	8.41	9.8	14.10
35	1355	7.32	235	6.02	1.58	8.33	7.8	14.10,
38	1400	7.33	234	4.28	1.51	8.32	7.0	Pulled

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

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

Well Sampling Completion: Time 1438 Date 5-27-09 Samplers KDE

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-27-09

Monitoring Well: MWR-07 **Sample ID:** MWR07-0509 **Arrival Time:** 1122

Weather Conditions

Temp. 66° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: 0-5

Well Condition Checklist

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

Well Visibility (paint): ok Well Label: ok Comment:

Depth & Purging Information

SWL: 13.02 ft TD 39.10 ft Start Purge: 1135

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Rental 2665

Pumping Rate: 500ml / 85sec Start Sampling: 1220 Purge Duration: 45 min Purge Vol: 49.0

Field Parameters

Meters: YSI 556 (sn: 06E251AP), Hach 2100P (sn: 11371) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (µs/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
20.0	1150	Switch to Cell						13.32
30.0	1200	7.88	175	1.67	2.01	9.48	-118.3	13.32
35.0	1205	7.90	171	1.70	1.66	9.51	-117.3	13.32
39.0	1210	7.87	170	1.34	1.56	9.56	-115.7	13.32
44.0	1215	7.84	168	1.20	1.47	9.52	-113.6	Pulled
49.0	1220	7.81	169	.80	1.42	9.57	-111.4	

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

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

Well Sampling Completion: Time 1300 Date 5/27 Samplers K Ryan

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-27-09

Monitoring Well: MWR-08 **Sample ID:** MWR08-0509 **Arrival Time:** 0940

Weather Conditions

Temp. 64° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: 0-5

Well Condition Checklist

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

Well Visibility (paint): ok Well Label: ok Comment:

Depth & Purging Information

SWL: 13.33 ft TD 29.36 ft Start Purge: 0950

LNAPL Present: (Y)(N) Well Socked Prior to Purging: (Y)(N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Rental 2665

Pumping Rate: 500ml/min Start Sampling: 1035 Purge Duration: 45 min Purge Vol: 34.0

Field Parameters

Meters: YSI 556 (sn: 06E251AP), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
15.0	1010	Switch to Cell		8.76				14.10
22.0	1020	7.12	275	4.19	2.99	8.41	6.5	14.16
26.0	1025	7.13	275	2.87	2.43	8.44	5.2	14.16
30.0	1030	7.14	275	1.82	2.36	8.46	4.9	14.10
34.0	1035	7.14	275	1.56	2.27	8.48	3.8	Pulled

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

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

Well Sampling Completion: Time 1115 Date 52709 Samplers K Dye

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-26-09

Monitoring Well: MWR-09 **Sample ID:** MWR09-0509 MS/MSD **Arrival Time:** 1150

Weather Conditions

Temp. 53° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: 10-15

Well Condition Checklist

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

Well Visibility (paint): OK Well Label: OK Comment:

Depth & Purging Information

SWL: 10.18 ft TD 33.40 ft Start Purge: 1215

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Rule Booster

Pumping Rate: 500ml / 13 sec Start Sampling: 1300 Purge Duration: 45 min Purge Vol: 25.0

Field Parameters

Meters: YSI 556 (sn: 06E2511AP), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
8.0	1230	Switch	to Cell					
13.0	1240	7.25	403	9.14	2.61	8.30	-2.5	12.45
19.0	1250	7.25	404	8.72	2.53	8.30	-3.2	12.44
22.0	1255	7.25	404	9.00	2.41	8.31	-3.9	12.47
25.0	1300	7.25	404	7.60	2.34	8.28	-4.3	Pulled

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

Analysis Requested: Voc's & Metals Number of Containers: 9

Well Sampling Completion: Time 1330 Date 5-26-09 Samplers K Dye

DUP 1
1110

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-26-09

Monitoring Well: MwR-10 **Sample ID:** MWR10-0509 **Arrival Time:** 0940

Weather Conditions

Temp. 55 ° F ( ) Sunny (X) Partly Cloudy ( ) Cloudy ( ) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: S-10

Well Condition Checklist

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

Well Visibility (paint): ok Well Label: ok Comment:

measured other casing

Depth & Purging Information

SWL: 10.24 ft TD ~~10.74~~ ft Start Purge: 1015

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Buck Booster

Pumping Rate: 500 ml/6 sec Start Sampling: 1105 Purge Duration: 500 ml/6 sec Purge Vol: 50 min

Field Parameters

Meters: YSI 556 (sn: 06E2511AP), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (µs/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
10	1035	Switch	Lo Cell					10.34
17	1045	7.36	373	10.4	2.81	9.63	-0.9	10.38
21.0	1050	7.37	375	9.17	2.51	9.60	-2.4	10.36
25.0	1055	7.38	377	7.35	2.20	9.51	-3.9	10.39
28.0	1100	7.38	377	6.93	2.15	9.48	-4.6	Aired
31.0	1105	7.38	378	6.72	2.09	9.42	-5.7	

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments: Traces of Iron at start up

Analysis Requested: VOC's & Metals Number of Containers: 4 + DUP 1

Well Sampling Completion: Time 1145 Date 5-26-09 Samplers JC Rye

On-Site Technical Services, Inc.

Groundwater Purging and Sampling

Project: OU-1 Wellsville, New York **Date:** 5-26-09

Monitoring Well: MWR-11 **Sample ID:** MWR11-0509 **Arrival Time:** 1323

Weather Conditions

Temp. 52° F ( ) Sunny ( ) Partly Cloudy ( ) Cloudy (X) Light Rain ( ) Heavy Rain ( ) Snow

Wind Conditions: S-10

Well Condition Checklist

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

Well Visibility (paint): OK Well Label: ok Comment:

Depth & Purging Information

SWL: 10.76 ft TD 26.92 ft Start Purge: 1345

LNAPL Present: (Y) (N) Well Socked Prior to Purging: (Y) (N) How Many? 0 Sock Saturation: 0

Purging Method: (X) Submersible ( ) Peristaltic ( ) Other: GeoTech Bulk Bailer

Pumping Rate: 500 ml / 13 sec Start Sampling: 1435 Purge Duration: 50 min Purge Vol: 30.0

Field Parameters

Meters: YSI 556 (sn: 06E251IAP), Hach 2100P (sn: 11331) Measured in: (X) Flow Cell ( ) Cup

Purge (gal)	Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)	DTW (ft)
8.0	1400	Switch to Cell						13.90
13.0	1410	6.91	412	25.1	2.71	8.42	49.4	13.83
17.0	1420	6.90	402	22.1	2.59	8.42	49.9	13.87
22.0	1425	6.90	398	21.3	2.48	8.41	50.4	13.88
26.0	1430	6.89	396	13.9	2.51	8.40	50.5	pulled
30.0	1435	6.88	394	11.4	2.45	8.41	50.6	

Stabilization Criteria: 1) field parameters ± 0.1 pH, ±3% conductivity, ±10 mv ORP, ±10% DO, ±10% Turbidity; 2) 3 well volumes or dry

Final Sample clarity\color: Clear Sample Odor: (Y) or (N) Explain:

Final Sample Oil Sheen: (X) None ( ) Light ( ) Medium ( ) Heavy ( ) NAPL

Other Observations/Comments:

Analysis Requested: Vocs metals Number of Containers: 4

Well Sampling Completion: Time 1500 Date 5-26-09 Samplers KDyc

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

GAS VENT MONITORING

Completed By: Kevin Dyke Sheet 1 of 1

Title: Field Tech Date: 8-14-09

Verified By: _____

Title: _____ Date: _____

Type of Monitoring (check only one):

(X) Semi-Annual
( ) Other (explain)
( ) Type of Monitoring Device mini RAE 2000

Gas Vent Identification	Upwind Reading	Downwind Reading	Gas Venting Reading
V-12	0.0	0.0	0.0
V-13	0.0	0.0	1.7
V-14	0.0	0.0	14.2
V-11	0.0	2.5	58.5
V-10	0.0	0.0	7.5
V-9	0.0	0.0	2.3
V-5	0.0	0.0	0.0
V-6	0.0	0.0	0.0
V-7	0.0	0.0	14.6
V-8	0.0	0.0	0.0
V-4	0.0	0.0	7.3
V-3	0.0	0.0	0.0
V-2	0.0	0.0	28.2
V-1	0.0	~~0.0~~ 5.8	84.5

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

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

GAS VENT MONITORING

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

Title: Field tech Date: 9-17-9

Verified By: _____

Title: _____ Date: _____

Type of Monitoring (check only one):

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

Wind out of South 5-10mph 63°F

Gas Vent Identification	Upwind Reading	Downwind Reading	Gas Venting Reading
V-12	0.0	0.0	0.0
V-13	0.0	0.0	0.0
V-14	0.0	0.0	0.0
V-11	0.0	0.0	23.7
V-10	0.0	0.0	0.0
V-9	0.0	0.0	0.7
V-5	0.0	0.0	0.0
V-6	0.0	0.0	0.0
V-7	0.0	0.0	0.0
V-8	0.0	0.0	0.0
V-4	0.0	0.0	0.2
V-3	0.0	0.0	0.0
V-2	0.0	0.0	0.0
V-1	0.0	0.0	23.3

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

Background 0.0 ppm