2004 ANNUAL REPORT OF OPERATIONS AND MAINTENANCE ACTIVITIES

PARTIAL RIVER CHANNELIZATION PROJECT FORMER SINCLAIR REFINERY SITE OPERABLE UNIT ONE (OU1)

WELLSVILLE, NEW YORK

Prepared For

Atlantic Richfield Company
A BP affiliated company
102 Pickering Way – Suite 200
Exton, Pennsylvania 19341

Prepared By

On-Site Technical Services, Inc.
2324 Hanover Hill Road
Wellsville, New York 14895
Ph: 585-593-1824

TABLE OF CONTENTS

1.0 OVERVIEW

1.1 Introduction

This document presents a summary of the 2004 operation and maintenance activities for the Partial River Channelization Project at the Former Sinclair Refinery Site Operable Unit 1 (OU-1) located in Wellsville, New York (Figure 1). On-Site Technical Services, Inc. (On-Site) of Wellsville, New York has prepared this report for Atlantic Richfield Company (Atlantic Richfield). Operation and maintenance (O&M) procedures for this project are detailed in *Operations and Maintenance Plan, Sinclair Refinery Site, Partial River Channelization Project, Wellsville, New York;* dated April 1992, and prepared by Ebasco Services.

1.2 Project Background

A Consent Decree, effective May 19, 1989, between Atlantic Richfield and the United States Environmental Protection Agency (USEPA) outlined, in part, that Atlantic Richfield protect the Central Elevated Landfill (CELA), and the smaller South Landfill Area (SLA) from inundation and erosion. A dike was constructed on the west bank of the river to protect the CELA and SLA from erosion and inundation by floodwater. The west dike is designed to protect against erosion and overtopping up to the 100-year flood elevation. Dike construction and bank riprap stabilization of the east bank of the river was performed to protect against erosion. The east dike and bank stabilization is designed to protect the east bank from erosion up to the bank full flood condition of the river. The Consent Decree outlines that Atlantic Richfield maintains the Genesee River Partial Channelization Project.

A contract to construct the Partial River Channelization Project was awarded to Canonie Environmental in May 1990. The contractor mobilized in June 1990, and completed the west dike from station 0+00 to station 22+31.59 and east dike and east bank protection, with the exception of seeding of the common fill area behind the east dike, in November 1990. Ebasco performed seeding of the east bank area in June 1991. Dike station locations are presented as Figure 2.

Between October and December 1990, OHM, as subcontractor to Ebasco Services Inc., relocated the waste in the SLA to the CELA and constructed the west dike extension from stations 22+31.59 to 27+16.59. Backfilling and seeding of the SLA was accomplished in October 1991.

Subsection VI.I of the Consent Decree outlines that Atlantic Richfield maintain the Partial River Channelization Project in accordance with the procedures detailed in the above referenced O&M Plan.

1.3 West and East Dike Descriptions

West Dike

The west bank dike extends from station 0+00 to 27+16.59 and has a 2.5H: 1V (horizontal to vertical) slope on the river face with approximately 2H: 1V slope on the CELA side (Figure 2). The river-facing slope consists of a geotextile fabric, four-inch thick layer of bedding material and 18 inches of riprap. Riprap toe protection has been installed on the riverside from station 0+00 to 27+16.59. A geotextile anchor trench exists from stations 1+30 to 16+50, 22+31.59 to 23+20 and 26+00 to 27+16.59. Where the geotextile anchor trench is not applicable, the project specifications outlined that the geotextile be anchored in accordance with manufacture specifications. The CELA facing slope has been vegetated to provide erosion protection. An approximately 10 ft wide gravel road sloping approximately 2% towards the river was constructed along the top of the west dike. The as-constructed top elevation ranges from 1506.15 ft at station 0+00 to approximately 1511.0 at station 27+16.59.

The north end dike extension of the west dike was constructed from station 0+00 to –2+40 by raising the existing United States Army Corps of Engineers dike. The river-facing slope of the dike extension was constructed to match the existing slope (approximately 2.2H: 1V). The river-facing slope consists of geotextile fabric, four inches of bedding material and 18 inches of riprap. The Swale side has a slope of 2H: 1V and is vegetated. The top of the dike extension consists of an approximately nine-foot wide gravel road.

East Dike

The east bank dike extends from station 0+00 to approximately 18+50 and was constructed on the remnants of the old riverbank where possible (Figure 2). During construction some eroded areas were filled with borrow material. From approximately station 9+39 south, the top of the east bank protection is approximately the same elevation of the existing east bank. The river-facing slope is typically 2.5H: 1V and covered with geotextile fabric, bedding material and riprap.

1.4 Report Format

The remainder of this report is organized as follows.

- Section 2 outlines the currently approved requirements for operations, maintenance and reporting.
- Section 3 details the operation and maintenance activities performed during 2004
- Section 4 discusses Genesee River flow and flood inspections.
- Section 5 presents conclusions and recommendations.

2.0 OPERATION, MAINTENANCE AND REPORTING REQUIREMENTS

2.1 Operations Requirements

The O&M Plan outlines the following operations to be performed.

- Annual visual inspection with photographs of the west and east dikes during a low river flow period, which is defined as a flow rate of less than 180 cubic feet per second (cfs), which typically may occur anytime between June and October.

- Visual inspection with photographs after each major flood or when the water approaches the top of the east dike between stations 1+67 and 6+67, which can occur during any season of the year.

- A patrol and visual inspection, provided safe conditions exist, during during each high water event to evaluate dike, water levels and if additional actions are required.

- Annual visual inspection with photographs, during a low flow period, of the riverbed where sediment removal was accomplished (opposite west dike station 20+00), to check for shoaling.

- A survey during a low flow period, by a licensed land surveyor, of the cross sections of the east and west dikes every 200 feet and at every slope transition, which determines dike settlement and changes in cross sections. The O&M Plan states that the frequency of the surveys will be based on significant changes to the survey data. The O&M Plan also outlines an annual survey of the riverbed at the toe of the slopes during a low flow period, to check for displacement or unusual settlement of the riprap. The dike survey

frequency was changed in 2002 to one survey every five years. The next survey is scheduled for 2006.

- Annual check of the soil pH along the CELA side of the west dike.

- Section 4.2 of the O&M Plan contemplates agronomic soil tests be performed every three years along the CELA side of the west dike to determine fertilizer requirements. An agronomic soil test was completed in 2003 and the next agronomic soil test is scheduled for 2006.

- Perform maintenance as described below in Section 2.2.

2.2 Maintenance Requirements

Section 4.0 of the O&M Plan contemplates that Atlantic Richfield perform such maintenance and inspections as may be necessary to assure the serviceability of the dikes and the 100-year flood protection of the CELA. Atlantic Richfield performs the following maintenance functions on a periodic basis.

- Along the CELA side of the west dike, lime application is applied as necessary to maintain soil pH above 5.8. Also, fertilizer is applied as needed, based on the agronomic soil test performed every three years.

- Along the CELA side of the west dike, vegetation is mowed when turf reaches a height of no greater than six inches. Mowing will not be closer than four inches to the ground in order to promote vigor and control woody growth and other undesirable weeds. Vegetation is allowed to attain a height of eight to 12 inches prior to the onset of winter.

- Remove woody growth from both dikes annually.

- Maintain the surface of the roadway along the top of the west dike to prevent water ponding and rutting, and remove woody growth.

- Carefully observe the riprap along both banks for sloughing, raveling, and other environmental distress.

2.3 Reports

The currently approved O&M Plan outlines the following reports and notifications.

- Atlantic Richfield should notify the USEPA 14 days prior to annual inspections. Starting in 2000, notification is provided in the OU2 Weekly Operation Report.

- The USEPA is notified of any corrective actions requiring more than 30 days to complete.

- An annual summary report of O&M activities for the year is submitted to the USEPA and New York State Department of Environmental Conservation (NYSDEC).

3.0 2004 OPERATIONS AND MAINTENANCE ACTIVITIES

3.1 Overview of 2004 Operations and Maintenance

Operations and maintenance activities conducted during 2004 included east and west dike low flow and post high water inspections, soil pH test from the CELA side of the west dike, mowing of the CELA side of the west dike and woody growth removal from east and west dikes.

3.2 East and West Dike Inspections

East and west dike low flow inspections were conducted on November 15, 2004. East and west dike post high water inspections were completed on September 27, 2004, following a high water event. Details of the dike inspections are provided in Section 4.

3.3 Surveying

As outlined in the O&M Plan, surveys of the west and east dikes were performed by a New York State Licensed Surveyor annually from 1992 through 2001. The 1992 and 1993 surveys were conducted by Douglas C. Meyers, P.C., Arcade, New York. James B. Ball, L.S., Wellsville, New York completed the surveys from 1994 through 2001. The 1992 to 2001 dike survey data is included as Table 1 for reference. A detailed review of the surveys completed between 1992 and 2001 was completed as part of the 2001 annual report preparation. Based on the review of this 10-year period of annual survey data, no significant settlement has occurred to the dikes. The O&M plan states that the

frequency of surveys will be based on significant changes to the survey data. Review of the 10 years of survey data revealed that significant changes are more easily identified with visual surveys. The recommendation that frequency of surveys be reduced to, as needed based on visual inspections was put forth in the 2001 Annual Report. In a letter dated April 24, 2002 to USEPA, Atlantic Richfield requested discontinuing the annual surveying of the river channel. Visual inspections would continue to be performed annually and following high water events. Approval to modify the survey frequency from annually to every five years was granted in a letter dated November 08, 2002 from USEPA to Mr. Terry Moore, Atlantic Richfield. The next survey is scheduled for 2006.

3.4 Vegetative Cover Testing and Maintenance

An agronomic soil test for the west slope (CELA side) of the west dike is completed every three years and soil pH testing is completed annually. Soil pH is maintained above 5.8. A soil pH sample was collected on August 26, 2004 and was analyzed by Cornell Cooperative Extension (CCE) Association, Allegany County Office, located in Belmont, NY. The soil pH test result was transmitted as a voicemail left at On-Site's office by CCE. No hard copy of the analysis was forwarded by CCE, as has been standard practice in the past. On-Site inquired as to the existence of computer records or hard copies at CCE, and was informed that a change in policy regarding soil pH results had taken place whereby results are only transmitted verbally, and no records are kept on file. When full agronomic soil testing (including pH) is requested, CCE forwards the samples to Cornell Nutrient Analysis Laboratories in Ithaca NY for analysis, and lab analytical report hard copies are issued. On-Site was not informed of CCE's policy change regarding transmittal of results to strictly verbal, and did not record the results dictated in the voicemail, therefore no pH results for this sample are available for this report. As a management of change issue, this has been addressed by retaining a new laboratory to perform pH analysis, which will issue hard copy analytical reports in the future. On-Site collected another soil pH sample on March 17, 2005, and forwarded to Accutest Laboratories in Dayton, NJ for fast turnaround analysis, with a result of 7.20. A copy of this analytical report is located in Appendix B of this report.

Agronomic soil testing which is performed every three years along with annual soil pH testing has demonstrated stable pH values over the last several years as shown in the following table. Based upon this trend, a discontinuation of annual soil pH analysis is proposed, with continued agronomic soil testing every three years.

YEAR	ANALYSIS PERFORMED	pH Result
1995	Soil pH Test	7.4
1997	Agronomic Soil Test	7.5
1998	Agronomic Soil Test	7.2
2000	Agronomic Soil Test	7.7
2001	Soil pH Test	7.4
2002	Soil pH Test	7.8
2003	Agronomic Soil Test	7.4
2005	Soil pH Test	7.2

The CELA side of the west dike was mowed with a combination of tractor mounted boom mower and string trimmers once during 2004. This work was conducted during September 2004. The boom mower was used to mow the face of the slope, and the string trimmers were used to trim the perimeter fence line and along the toe of slope at the interface with the rip rap drainage channel.

3.5 Woody Growth Removal

Woody growth present within the riprap areas of the west and east dikes is removed with lopping shears on an annual basis. The majority of the annual woody growth is less than three ft tall with the largest generally less than two-inch diameter and 10 ft tall. Woody growth removal on the west and east dike which had been initiated in the fall of 2003 was completed in April 2004 before the start of the growing season. A second round of woody growth removal was performed in November 2004.

4.0 GENESEE RIVER FLOW AND HIGH WATER INSPECTIONS

The Genesee River is northerly flowing and located along the east side of the Former Sinclair Refinery Site. A United States Geologic Survey (USGS), Water Resources Division river gage station is located on the Genesee River approximately 1.8 miles down stream of the partial river channelization site. The station identification number is 04221000. The automatic gage measures water height (stage) and the USGS has developed an expanded rating table to correlate water height with stream flow (discharge). Although watercourses discharge into the Genesee River between the gage station location and the partial river

channelization site, the data has been used as a guide to river flow. The table below provides the peak gage height and stream flow for 1991 through 2004.

Year	Date	Gage Height (ft)	Stream flow (cfs)
1991	Mar 4, 1991	9.68	6380
1992	Sep 22, 1992	7.24	2580
1993	April 1, 1993	10.43	7720
1994	Mar 24, 1994	10.08	7080
1995	Jan 20, 1995	9.29	5710
1996	Jan 19, 1996	16.13	22700
1997	Nov 8, 1996	10.63	8120
1998	Jan 8, 1998	10.01	6960
1999	Jan 24, 1999	9.25	5650
2000	Feb 28, 2000	8.67	4710
2001	Apr 7, 2001	8.33	4190
2002	June 6, 2002	8.57	4566
2003	Mar 21,2003	10.05	7028
2004	Sept 18, 2004	10.5	7974

cfs – cubic feet per second

The O&M Plan outlines that post high water event inspections be completed. High water events are defined in the O&M plan as gage station flows greater the 4500 cubic feet per second (cfs) or when the water elevation in the river approaches the top of the east dike between stations 1+65 and 6+67 (elevation of 1496 ft msl). The USGS has defined flood stage to be a gage height of 11 ft, which equates to a flow of 8907 cfs. Based on historical measures, a flow greater than 7000 cfs (gage height > 10 ft) is required for the water level to approach the top of the east dike. Therefore, a gage height of 10 ft is used to trigger a post high water event inspection. To illustrate the correlation between gage height and flood events, observations from three high water events, which have occurred since the completion of the partial river channelization project, are discussed below.

- In April of 1993 a high water event occurred as a result of rain and snowmelt. At 1400 hours on April 1, 1993, the river gage recorded a maximum water height of 10.43 ft. This translates to a flow of 7720 cfs. The water level was observed to reach a height of

approximately one foot below the top of the east dike at station 1+00. However, the flow had overtopped the east bank approximately 0.5 miles upstream of the project and returned to the channel slightly upstream of the start of riprap at east dike station 18+50. Some erosion and sloughing occurred upstream of east dike station 18+50 (upstream of the project area). There was no significant damage to the site due to this event.

- A second high water event occurred on November 28, 1993 due to a heavy rain in the Genesee River Basin. The maximum river gage height of 9.56 ft was recorded at 1100 hours. This height equates to a flow of 6169 cfs. The water level was observed to be approximately two feet below the top of the east river dike at station 2+00. No damage to the project area was observed from this event.

- Rapid snow melt and heavy rains caused the most significant high water event since the construction of the Partial River Channelization Project occurred on January 19, 1996. The peak gage height and flow of 16.13 ft and 22,700 cfs were recorded at 1800 hours. Dike inspection at peak flow was not possible because the area had been evacuated by emergency personnel at 1000 hours on January 19, and all roads in the area were officially closed until 1400 hours on January 20. Inspections completed on January 20 and February 23, 1996 following the event revealed no significant damage to the project area. The only notable observations were: (i) minor accumulation of debris at west dike station 14+00; (ii) two trees were deposited along the west dike at stations 18+00 and 20+00; and (iii) overflow channel flow caused minor riprap slump at west dike station 12+00.

Provisional 2004 gage height and streamflow data from the USGS river gage station are included in this report. Provisional data is subject to change by the USGS. The 2004 daily average stage and discharge data is presented in tabular form as Table 2 and graphically as Figure 3. The highest daily average stream flow of 6396 cfs (gage height of 8.10) was recorded on September 18, 2004. The 2004 peak gage height of 10.5 ft (7974 cfs) was also recorded on September 18, 2004 at approximately 0600 hours. This peak reading constitutes a high water event, triggering a post high water event inspection. Post high water event inspection of the east and west dikes was completed on September 27, 2004. At the time of inspection the gage height reading was 4.97 ft (286.8 cfs). Details of the post high water event inspection are provided below.

Post High Water Inspection – West Dike

A summary of the post high water dike inspection findings completed on September 27, 2004, are provided below. Completed inspection checklists and inspection photographs are presented in Appendix A of this report.

- No settlement, sloughing or loss of grade.
- No caving on either side of dike.
- No seepage, saturated areas, or sand boils.
- No evidence of riprap displacement or unusual settlement.
- Access roads are in good condition.
- No evidence of unauthorized traffic.
- Vegetative cover in good condition.
- Woody growth present during Sept. 2004 post high water inspection.
- No unauthorized excavation, loose sod, or sod removal.
- No evidence of fires or vandalism.
- No shoaling in the channel.

Post High Water Inspection - East Dike

A summary of the post high water dike inspection findings completed on September 27, 2004 is provided below. Completed inspection checklists and inspection photographs are presented in Appendix A of this report.

- No settlement, sloughing or loss of grade.
- No caving.
- No seepage, saturated areas, or sand boils.
- No evidence of riprap displacement or unusual settlement.
- Access roads are not applicable.
- No evidence of unauthorized traffic.
- Woody growth present during Sept. 2004 post high water inspection.
- No unauthorized excavation, loose sod or sod removal.
- No evidence of burrowing animals.
- No evidence of fires or vandalism.
- No shoaling in the channel.

Annual Low Flow Inspection - West Dike

A summary of the annual low flow dike inspection findings completed on November 15, 2004, are provided below. Completed inspection checklists and inspection photographs are presented in Appendix A of this report.

- No settlement, sloughing or loss of grade.
- No caving on either side of dike.
- No seepage, saturated areas, or sand boils.
- No evidence of riprap displacement or unusual settlement.
- Access roads are in good condition.
- No evidence of unauthorized traffic.
- Vegetative cover in good condition.
- Woody growth removal completed 11/19/04.
- No unauthorized excavation, loose sod, or sod removal.
- No evidence of fires or vandalism.
- No shoaling in the channel.

Annual Low Flow Inspection - East Dike

A summary of the annual low flow dike inspection findings completed on November 15, 2004 is provided below. Completed inspection checklists and inspection photographs are presented in Appendix A of this report.

- No settlement, sloughing or loss of grade.
- No caving.
- No seepage, saturated areas, or sand boils.
- No evidence of riprap displacement or unusual settlement.
- Access roads are not applicable.
- No evidence of unauthorized traffic.
- Woody growth removal completed 11/19/04.
- No unauthorized excavation, loose sod or sod removal.
- No evidence of burrowing animals.
- No evidence of fires or vandalism.
- No shoaling in the channel.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of inspections and observations over the past year, On-Site can find no evidence of significant deterioration, erosion or settlement at the Partial River Channelization Project site which require maintenance. As stated in section 3. 4, a management of change issue was identified regarding soil pH analytical result reporting at the laboratory, and has been rectified. As further described in section 3.4, Atlantic Richfield will propose to reduce the frequency of soil pH analysis from annual to every three years, encompassed in agronomic soil testing. Also, Atlantic Richfield proposes an evaluation of the manner in which woody growth is managed, due to potential safety concerns related to current removal techniques. Atlantic Richfield requests the Agencies review this requirement and provide recommendations for alternate methods (such as herbicide application) for woody growth control. Pending these changes, operations and maintenance activities will continue as outlined by the currently approved O&M plan.

TABLE 1

Table 1

Genesee River Dike Surveyed Elevations (1992-2001)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft msl)

Station & Distance From Baseline	Location Description	1992 Elevation	1993 Elevation	1994 Elevation	1995 Elevation	1996 Elevation	1997 Elevation	1998 Elevation	1999 Elevation	2000 Elevation	2001 Elevation	Change From 1992 to 2001	Change From 1993 to 2001	Change From 1999 to 2001	Change From 2000 to 2001	Average Elevation
East Dike Station 0+00																
E000-55.0	Ground Surface		1499.42	1499.73	1499.41	1499.44	1499.45	1499.51	1499.54	1499.43	1499.52		0.10	-0.02	0.09	1499.49
E000-35.0	Slope Break	1499.80	1499.64	1499.73	1499.77	1499.75	1499.76	1499.81	1499.81	1499.79	1499.76	-0.04	0.12	-0.05	-0.03	1499.76
E000-30.4	Start Riprap	1500.30	1500.27	1500.38	1500.31	1500.23	1500.26	1500.31	1500.31	1500.26	1500.26	-0.04	-0.01	-0.05	0.00	1500.29
E000-19.5	Slope Crest	1500.15	1500.12	1500.24	1500.14	1500.10	1500.10	1500.18	1500.18	1500.14	1500.14	-0.01	0.02	-0.04	0.00	1500.15
E000-1	Slope Surface	1492.15	1492.75	1492.87	1492.72	1492.98	1492.73	1492.99	1493.29	1493.12	1492.96	0.81	0.21	-0.33	-0.16	1492.86
East Dike Station 2+00																
E200-55.0	Ground Surface		1496.45	1496.44	1496.41	1496.47	1496.47	1496.52	1496.56	1496.59	1496.53		0.08	-0.03	-0.06	1496.49
E200-35.0	Slope Break		1496.27	1496.31	1496.33	1496.33	1496.34	1496.39	1496.39	1496.36	1496.33		0.06	-0.06	-0.03	1496.34
E200-26.2	Start Riprap	1496.30	1496.24	1496.33	1496.28	1496.24	1496.26	1496.33	1496.31	1496.28	1496.27	-0.03	0.03	-0.04	-0.01	1496.28
E200-14.5	Slope Crest	1496.45	1496.42	1496.52	1496.47	1496.44	1496.45	1496.50	1496.48	1496.43	1496.43	-0.02	0.01	-0.05	0.00	1496.46
E200-5.6	Slope Surface	1492.70	1492.62	1492.78	1492.73	1492.72	1492.73	1492.80	1492.78	1492.75	1492.74	0.04	0.12	-0.04	-0.01	1492.74
East Dike Station 4+00																
E400-55.0	Ground Surface		1496.39	1496.45	1496.39	1496.46	1496.43	1496.47	1496.52	1496.55	1496.41		0.02	-0.11	-0.14	1496.45
E400-35.0	Slope Break	1496.30	1496.18	1496.33	1496.38	1496.38	1496.37	1496.40	1496.40	1496.38	1496.34	0.04	0.16	-0.06	-0.04	1496.35
E400-26.6	Start Riprap	1495.90	1495.83	1495.88	1495.88	1495.91	1495.89	1495.93	1495.92	1495.89	1495.85	-0.05	0.02	-0.07	-0.04	1495.89
E400-14.0	Slope Crest	1495.50	1495.46	1495.33	1495.50	1495.52	1495.49	1495.54	1495.53	1495.50	1495.49	-0.01	0.03	-0.04	-0.01	1495.49
E400-6.5	Slope Surface	1492.50	1492.51	1492.58	1492.58	1492.59	1492.52	1492.57	1492.58	1492.59	1492.50	0.00	-0.01	-0.08	-0.09	1492.55
East Dike Station 6+00																
E600-55.0	Ground Surface		1496.21	1496.20	1496.18	1496.21	1496.21	1496.27	1496.25	1496.36	1496.26		0.05	0.01	-0.10	1496.24
E600-35.0	Slope Break	1496.05	1496.05	1496.07	1496.12	1496.12	1496.08	1496.13	1496.13	1496.12	1496.10	0.05	0.05	-0.03	-0.02	1496.10
E600-22.6	Start Riprap	1496.45	1496.36	1496.46	1496.12	1496.45	1496.36	1496.42	1496.40	1496.38	1496.39	-0.06	0.03	-0.01	0.01	1496.38
E600-13.7	Slope Crest	1496.10	1496.07	1496.09	1496.10	1496.06	1496.01	1496.08	1496.06	1496.04	1496.03	-0.07	-0.04	-0.03	-0.01	1496.06
E600-4.7	Slope Surface	1492.35	1492.26	1492.29	1492.30	1492.26	1492.19	1492.22	1492.21	1492.15	1492.12	-0.23	-0.14	-0.09	-0.03	1492.24
East Dike Station 8+00																
E800-55.0	Ground Surface		1497.20	1497.28	1497.22	1497.19	1497.32	1497.31	1497.34	1497.35	1497.26		0.06	-0.08	-0.09	1497.27
E800-35.0	Slope Break	1496.80	1496.73	1496.84	1496.87	1496.87	1496.91	1496.95	1496.95	1496.92	1496.91	0.11	0.18	-0.04	-0.01	1496.88
E800-18.7	Start Riprap	1496.80	1496.77	1496.91	1496.84	1496.78	1496.82	1496.86	1496.85	1496.81	1496.81	0.01	0.04	-0.04	0.00	1496.83
E800-10.3	Slope Crest	1496.20	1496.12	1496.25	1496.18	1496.25	1496.29	1496.34	1496.32	1496.27	1496.28	0.08	0.16	-0.04	0.01	1496.25
E800-2.5	Slope Surface	1493.10	1493.14	1493.28	1493.21	1493.16	1493.20	1493.21	1493.20	1493.16	1493.11	0.01	-0.03	-0.09	-0.05	1493.18
East Dike Station 10+00																
E1000-55.0	Ground Surface		1499.08	1499.16	1499.07	1499.06	1499.11	1499.15	1499.20	1499.17	1499.12		0.04	-0.08	-0.05	1499.12
E1000-32.0	Slope Break	1498.50	1498.47	1498.58	1498.60	1498.53	1498.52	1498.56	1498.56	1498.54	1498.53	0.03	0.06	-0.03	-0.01	1498.54
E1000-29.0	Slope Break	1499.00	1498.95	1499.01	1499.06	1499.03	1499.07	1499.09	1499.09	1499.08	1499.06	0.06	0.11	-0.03	-0.02	1499.04
E1000-27.6	Start Riprap	1499.00	1498.97	1498.98	1499.04	1499.00	1499.03	1499.02	1499.07	1499.03	1499.00	0.00	0.03	-0.07	-0.03	1499.01
E1000-18.4	Slope Crest	1498.95	1498.91	1499.03	1498.97	1498.93	1498.94	1498.95	1498.96	1498.96	1498.94	-0.01	0.03	-0.02	-0.02	1498.95
E1000-5.2	Slope Surface	1493.35	1493.06	1493.17	1493.11	1493.09	1493.11	1493.11	1493.12	1493.11	1493.08	-0.27	0.02	-0.04	-0.03	1493.13

Notes: Negative change indicates a decrease in elevation.
Positive change indictes a increase in elevation.

Table 1

Genesee River Dike Surveyed Elevations (1992-2001)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft msl)

Station & Distance From Baseline	Location Description	1992 Elevation	1993 Elevation	1994 Elevation	1995 Elevation	1996 Elevation	1997 Elevation	1998 Elevation	1999 Elevation	2000 Elevation	2001 Elevation	Change From 1992 to 2001	Change From 1993 to 2001	Change From 1999 to 2001	Change From 2000 to 2001	Average Elevation
East Dike Station 12+00																
E1200-55.0	Ground Surface		1500.18	1500.26	1500.24	1500.21	1500.23	1500.30	1500.33	1500.32	1500.29		0.11	-0.04	-0.03	1500.26
E1200-35.0	Slope Break	1499.25	1499.17	1499.06	1499.23	1499.22	1499.22	1499.27	1499.26	1499.29	1499.25	0.00	0.08	-0.01	-0.04	1499.22
E1200-29.0	Slope Break					1499.38	1499.35	1499.40	1499.40	1499.37	1499.36			-0.04	-0.01	1499.38
E1200-27.7	Start Riprap	1499.25	1499.23	1499.38	1499.35	1499.38	1499.20	1499.35	1499.32	1499.36	1499.34	0.09	0.11	0.02	-0.02	1499.32
E1200-17.7	Slope Crest	1499.35	1499.27	1499.28	1499.31	1499.28	1499.25	1499.31	1499.30	1499.28	1499.24	-0.11	-0.03	-0.06	-0.04	1499.29
E1200-4.5	Slope Surface	1493.80	1493.85	1493.99	1494.03	1494.03	1494.04	1494.09	1494.11	1494.07	1494.07	0.27	0.22	-0.04	0.00	1494.01
East Dike Station 14+00																
E1400-55.0	Ground Surface		1499.55	1499.75	1499.57	1499.58	1499.61	1499.59	1499.63	1499.67	1499.67		0.12	0.04	0.00	1499.62
E1400-35.0	Slope Break	1499.30	1499.33	1499.46	1499.32	1499.37	1499.37	1499.30	1499.35	1499.43	1499.34	0.04	0.01	-0.01	-0.09	1499.36
E1400-28.0	Slope Break	1499.55	1499.55	1499.62	1499.65	1499.67	1499.69	1499.69	1499.69	1499.69	1499.67	0.12	0.12	-0.02	-0.02	1499.65
E1400-25.5	Start Riprap	1499.10	1499.12	1499.17	1499.15	1499.16	1499.42	1499.43	1499.58	1499.50	1499.45	0.35	0.33	-0.13	-0.05	1499.31
E1400-15.0	Slope Crest	1499.35	1499.32	1499.52	1499.35	1499.34	1499.34	1499.35	1499.34	1499.34	1499.31	-0.04	-0.01	-0.03	-0.03	1499.36
E1400-3.8	Slope Surface	1494.90	1494.88	1495.12	1494.96	1494.92	1494.91	1494.91	1494.86	1494.78	1494.77	-0.13	-0.11	-0.09	-0.01	1494.90
East Dike Station 16+00																
E1600-55.0	Ground Surface		1499.23	1499.30	1499.31	1499.23	1499.34	1499.32	1499.34	1499.25	1499.32		0.09	-0.02	0.07	1499.29
E1600-35.0	Slope Break		1498.90	1498.92	1498.97	1498.97	1499.01	1498.98	1499.00	1498.96	1498.96		0.06	-0.04	0.00	1498.96
E1600-28.0	Slope Break	1499.05	1499.10	1499.13	1499.16	1499.16	1499.18	1499.20	1499.20	1499.19	1499.17	0.12	0.07	-0.03	-0.02	1499.15
E1600-26.4	Start Riprap	1499.55	1499.53	1499.58	1499.41	1499.50	1499.40	1499.46	1499.35	1499.40	1499.39	-0.16	-0.14	0.04	-0.01	1499.46
E1600-14.7	Slope Crest	1498.95	1498.91	1498.97	1498.93	1498.93	1498.94	1498.98	1498.94	1498.90	1498.88	-0.07	-0.03	-0.06	-0.02	1498.93
E1600-5.2	Slope Surface	1494.30	1494.44	1494.48	1494.47	1494.43	1494.41	1494.45	1494.41	1494.37	1494.36	0.06	-0.08	-0.05	-0.01	1494.41
East Dike Station 18+00																
E1800-55.0	Ground Surface		1500.09	1499.90	1499.92	1500.17	1500.25	1500.22	1500.12	1500.18	1500.18		0.09	0.06	0.00	1500.11
E1800-35.0	Slope Break	1499.60	1499.59	1499.49	1499.51	1499.62	1499.65	1499.67	1499.70	1499.77	1499.63	0.03	0.04	-0.07	-0.14	1499.62
E1800-25.0	Slope Break				1499.57	1499.57	1499.57	1499.60	1499.60	1499.59	1499.56			-0.04	-0.03	1499.58
E1800-23.4	Start Riprap	1499.50	1499.48	1499.56	1499.57	1499.55	1499.49	1499.57	1499.52	1499.57	1499.54	0.04	0.06	0.02	-0.03	1499.54
E1800-13.9	Slope Crest	1499.15	1499.12	1499.07	1499.19	1499.14	1499.15	1499.16	1499.16	1499.16	1499.11	-0.04	-0.01	-0.05	-0.05	1499.14
E1800-5.7	Slope Surface	1496.10	1495.13	1495.09	1495.21	1495.20	1495.15	1495.16	1495.18	1495.17	1495.11	-0.99	-0.02	-0.07	-0.06	1495.25
West Dike Station 0+00																
W000-39.5	River Side	1492.06	1492.10	1492.07	1492.08	1492.10										1492.08
W000-36.0	River Side						1491.87	1492.08	1492.04	1492.14	1492.03			-0.01	-0.11	1492.03
W000-9.7	River Side	1506.16	1506.11	1506.11	1506.12	1506.10	1506.05									1506.11
W000-6.4	River Side							1505.93	1506.10	1506.08	1506.01			-0.09	-0.07	1506.03
W000-0	Baseline	1505.86	1505.86	1505.88	1505.91	1505.91	1505.88	1505.90	1505.91	1505.89	1505.90	0.04	0.04	-0.01	0.01	1505.89
W000-4.4	Swale Side															
W000-31.3	Swale Side	1492.06	1492.00	1492.10	1492.09	1492.09	1492.98	1493.14	1493.11	1492.90	1492.95	0.89	0.95	-0.16	0.05	1492.54
W000-40	Swale Side	1490.51	1490.59	1490.47	1490.52	1490.66	1490.75	1491.20	1491.17	1490.67	1491.27	0.76	0.68	0.10	0.60	1490.78

Notes: Negative change indicates a decrease in elevation.
Positive change indictes a increase in elevation.

Table 1

Genesee River Dike Surveyed Elevations (1992-2001)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft msl)

Station & Distance From Baseline	Location Description	1992 Elevation	1993 Elevation	1994 Elevation	1995 Elevation	1996 Elevation	1997 Elevation	1998 Elevation	1999 Elevation	2000 Elevation	2001 Elevation	Change From 1992 to 2001	Change From 1993 to 2001	Change From 1999 to 2001	Change From 2000 to 2001	Average Elevation
West Dike Station 2+00																
W200-46.7	River Side	1491.76	1491.76	1491.73	1491.84	1491.79	1491.89	1492.34	1491.76	1491.80	1491.78	0.02	0.02	0.02	-0.02	1491.85
W200-7.3	River Side	1506.46	1506.48	1506.42	1506.48	1506.45	1506.58	1506.64	1506.61	1506.56	1506.65	0.19	0.17	0.04	0.09	1506.53
W200-0	Baseline	1506.81	1506.77	1506.81	1506.83	1506.83	1506.81	1506.81	1506.82	1506.82	1506.82	0.01	0.05	0.00	0.00	1506.81
W200-9.5	Swale Side	1506.26	1506.25	1506.22	1506.15	1506.10	1506.20	1506.10	1506.13	1506.29	1506.20	-0.06	-0.05	0.07	-0.09	1506.19
W200-18	Swale Side		1502.73	1502.63	1502.75	1502.62	1502.61	1502.47	1502.55	1502.78	1502.68		-0.05	0.13	-0.10	1502.65
W200-30.8	Swale Side	1498.56	1501.77	1501.64	1501.66	1501.69	1501.53	1501.39	1501.68	1501.78	1501.85	3.29	0.08	0.17	0.07	1501.36
West Dike Station 4+00																
W400-90	River Side	1491.46														
W400-82.1	River Side		1491.42	1491.50	1491.44	1491.40	1491.51	1491.44	1491.36	1490.98	1491.36		-0.06	0.00	0.38	1491.38
W400-79.7	River Side	1496.11	1496.11													1496.11
W400-74.1	River Side		1495.70	1497.34	1495.77	1495.75	1495.73	1495.74	1495.68	1495.68	1495.68		-0.02	0.00	0.00	1495.90
W400-64.7	River Side	1497.56														
W400-59.9	River Side		1497.37	1498.33	1497.44	1497.42	1497.40	1497.42	1497.38	1497.37	1497.41		0.04	0.03	0.04	1497.50
W400-49.2	River Side	1498.16														
W400-47.5	River Side		1498.35	1498.33	1498.42	1498.39	1498.38	1498.38	1498.36	1498.36	1498.38		0.03	0.02	0.02	1498.37
W400-6.9	River Side	1506.96	1506.91	1506.79	1506.78	1506.79	1506.67	1506.69	1506.77	1506.85	1506.77	-0.19	-0.14	0.00	-0.08	1506.80
W400-0	Baseline	1506.96	1506.91	1506.93	1506.96	1506.96	1506.95	1506.96	1506.97	1506.97	1506.97	0.01	0.06	0.00	0.00	1506.95
W400-5.8	CELA Side				1506.90	1506.88	1506.84	1506.93	1506.92	1507.00	1506.93			0.01	-0.07	1506.91
W400-6.0	CELA Side	1507.01	1507.00	1507.00												1507.00
W400-18.0	CELA Side		1501.48	1501.38	1501.47	1501.46	1501.46	1501.49	1501.48	1501.44	1501.49		0.01	0.01	0.05	1501.46
W400-24.2	CELA Side	1499.46														
W400-31.6	CELA Side	1498.71	1498.66	1498.64	1498.72	1498.69	1498.69	1498.69	1498.68	1498.67	1498.70	-0.01	0.04	0.02	0.03	1498.69
West Dike Station 6+00																
W600-68.4	River Side	1497.16	1497.21	1496.90	1497.16	1497.25	1497.12	1497.20	1497.16	1497.14	1497.14	-0.02	-0.07	-0.02	0.00	1497.14
W600-47.5	River Side	1498.46	1498.50	1498.45	1498.52	1498.58	1498.56	1498.60	1498.58	1498.52	1498.45	-0.01	-0.05	-0.13	-0.07	1498.52
W600-31.3	River Side	1498.31	1498.36	1498.29	1498.37	1498.34	1498.32	1498.37	1498.34	1498.30	1498.34	0.03	-0.02	0.00	0.04	1498.33
W600-8.0	River Side	1507.01	1507.00	1506.93	1506.98	1506.93	1506.90	1506.85	1506.91	1506.87	1506.86	-0.15	-0.14	-0.05	-0.01	1506.92
W600-0	Baseline	1506.96	1506.92	1506.91	1506.95	1506.95	1506.93	1506.97	1506.96	1506.95	1506.95	-0.01	0.03	-0.01	0.00	1506.95
W600-5.4	CELA Side	1506.96	1507.05	1506.83	1506.88	1506.90	1506.89	1506.85	1506.92	1506.90	1507.03	0.07	-0.02	0.11	0.13	1506.92
W600-16.2	CELA Side		1500.66	1500.56	1500.61	1500.42	1500.54	1500.58	1500.22	1500.54	1500.53		-0.13	0.31	-0.01	1500.52
W600-16.7	CELA Side	1501.01														
West Dike Station 8+00																
W800-55.0	River Side		1499.38	1499.17	1499.26	1499.29	1499.41	1499.39	1499.31	1499.46	1499.26		-0.12	-0.05	-0.20	1499.33
W800-49.0	River Side	1499.47	1499.48	1499.33	1499.40	1499.39	1499.35	1499.57	1499.42	1499.46	1499.46	-0.01	-0.02	0.04	0.00	1499.43
W800-46.0	River Side	1498.87	1498.84	1499.13	1499.19	1499.14	1499.18	1499.20	1499.19	1499.16	1499.17	0.30	0.33	-0.02	0.01	1499.11
W800-28.8	River Side	1499.62	1499.61	1499.55	1499.62	1499.58	1499.60	1499.60	1499.60	1499.61	1499.61	-0.01	0.00	0.01	0.00	1499.60

Notes: Negative change indicates a decrease in elevation.
Positive change indictes a increase in elevation.

Table 1

Genesee River Dike Surveyed Elevations (1992-2001)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft msl)

Station & Distance From Baseline	Location Description	1992 Elevation	1993 Elevation	1994 Elevation	1995 Elevation	1996 Elevation	1997 Elevation	1998 Elevation	1999 Elevation	2000 Elevation	2001 Elevation	Change From 1992 to 2001	Change From 1993 to 2001	Change From 1999 to 2001	Change From 2000 to 2001	Average Elevation
West Dike Station 8+00 Continued																
W800-7.5	River Side	1507.12	1507.02	1506.88	1506.99	1506.91	1506.93	1506.91	1506.90	1506.87	1506.83	-0.29	-0.19	-0.07	-0.04	1506.94
W800-0	Baseline	1507.12	1507.02	1507.00	1507.00	1507.00	1507.02	1507.00	1507.00	1507.00	1507.01	-0.11	-0.01	0.01	0.01	1507.02
W800-7.3	CELA Side	1507.17	1507.08	1506.96	1506.97	1506.85	1507.00	1506.96	1507.02	1507.09	1507.06	-0.11	-0.02	0.04	-0.03	1507.02
W800-14.0	CELA Side		1502.43	1502.30	1502.37	1502.31	1502.20	1502.34	1502.20	1502.33	1502.28		-0.15	0.08	-0.05	1502.31
W800-15.5	CELA Side	1503.27	1503.27	1502.15	1502.30	1502.21	1502.22	1502.21	1502.15	1502.09	1502.19	-1.08	-1.08	0.04	0.10	1502.41
West Dike Station 10+00																
W1000-64.5	River Side	1497.07	1497.08	1496.96	1496.96	1497.16	1497.18	1497.32	1497.22	1497.45	1497.27	0.20	0.19	0.05	-0.18	1497.17
W1000-57.5	River Side	1496.22	1496.27	1496.11	1496.10	1496.32	1496.22	1496.28	1496.32	1496.43	1496.34	0.12	0.07	0.02	-0.09	1496.26
W1000-54.5	River Side	1495.57	1495.57	1495.52	1495.52	1495.88	1495.91	1495.85	1495.84	1495.96	1495.93	0.36	0.36	0.09	-0.03	1495.76
W1000-38.8	River Side	1495.22	1495.27	1495.22	1495.28	1495.25	1495.25	1495.23	1495.25	1495.23	1495.25	0.03	-0.02	0.00	0.02	1495.25
W1000-7.2	River Side	1507.22	1507.02	1506.98	1506.79	1506.69	1506.77	1506.73	1507.08	1506.78	1506.73	-0.49	-0.29	-0.35	-0.05	1506.88
W1000-0	Baseline	1507.22	1507.02	1507.15	1507.15	1507.15	1507.16	1507.15	1507.16	1507.15	1507.17	-0.05	0.15	0.01	0.02	1507.15
W1000-5.6	CELA Side	1507.32	1507.29	1507.28	1507.23	1507.21	1507.19	1507.14	1507.27	1507.26	1507.20	-0.12	-0.09	-0.07	-0.06	1507.24
W1000-13.3	CELA Side	1503.32	1502.99	1502.90	1502.85	1502.86	1502.73	1502.82	1502.90	1502.87	1502.90	-0.42	-0.09	0.00	0.03	1502.91
W1000-14.7	CELA Side		1502.70	1502.66	1502.64	1502.59	1502.57	1502.25	1502.57	1502.54	1502.56		-0.14	-0.01	0.02	1502.56
West Dike Station 12+00																
W1200-89.0	River Side					1494.95	1492.95	1493.22	1493.27	1493.01	1493.08			-0.19	0.07	1493.41
W1200-87.0	River Side					1492.11	1491.90	1492.18	1491.89	1491.45	1491.79			-0.10	0.34	1491.89
W1200-84.0	River Side	1495.17	1495.29	1495.18	1495.23											1495.22
W1200-75.5	River Side	1495.17	1494.95	1494.63	1494.56											1494.83
W1200-74.0	River Side	1493.32	1493.22	1493.05	1492.97	1490.10										1492.53
W1200-68.5	River Side		1491.70													
W1200-62.3	River Side	1494.22	1494.21	1494.14	1494.19											1494.19
W1200-60.4	River Side					1493.91	1493.82	1494.14	1494.08	1494.04	1494.03			-0.05	-0.01	1494.00
W1200-44.2	River Side	1493.67	1493.67	1494.00	1493.52	1494.06	1493.82	1494.10	1494.10	1494.05	1494.07	0.40	0.40	-0.03	0.02	1493.91
W1200-8.0	River Side	1508.07	1507.95	1507.75	1507.73	1507.60	1507.74	1507.74	1507.73	1507.72	1507.79	-0.28	-0.16	0.06	0.07	1507.78
W1200-0	Baseline	1508.17	1508.10	1508.10	1508.11	1508.11	1508.11	1508.12	1508.13	1508.11	1508.09	-0.08	-0.01	-0.04	-0.02	1508.12
W1200-5.7	CELA Side	1508.17														
W1200-6.0	CELA Side		1508.11	1508.01	1507.91	1508.00	1508.07	1507.86	1508.05	1507.91	1507.87		-0.24	-0.18	-0.04	1507.98
W1200-13.4	CELA Side		1504.40	1504.34	1504.34	1504.29	1504.26	1504.25	1504.26	1504.42	1504.32		-0.08	0.06	-0.10	1504.32
W1200-15.5	CELA Side	1503.52	1504.42	1504.30	1504.13	1504.05	1503.99	1504.06	1504.05	1504.08	1504.05	0.53	-0.37	0.00	-0.03	1504.07
West Dike Station 14+00																
W1400-83.0	River Side	1496.92	1496.88	1496.88	1496.90	1496.88										1496.89
W1400-73.5	River Side	1497.62	1497.68	1497.68	1497.70	1497.68										1497.67
W1400-70.0	River Side	1495.12	1495.23	1495.41	1495.53	1495.06	1495.18	1495.17	1495.18	1495.20	1495.22	0.10	-0.01	0.04	0.02	1495.23
W1400-60.3	River Side	1495.47	1495.46	1495.43	1495.52	1495.46	1495.46	1495.47	1495.49	1495.44	1495.48	0.01	0.02	-0.01	0.04	1495.47
W1400-53.4	River Side	1494.87	1494.85	1494.81	1495.01	1495.33	1495.20	1495.06	1495.11	1495.44	1494.99	0.12	0.14	-0.12	-0.45	1495.07

Notes: Negative change indicates a decrease in elevation.
Positive change indictes a increase in elevation.

Table 1

Genesee River Dike Surveyed Elevations (1992-2001)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft msl)

Station & Distance From Baseline	Location Description	1992 Elevation	1993 Elevation	1994 Elevation	1995 Elevation	1996 Elevation	1997 Elevation	1998 Elevation	1999 Elevation	2000 Elevation	2001 Elevation	Change From 1992 to 2001	Change From 1993 to 2001	Change From 1999 to 2001	Change From 2000 to 2001	Average Elevation
West Dike Station 14+00 Continued																
W1400-41.6	River Side	1494.47	1494.50	1494.42	1494.52	1494.51	1494.51	1494.46	1494.47	1494.46	1494.48	0.01	-0.02	0.01	0.02	1494.48
W1400-7.0	River Side	1508.57	1508.50	1508.42	1508.47	1508.42	1508.14	1508.39	1508.38	1508.40	1508.42	-0.15	-0.08	0.04	0.02	1508.41
W1400-0	Baseline	1508.37	1508.27	1508.26	1508.30	1508.28	1508.27	1508.25	1508.29	1508.28	1508.29	-0.08	0.02	0.00	0.01	1508.29
W1400-6.2	CELA Side	1508.42														
W1400-6.3	CELA Side		1508.31	1508.29	1508.17	1508.15	1508.21	1508.18	1508.22	1508.25	1508.24		-0.07	0.02	-0.01	1508.22
W1400-12.5	CELA Side		1505.10	1505.01	1505.06	1504.96	1504.74	1504.69	1504.97	1504.95	1504.85		-0.25	-0.12	-0.10	1504.93
W1400-17.0	CELA Side	1502.87	1504.48	1504.35	1504.42	1504.03	1504.04	1504.01	1504.05	1504.03	1504.12	1.25	-0.36	0.07	0.09	1504.04
West Dike Station 16+00																
W1600-76.0	River Side	1496.95	1496.82	1496.75	1496.69	1496.86	1496.84	1497.06	1496.99	1497.26	1497.16	0.21	0.34	0.17	-0.10	1496.94
W1600-58.0	River Side	1496.80	1496.82	1496.24	1496.85	1496.71	1496.98	1496.73	1497.12	1497.35	1497.93	1.13	1.11	0.81	0.58	1496.95
W1600-41.2	River Side	1496.60	1496.60	1496.47	1496.76	1496.90	1496.94	1497.01	1497.14	1497.41	1497.21	0.61	0.61	0.07	-0.20	1496.90
W1600-6.6	River Side	1509.45	1509.41	1509.36	1509.40	1509.32	1509.31	1509.32	1509.29	1509.24	1509.27	-0.18	-0.14	-0.02	0.03	1509.34
W1600-0	Baseline	1508.85	1508.74	1508.74	1508.79	1508.79	1508.78	1508.78	1508.79	1508.76	1508.76	-0.09	0.02	-0.03	0.00	1508.78
W1600-8.3	CELA Side	1508.75	1508.72	1508.67	1508.66	1508.73	1508.61	1508.65	1508.67	1508.66	1508.69	-0.06	-0.03	0.02	0.03	1508.68
W1600-14.0	CELA Side		1506.38	1506.32	1506.33	1506.27	1505.93	1506.25	1506.23	1506.19	1506.12		-0.26	-0.11	-0.07	1506.22
W1600-19.2	CELA Side	1503.25	1505.62	1505.56	1505.60	1505.54	1505.33	1505.55	1505.50	1505.32	1505.46	2.21	-0.16	-0.04	0.14	1505.27
West Dike Station 18+00																
W1800-56.0	River Side	1495.45														1495.45
W1800-52.3	River Side	1496.10	1496.13	1495.73												1495.99
W1800-51.8	River Side				1496.10	1496.10	1495.43	1495.97	1495.94	1496.25	1495.90			-0.04	-0.35	1495.96
W1800-43.0	River Side	1497.65	1497.65	1497.58	1497.63	1497.58	1497.95	1497.79	1497.80	1497.80	1497.80	0.15	0.15	0.00	0.00	1497.72
W1800-27.0	River Side	1502.85	1502.87	1502.76	1502.85	1502.77	1502.80	1502.82	1502.77	1502.72	1502.71	-0.14	-0.16	-0.06	-0.01	1502.79
W1800-20.7	River Side	1503.60	1503.66	1503.40	1503.61	1503.59	1503.51	1503.51	1503.47	1503.64	1503.47	-0.13	-0.19	0.00	-0.17	1503.55
W1800-6.3	River Side	1509.65	1509.65	1509.53	1509.56	1509.47	1509.47	1509.49	1509.46	1509.45	1509.45	-0.20	-0.20	-0.01	0.00	1509.52
W1800-0	Baseline	1508.95	1508.98	1508.70	1508.72	1508.70	1508.74	1508.75	1508.75	1508.74	1508.74	-0.21	-0.24	-0.01	0.00	1508.78
W1800-7.5	CELA Side	1509.10	1509.07	1508.69	1508.88	1508.73	1508.88	1508.83	1508.77	1508.85	1508.84	-0.26	-0.23	0.07	-0.01	1508.86
W1800-14.5	CELA Side		1505.90	1506.10	1506.12	1506.07	1506.09	1506.07	1506.03	1506.03	1506.02		0.12	-0.01	-0.01	1506.05
W1800-17.4	CELA Side	1503.85	1505.84	1505.78	1505.81	1505.76	1505.74	1505.69	1505.73	1505.72	1505.72	1.87	-0.12	-0.01	0.00	1505.56
West Dike Station 20+00																
W2000-196.0	River Side	1501.76														
W2000-179.0	River Side	1496.31														
W2000-177.5	River Side				1496.39											
W2000-150.0	River Side	1495.91														
W2000-135.0	River Side	1495.21														
W2000-126.6	River Side				1496.00											
W2000-107.0	River Side	1495.31														
W2000-104.7	River Side				1495.16											

Notes: Negative change indicates a decrease in elevation.
Positive change indictes a increase in elevation.

Table 1

Genesee River Dike Surveyed Elevations (1992-2001)
Former Sinclair Refinery Site (OU-1)
Wellsville, New York
(ft msl)

Station & Distance From Baseline	Location Description	1992 Elevation	1993 Elevation	1994 Elevation	1995 Elevation	1996 Elevation	1997 Elevation	1998 Elevation	1999 Elevation	2000 Elevation	2001 Elevation	Change From 1992 to 2001	Change From 1993 to 2001	Change From 1999 to 2001	Change From 2000 to 2001	Average Elevation
West Dike Station 20+00 Continued																
W2000-90.0	River Side	1494.01			1494.01											1494.01
W2000-77.9	River Side				1493.42											
W2000-62.9	River Side				1492.36											
W2000-56.0	River Side	1493.21	1493.21		1494.06											1493.49
W2000-52.0	River Side	1495.96	1496.00	1495.46	1496.00	1495.96	1495.93	1495.66	1495.69	1496.24	1495.62	-0.34	-0.38	-0.07	-0.62	1495.85
W2000-42.8	River Side	1496.26	1496.39	1496.57	1496.69	1496.80	1497.05	1497.08	1497.19	1497.39	1497.04	0.78	0.65	-0.15	-0.35	1496.85
W2000-19.6	River Side	1504.71	1504.72	1504.25	1504.64	1504.63	1504.63	1504.60	1504.64	1504.60	1504.59	-0.12	-0.13	-0.05	-0.01	1504.60
W2000-5.8	River Side	1509.71	1509.78	1509.68	1509.75	1509.65	1509.59	1509.52	1509.55	1509.52	1509.51	-0.20	-0.27	-0.04	-0.01	1509.63
W2000-0	Baseline	1509.31	1509.31	1509.24	1509.26	1509.26	1509.23	1509.23	1509.25	1509.25	1509.23	-0.08	-0.08	-0.02	-0.02	1509.26
W2000-8.0	CELA Side	1509.36														
W2000-9.0	CELA Side		1509.14	1508.93	1509.03	1508.90	1508.89	1509.01	1509.06	1509.09	1509.03		-0.11	-0.03	-0.06	1509.01
W2000-16.4	CELA Side		1505.42	1505.42	1505.33	1505.26	1505.38	1505.35	1505.39	1505.40	1505.79		0.37	0.40	0.39	1505.42
W2000-19.4	CELA Side	1503.56	1505.05	1505.06	1504.99	1504.87	1504.93	1504.95	1504.97	1504.87	1504.90	1.34	-0.15	-0.07	0.03	1504.82
West Dike Station 22+00																
W2200-65.0	River Side	1494.71	1494.81	1494.81	1494.71											1494.76
W2200-55.0	River Side	1495.56	1495.62	1495.42	1496.51	1495.47	1496.02	1496.36	1496.20	1496.48	1496.37	0.81	0.75	0.17	-0.11	1496.00
W2200-49.0	River Side	1498.41	1498.43	1498.37	1498.40	1498.34	1498.30	1498.33	1498.32	1498.33	1498.33	-0.08	-0.10	0.01	0.00	1498.36
W2200-40.6	River Side	1498.51	1498.55	1498.76	1498.66	1498.90	1498.74	1498.64	1498.73	1498.71	1498.67	0.16	0.12	-0.06	-0.04	1498.69
W2200-19.8	River Side	1504.56	1504.55	1504.51	1505.00	1504.56	1505.06	1505.05	1505.00	1504.99	1505.02	0.46	0.47	0.02	0.03	1504.83
W2200-6.3	River Side	1509.96	1509.99	1509.84	1510.02	1510.05	1510.03	1510.01	1510.01	1509.98	1509.98	0.02	-0.01	-0.03	0.00	1509.99
W2200-0	Baseline	1509.96	1509.88	1509.85	1509.88	1509.86	1509.85	1509.85	1509.86	1509.85	1509.83	-0.13	-0.05	-0.03	-0.02	1509.87
W2200-7.3	CELA Side	1509.69	1509.73	1509.64	1509.66	1509.67	1509.63	1509.69	1509.76	1509.72	1509.67	-0.02	-0.06	-0.09	-0.05	1509.69
W2200-16.6	CELA Side	1504.66		1504.51	1504.62	1504.53	1504.55	1504.62	1504.63	1504.55	1504.62	-0.04		-0.01	0.07	1504.59
W2200-17.7	CELA Side	1504.31	1504.58	1504.47	1504.34	1504.58	1504.54	1504.59	1504.56	1504.59	1504.52	0.21	-0.06	-0.04	-0.07	1504.51
										Maximum Change		**3.29**	**1.11**	**0.81**	**-0.62**	
										Minimum Change		**0.00**	**± 0.01**	**0.00**	**0.00**	
										Average Change		**0.11**	**0.02**	**-0.01**	**-0.02**	

Notes: Negative change indicates a decrease in elevation.
Positive change indictes a increase in elevation.

TABLE 2

Table 2

2004 Daily Average Stage and Discharge
Genesee River at Wellsville, New York
USGS Station 04221000

Date	Stage (ft)	Discharge (cu ft/sec)
1/1/2004	5.51	664
1/2/2004	5.59	719
1/3/2004	5.89	992
1/4/2004	6.00	1110
1/5/2004	6.05	1157
1/6/2004	5.84	970
1/7/2004	5.60	735
1/8/2004	5.61	746
1/9/2004	5.51	667
1/10/2004	5.31	507
1/11/2004	5.39	571
1/12/2004	5.33	528
1/13/2004	5.27	479
1/14/2004	5.13	395
1/15/2004	5.06	349
1/16/2004	5.11	375
1/17/2004	5.24	472
1/18/2004	5.05	338
1/19/2004	5.00	315
1/20/2004	4.94	276
1/21/2004	4.91	262
1/22/2004	4.87	238
1/23/2004	4.88	251
1/24/2004	4.86	232
1/25/2004	4.88	249
1/26/2004	4.83	222
1/27/2004	4.81	208
2/2/2004	4.81	217
2/3/2004	4.82	215
2/4/2004	4.78	201
2/5/2004	4.69	158
2/6/2004	4.69	158
2/7/2004	4.72	170
2/8/2004	4.67	152
2/9/2004	4.65	144
2/10/2004	4.67	149
2/11/2004	4.65	145
2/12/2004	4.62	132
2/13/2004	4.66	147
2/14/2004	4.64	137
2/15/2004	4.62	132
2/16/2004	4.65	143
2/17/2004	4.75	186
2/18/2004	4.74	180
2/19/2004	4.65	142
2/20/2004	4.61	128
2/21/2004	4.73	176
2/22/2004	4.75	188
2/23/2004	4.72	170
2/24/2004	4.73	176
2/25/2004	4.68	156
2/26/2004	4.70	165
2/27/2004	4.68	158
2/28/2004	4.71	165
2/29/2004	4.77	194
3/1/2004	4.87	239
3/2/2004	5.48	654
3/3/2004	6.68	1865
3/4/2004	6.85	2065
3/5/2004	7.88	3457
3/6/2004	8.15	3975
3/7/2004	6.99	2299
3/8/2004	6.49	1670
3/9/2004	6.04	1150
3/10/2004	5.81	921
3/11/2004	5.65	770
3/12/2004	5.55	690
3/13/2004	5.40	573
3/14/2004	5.31	504
3/15/2004	5.38	553
3/16/2004	5.25	464
3/17/2004	5.23	448
3/18/2004	5.19	426
3/19/2004	5.15	396
3/20/2004	5.24	470
3/21/2004	5.92	1030
3/22/2004	5.51	640
3/23/2004	5.37	553
3/24/2004	5.46	615
3/25/2004	6.01	1108
3/26/2004	5.95	1049
3/27/2004	6.38	1513
3/28/2004	6.00	1095
3/29/2004	5.78	883
3/30/2004	5.63	751
3/31/2004	5.61	733
4/1/2004	5.98	1154
4/2/2004	6.61	1786
4/3/2004	6.08	1181
4/4/2004	5.93	1030
4/5/2004	5.79	896
4/6/2004	5.65	767
4/7/2004	5.55	690
4/8/2004	5.45	604
4/9/2004	5.36	544
4/10/2004	5.26	468
4/11/2004	5.18	419
4/12/2004	5.15	397
4/13/2004	6.96	2528
4/14/2004	7.80	3418
4/15/2004	6.36	1493
4/16/2004	5.97	1071
4/17/2004	5.76	881
4/18/2004	5.60	750
4/19/2004	5.47	647
4/20/2004	5.42	613
4/21/2004	5.33	546
4/22/2004	5.60	754
4/23/2004	5.65	793
4/24/2004	5.47	644
4/25/2004	5.38	586
4/26/2004	5.66	796
4/27/2004	5.47	644
4/28/2004	5.38	582
4/29/2004	5.30	526
4/30/2004	5.22	467
5/1/2004	5.17	437
5/2/2004	5.30	526
5/3/2004	5.39	588
5/4/2004	5.16	426
5/5/2004	5.16	433
5/6/2004	5.10	394
5/7/2004	5.48	660
5/8/2004	5.21	464
5/9/2004	7.41	2928
5/10/2004	6.46	1601

Notes: Provisional data provided by USGS and is subject to change
& - Value was computed from affected unit values

Table 2

2004 Daily Average Stage and Discharge
Genesee River at Wellsville, New York
USGS Station 04221000

Date	Stage (ft)	Discharge (cu ft/sec)
5/11/2004	6.90	2166
5/12/2004	6.11	1210
5/13/2004	6.42	1545
5/14/2004	5.84	953
5/15/2004	5.96	1073
5/16/2004	5.77	887
5/17/2004	5.50	672
5/18/2004	5.52	688
5/19/2004	5.38	584
5/20/2004	5.24	482
5/21/2004	6.82	2140
5/22/2004	6.14	1242
5/23/2004	6.60	1782
5/24/2004	6.11	1216
5/25/2004	5.78	901
5/26/2004	5.63	773
5/27/2004	5.48	652
5/28/2004	5.52	682
5/29/2004	5.28	509
5/30/2004	5.14	419
5/31/2004	5.20	462
6/1/2004	5.30	528
6/2/2004	5.08	380
6/3/2004	5.07	373
6/4/2004	4.93	292
6/5/2004	4.88	263
6/6/2004	4.87	258
6/7/2004	4.81	230
6/8/2004	4.76	204
6/9/2004	4.72	186
6/10/2004	4.70	179
6/11/2004	4.69	173
6/12/2004	4.64	154
6/13/2004	4.61	140
6/14/2004	4.60	138
6/15/2004	4.59	132
6/16/2004	4.58	127
6/17/2004	4.69	184
6/18/2004	4.96	312
6/19/2004	4.82	232
6/20/2004	4.65	155
6/21/2004	4.58	127
6/22/2004	4.56	120
6/23/2004	4.55	118
6/24/2004	4.51	103
6/25/2004	4.50	99
6/26/2004	4.51	100
6/27/2004	4.47	89
6/28/2004	4.46	88
6/29/2004	4.58	127
6/30/2004	4.49	96
7/1/2004	4.47	90
7/2/2004	4.45	81
7/3/2004	4.42	74
7/4/2004	4.41	70
7/5/2004	4.43	76
7/6/2004	4.40	68
7/7/2004	4.40	68
7/8/2004	4.42	72
7/9/2004	4.40	67
7/10/2004	4.38	62
7/11/2004	4.37	59
7/12/2004	4.36	58
7/13/2004	4.39	66
7/14/2004	4.96	405
7/15/2004	5.42	611
7/16/2004	5.09	348
7/17/2004	4.91	244
7/18/2004	4.88	286
7/19/2004	5.04	376
7/20/2004	4.99	274
7/21/2004	4.78	189
7/22/2004	4.69	158
7/23/2004	4.65	163
7/24/2004	4.73	172
7/25/2004	4.61	123
7/26/2004	4.57	208
7/27/2004	5.83	1817
7/28/2004	6.41	1123
7/29/2004	5.94	876
7/30/2004	5.45	662
7/31/2004	6.09	1508
8/1/2004	6.11	889
8/2/2004	5.54	589
8/3/2004	5.32	463
8/4/2004	5.18	393
8/5/2004	5.18	394
8/6/2004	5.03	289
8/7/2004	4.93	247
8/8/2004	4.86	217
8/9/2004	4.79	183
8/10/2004	4.73	183
8/11/2004	4.90	250
8/12/2004	4.77	188
8/13/2004	4.94	314
8/14/2004	4.93	218
8/15/2004	4.75	177
8/16/2004	5.00	343
8/17/2004	4.85	192
8/18/2004	4.72	154
8/19/2004	4.66	135
8/20/2004	4.67	158
8/21/2004	5.80	1695
8/22/2004	5.92	613
8/23/2004	5.23	391
8/24/2004	5.08	326
8/25/2004	5.00	274
8/26/2004	4.89	227
8/27/2004	4.82	203
8/28/2004	4.96	310
8/29/2004	4.88	215
8/30/2004	4.92	726
8/31/2004	6.06	846
9/1/2004	5.24	377
9/2/2004	5.02	284
9/3/2004	4.92	242
9/4/2004	4.85	210
9/5/2004	4.79	184
9/6/2004	4.73	159
9/7/2004	4.68	143
9/8/2004	4.66	193
9/9/2004	7.14	5021
9/10/2004	8.18	2440
9/11/2004	6.23	1086
9/12/2004	5.76	770
9/13/2004	5.52	590
9/14/2004	5.33	472
9/15/2004	5.20	396
9/16/2004	5.10	341
9/17/2004	5.11	1877
9/18/2004	8.10	6396
9/27/2004	4.96	289

Notes: Provisional data provided by USGS and is subject to change
& - Value was computed from affected unit values

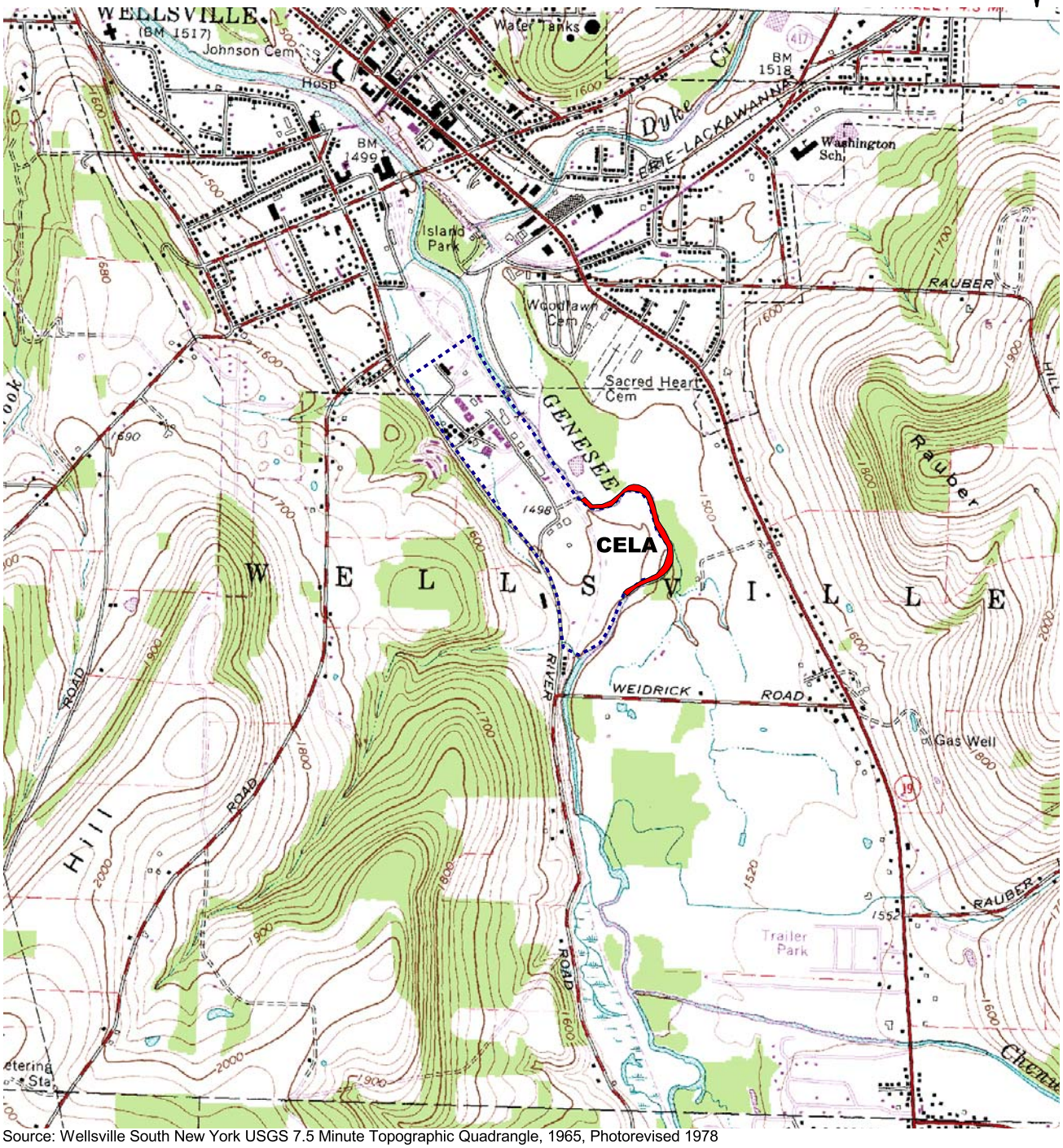
Table 2

2004 Daily Average Stage and Discharge
Genesee River at Wellsville, New York
USGS Station 04221000

Date	Stage (ft)	Discharge (cu ft/sec)
9/28/2004	4.93	262
9/29/2004	4.88	238
9/30/2004	4.84	218
10/1/2004	4.80	197
10/2/2004	4.76	179
10/3/2004	4.73	169
10/4/2004	4.69	153
10/5/2004	4.66	141
10/6/2004	4.64	131
10/7/2004	4.62	124
10/8/2004	4.60	117
10/9/2004	4.58	111
10/10/2004	4.57	106
10/11/2004	4.56	101
10/12/2004	4.54	94
10/13/2004	4.53	91
10/14/2004	4.52	90
10/15/2004	4.56	102
10/16/2004	4.74	172
10/17/2004	4.61	118
10/18/2004	4.56	103
10/19/2004	5.14	402
10/20/2004	4.89	242
10/21/2004	4.74	171
10/22/2004	4.73	168
10/23/2004	4.69	149
10/24/2004	4.67	142
10/25/2004	4.67	143
10/26/2004	4.64	131
10/27/2004	4.62	121
10/28/2004	4.60	115
10/29/2004	4.60	114
10/30/2004	4.70	157
10/31/2004	4.70	157
11/1/2004	4.63	127
11/2/2004	4.63	126
11/3/2004	5.18	416
11/4/2004	4.97	286
11/5/2004	5.40	564
11/6/2004	5.21	429
11/7/2004	5.06	334
11/8/2004	4.99	295
11/9/2004	4.94	270
11/10/2004	4.90	249
11/11/2004	4.88	240
11/12/2004	4.85	224
11/13/2004	4.80	200
11/14/2004	4.76	180
11/15/2004	4.74	172
11/16/2004	4.73	169
11/17/2004	4.72	165
11/18/2004	4.72	167
11/19/2004	4.71	158
11/20/2004	4.75	178
11/21/2004	4.77	185
11/22/2004	4.71	159
11/23/2004	4.68	165
11/24/2004	4.71	181
11/25/2004	5.07	365
11/26/2004	4.95	295
11/27/2004	4.87	252
11/28/2004	5.86	1088
11/29/2004	5.62	755
11/30/2004	5.44	615
12/1/2004	6.51	1761
12/2/2004	6.10	1192
12/3/2004	5.80	897
12/4/2004	5.62	733
12/5/2004	5.52	656
12/6/2004	5.39	553
12/7/2004	5.52	664
12/8/2004	5.72	818
12/9/2004	5.43	585
12/10/2004	6.23	1377
12/11/2004	7.04	2309
12/12/2004	6.22	1413
12/13/2004	6.05	1126
12/14/2004	5.82	892
12/15/2004	5.60	718
12/16/2004	5.48	613
12/17/2004	5.40	557
12/18/2004	5.28	476
12/19/2004	5.27	467
12/20/2004	5.04	325
12/21/2004	5.15	395
12/22/2004	5.15	386
12/23/2004	5.29	2344
12/25/2004	5.81	937
12/26/2004	5.70	808
12/27/2004	5.55	649
12/28/2004	5.44	598
12/29/2004	5.37	535
12/30/2004	5.26	461
12/31/2004	5.34	521

Notes: Provisional data provided by USGS and is subject to change
& - Value was computed from affected unit values

SITE LOCATION



Source: Wellsville South New York USGS 7.5 Minute Topographic Quadrangle, 1965, Photorevised 1978

LEGEND

- Approximate Area of River Channelization
- Approximate Site Boundary

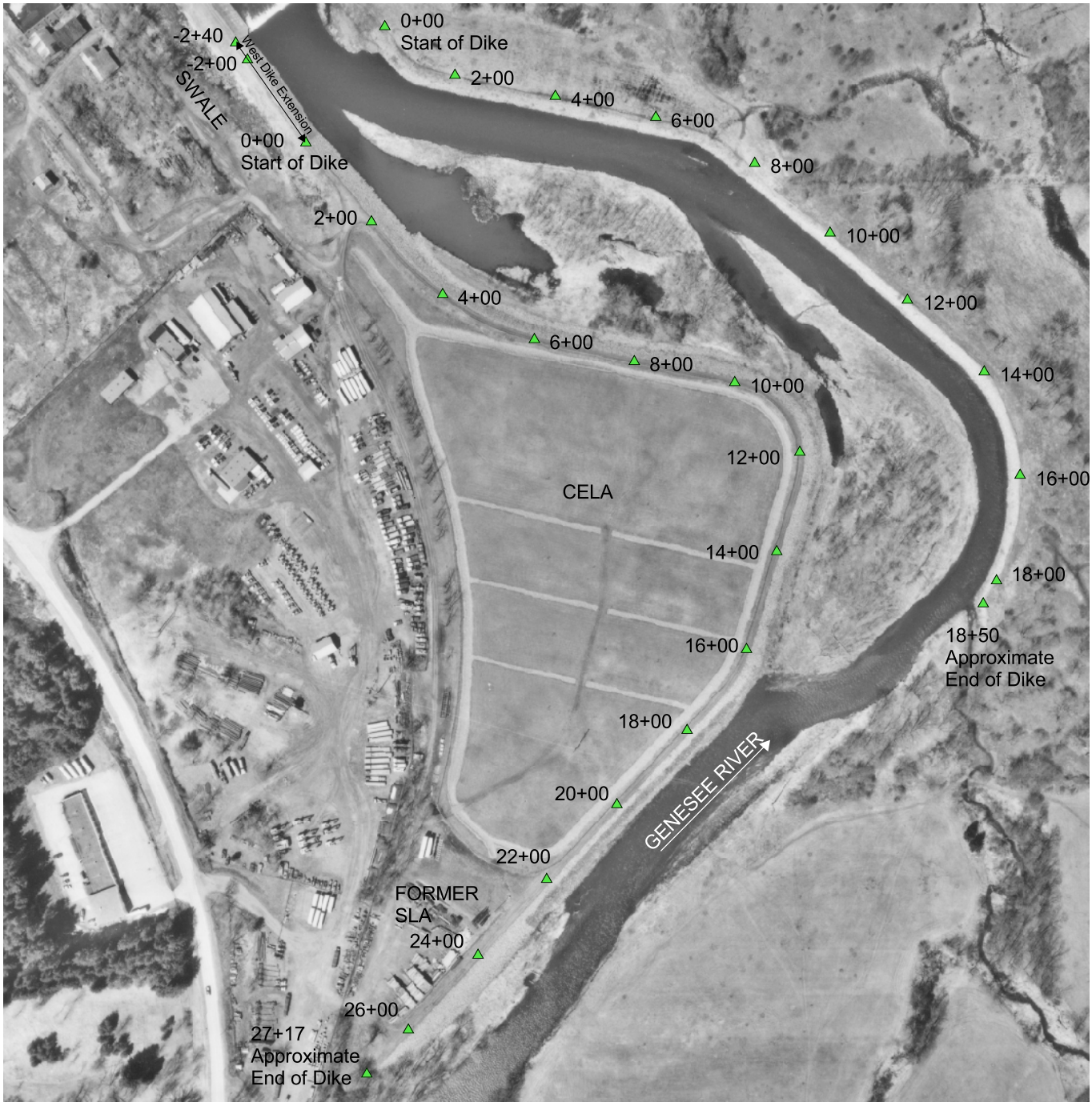
1000 0 1000 2000 Feet

ON-SITE TECHNICAL SERVICES, INC.
2324 Hanover Hill Rd. P.O. Box 54 Wellsville, NY 14895

FIGURE NO.	1
PROJECT	WELLSVILLE OU-1
DOCUMENT NO.	2004 RIVER REPORT
FILE NO.	SITELOC.APR

N:\ARCO_WLSV\OU1REPORT\2004RIVERREPORT\FIGURES\SITELOC.APR

EAST & WEST DIKE STATION LOCATIONS



1999 Aerial Photograph

LEGEND

▲ Approximate Location of Dike Station

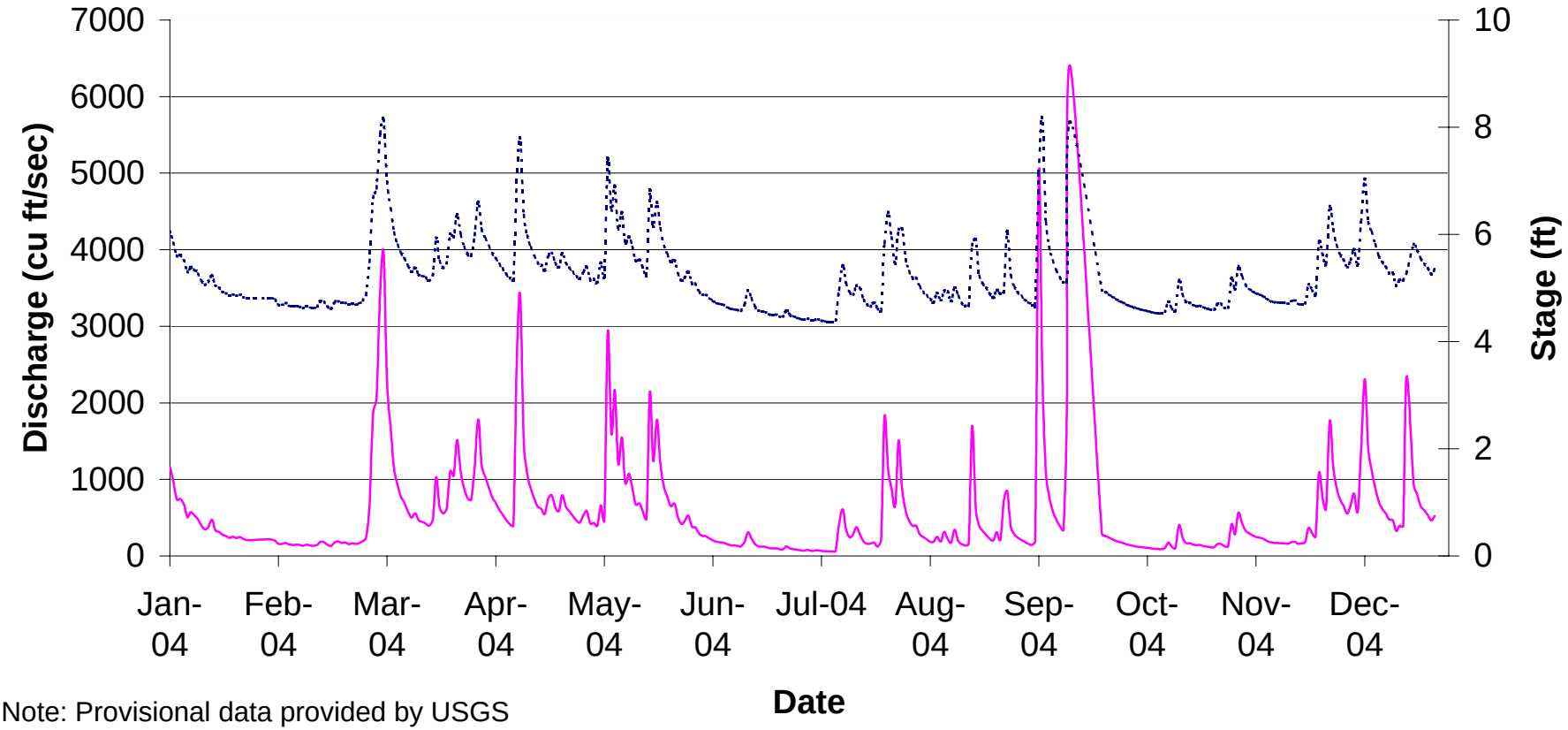
150 0 150 300 Feet

ON-SITE TECHNICAL SERVICES, INC.
2324 Hanover Hill Rd. P.O. Box 54 Wellsville, NY 14895

FIGURE NO.	2
PROJECT	WELLSVILLE OU-1
DOCUMENT	2004 RIVER REPORT
FILE NO.	DIKE.APR

N:\ARCO_WLSV\OU1REPORTS\2004RIVER\FIGURES\DIKE.APR

Figure 3
Genesee River Daily Average Discharge and Stage
Wellsville, New York



Note: Provisional data provided by USGS from Wellsville, New York gauge station and is subject to revision.

Appendix A

Post High Water Inspections and Photographs
Annual Low Flow Inspections and Photographs

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: Jon Bruneles Sheet 1 of 2

Title: Geologist Date: 9/27/04

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) Annual during low flow.
(X) Immediately after a high water period.
( ) Other (explain)

Dike Station 0+00 to 18+50 (East/West) _____

Item Description	Condition*/Remarks
1. Settlement, sloughing or, loss of grade.	✓
2. Caving (either side of dike)	✓
3. Seepage, saturated areas, or sand boils.	✓
4. Riprap slope protection- evidence of displacement or unusual settlement, woody growth in riprap.	✓ – woody growth present
5. Access roads	✓
6. Unauthorized traffic	✓

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

Observations and recommendations:

1401K

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: Jon Bandes Sheet 2 of 2

Title: Geologist Date: 9/27/07

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) Annual during low flow.
(X) Immediately after a high water period.
( ) Other (explain)

Dike Station 0+00 to 18+50 (East/West) _____

Item	Description	Condition*/Remarks
7.	Accumulation of drift, trash, and debris.	✓ - minor
8.	Vegetative cover including soil pH check	✓ ~~done in Aug 2007~~ NA (JB)
9.	Weeds or undesirable vegetation.	✓ - some weeds & woody growth
10.	Unauthorized excavation, loose backfill or sod removal.	✓
11.	Burrowing animals.	✓
12.	Evidence of fires/vandalism	✓
13.	Routine mowing	NA
14.	Shoaling check (photograph)	✓

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

Observations and recommendations:

09/27/04 East Dike Station 10+00 view to South

09/27/04 East Dike Station 14+00 view to South

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: Jon Brandes Sheet 1 of 2

Title: Geologist Date: 9/27/04

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) Annual during low flow.
(X) Immediately after a high water period.
( ) Other (explain)

Dike Station -2+40 to 27+17 (East/West) _____

Item Description	Condition*/Remarks
1. Settlement, sloughing or, loss of grade.	✓
2. Caving (either side of dike)	✓
3. Seepage, saturated areas, or sand boils.	✓
4. Riprap slope protection- evidence of displacement or unusual settlement, woody growth in riprap.	✓ woody growth present
5. Access roads	✓
6. Unauthorized traffic	✓

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

Observations and recommendations:

1401K

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: Jon Brandes Sheet 2 of 2

Title: Geologist Date: 9/27/04

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

( ) Annual during low flow.
(X) Immediately after a high water period.
( ) Other (explain)

Dike Station -2+40 to 27+17 (East/(West)) _____

Item	Description	Condition*/Remarks
7.	Accumulation of drift, trash, and debris.	✓ - minor
8.	Vegetative cover including soil pH check	✓ done in Aug 2004
9.	Weeds or undesirable vegetation.	✓ - some weeds & weedy growths
10.	Unauthorized excavation, loose backfill or sod removal.	✓
11.	Burrowing animals.	✓
12.	Evidence of fires/vandalism	✓
13.	Routine mowing	✓
14.	Shoaling check (photograph)	✓

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

Observations and recommendations:

09/27/04 West Dike Station 6+00 view to South

09/27/04 West Dike Station 6+00 view to North

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: JERRY PALMER Sheet 1 of 2

Title: _____ Date: 11/15/09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Annual during low flow.
( ) Immediately after a high water period.
( ) Other (explain)

Dike Station 0+00 to 18+50 (East/West) _____

Item Description	Condition*/Remarks
1. Settlement, sloughing or, loss of grade.	✓
2. Caving (either side of dike)	✓
3. Seepage, saturated areas, or sand boils.	✓
4. Riprap slope protection-evidence of displacement or unusual settlement, woody growth in riprap.	✓ WOODY GROWTH REMOVAL STARTED ON 11/12/04. APPROX. 1/3 COMPLETE. WILL BE COMPLETED BY EOM
5. Access roads	✓
6. Unauthorized traffic	✓ COMPLETED 11/19/09 (JP)

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

Observations and recommendations:

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: JERRY PALMER Sheet 2 of 2

Title: _____ Date: 11/15/04

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Annual during low flow.
( ) Immediately after a high water period.
( ) Other (explain)

Dike Station 0+00 to 18+50 (East/West) _____

Item Description	Condition*/Remarks
7. Accumulation of drift, trash, and debris.	✓ MINOR
8. Vegetative cover including soil pH check	
9. Weeds or undesirable vegetation.	SEE PAGE 1 COMMENT
10. Unauthorized excavation, loose backfill or sod removal.	✓
11. Burrowing animals.	✓
12. Evidence of fires/vandalism	✓
13. Routine mowing	NA
14. Shoaling check (photograph)	✓

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

Observations and recommendations:

1401K

11/15/04 East Dike Station 10+00 view to North

11/15/04 East Dike Station 14+00 view to South

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: JERRY PALMER Sheet 1 of 2

Title: _____ Date: 11/15/09

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Annual during low flow.
( ) Immediately after a high water period.
( ) Other (explain)

Dike Station -2+40 to 27+17 (East/West) _____

Item Description	Condition*/Remarks
1. Settlement, sloughing or, loss of grade.	✓
2. Caving (either side of dike)	✓
3. Seepage, saturated areas, or sand boils.	✓
4. Riprap slope protection- evidence of displacement or unusual settlement, woody growth in riprap.	✓
5. Access roads	✓
6. Unauthorized traffic	✓

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

Observations and recommendations:

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: JERRY PALMER Sheet 2 of 2

Title: _____ Date: 11/15/04

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

(X) Annual during low flow.
( ) Immediately after a high water period.
( ) Other (explain)

Dike Station -20+40 to 27+17 (East/(West)) _____

Item Description	Condition*/Remarks
7. Accumulation of drift, trash, and debris.	✓ MINOR
8. Vegetative cover including soil pH check	
9. Weeds or undesirable vegetation.	✓
10. Unauthorized excavation, loose backfill or sod removal.	✓
11. Burrowing animals.	✓
12. Evidence of fires/vandalism	✓
13. Routine mowing	✓
14. Shoaling check (photograph)	✓

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

Observations and recommendations:

11/15/04 West Dike Station 14+00 view to North

11/15/04 West Dike Station 10+00 view to East

Appendix B

Soil pH Analysis

New Jersey
ACCUTEST.
Laboratories

03/29/05

Technical Report for

Atlantic Richfield Company

ARCO: WCSV OU-2, 2530 South Brooklyn Avenue, Wellsville, NY

Site ID# S1-001BL

Accutest Job Number: N93758

Sampling Date: 03/17/05

Report to:

Hufforw1@bp.com; matt.biondolillo@parsons.com; jonb@on-sitehs.com; scottw@on-sitehs.com; Graig.Lavorgna@shawgrp.com

ATTN: Distribution

Total number of pages in report: 7

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Vincent J. Pugliese
President

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, PA, RI, SC, TN, VA, WV

Sections: 1 2 ab

Table of Contents

-1-

Sample Summary

Atlantic Richfield Company

Job No: N93758

ARCO: WCSV OU-2, 2530 South Brooklyn Avenue, Wellsville, NY
Project No: Site ID# S1-001BL

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
N93758-1	03/17/05	13:40	JP	03/21/05	SO	Soil	DIKE 3-05
N93758-2	03/17/05	14:40	JP	03/21/05	SO	Soil	CELA 3-05

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Accutest Laboratories

Report of Analysis

Client Sample ID:	DIKE 3-05		
Lab Sample ID:	N93758-1	Date Sampled:	03/17/05
Matrix:	SO - Soil	Date Received:	03/21/05
		Percent Solids:	68.5
Project:	ARCO: WCSV OU-2, 2530 South Brooklyn Avenue, Wellsville, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	68.5		%	1	03/22/05	AK	ASTM 4643-00
pH	7.20		su	1	03/22/05	LMM	SW846 9045

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	CELA 3-05		
Lab Sample ID:	N93758-2	Date Sampled:	03/17/05
Matrix:	SO - Soil	Date Received:	03/21/05
		Percent Solids:	63.2
Project:	ARCO: WCSV OU-2, 2530 South Brooklyn Avenue, Wellsville, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	63.2		%	1	03/22/05	AK	ASTM 4643-00
pH	7.01		su	1	03/22/05	LMM	SW846 9045

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

N93758 Page 1 of 1

Chain of Custody Record

Project Name Former Sinclair Refinery Site OU-1
BP BU/GEM CO Portfolio: OBC Non-Mining
BP Laboratory Contract Number 499-621826
Requested Due Date: Standard

On-site Time:	NA	Temp:	NA
Off-site Time:	NA	Temp:	NA
Sky Conditions:	NA		
Meteorological Events:	NA		
Wind Speed:	NA	Direction:	NA

Send To:	
Lab Name: Accutest Laboratories	
Lab Address: 2235 Route 130	
Dayton, NJ 08810	
Lab PM: Diane Kosnar	
Tele/Fax: (732) 329-0200/3499	
Report Type & QC Level: III	
BP/GEM Account No.: 499-6-21826	
Lab Bottle Order No:	

BP/GEM Facility No.:	Wellsville OU2
BP/GEM Facility Add:	2530 S Brooklyn, Wellsville, NY 14895
Site ID No.	51-001BL
Site Lat/Long:	NA
California Global ID #:	NA
BP/GEM PM Contact:	Mr. Walt Hufford
Address:	102 Pickering Way Suite 200
	Exton, PA 19341
Tele/Fax:	(484) 875-3022 / (484) 875-9748

Consultant/Contractor:	On-Site Technical Services
Address:	2324 Hanover Hill Rd
	Wellsville, NY 14895
e-mail EDD:	jonb@on-sitetss.com
Consultant/Contractor Project No.:	Wellsville OU1
Consultant Tele/Fax:	(585) 593-1824/7471
Consultant/Contractor PM:	Mr. Jon Brandes
Invoice to:	BP/GEM SAP#: 51-001BL
BP/GEM Work Release No:	AERL-WO4

Item No.	Sample Description	Date	Time	Matrix: Soil/Solid	Water/Liquid	Sediments	Air	Laboratory No.	No. of containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	Requested Analysis: VOCs EPA 8260	EPA SVOC 8270	O & G	Total Metals, Hardness	TPOH, NO3	Diss. Metals	TDS, CHL, F, SO4	ALK	NO2	pH	Sample Point Lat/Long and Comments
1	DIKE-3-17-3-05	3/17/2005	13:40	x				-1	1	X														X	5 pt comp
2	CELA-3-17-3-05	3/17/2005	14:40	x				-2	1	X														X	5 pt comp
3																									WC39
4																									
5	* Leached																								
6	"..." 3-05"																								
7																									
8	KB 3-17-05																								
9	KB. RB 3-17-05																								
10																									

Sampler's Name:	J Palmer	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company:	On-Site TS	X					
Shipment Date:	3/17/2005	FedEx	3/18/05	1000	FedEx	3/21/05	1000
Shipment Method:	FED EX						
Shipment Tracking No:							
Special Instructions:	1 day TAT						

Custody Seals In Place Yes ___ No ✓ Temperature Blank Yes ___ No x Cooler Temperature on Receipt 5.6 °F/C Trip Blank Yes ___ No ✓

Distribution: White Copy - Laboratory / Yellow Copy - BP/GEM / Pink Copy - Consultant/Contractor

BP COC Rev. 1 2/5/02

N93758: Chain of Custody
Page 1 of 1