OPERATIONS AND MAINTENANCE PLAN FOR OPERABLE UNITS 1 AND 2

Prepared for

Atlantic Richfield Company
(a BP Affiliated Company)

November 2011

1375 Euclid Avenue
Suite 600
Cleveland, Ohio 44115
216.622.2400

Atlantic Richfield Company

Eric J. Larson
Operations Project Manager

1 West Pennsylvania Avenue
Suite 440
Towson, MD 21204
Phone: (410) 825-2880
mobile: (443) 807-6233
E-mail: eric.larson@bp.com

November 1, 2011

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

Subject: Submittal of Operations and Maintenance (O&M) Plan
Former Sinclair Refinery Site: Operable Unit 2
Wellsville, New York
USEPA ID NY-D9805215

Dear Mr. Negrelli:

Atlantic Richfield Company (ARC) is submitting to U.S. EPA the *Operations and Maintenance (O&M) Plan* for Operable Units 1 and 2 at the Former Sinclair Refinery site located in the Town of Wellsville, New York. As described in this O&M Plan, ARC has combined several of the existing plans into one comprehensive plan that will be used for all site O&M activities. We are submitting 2 hard copies along with a cd for your convenience.

Upon your review, should you have questions or comment pertaining to the information provided herein, please don't hesitate to contact me at (443) 807-6233.

Sincerely,

Eric J. Larson
Operations Project Manager

Attachment

cc: Maurice Moore, OEPA
Martin Schmidt, URS
Jerry Palmer, On-Site
Project File

TABLE OF CONTENTS

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

This *Operations and Maintenance Plan (O&M) Plan for Operable Units 1 and 2* (*O&M Plan*) has been prepared for the former Sinclair Refinery Site (Site) in the Town of Wellsville, New York (See Figure 1). This plan has been prepared for Atlantic Richfield Company (ARC) by URS Corporation (URS).

This plan replaces and supersedes these three prior plans:

- *Operations and Maintenance Plan for the Partial River Channelization on the Genesee River, Wellsville, New York,* dated April 1992, and prepared by Ebasco Services (*Prior River O&M Plan*).

- *Operations and Maintenance Plan for Central Elevated Landfill Area and Refinery Surface Soils, Wellsville, New York,* dated April 1993, and prepared by GeoSyntec Consultants (*Prior CELA O&M Plan*).

- *Proposed Revisions to Interim OU-2 Groundwater Monitoring Plan, Former Sinclair Refinery, Wellsville, NY,* dated April 23, 2003 (*Prior OU-2 Monitoring Plan*).

The remainder of this section provides: the objectives of this *O&M Plan;* project background information, and the organization for the remainder of this *O&M Plan*.

1.1 OBJECTIVES

The overall objective of this O&M Plan is to provide a single comprehensive site-wide description of the activities that will be performed by ARC to properly operate and maintain the remedial measures that have been constructed at the Site since 2007. The specific performance objectives for the O&M activities for the remedial systems are discussed in Section 4.

1.2 PROJECT BACKGROUND

The former Sinclair Refinery Site is on the west bank of the Genesee River approximately 10 miles north of the New York and Pennsylvania border. The irregularly shaped site covers approximately 110 acres and is bounded to the southwest by South Brooklyn Avenue and to the northeast by the northerly flowing Genesee River.

The former refinery operated from 1901 through 1958 to process New York and Pennsylvania crude oils into heavy oils and grease for lubrication, light oils for fuel, gasoline, lighter fluid, naphtha, and paraffin. Since the refinery ceased operations in 1958, various entities have held title to portions of the former refinery. Current owners of portions of the site include:

- Educational Foundation of Alfred, who owns the majority of the site including the Central Elevated Landfill Area (CELA) where it operates the Wellsville campus of the Alfred State College – State University of New York College of Technology.

- Allegany Trails, who owns a corridor along the east side of the site and the west bank of the Genesee River. Allegany Trails operates a recreational trail (WAG Trail) in this corridor.

The Site was first listed on the National Priority List (NPL) in 1983. The Site was divided into these two Operable Units for purposes of investigation and remediation:

- Operable Unit 1 (OU-1), which consists of a 10-acre landfill area adjacent to the southern boundary of the former refinery that is referred to as the CELA; and

- OU-2, which consists of the 90-acre former refinery area that covers the remainder of the site. This OU deals with collection and treatment of impacted site-wide groundwater.

ARC has undertaken remedial activities, which are described in more detail in Section 2, at the site in accordance with these agreements with the United States Environmental Protection Agency (USEPA):

- A *Consent Decree*, effective May 19, 1989, between ARC and USEPA required ARC to protect the CELA from inundation and erosion. The work required by the *Consent Decree* was completed in 1992. The previous O&M requirements associated with this work are contained in the *Prior River O&M Plan* and are summarized in Section 3. The proposed O&M requirements for this work are described in Section 4.

- An *Administrative Order of Consent* (*AOC*) for OU-1 between ARC and USEPA, dated May 1, 1992, required ARC to remediate the CELA and excavate and backfill certain areas of impacted soils in OU-2. The work required by the *AOC*, which included a bentonite slurry wall around the CELA and RCRA Cap over the consolidated wastes in the CELA was completed in July 1993. The previous O&M requirements associated with this work are contained in the *Prior CELA O&M Plan* and are summarized in Section 3. The proposed O&M requirements for this work are described in Section 4.

- The USEPA issued *Unilateral Administrative Order* (*UAO*) to ARC on September 8, 1992 for OU-2. The *UAO* required ARC to extract and treat subsurface water from the shallow water bearing zone; conduct long-term monitoring of surface water, subsurface water, and soil gas; and implement Institutional Controls to address future site uses. The initial phase of work for OU-2 was completed in 1995. The monitoring requirements associated with the OU-2 Phase I work are contained in the *Prior OU-2 Monitoring Plan* and are summarized in Section 3. In response to a request from USEPA and the New York State Department of Environmental Conservation (NYSDEC) for additional remedial action to terminate subsurface water flow from the site to the river bank, the river bed, and the main drainage swale, ARC undertook the work described in the *Final (100%) Remedial Design Report, Phase II-1 Remediation at Operable Unit 2, Former Sinclair Refinery Site, Wellsville, New York*, dated March 23, 2007, and prepared by SECOR Engineering P.C. (*Phase II-1 Design Report*). ARC also undertook the work described in the *Final (100%) Remedial Design Report – Revision 2, Phase II-2 Remediation at Operable Unit 2, Former Sinclair Refinery Site, Wellsville, New York*, dated March 2, 2009, and prepared by URS (*Phase II-2 Design Report*). The remedial

construction for the OU-2 Phase II work is expected to be completed in the fourth quarter of 2011. Restoration at the CELA, which includes final plantings and trail restoration will be completed in the second quarter of 2012. The proposed O&M requirements for the OU-2 Phase II work and associated permits are described in Section 4.

1.3 REPORT FORMAT

This O&M Plan is organized as follows:

- Section 2: Describes the Remedial Design for the Site;
- Section 3: Describes the previous O&M requirements for the Site;
- Section 4: Describes the proposed O&M requirements for the Site;
- Section 5: Provides the reporting schedule and requirements; and
- Section 6: Lists the references used to prepare this *O&M Plan*.

Tables and Figures referenced in this plan follow the text. Appendices follow the Figures. An electronic copy of this plan is provided in Appendix A.

This section provides a brief description of the components of the remedial construction completed at the site. The components of the work have been grouped into these three functional areas based on their nature:

- CELA;
- Groundwater Collection and Treatment System; and
- River Channel and Swale.

The descriptions of the activities for each area have been further divided into actions that were completed in the 1990s and activities conducted since 2007. The locations of the components of the work are shown in Figure 2.

2.1 CELA

2.1.1 Previously Completed Work

The work that was completed at the CELA during the OU-1 remedial construction included:

- Consolidation and grading of materials in an historic landfill at the southern portion of the site. This work included removal of surface soils from select areas within OU-2 and transport of the removed materials to the CELA.
- Construction of a soil-bentonite slurry wall around the perimeter of the CELA. The slurry wall was keyed into an underlying low permeability clay layer.
- Construction of a RCRA Cap over the consolidated materials placed in the approximate 10 acre CELA. The cap included settlement markers, gas vents, rock-lined drainage channels, a grass cover, piezometers, and pipe sleeves for future piezometers or monitoring wells.

2.1.2 Recently Completed Work

The work that was completed at the CELA in 2010 included:

- Construction of a new cell, which is known as the CELA Reuse Area, on the northern portion of the CELA. This cell was located on top of the existing RCRA Cap. The Reuse Area encompasses approximately 3 acres of the CELA. This cell was used for disposal of materials generated during the OU-2 Phase II remedial construction activities (Main Drainage Swale, Genesee River Sediment; Bank Soils, groundwater collection trench spoils, and site-wide spoils.
- Removal of settlement markers in accordance with plans approved by USEPA.
- Replacement of the rock-lined finger drains on the CELA with vegetated channels.

The work that will be completed at the CELA in 2011-2012 includes:

- Construction of a new RCRA cap over the 3 acre CELA Reuse Area.
- Replacing the rock-lined perimeter drainage channel with a vegetated channel.
- Replacing vegetative cover with a wildflower and natural grass mix that will not require frequent mowing.
- Establishing recreational trail system on the top of the CELA that will connect to the existing WAG trail.
- Gas vents reconfigured

2.2 GROUNDWATER COLLECTION AND TREAMENT SYSTEM

2.2.1 Previous Groundwater Collection and Treatment System

A phased groundwater remediation approach was used during OU-2 Phase I activities. The system evolved from initial installation in the 1990s (recovery wells) until it ceased operation in late 2008 when the current groundwater collection and treatment system constructed during the OU-2 Phase II work was brought on-line. This system involved extraction of groundwater from a 300 ft. long collection trench. The final itineration of the OU-2 Phase I system is described below.

2.2.1.1 Groundwater Recovery Wells

The former system included three recovery wells in the northern portion of the site. The wells were equipped with submersible pumps. Water from the wells was pumped to the former treatment building at the north end of the site.

2.2.1.2 Treatment System

The treatment system, which was housed in a building at the north end of the Site and had a capacity of 10 to 15 gallons per minute (gpm), consisted of an air stripper, a metals treatment system, sand filters, granular activated carbon units, and an iron removal filter. Effluent from the treatment system was discharged to the Genesee River under State Pollutant Discharge Elimination System (SPDES) limitations issued by the NYSDEC. Residual solids generated by the metals treatment system were managed in a frame filter press prior to off-site disposal.

2.2.2 Current Groundwater Collection System and Wetland Treatment System

The current groundwater collection and wetland treatment system was constructed from 2007 through 2008, during the OU-2 Phase II remedial construction. The major components of the systems were brought on-line in December 2008. Process flow diagrams for the collection and

treatment system are presented in Figures 3 and 4, respectively. The remainder of this section describes the components of the current system.

As described in the *Phase II-2 Design Report*, the decision to install a soil-bentonite slurry wall between the groundwater collection system and the Genesee River has been deferred until operational data collected by the Performance-Based Groundwater Monitoring (PBGM) Program, which is described in Section 4.2, can be evaluated to assess whether the collection system is adequately capturing groundwater flow. ARC has met with USEPA and NYSDEC periodically to review data generated by the PBGM Program.

2.2.2.1 Groundwater Collection System

The current groundwater collection system consists of:

- Groundwater Collection Trench (GWCT);
- Eight manholes (MH) equipped with pumps; and
- Conveyance lines that transfer groundwater to the treatment system.

Each of these components is described below.

Groundwater Collection Trench

As shown in Figure 2, the 3,200 foot long GWCT extends from the northwest side of the CELA to the northern portion of the Site along the east side of the Site parallel to the Genesee River. The gravel-filled GWCT intercepts subsurface water before it can discharge into the adjacent Genesee River or Main Drainage Swale. There are piezometers (TPZ-1 through TPZ-9) and monitoring wells along and near the GWCT to monitor groundwater elevations in order to evaluate the performance of the GWCT.

Manholes

As shown in Figure 2, there are eight manholes located in the GWCT. The manholes are located at 400-foot intervals. The manholes are designated MH-A, which is the northern most manhole, through MH-H, which is the southern most manhole. The manholes house pumping systems that remove subsurface water from the GWCT and transfer the water to the wetland treatment system via the conveyance lines.

Operation of the pumps in the manholes is controlled by float switches that are set to maintain the water level in the GWCT at an elevation below the adjacent Genesee River and main drainage swale. Each manhole, except MH-H, is equipped with a flowmeter to monitor volume of water pumped.

Conveyance Lines

There are three conveyance lines that carry water from the manholes to the wetland treatment system. The conveyance lines, which are constructed of 6-inch diameter HDPE pipe, and the manholes to which they can be connected are:

Conveyance Line	*Manholes Served*
Main Line	MH-A, MH-B, MH-C, MH-D, MH-E, and MH-F
Spare Line	MH-A, MH-B, MH-C, MH-D, MH-E, and MH-F
G-H Line	MH-G and MH-H

There are cleanouts for the conveyance lines at these five locations:

Location	*Conveyance Lines*
North of MH-A	Main Line Spare Line
Between MH-C and MH-D	Main Line Spare Line
Between MH-F and MH-G	Main Line Spare Line G-H Line
South of MH-H	Main Line Spare Line G-H Line
Northeast of Sedimentation Pond	Main Line Spare Line G-H Line

The conveyance system also includes by-pass lines to allow water from the GWCT to by-pass the cascade aerator and sedimentation pond.

2.2.2.2 Wetland Treatment System

The wetland treatment system constructed during the OU-2 Phase II work includes the following components:

- Cascade Aerator;
- Biofilter;
- Sedimentation Pond;
- Surface Flow Wetlands (3 Ponds);
- Vertical Flow Wetlands (5 Ponds);
- Outlet Structure; and
- Drying Beds.

The locations of these components are shown in Figure 2. The remainder of this section provides a description of each of these components.

Cascade Aerator

As shown in Figure 4, the cascade aerator is the first component of the wetland treatment system. The cascade aerator consists of:

- A hydraulic splitter structure with weir gates;
- Four manholes;
- HDPE piping between the splitter structure and the manholes; and
- Four corrugated metal pipes (CMPs) to aerate and direct water to the sedimentation pond.

The purpose of the cascade aerator is to oxidize metals (iron, manganese and arsenic) that are present in the subsurface water and facilitate precipitation.

Biofilter

The purpose of the biofilter is to control and abate a portion of the odors generated by the cascade aerator. The biofilter, which is southeast of the cascade aerator, consists of a blower and a mulch / organic matter media bed. The blower is connected to the cascade aerator splitter structure, which is covered to facilitate collection of vapors, via HDPE piping. The blower, which operates continuously, draws vapors from the splitter structure and discharges the vapors to a network of perforated pipe in the base of the media bed. The media bed consists of wood

mulch, which abates odors. In order to maintain biological activity the media bed is occasionally watered down.

Sedimentation Pond

As shown in Figure 2, the sedimentation pond (Sed Pond) is at the southern end of the Site. The purpose of the Sed Pond is to allow settling of insoluble metal oxides precipitates formed by the cascade aerators. The Sed Pond has an HDPE liner and the base of the pond is covered by a 3-inch layer of concrete-filled geoweb to facilitate access for equipment to periodically remove the accumulated precipitates. The water level in the Sed Pond is controlled by the weir gates in the hydraulic control splitter structure that is west of the surface flow wetlands.

Water enters the south end of the Sed Pond from the cascade aerator and discharges to the surface flow wetlands through a submerged outlet structure at the northwest corner of the sed pond. The configuration of the outlet structure, which is shown on Figure 5, provides the ability to limit the potential for accumulated precipitates from migrating from the Sed Pond to the surface flow wetlands and can be adjusted for winter or summer conditions.

Surface Flow Wetlands

There are three surface flow wetlands (SFWs) north of the sed pond. The purposes of the SFWs are to promote biodegradation of organic compounds and provide additional removal (polishing) of iron and manganese. Biodegradation is facilitated by microbial communities associated with the plants (cattails) rhizosphere, which is the narrow region of soil influenced by root secretions from the vegetation growing in the SFWs. Additional polishing of metals is facilitated by open water areas which re-aerate the water.

Each SFW has a HDPE liner and consists of three open water areas, which are separated by platforms covered with topsoil that support the growth of wetland plants. The flow from the Sed Pond is divided between the three SFWs by the weir gates in the hydraulic control splitter structure. There is an additional chamber in the hydraulic control splitter to facilitate addition of a fourth SFW, if needed. There is also a recirculation pump in the hydraulic control splitter structure that can be used to pump water back to the cascade aerator if monitoring results suggest that additional treatment is needed.

The water levels in the SFWs are controlled by weir gates in the hydraulic control structures on the east end of each SFW. The water levels in the SFWs are set a few inches above the topsoiled platforms in warm weather to encourage emergent growth. The water levels in the SFWs are raised during cold weather to prevent the root zones from freezing (approximately 2 ft.)

Each SFW is equipped with a blower that is connected to aeration lines in the base of each open water area. The blowers can be used, if needed, to aerate the water to enhance biodegradation or metals removal.

Vertical Flow Wetlands

As shown in Figure 2, there are five vertical flow wetlands (VFWs) north of the SFWs. The purpose of the VFWs, which have HDPE liners, is to raise the pH of the treated water to meet the discharge criteria. The pH of the treated water can drop due to precipitation of metals in the sed pond and SFWs. The pH adjustment is accomplished by allowing the water to contact the limestone beds in the VFWs.

Flow to each of the VFWs is controlled by setting the weir gates in the eight-way hydraulic splitter structure, which is at the southwest corner of the VFWs. There are three additional chambers in this splitter to facilitate construction of additional VFWs, if needed. Discharge from each VFW is controlled by a dosing siphon. Each dosing siphon allows the water level in the associated VFW to rise to a set point, at which the siphon flushes water from the VFW, which scours the limestone bed to prevent fouling.

Outlet Structure

The outlet structure, which receives flows from the VFWs, connects to a line that discharges the effluent from the wetland treatment system to the main drainage swale. The discharge is subject to the SPDES Limitations issued by the NYSDEC. A copy of the SPDES Limitations can be found in Appendix B. At this time, these limits are provisional and ARC and NYSDEC plan to meet in May 2012 to determine final discharge limits.

Drying Beds

The drying beds, which have been completed in 2011, are east of the Sed Pond. The purpose of the drying beds is to dewater and dry accumulated precipitates after they are removed from the sed pond. Each of the four drying beds has a sand filter over an HDPE liner. Water that drains from the precipitates in the beds will be collected by an underdrain system in each bed and pumped to the wetland treatment system via a connection to the conveyance lines in the cleanout northeast of the sed pond. The dried precipitates will be properly disposed in an off-site facility periodically.

2.3 GENESEE RIVER CHANNEL AND MAIN DRAINAGE SWALE

2.3.1 Previously Completed Work

In the early 1990s, ARC constructed a dike on the west bank of the Genesee River along the southern portion of the Site and stabilized the east river bank. This work was conducted in accordance with the requirements of a May 19, 1989 *Consent Decree* between ARC and the USEPA. The purpose of the dike on the west river bank, which included a rip-rap revetment, is to protect the CELA and southern portion of the site from erosion and inundation a 100-year flood event. The purpose of the stabilization of the east river bank, which included placing a rip-rap revetment, was to protect the river bank from erosion during floods.

2.3.2 Recently Completed Work

The remedial work completed at the Site during OU-2 Phase II-2 included: removal of sediments and restoration of the Main Drainage Swale; removal of sediments and restoration of the Genesee River bed, removal of bank soils and restoration of the Genesee River bank downstream of the lower drop structure; and construction of a permanent water level control berm in the Main Drainage Swale. These activities are described briefly in the remainder of this section. The locations of these activities are shown in Figure 2.

2.3.2.1 Main Drainage Swale Remediation

ARC removed sediments from the Main Drainage Swale in 2009 in accordance with *Phase II-2 Design Report.* The work was also conducted under the terms of *Flood Control Land Use Permit 09-08* (*FCLU Permit 09-08),* which was issued by the NYSDEC and can be found in Appendix C. The objective of this work was to remove potentially contaminated materials from the swale and then restore the swale. As discussed in Section 2.1.2, the material removed from the swale was disposed in the CELA reuse area.

2.3.2.2 Genesee River Bed and Bank Remediation

ARC removed sediment from the Genesee River bed and river bank soils area downstream of the lower drop structure in 2010 in accordance with *Phase II-2 Design Report.* The work was also conducted under the terms of modification to *FCLU Permit 09-08 (FCLU Permit 09-08, Mod 1)*, which was issued by the NYSDEC and can be found in Appendix C. The objective of this work was to remove potentially contaminated materials from the river bank and river bed, which were believed to be the source of hydrocarbon seeps previously observed in the river, and restore these areas. As discussed in Section 2.1.2, the material removed during this work was disposed in the CELA reuse area. Restoration of the river bank included a rip-rap revetment downstream of the lower drop structure.

2.3.2.3 Water Level Control Berm in the Main Drainage Swale

ARC constructed a water level control berm (WLCB) in the southern portion of the Main Drainage Swale in 2010. This work was conducted under the terms of modification to *FCLU Permit 09-08 (FCLU Permit 09-08, Mod 2)*, which was issued by the NYSDEC and can be found in Appendix C. The objective of the WLCB, which is adjacent to the upper drop structure in the Genesee River, is to create a hydraulic barrier, which helps to control groundwater seepage from the site into the south end of the main drainage swale.

This section provides brief summaries of the scope of the previous O&M activities for the Site that are included in the prior O&M plans (*Prior River O&M Plan*, *Prior CELA O&M Plan*, and *Prior OU-2 Monitoring Plan*). Similar to the remedial descriptions provided in Section 2, the summaries of the O&M activities have been grouped in these three functional areas:

- CELA;
- Groundwater Collection and Treatment; and
- River Channel and Swale.

A brief summary of the results of the monitoring results from each of these areas is also presented below along with the rationale for proposed changes in the O&M requirements.

3.1 CELA

3.1.1 Previous CELA O&M Activities

The previous O&M activities at the CELA included periodic inspections and monitoring along with maintenance activities when needed. These activities, which are described in more detail in the *Prior CELA O&M Plan* and subsequent modifications, are discussed below.

Inspections

Specific components of the CELA were inspected each quarter. The inspections focused on assessing the integrity of the CELA and whether maintenance or repairs were needed. The items that were inspected include:

- Vegetative cover on the CELA Cap;
- Gas vent system;
- Open well piezometers;
- Groundwater monitoring wells;
- Surface water drainage system; and
- Security fence.

These inspections were documented on checklists, which were included in the Annual Report of the CELA O&M activities.

Monitoring

The *Prior CELA O&M Plan* also included monitoring requirements. The most recent monitoring requirements, which evolved over time, include:

Item Monitored	*Frequency*	*Scope*
Subsidence	Temporarily suspended Previously conducted annually	Survey 25 settlement plates on the CELA
Groundwater quality	Annual	Metals and volatile organic compounds (VOCs) analyses of samples from 11 groundwater wells near CELA
Groundwater elevation	Semi-annual	Measure static water levels in 11 groundwater wells and 6 piezometers within and near the CELA
Light Non-Aqueous Phase Liquids (LNAPL)	Semi-annual	Measure LNAPL thickness, if present, in 11 groundwater wells and 6 piezometers within and near CELA
Gas Vents	Semi-annual	Measure VOC concentrations in gas vents, 5-feet upwind of vents, and 5-feet downwind of vents using photo-ionization detector (PID) or flame-ionization detector (FID)
Storm water	Semi-annual	Analysis of grab sample following storm event greater than 0.1 inch of precipitation
Soil pH and agronomic soil conditions	Every three years	Analysis of soil sample from CELA Cap

The results of these monitoring programs were included in the Annual Report of the CELA O&M activities.

Maintenance

The majority of the maintenance activities in the *Prior CELA O&M Plan* relate to repair of defects noted during the inspections and include:

Item	*Maintenance Activity*
CELA vegetative cover	Mow during summer months Remove woody or undesirable vegetation Fertilize and apply lime, as needed
Gas Vents	Repair as needed
Monitoring wells and piezometers	Repair as needed Remove and properly dispose LNAPL if greater than 2 feet thick
Surface drainage features	Repair as needed
Access roads	Repair as needed
Security fence	Repair as needed

The maintenance activities were summarized in the Annual Report of the CELA O&M activities.

3.1.2 Proposed Changes to CELA O&M Activities

The proposed O&M activities for the CELA are discussed in more detail in Section 4. The majority of the proposed changes, which are discussed below, are related to the monitoring activities at the CELA. The remainder of this section briefly describes the proposed changes and provides the rationale for these changes.

Subsidence Monitoring

ARC proposes to discontinue the subsidence monitoring program at the CELA. Based on the survey data and visual observations documented in the previous Annual Reports for the O&M activities, the CELA Cap is considered stable because:

- No abnormal settlement has been observed since 1993;
- No areas of ponded water or abnormally soft ground have been observed; and

- The cap continues to have positive drainage.

Although the periodic survey of the settlement plates, which were removed in 2010 in accordance with plans approved by the USEPA, will be discontinued, the periodic inspections of the CELA will include visual assessment of indications of differential settlement.

Groundwater Quality Monitoring

ARC is proposing that the frequency of the groundwater quality monitoring program near the CELA be changed from annual to once every five years. ARC is making this proposal because:

- VOCs have not been detected in the monitoring wells during the period fo 2003 through 2009; and

- Statistical analyses of the results for metals that have exceeded their respective Maximum Contaminant Levels (MCLs) indicate either stable or decreasing concentration trends.

ARC is proposing that the analytical parameters be limited to arsenic, chromium, and VOCs. As reported in the 2009 Annual Report, arsenic and chromium are the metals that exhibit the most frequent exceedances of their Maximum Contaminant Levels (MCLs) water since the 1993 baseline sampling. In addition, statistical analysis have shown that antimony, arsenic and chromium exhibit decreasing or stable concentrations at several wells and no observed trend for other metals and locations for which samples were analyzed. VOCs continue to be reported at non-detectable concentrations.

Groundwater Elevation Monitoring

ARC is proposing that the existing semi-annual groundwater elevation monitoring program for the CELA be discontinued. The data from the existing monitoring program indicates that water levels within the CELA have remained relatively stable and is consistently more than one foot below the top of the slurry wall. In place of this program, selected wells from the CELA monitoring program will be incorporated into the site-wide PBGM Program, which is described in Section 4.2.

LNAPL Monitoring and Removal

ARC is proposing that the frequency of LNAPL monitoring in wells outside the slurry wall surrounding the CELA be changed from semi-annual to once every five years and that locations be limited to those wells in which LNAPL has been previously detected (MWR-02 and MWR-03). Changing the frequency is not expected to pose a risk because the LNAPL thickness is usually less than 0.5 feet and the maximum thickness of LNAPL measured in wells MWR-02 and MWR-03 (1.02 feet in MWR-02) is approximately half the 2-foot thickness removal threshold in the *Prior CELA O&M Plan.*

In addition, ARC is proposing that the LNAPL monitoring program inside the slurry wall that surrounds the CELA be discontinued. ARC believes that this change is justified because historical data has shown that the groundwater level inside the slurry wall is consistently more

than one foot below the top of the slurry wall and the maximum observed LNAPL thickness within the slurry wall was 0.40 feet.

Gas Vent Monitoring

ARC is proposing that the frequency of the gas vent monitoring program be temporarily increased to quarterly. The purpose of this proposed change is to collect data to confirm that the vents will not pose a risk to the public that will be using the trails on the CELA. Data from recent Annual O&M Reports for the CELA indicates the VOC concentrations upwind and downwind of the vents is typically non-detect. The data also indicates that the VOC concentrations in the vents is generally less than 10 parts per million (ppm), except for vents V-1, which is in the northwestern portion of the CELA, and V-11, which is on the east side of the CELA. ARC will evaluate the results of the monitoring after three years and make a recommendation regarding continuation or modification of the monitoring program for the gas vents on the CELA. As part of the CELA ReUse Program, the gas vents that are in the vicinity of the CELA ReUse Area and existing surface will be modified to lower the discharge from a position 4-ft above ground to a position within 1 ft. of the surface. The existing vents will be lowered and the diameter will be reduced to facilitate a less accessible discharge point that is closer to the ground surface.

Storm Water Monitoring

ARC proposes to discontinue the storm water monitoring program at the CELA. The current NYSDEC SPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity states:

> *Landfills that have been closed in accordance with 6 NYCRR Part 360 are not required to maintain SPDES permit coverage for stormwater discharges provided that the landfill is or has been maintained under a post closure care program.*

Because the CELA will be closed and maintained in general accordance with the NYSDEC regulations, no stormwater monitoring will be required.

CELA Maintenance

The mowing program at the CELA will be discontinued upon full establishment of the final cover of wildflowers and natural grasses.

3.2 GROUNDWATER COLLECTION AND TREATMENT

3.2.1 Previous Groundwater Collection and Treatment O&M Activities

The O&M activities for the previous groundwater collection and treatment system included inspections, monitoring, and maintenance. These activities, which are described in more detail in the *Prior OU-2 Monitoring Plan* and subsequent modifications, are discussed below. These activities were suspended in December 2008 when the previous system was shutdown and the current groundwater collection and treatment system was put into service.

Inspections

The components of the recovery wells and treatment system were inspected periodically.

Monitoring

The monitoring requirements for the final evolution of the previous groundwater collection and treatment system included:

Item Monitored	*Frequency*	*Scope*
Groundwater Quality	Annual	Benzene, toluene, ethylbenzene, and xylene (BTEX), chlorinated volatile organic compounds (CVOCs), semi- volatile organic compounds (SVOCs), and arsenic analyses of samples from nine groundwater monitoring wells in the downgradient area of the northern portion of the site.
Groundwater Geochemical Parameters	Annual	Measurement of pH, conductivity, dissolved oxygen, temperature, oxidiation-reduction potential, and turbidity in nine groundwater monitoring wells in the downgradient area of the northern portion of the site
Groundwater Elevations	Annual	Measure static water levels in nine groundwater monitoring wells in the downgradient area of the northern portion of the site
Treatment System Performance	Monthly	Volume of water discharged Analysis of three samples (influent, effluent, and intermediate sample between GAC units) for parameters listed in the SPDES discharge limitations issued by the NYSDEC

Item Monitored	*Frequency*	*Scope*
River Seep Monitoring	Whenever at site	Observe river and bank for hydrocarbon sheens Deploy and manage booms to control any observed hydrocarbon sheens

The results of the treatment system performance monitoring were reported to NYSDEC and USEPA monthly and summarized in the annual report of the OU-2 O&M activities. The results of the other monitoring activities were also summarized in the Annual Report for the OU-2 O&M activities.

Maintenance

The maintenance activities associated with the previous groundwater collection and treatment system included off-site disposal of residual solids generated by the treatment system and repair and replacement, as needed, of system components. The nature and amount of residual materials that were disposed off-site were summarized in the annual report for the OU-2 O&M activities.

3.2.2 Proposed Changes to Groundwater Collection and Treatment O&M Activities

ARC proposes to discontinue all the O&M activities for the previous groundwater collection and treatment system. The proposed O&M activities for the new groundwater collection and treatment systems are described in Sections 4.2 and 4.3, respectively.

3.3 GENESEE RIVER CHANNEL AND MAIN DRAINAGE SWALE

3.3.1 Previous Genesee River Channel and Main Drainage Swale O&M Activities

The previous O&M activities for the Genesee River channel included inspections, monitoring, and maintenance. These activities, which are described in more detail in the *Prior River O&M Plan* and subsequent modifications, are discussed below. Note that the previous O&M activities were limited to the portion of the Genesee River near the CELA.

Inspections

The scope and schedule for inspections of the river channel near the CELA included:

Area Inspected	*Frequency*	*Scope*
Rip-rap revetments on east and west river banks near CELA	Annual during low river flow, i.e. less than 180 cubic feet per second (cfs)	Visual inspection for evidence of sloughing, erosion, other damage, or undesirable conditions
River bed adjacent to southeast side of CELA	Annual during low river flow, i.e. less than 180 cfs	Visual inspection, with photographs, to check for shoaling
Rip-rap revetments on east and west river banks near CELA	After each high water period, i.e. river flow greater than 4,500 cfs	Visual inspection for evidence of sloughing, erosion, other damage, or undesirable conditions
Dike between CELA and Genesee River	During high water event, i.e. river flow greater than 4,500 cfs, if safe	Patrol and visual inspection for damage that might jeopardize the integrity of the dike

The results of these inspections were documented on checklists and included in the annual report of the river channel O&M activities.

Monitoring

The *Prior River O&M Plan* also included monitoring requirements, which evolved over time. The most recent monitoring requirements include:

Item Monitored	*Frequency*	*Scope*
Soil pH and agronomic soil conditions	Every three years during a low flow period	Analysis of soil sample from dike on west side of river

Item Monitored	*Frequency*	*Scope*
Dike profile and cross section	Every five years during a low flow period	Survey dike profile and cross section between CELA and river at 200-foot intervals to assess settlement and changes in cross sectional area. Survey toe of slope to check for displacement or settlement of rip-rap revetment.

The results of these monitoring activities were included in the annual report of the river channel O&M activities.

Maintenance

The majority of the maintenance activities in the *Prior River O&M Plan* relate to repair of defects noted during the inspection and monitoring programs and include:

Item	*Maintenance Activity*
Vegetative cover on dike between CELA and River	Mow during summer months Remove woody or undesirable vegetation Fertilize and apply lime, as needed Maintain road on dike
Rip-rap revetments on east and west river banks near CELA	Remove woody growth annually

The maintenance activities were summarized in the annual report of the river channel O&M activities.

3.3.2 Proposed Changes to Genesee River Channel and Main Drainage Swale O&M Activities

The proposed O&M activities for the Genesee River channel and Main Drainage Swale are discussed in more detail in Section 4.4. The majority of the proposed changes are related to the work that was recently completed in the Main Drainage Swale and the river north of the lower drop structure. The remainder of this section briefly describes the proposed changes to the existing O&M program for the river channel near the CELA and provides the rationale for these changes.

River Bed Inspection

ARC is proposing elimination of the specific requirement for inspection of the river bed near station 20+00 near the southeast side of the CELA. This requirement was included to assess

conditions after removal of sediments from the river bed in the early 1990s. ARC believes that it is appropriate to remove this requirement after nearly two decades without identification of a problem in this area.

Maintenance of Rip-Rap Revetments Near CELA

ARC proposes to discontinue removal of woody vegetation from the rip-rap revetments on the east and west banks of the Genesee River near the CELA. This change is proposed based on safety concerns associated with personnel walking on the irregular rip-rap surface to remove vegetation.

Agronomic Testing

ARC proposes to discontinue the periodic agronomic testing of the soil on the dike between the CELA and the river. Previous testing has not shown the need for application of lime or fertilizer to maintain acceptable vegetative cover.

Scope of Periodic Surveys

ARC proposes to change the scope of the periodic surveys of the profile and cross-sectional area of the dike between the CELA and the river. This change is proposed based on safety concerns associated with personnel walking on the irregular rip-rap surface to collect survey data and previous survey data, which has shown no significant changes.

The proposed scope of the periodic surveys of the dike will include measuring the elevation of the top of the dike and the location of the toe of the rip-rap slope at 200-foot intervals. ARC believes that this data, along with visual observations, will be adequate to monitor the dike for movement or settlement.

This section describes the O&M requirements for the Former Sinclair Refinery Site. The overall objectives of the O&M activities are to:

- ensure that the remedial systems continue to protect human health and the environment; and
- document the performance of the remedial systems.

The specific O&M requirements for the CELA, groundwater collection system, wetlands treatment system, and the river channel and swale are presented in Tables 1, 2, 3, and 4, respectively. The remainder of this section provides additional information about the specific objectives of each component of the remedial system.

4.1 CELA

The primary objectives of the O&M requirements for the CELA, which are presented in Table 1, are to maintain and protect the cover system on the CELA. A checklist for the quarterly CELA O&M activities can be found in Appendix D. Figure 6 shows the locations of the gas vents that are to be monitored quarterly and the groundwater monitoring wells that are to be sampled every five years.

4.2 GROUNDWATER COLLECTION SYSTEM

The primary objectives of the O&M requirements for the groundwater collection system, which are presented in Table 2, are to:

- Ensure proper operation and maintenance of the groundwater collection system; and
- Collect data that documents that the groundwater collection system is capturing site-wide groundwater from OU-2 before groundwater can enter the Genesee River or Main Drainage Swale.

The weekly, monthly, and quarterly checklists for the groundwater collection system O&M activities can be found in Appendix E. The locations of the manholes, piezometers, and other features that are included in the checklists are shown in Figure 7.

The data collection requirements in Table 2 are the minimum requirements to demonstrate proper operation of the system in accordance with the Performance Based Groundwater Monitoring (PBGM) Program that was included in the *Phase II-2 Design Report*. ARC may elect to monitor groundwater elevations at additional points to collect data to assess performance of the GWCT. If additional data is collected, it will be discussed in the annual reports, as appropriate. As shown in Table 2, the groundwater elevation data collected from the GWCT will be compared to the river stage to assess whether the GWCT is capturing groundwater and take corrective measures, if needed.

In July 2011, ARC and URS met with NYSDEC and USEPA to review PBGM performance in 2010 and 2011. USEPA provided comments on the report to ARC in September 2011. At this time, ARC is preparing responses to these comments.

4.3 WETLAND TREATMENT SYSTEM

The primary objectives of the O&M requirements for the wetland treatment system, which are presented in Table 3, are to:

- Ensure proper operation and maintenance of the wetland treatment system; and
- Collect data that documents that the discharge from the wetland treatment system meets the SPDES Limitations issued by the NYSDEC, which are presented in Appendix B.

Monthly, quarterly, and annual checklists for the wetland treatment system O&M activities can be found in Appendix F. The locations of features on these checklists are shown in Figure 8.

4.4 GENESEE RIVER CHANNEL AND MAIN DRAINAGE SWALE

The primary objectives of the O&M requirements for the Genesee River channel and Main Drainage Swale, which are presented in Table 4, are to:

- Maintain and protect the improvements along the river channel and within the Main Drainage Swale; and
- Comply with requirements of Flood Control Land Use Permits for the Site, which are in Appendix C.

Quarterly and annual checklists for the river channel and swale O&M activities can be found in Appendix I. The locations of the features on these checklists are shown in Figure 2. The annual checklist will be used for inspections after high water events.

ARC will report the results of the O&M activities to USEPA and NYSDEC. The results of analyses of the influent and effluent for the wetland treatment system will be reported to USEPA and NYSDEC monthly in accordance with the terms of the SDPES limitations issued by NYSDEC (see Appendix B). In accordance with the conditions of FCLU Permit 09-08 Mod. 2, ARC will notify NYSDEC if significant seepage is observed at the toe of the levee between the WLCB and the Genesee River. The majority of the results of the O&M activities will be reported to USEPA and NYSDEC annually. The annual O&M report will be submitted by December 31st of following year. The contents of each annual report will include:

- *Summary of Requirements* – A brief summary of the O&M requirements for each component of the remedial systems will be included in the annual report.

- *Summary of Activities* – The report will include a narrative of the O&M activities that were completed during the reporting year for each component of the remedial systems. These summaries will include discussions of the monitoring and inspection activities. Copies of completed checklists will be appended to the report to document the activities. Tables that summarize analytical results for the wetland treatment influent and effluent samples and groundwater samples, when collected, will be included in the report. Laboratory reports for the samples will be appended to the report.

- *Groundwater Elevations along Collection Trench* – Tabular and graphic summaries of the groundwater elevations along and near the collection trench will be included in each report.

- *Problems and Corrective Actions* – Any problems that were encountered during the year will be summarized along with the completed or proposed resolution of the problems.

- *Conclusions and Recommendations* – Each report will include conclusions regarding the effectiveness of the remedial systems (e.g., groundwater capture by the collection system and performance of the wetland treatment system). If appropriate, each report will also include recommendations for changes to the O&M procedures.

A *Consent Decree,* effective May 19, 1989, between ARC and USEPA.

An *Administrative Order of Consent* (*AOC*) for OU-1 between ARC and USEPA, dated May 1, 1992.

The USEPA issued *Unilateral Administrative Order* (*UAO*) to ARC on September 8, 1992 for OU-2. .

Operations and Maintenance Plan for the Partial River Channelization on the Genesee River, Wellsville, New York, dated April 1992, and prepared by Ebasco Services (*Prior River O&M Plan*).

Operations and Maintenance Plan for Central Elevated Landfill Area and Refinery Surface Soils, Wellsville, New York, dated April 1993, and prepared by GeoSyntec Consultants (*Prior CELA O&M Plan*).

Proposed Revisions to Interim OU-2 Groundwater Monitoring Plan, Former Sinclair Refinery, Wellsville, NY, dated April 23, 2003 (*Prior OU-2 Monitoring Plan*).

URS Corporation, *Final 100% Remedial Design Report – Revision 2*, March 2, 2009.

TABLES

TABLE 1 ***PROPOSED CELA O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Vegetative Cover	Visual inspection of CELA grade	Quarterly	Erosion Sediment buildup Local subsidence Loss of grade Water ponding Slope instability Sloughing.	Repair as needed to restore original grades. Replant disturbed areas in accordance with seed mix in Appendix C
	Visual inspection of vegetation on CELA.	Quarterly	Stressed vegetation Trees Undesirable vegetation	Replant areas of stressed vegetation in accordance with seed mix in Appendix C. Remove trees, weeds, or undesirable vegetation.
	Visual inspection of CELA surface	Quarterly	Burrows	Trap or evict burrowing animals. Fill burrows with topsoil and replant surrounding area.
	Visual inspection of CELA surface	Quarterly	Evidence of fires Vandalism Litter	Replant and repair damaged areas. Remove litter.
Trail System on CELA	Visual inspection of trails and signage	Quarterly	Erosion of trail surface. Damage or vandalized signs.	Fill eroded areas with NYSDOT 401 aggregate. Repair damage and vandalism.
Gas Vents	Visual inspection of gas vents	Quarterly	Erosion around gas vent. Evidence of vandalism or damage.	Fill eroded areas with topsoil and reseed. Repair damage.
	Measure VOC concentrations in vents and in breathing zone downwind of gas vents.	Quarterly	VOC concentration in excess of 1 ppm of benzene or vinyl chloride in breathing zone downwind of gas vents.	Establish barricade around gas vents to prevent access.

TABLE 1 PROPOSED CELA O&M REQUIREMENTS FORMER SINCLAIR REFINERY WELLSVILLE, NEW YORK				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Piezometers Within CELA (P-01 through P-06) and Monitoring Wells Near CELA (MWR-1 through MWR-11)	Visual inspection of above grade portion of piezometers and monitoring wells.	Quarterly	Sediment or vegetative growth over protective cover. Erosion around surface casing. Missing or damaged lock or cover cap. Water collecting between casing and riser. Evidence of vandalism or damage.	Remove sediment or vegetation. Fill eroded areas with topsoil and seed. Replace or repair lock or cover cap. Remove water. Repair damage.
Surface Water Drainage System	Visual inspection of perimeter ditch.	Quarterly	Obstructions which could impede flow. Damaged or eroded areas.	Remove obstructions. Repair damage. Fill eroded areas with topsoil and seed.
	Visual inspection of culverts under trail.	Quarterly	Obstructions which could impede flow. Damaged or eroded areas.	Remove obstructions. Repair damage. Fill eroded areas with topsoil and seed.
	Visual inspection of drainage culvert that penetrates the flood protection dike at the north end of the CELA.	Quarterly	Obstructions which could impede flow. Damaged or eroded areas.	Remove obstructions. Repair damage. Fill eroded areas with topsoil and seed.

TABLE 1 ***PROPOSED CELA O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Security Fence	Visual inspection of fence on west side of CELA.	Quarterly	Gates dragging on ground. "Frozen" locks or hinges at gates. Holes in fence fabric. Loose or missing connections of fence fabric to posts. Loose fence posts. Cracks in post foundations. Woody vegetation grounding onto or through fence. General deterioration.	Adjust gates to keep from dragging. Repair, lubricate, replace locks or hinges, as needed. Repair holes in fence fabric. Re-attach fabric to posts. Repair or replace posts. Repair or replace fence post foundations. Remove vegetation. Assess need to repair or replace deteriorated sections of fence.
Groundwater Quality	Collect samples from 11 groundwater monitoring wells (MWR-1 through MWR-11) near the CELA. Analyze samples for arsenic, chromium, and VOCs. Sampling plan in Appendix E.	Every five years		
LNAPL Monitoring and Removal	Assess monitoring wells MWR-02 and MWR-03 for presence of LNAPL.	Every five years	Measurement LNAPL thickness.	Remove accumulated LNAPL prior to collection of groundwater samples. Properly dispose removed LNAPL

TABLE 2 ***PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Manholes MH-A through MH-H	Visual inspection of covers at manholes.	Weekly	Vegetation covering manhole. Evidence of vandalism or damage.	Remove vegetation. Repair damage.
	Confirm operation, including locks, of doors into manholes.	Quarterly	Any defect	Repair as needed
	Perform datalogger maintenance (calibrate recorder instruments, change out desiccant caps, clean probes, etc.)	Semi-annual		
	Visual inspection of interior of manholes. Follow confined space entry procedures if personnel need to enter manholes for inspections or repairs.	Quarterly	Plumbing leaks. Evidence of vandalism or damage.	Repair as needed.
Control Panel Cabinets	Visual inspection of cabinets housing control panels.	Weekly	Vegetation that obstructs operation of doors. Evidence of vandalism or damage.	Remove vegetation. Repair damage.
	Confirm operation, including locks, of doors on cabinets.	Quarterly	Any defect	Repair as needed

TABLE 2 *PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS* *FORMER SINCLAIR REFINERY* *WELLSVILLE, NEW YORK*				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Piezometers TPZ-01 through TPZ-09	Visual inspection of piezometers.	Quarterly	Sediment or vegetative growth over protective cover. Erosion around surface casing. Missing or damaged lock or cover cap. Water collecting between casing and riser. Evidence of vandalism or damage.	Remove sediment or vegetation. Fill eroded areas with topsoil and seed. Replace or repair lock or cover cap. Remove water. Repair damage.
	Perform datalogger maintenance (calibrate recorder instruments, change out desiccant caps, clean probes, etc.)	Semi-annual		
Access paths and turnouts at manholes	Visual inspection of surface.	Monthly	Erosion	Fill eroded areas with NYSDOT 401 aggregate
Pumping Systems	Confirm manhole pump operation.	Weekly	Pump not operating	Troubleshoot and repair as needed
	Record instantaneous flow measurements and totalized flow measurements for each manhole.	Weekly	Flow meter or totalizer not working. Average flow outside desired operating range.	Troubleshoot and repair as needed. Adjust gate valves on lines that connect manholes to conveyance lines to adjust flow rates.
	Maintain and calibrate flowmeters	Annual		
Conveyance lines	Exercise all valves on lines that connect manholes to the conveyance lines.	Annual	Valves do not operate properly	Repair as needed

TABLE 2 *PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS* *FORMER SINCLAIR REFINERY* *WELLSVILLE, NEW YORK*				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
	Exercise valves for by-pass lines.	Annual	Valves do not operate properly	Repair as needed
	Conduct camera survey of interior of conveyance lines within 100 feet of cleanout boxes for accumulation of scale.	Every five years	Blockage greater than 30%	Clean conveyance lines
Cleanout boxes	Inspect exterior and interior of cleanout boxes.	Annual	Vegetation covering structure. Evidence of damage or vandalism. Leaking cleanouts on conveyance lines.	Remove vegetation. Repair damage. Repair leaks.
Groundwater Elevations	Monitor groundwater elevations at 17 locations (MH-A through MH-H and piezometers TPZ-01 through TPZ-09) in GWCT using electronic recorders (In-situ LevelTROLL datalogger or equivalent). Set dataloggers to collect groundwater elevations at 30-minute intervals (17520 points per year), which will provide enough points to conduct forensic analysis on pumping history or other problems.	Continuous	Dataloggers not operating properly.	Troubleshoot and repair as needed.
	Manually measure groundwater elevations at 17 locations (MH-A through MH-H and piezometers TPZ-01 through TPZ-09) in GWCT and compare to information from dataloggers	Monthly	Variance between manual measurements and dataloggers greater than 0.1 foot.	Recalibrate dataloggers, as needed.
	Download dataloggers	Monthly		

TABLE 2 *PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS* *FORMER SINCLAIR REFINERY* *WELLSVILLE, NEW YORK*				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
	Obtain stage information from the USGS National Water Information System for the Genesee River at USGS gauging station 04221000, which is approximately 1.8 miles downstream of site. Convert river stage information to river elevations adjacent to site using conversion chart in Appendix G.	Monthly		
	Compare groundwater elevations in GWCT to river elevations adjacent to site.	Monthly		Adjust elevations of float switches in manholes.

TABLE 3
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Treatment System Performance	Calculate monthly discharge from treatment system based on volumes pumped from collection system and other sources.	Monthly		
	Calculate annually discharge from treatment system based on monthly discharges.	Annually in June		
	Analyze samples of influent for parameters in List A in the SPDES limitations issued by NYSDEC. Analysis plan is in Appendix I.	Monthly		
	Analyze samples of effluent for parameters List A the SPDES limitations issued by NYSDEC. Analysis plan is in Appendix I.	Monthly		
	Analyze samples of influent for parameters List B in the SPDES limitations issued by NYSDEC. Analysis plan is in Appendix I.	Annually in June		
	Analyze samples of effluent for parameters List B in the SPDES limitations issued by NYSDEC. Analysis plan is in Appendix I.	Annually in June		
Cascade Splitter Structure and Cascade Aerator	Exercise weir gates to confirm operation. Reseal cover over splitter structure if it needs to disturbed to exercise gates.	Annual	Gate doesn't operate for full range	Repair as needed
	Check that flow from each corrugated pipe is approximately equal	Monthly	Unequal flows	Adjust weir gates to equalize flows.
	Inspect outlet pipes from splitter structure to manholes for obstructions for sediment buildup.	Quarterly	Blockage greater than 25%	Clean pipes.
	Inspect corrugated pipes for sediment buildup.	Quarterly	Blockage greater than 25% or more than 4-inches of buildup	Clean pipes.

TABLE 3 *PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS* *FORMER SINCLAIR REFINERY* *WELLSVILLE, NEW YORK*				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Biofilter	Check for evidence of burrowing animals.	Quarterly	Burrows present	Fill burrows with mulch.
	Check moisture content of media at approximately 6-inches below surface of media.	Monthly in summer	Media is dry.	Add water to media
	Check depth of media in biofilter.	Annual	Freeboard greater than four-inches.	Add pine bark mulch to replenish media.
Biofilter Blower	Check blower vacuum and record value.	Monthly	On-Site to provide operating data	Check lines to blower and cover on cascade aerator for leaks and repair leaks, if present.
	Check oil level in blower.	Monthly	Low oil level.	Replenish oil.
	Check blower for oil leaks	Monthly	Oil leaks below blower	Repair as needed
	Open valve on inlet line to drain condensate.	Monthly	Valve doesn't operate	Repair as needed
	Check condition of enclosure and lines.	Monthly	Damage	Repair as needed
Sedimentation Pond	Visual inspection for vegetation in or around pond.	Quarterly	Vegetation	Remove vegetation.
	Check for animals burrowing around pond.	Quarterly	Burrows	Fill burrows with topsoil
	Check position and condition of turbidity curtains.	Monthly	Curtains are not secured to anchor blocks. Curtains are damaged.	Re-attach curtains to anchor blocks. Repair or replace curtains.
	Assess need to clean pond based on iron concentrations in influent since last cleaning and prior cleaning results.	Semi-annual	Operator judgment.	Clean pond
Sedimentation Pond Outlet	Set outlet for summer operation.	Annual in spring	After potential for freezing is past.	
	Set outlet for winter operation.	Annual in late fall	Before potential for formation of more than 1-inch of ice.	

TABLE 3 ***PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Hydraulic Control / Splitter Structure	Exercise weir gates to confirm operation.	Annual	Gate doesn't operate for full range	Repair as needed
	Check that water level in sedimentation pond is approximately 1,508 feet-msl.	Monthly	Water level in sedimentation pond is below 1,507.5 feet-msl.	Adjust weir gates to raise water level in sedimentation pond.
	Check that flow to each of surface flow wetlands is approximately equal.	Monthly	Unequal flows	Adjust weir gates to equalize flows.
	Confirm that there is no debris in structure and no blockages of the pipes to the SFWs.	Bi-Weekly	Debris or blockage	Clean as needed.
Recycle Pump in Hydraulic Control Splitter	Assess need to operate recycle pump by reviewing previous effluent analytical results.	Quarterly	Consistent or frequent exceedances of the SPDES discharge limits while the aerator blowers for the SFWs are operating.	Operate recycle pump.
	Check pump operation	Quarterly	Pump does not operate.	Troubleshoot and repair.
Surface Flow Wetlands	Check for geese establishing residence within or near wetlands	Whenever present at site	Waterfowl in and near wetlands. Nesting geese or other waterfowl.	Harass geese and other waterfowl to prevent nesting (see Appendix zz for methods). If geese are nesting assess whether damage warrants obtaining permit from USDA and NYSDEC to disturb nests.
	Check for presence of muskrats within wetlands.	Monthly	Muskrats observed in or near wetlands. Muskrat dens on platforms in wetlands.	Trap muskrats in accordance with current NYSDEC Permit to Take Destructive Wildlife (see Appendix K).

TABLE 3 ***PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Surface Flow Wetlands (continued)	Visual inspection of condition of vegetation on platforms in basins.	Monthly	Areas of impacted or missing vegetation	Implement geese and muskrat control measures, if needed (see above). Transplant cattails from an off-site source to fill areas of sparse vegetation.
	Measure thickness of topsoil on vegetated platforms.	Annual	Topsoil thickness less than 3-inches.	Add topsoil to bring thickness to 6-inches.
	Visually inspect condition of base of deep basins in surface flow wetlands.	Once every three years	More than 0.5-inch of iron precipitates.	Develop and implement plan to remove precipitate.
	Survey dikes around and between wetlands to assess settlement.	Every two years for 10 years, then every five years.	Settlement greater than 0.1 foot from design elevation of 1,508.5 ft-msl or previous survey.	Develop and implement plan to address settlement.
	Topsoil on walls of basin berms.	Quarterly	Areas of sloughing. Exposed liner or erosion	Backfill eroded areas and restore as needed. Cover exposed liner with topsoil and seed.
Surface Flow Wetland Blowers	Evaluate whether blower is to be operated by reviewing previous effluent analytical results, expected weather conditions, and expected influent.	Monthly	Consistent or frequent exceedances of the SPDES discharge limits in conjunction with cold weather (average temperature less than 30^{o}F) and high VOC loading in influent.	Operate blowers
	Check blower pressure and record value, if operating	Weekly	On-Site to provide operating data	(Need input form On-Site)
	Check oil level in blowers, if operating	Weekly	Low oil level	Replenish oil.
	Check blowers for oil leaks, if operating	Weekly	Oil leaks below blower	Repair as needed
	Check condition of enclosures	Weekly	Damage	Repair as needed

TABLE 3 *PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS* *FORMER SINCLAIR REFINERY* *WELLSVILLE, NEW YORK*				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Surface Flow Wetland Blowers (continued)	Check aeration lines in surface wetlands for leaks, if operating	Weekly	Leaks Floating lines	Repair as needed
Surface Flow Wetland Hydraulic Control Structures	Exercise weir gates to confirm operation.	Annual	Gate doesn't operate for full range	Repair as needed
	Confirm that there is no debris in structure and no blockages on the outlet pipes.	Weekly	Debris or blockage	Clean as needed.
	Set water level to approximately 4 to 6 inches above vegetated benches.	Annual in spring	After potential for freezing is past.	
	Set water level to at least 18 inches above vegetated benches.	Annual in late fall	Before potential for formation of more than 1-inch of ice.	
Vertical Flow Wetland Splitter Structure	Exercise weir gates to confirm operation	Annual	Gate doesn't operate for full range	Repair as needed
	Confirm that there is no debris in structure and no blockages on the outlet pipes.	Weekly	Debris or blockage	Clean as needed.
	Confirm that flow is approximately equal to each of the five vertical flow wetlands.	Monthly	Unequal flows	Adjust weir gates to equalize flows.
Vertical Flow Wetlands	Check for animals burrowing around cell.	Quarterly	Burrows present	Cover burrows with topsoil and reseed.
	Survey dikes around and between wetlands to assess settlement.	Every two years for 10 years, then every five years.	Settlement greater than 0.1 foot from design elevation of 1,505.5 ft-msl or previous survey.	Develop and implement plan to address settlement.
	Topsoil on walls of basin berms.	Quarterly	Exposed liner or erosion	Cover exposed liner with topsoil and seed. Backfill eroded areas and restore as needed.
	Visual inspection of limestone	Annual	More than 0.5-inch of iron precipitate on surface of limestone	Remove and replace upper 1-foot of limestone

TABLE 3 ***PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Vertical Flow Wetlands (continued)	Evaluate effectiveness of limestone by reviewing pH in effluent for past 12 months.	Annual	pH level consistently trending downward toward discharge limit.	Remove and replace limestone
Dosing Siphon Structures	Visual inspection of interior of structures.	Quarterly	Debris or blockage	Clean as needed.
	Confirm that dosing siphons are cycling.	Monthly	Water level does not change in wetland	Troubleshoot and repair as needed
Effluent Manhole and Outfall	Visual observation of flow in effluent manhole	Monthly	Discolored or no flow.	Troubleshoot and repair as needed.
	Visual observation of flow at outfall	Monthly	Discolored or no flow.	Troubleshoot and repair as needed.
	Visual inspection of effluent manhole	Monthly	Debris or blockages	Clean, as needed
	Visual inspection of outfall pipe in swale	Monthly	Debris or blockages	Clean, as needed
Drying Beds	Check condition of stop logs when residuals are stored in drying beds	Weekly	Leakage	Repair stops logs and cleanup leakage
	Confirm that sand layer in base of bed is adequate.	Prior to transferring residuals to beds	Sand layer less than 12-inches thick	Add sand
	Check for standing liquids in beds	Weekly	Free liquids in beds	Open valves on drainage lines.
	Check for debris or blockages in catch basin on pad west of beds	Monthly	Blockage or excessive debris	Clean catch basin

TABLE 3 ***PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***				
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*
Drying Beds (continued)	Assess moisture content of residuals in drying beds	Quarterly	Material will pass paint filter test	Schedule transport for off-site disposal a licensed facility as needed.
Drying Bed Sump Pump	Exercise valves on drainage lines from drying beds to drainage sump.	Annual and prior to transferring sludge to drying beds	Valves do not operate properly	Repair as needed
	Confirm pump operation	Monthly and prior to transferring sludge to drying beds.	Pump does not operation	Troubleshoot and repair as needed
	Confirm function of check valve in meter box.	Monthly	Improper operation.	Troubleshoot and repair as needed
	Float switch elevations	Quarterly	Elevations deviate from plan by more than 0.25-feet.	Adjust elevations of float switches.
	Float switch operation	Monthly	Switches do no operate	Troubleshoot and repair as needed
	High high level alarm	Whenever at the site	High high level alarm is on	Troubleshoot and repair as needed

TABLE 4
PROPOSED RIVER CHANNEL AND SWALE O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

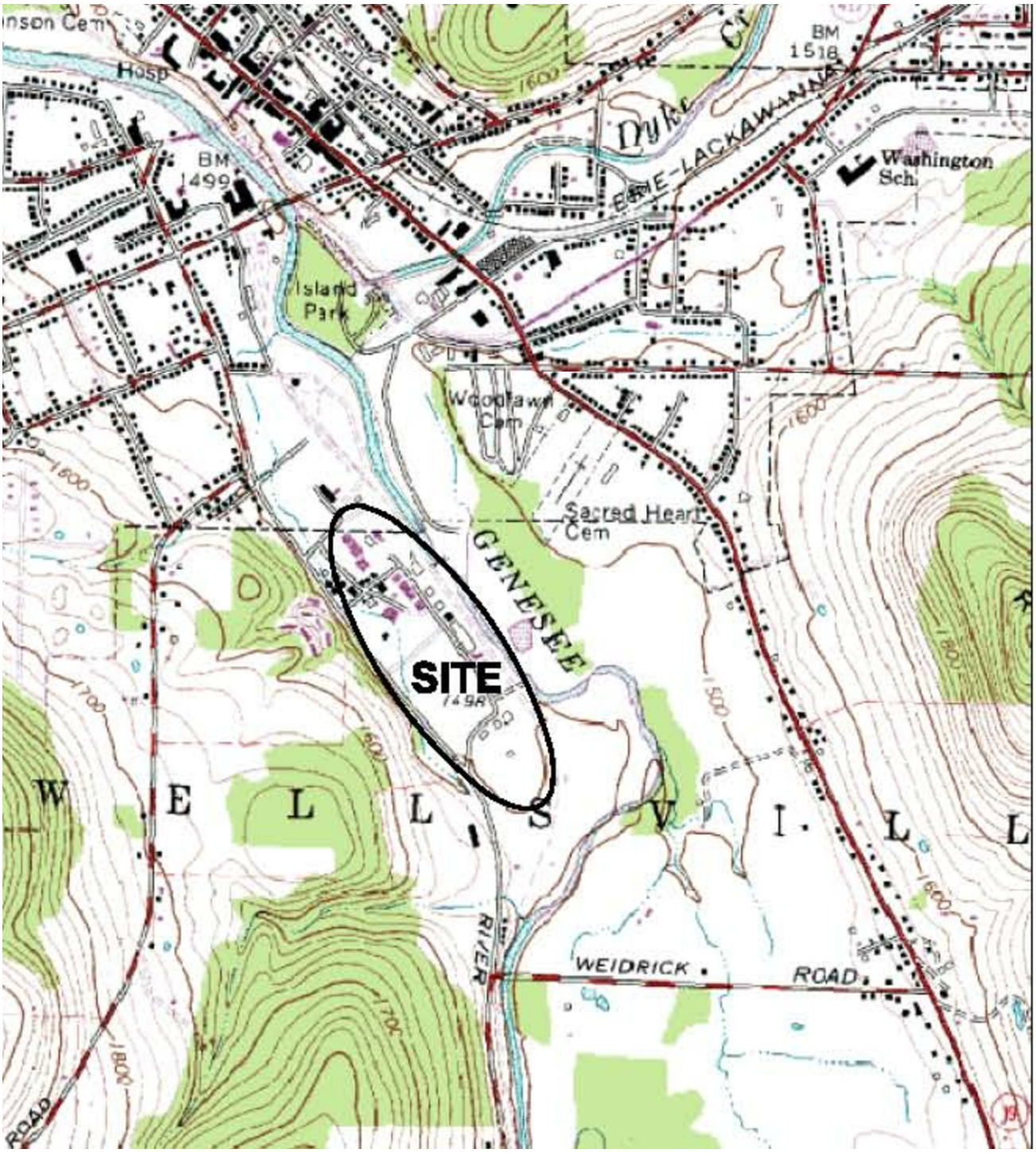
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*TYPE*		
					RP	*IM*	*GO*
Rip-rap revetment on east river bank near CELA	Visual inspection	Annual during low river flow (<180 cfs)*	Damage. such sloughing or erosion.	Repair damage by replacing rip-rap to design grades.	X		
	Visual inspection	After each high water period (>4,500 cfs)*	Damage, such as sloughing or erosion	Repair damage by replacing rip-rap to design grades.	X		
Dike between CELA and Genesee River	Visual inspection of rip-rap revetment	Annual during low river flow (<180 cfs)*	Damage. such sloughing or erosion.	Repair damage by replacing rip-rap to design grades.	X		
	Visual inspection of rip-rap revetment	After each high water period (>4,500 cfs)*	Damage, such as sloughing or erosion	Repair damage by replacing rip-rap to design grades.	X		
	Visual inspection, if safe.	During high water event (>4,500 cfs)*, if safe	Damage that might jeopardize the integrity of the dike.	Repair damage, as needed, after water level recedes	X		
	Visual inspection of trail on top of dike.	Annual	Water ponding or ruts	Fill low areas with NYSDOT 401 aggregate	X		
	Survey elevation of top of dike CELA and river at 200-foot intervals to assess settlement. Survey toe of slope to check for displacement or settlement of rip-rap revetment.	Every five years during a low river flow (<180 cfs)*	Excessive settlement or movement.	Review information with NYSDEC to evaluate whether correction action is needed.	X		
Rip-rap revetment and dike on west river bank downstream of lower drop structure	Visual inspection	Annual during low river flow (<180 cfs)*	Damage. such sloughing or erosion.	Repair damage by replacing rip-rap to design grades.	X		

TABLE 4
PROPOSED RIVER CHANNEL AND SWALE O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*TYPE*		
					RP	*IM*	*GO*
	Visual inspection	After each high water period (>4,500 cfs)*	Damage, such as sloughing or erosion	Repair damage by replacing rip-rap to design grades.	X		
	Survey toe of slope to check for displacement or settlement of rip-rap revetment.	Every five years during a low river flow (<180 cfs)*	Excessive settlement or movement.	Review information with NYSDEC to evaluate whether correction action is needed.	X		
Water Level Control Berm at South End of Swale	Visual inspection	Quarterly	Damage. such sloughing or erosion. Vegetation.	Repair damage by replacing rip-rap to design grades. Remove vegetation.	X		
	Visual inspection of vegetation on side slope of levee between the WLCB and the Genesee River.	Monthly Bi-Weekly during summer months.	Vegetation taller than 12-inches within 10 feet of the interface of the WLCB and levee.	Cut to height no shorter than 3-inches.	X		X
	Monitor toe of levee between the WLCB and the Genesee River for seepage.	Quarterly	Observation of significant seepage	Review information with NYSDEC to evaluate whether correction action is needed.	X		
	Dewater pool behind WLCB.	When requested by NYSDEC			X		

Notes:
RP – Include in Work Plan to Agencies
IM – Include in Integrity Management Plan
GO – Good Operating Practice included in Integrity Management Plan
* - River flow data is available from the USGS National Water Information System for the Genesee River at USGS gauging station 04221000, which is approximately 1.8 miles downstream of site.

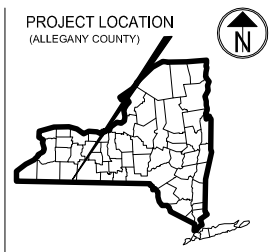
FIGURES



REFERENCE: USGS 7.5 MINUTE QUADRANGLE; WELLSVILLE SOUTH, N.Y. QUADRANGLE; 1976

0 1/8 1/4

SCALE 1" = 1/4 MILE

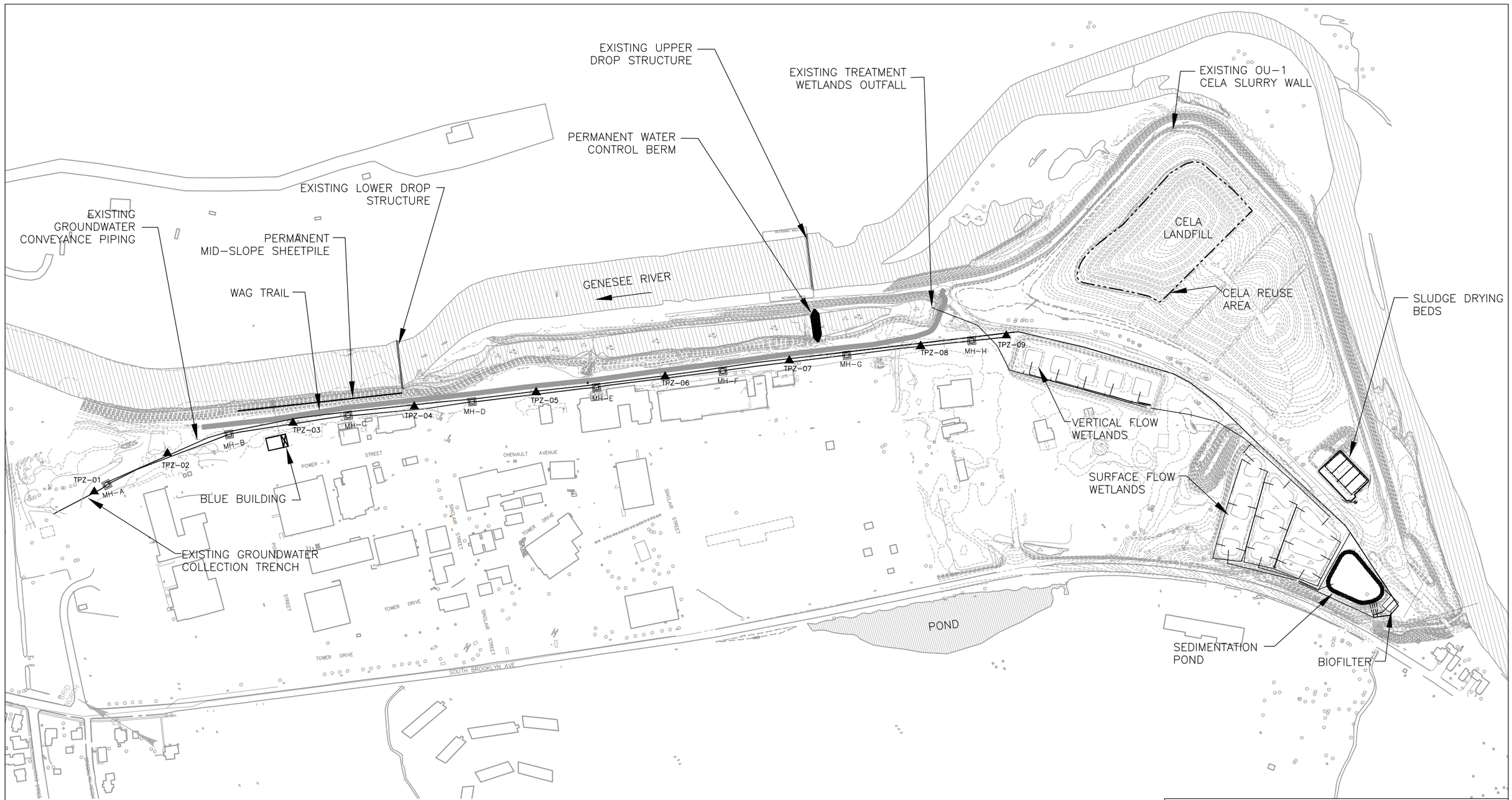


URS

FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

FIGURE 1
SITE LOCATION MAP

K:\Projects\B\BP-Wellsville\13812259\DWGs\Figures\O&M Manual\Figure 1 - site location map.dwg User: giri_samavedam Oct 17, 2011 - 10:27am



LEGEND

- PIPING FOR WATER TREATMENT SYSTEM
- CELA REUSE AREA
- WAG TRAIL
- ▲ PEIZOMETER LOCATIONS

0 150 300

SCALE: 1"=300'

NOTE: GROUNDWATER COLLECTION AND CONVEYANCE PIPING ALIGNMENT OBTAINED FROM 2009 ASBUILT SURVEY PERFORMED BY JIM BALL SURVEYORS

URS

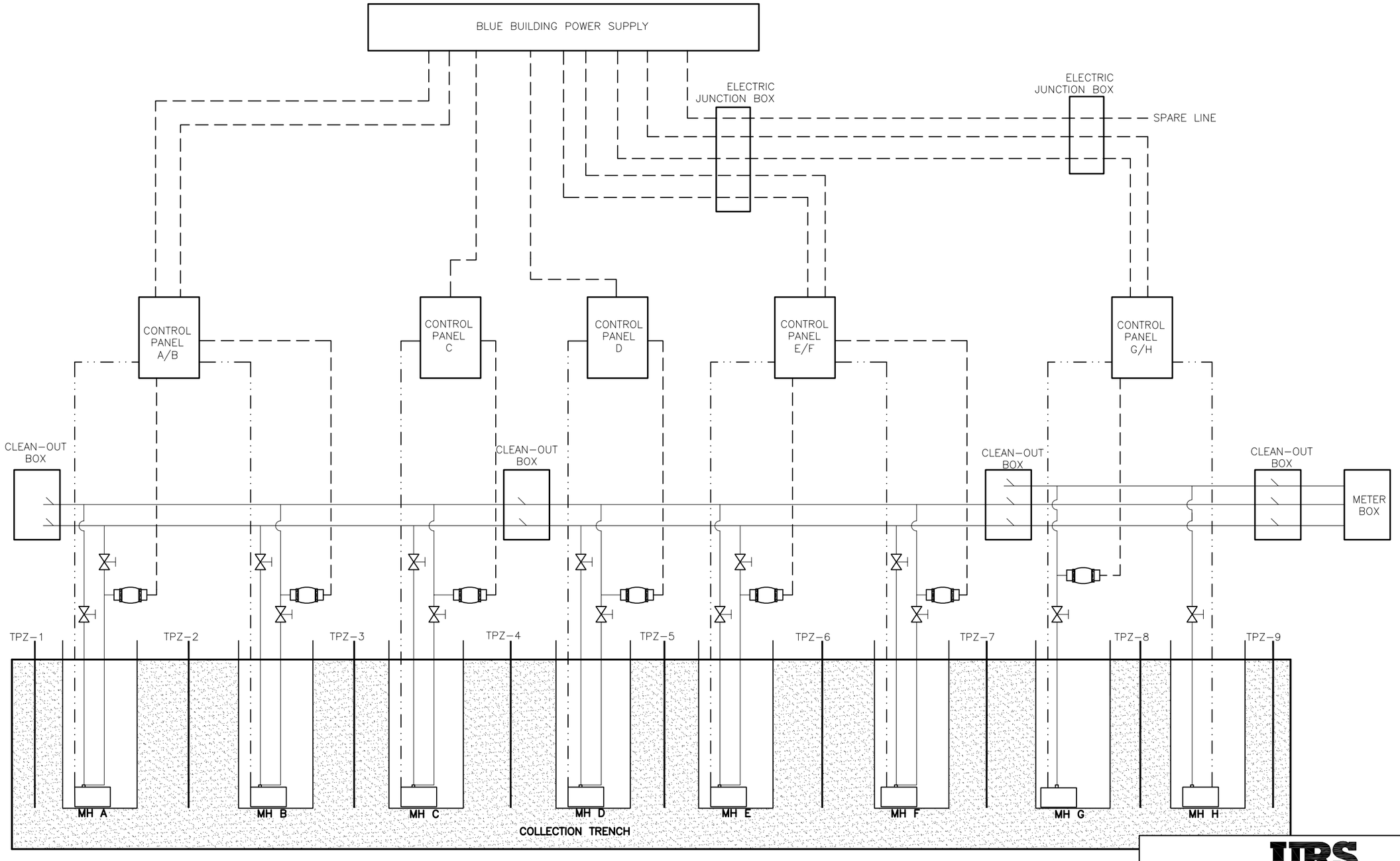
FORMER SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

SITE FEATURES

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	FIGURE No:
ACY	GS	13812259	07/12/11	2

K:\Projects\B\BP-Wellsville\13812259\DWGs\Figures\O&M Manual\Figure 2 - site features.dwg User: giri_samavedam Jul 21, 2011 - 12:11pm



LEGEND

- SIGNAL LINES
- ELECTRIC LINES
- TOTALIZER
- VALVE

NOT TO SCALE

URS

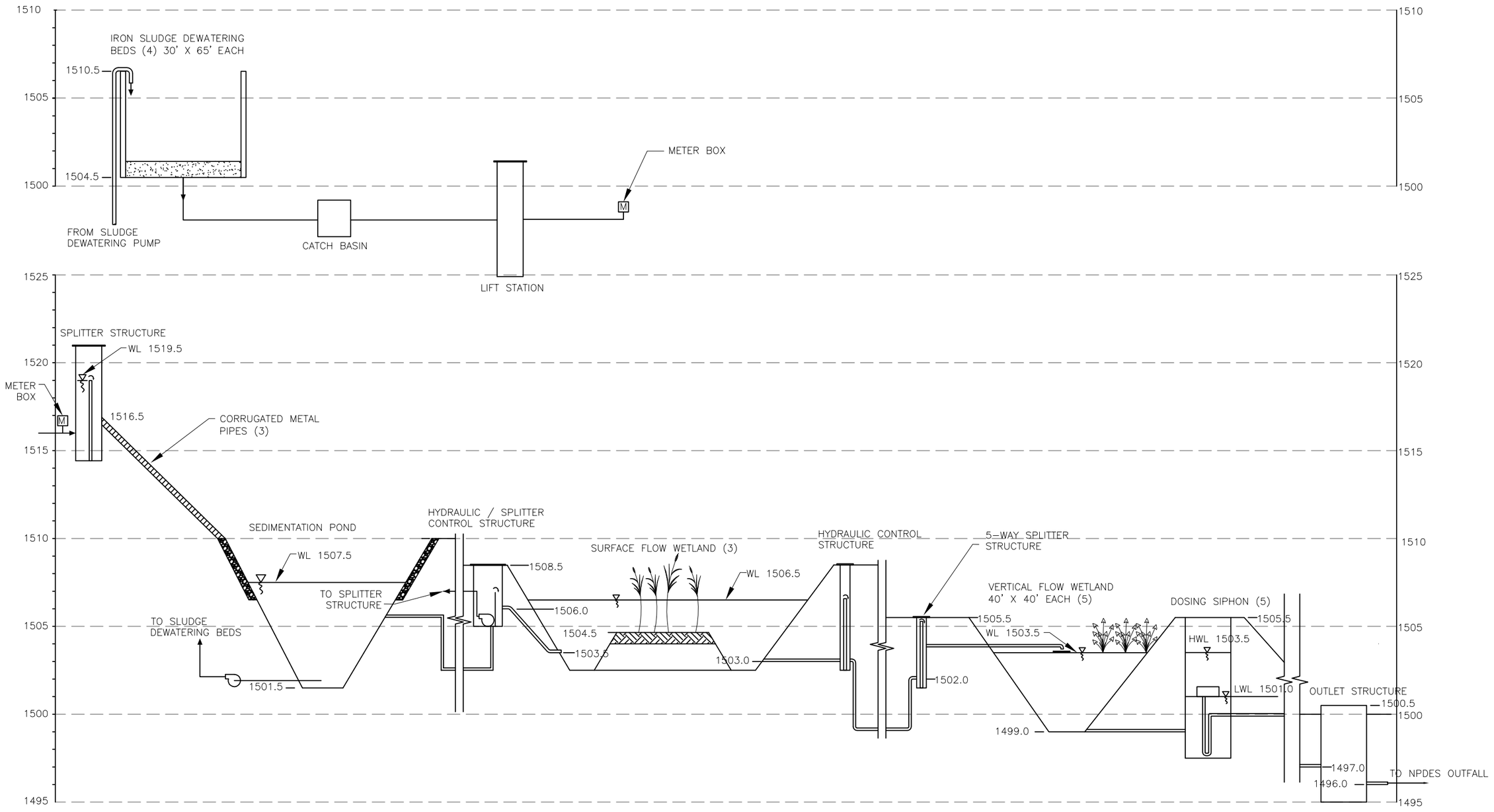
FORMER SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

PROCESS FLOW DIAGRAM FOR COLLECTION SYSTEM

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	FIGURE No:
GS	MLS	13812259	07/11/11	3

K:\Projects\B\BP–Wellsville\13812259\DWGs\Figures\O&M Manual\Figures 3 and 4\Figure 3 – Process Flow Diagram.dwg User: giri_samavedam Jul 21, 2011 – 12:10pm



WETLAND TREATMENT PROCESS FLOW DIAGRAM

NOT TO SCALE

URS

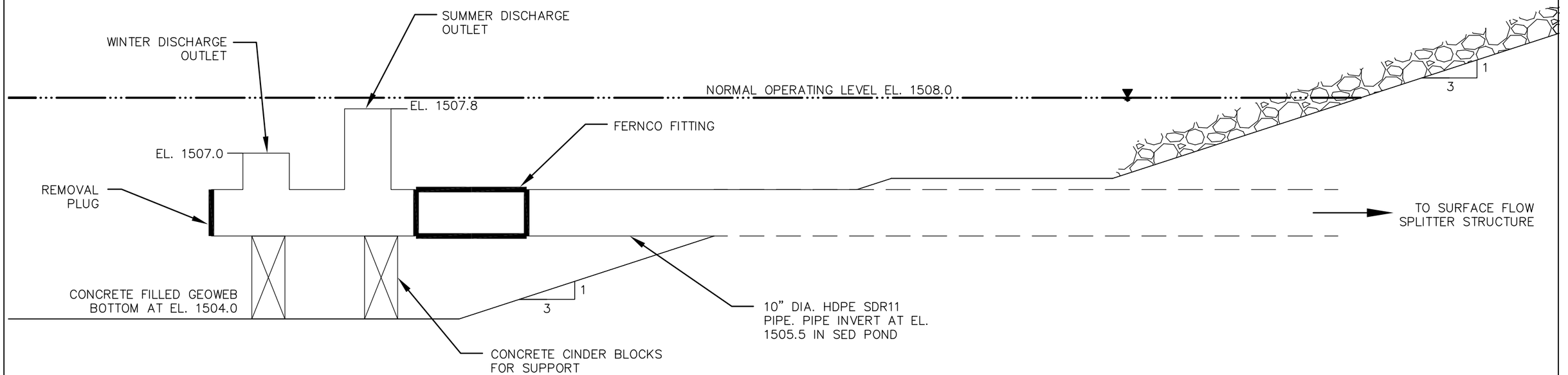
FORMER SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

PROCESS FLOW DIAGRAM FOR TREATMENT SYSTEM

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	FIGURE No:
ACY	GS	13812259	07/12/11	4

K:\Projects\B\BP-Wellsville\13812259\DWGs\Figures\O&M Manual\Figures 3 and 4\Figure 4 - Process Flow Diagram.dwg User: giri_samavedam Oct 17, 2011 - 9:19am



NOT TO SCALE

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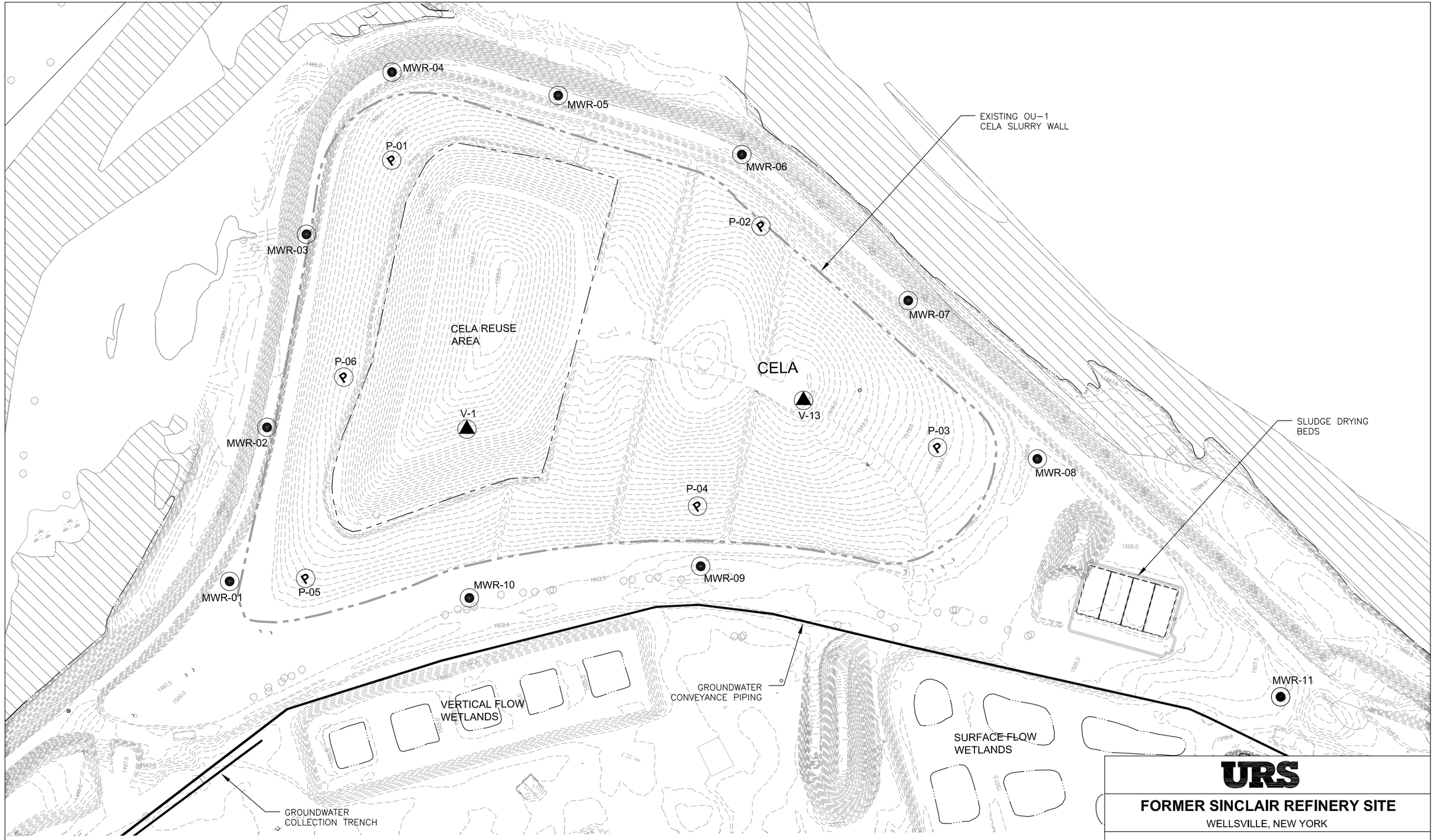
FORMER SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

SED POND OUTLET MODIFICATIONS

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	FIGURE No:
GS	MLS	13812259	07/12/11	5

K:\Projects\B\BP-Wellsville\13812259\DWGs\Figures\O&M Manual\Figure 5\Sed Pond Outlet Modification.dwg User: giri_samavedam Jul 21, 2011 - 3:20pm



0 60 120

SCALE: 1"=120'

N

LEGEND

P PEIZOMETER LOCATIONS

GAS VENT LOCATIONS

MONITORING WELL LOCATIONS

URS

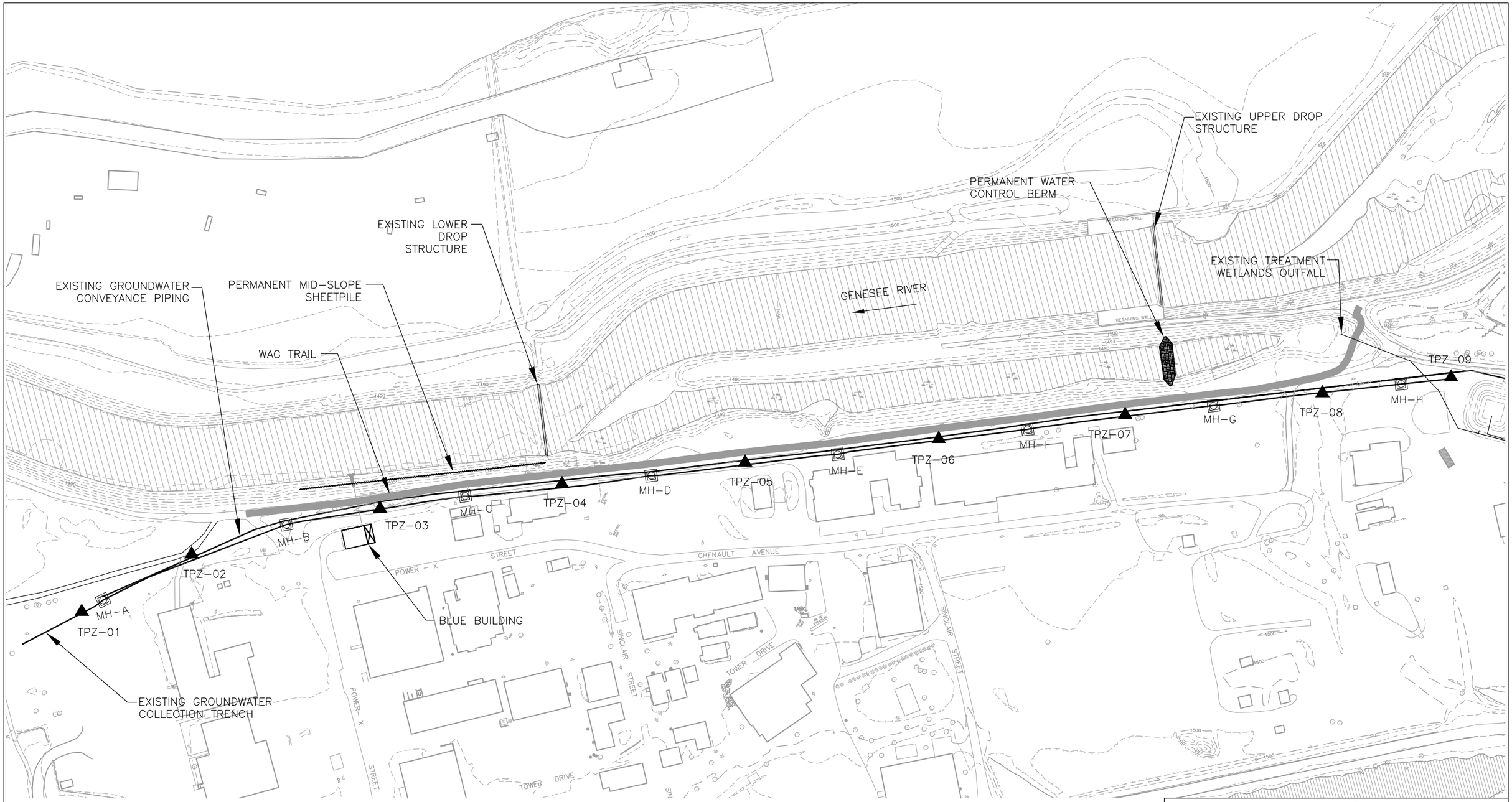
FORMER SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

CELA GAS VENTS, PIEZOMETERS AND MONITORING WELLS

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	FIGURE No:
GS	MLS	13812259	07/11/11	6

K:\Projects\B\BP-Wellsville\13812259\DWGs\Figures\O&M Manual\Figure 6\Figure 6 - CELA Gas vents and GM Wells.dwg User:giri_samavedam Jul 21, 2011 - 3:40pm



LEGEND

- ▲ PEIZOMETER LOCATIONS
- WAG TRAIL
- PIPING FOR WATER TREATMENT SYSTEM

0 100 200

SCALE: 1"=200'

NOTE: GROUNDWATER COLLECTION AND CONVEYANCE PIPING ALIGNMENT OBTAINED FROM 2009 ASBUILT SURVEY PERFORMED BY JIM BALL SURVEYORS

URS

FORMER SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

GROUNDWATER COLLECTION SYSTEM FEATURES

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	FIGURE No:
ACY	GS	13812259	07/12/11	7

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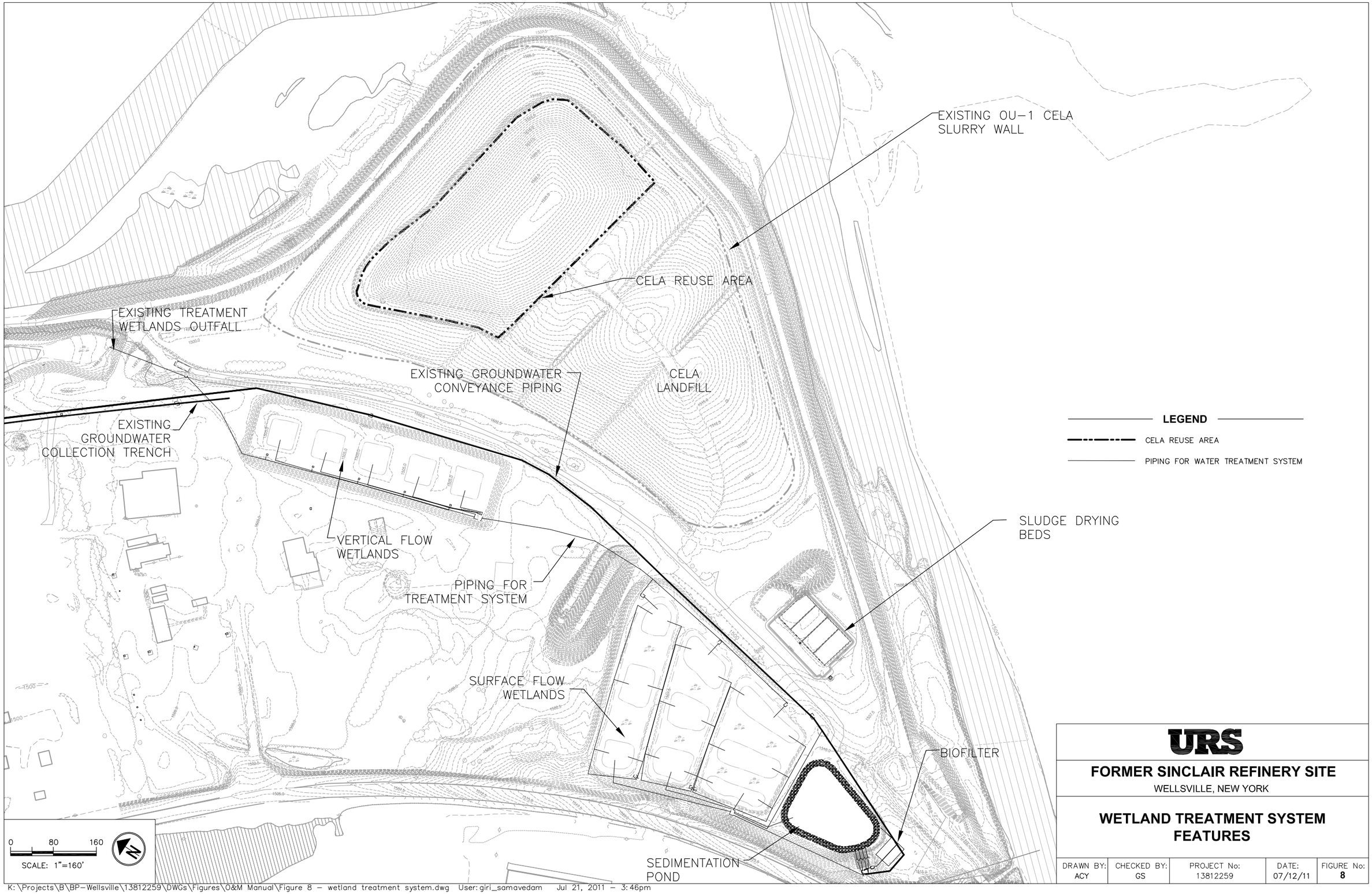

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FORMER SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

WETLAND TREATMENT SYSTEM FEATURES

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	FIGURE No:
ACY	GS	13812259	07/12/11	**8**

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APPENDIX A
ELECTRONIC O&M PLAN

APPENDIX B
SPDES LIMITATIONS FOR WETLAND TREATMENT SYSTEM

Former Sinclair Refinery Site Site Number USEPA ID # NY-D98-0535215

New York State Department of Environmental Conservation

Division of Water
Bureau of Water Permits, 4th Floor
625 Broadway, Albany, New York 12233-3505
Phone: (518) 402-8111 • **FAX:** (518) 402-9029
Website: www.dec.state.ny.us

August 3, 2009

Mr. Eric J. Larson, Environmental Business Manager
Atlantic Richfield Company
Suite 440, 1 West Pennsylvania Avenue
Towson, MD 21204

Re: **Former Sinclair Refinery Site: Operable Unit 2 Wellsville, New York**
SPDES # 902003, USEPA CERCLA Facility ID NYD980535215

Dear Mr. Larson:

In response to your request of May 21, 2008, the Department has approved a twelve (12) month extension of the startup time, from June 2009 to June 2010. The new startup date will be June 03, 2010.

With this request the Department is also providing a modified list of effluent limitations and monitoring requirements, for the above remediation site discharge, which will apply during this period.

Sampling and analysis of monitoring parameters are to proceed according to the following schedule: (a) weekly sampling during the period July and August of 2009, and (b) monthly sampling from for the period September 01, 2009 through June 30, 2010. Sampling and analysis of the weekly and subsequent monthly sampling will follow the Effluent and Discharge Limitations (A). The Department is also requiring that an annual sampling be completed the twelfth month of the extension period, and annually for subsequent 12-month cycles, and the results of data analysis from the 12th month sampling be submitted with the treatment facility's report to the Region for annual certification. The annual sampling will follow Effluent Limitations and Monitoring Requirements (B). The Department further reserves the right to review performance data in order to establish compliance or to reconsider any effluent limitation.

The DOW does not have regulatory authority over a discharge from a State, PRP, or Federal Superfund Site. DER will be responsible for ensuring compliance with the attached effluent limitations and monitoring requirements, and approval of engineering submissions. Footnote 1 identifies the appropriate DER Section Chief to whom all effluent results, engineering submissions, and modification requests, should be forwarded. The Regional Water Engineer should be kept appraised of the status of this discharge and, in accordance with the attached criteria, should receive a copy of effluent results for informational purposes.

If you have any questions, please call me at (518) 402-8120.

for P.M.

Perceival Miller
NYSDEC Division of Water, Bureau of Water Permits
Attachment (Effluent Limitations and Monitoring Requirements)

cc: Regional Water Engineer (w/attach)
BWP Section Chief, DOW (w/attach)
Ron Entringer, DOW (w/attach)

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (A)

During the period beginning June 04, 2010

and lasting until (30 years)

the discharges from the treatment facility via Outfall SP-219, Latitude 42°6'27"and Longitude 77°56'18", to the Genessee River, Water Index Number Ont.117, Class A(T) , RECEIVING WATER, shall be limited and monitored by the operator as specified below:

Outfall Number and Parameter	Discharge Limitations		Units	Minimum Monitoring Requirements	
	Monthly Avg.	Daily Max		Measurement Frequency	Sample Type
Outfall 001 - Treated Groundwater Remediation Discharge:					
Flow	Monitor	216,000	GPD	Continuous	Meter
pH (range)	6.5 to 8.5		SU	Monthly	Grab
TSS		10.0	mg/l	1/Month	Grab
Benzene		5.0	µg/l	1/Month	Grab
Chloroethane		5.0	µg/l	1/Month	Grab
Ethylbenzene		5.0	µg/l	1/Month	Grab
Acenaphthene		10.0	µg/l	1/Month	Grab
Fluorene		10.0	µg/l	1/Month	Grab
Naphthalene		10.0	µg/l	1/Month	Grab
Phenanthrene		10.0	µg/l	1/Month	Grab
Nitrobenzene		5.0	µg/l	1/Month	Grab
Toluene		5.0	µg/l	1/Month	Grab
2-Methylnapthalene		42	µg/l	1/Month	Grab
Xylenes, Total (*o*, *m*, and *p*)		15	µg/l	1/Month	Grab
Aniline		10.0	µg/l	1/Month	Grab
Vinyl Chloride		0.7	µg/l	1/Month	Grab
1,1-Dichloroethane		5.0	µg/l	1/Month	Grab
Iron, Total		0.3	mgl	1/Month	Grab
Arsenic, Total		0.036	mg/l	1/Month	Grab
Manganese, Total		0.3	mg/l	1/Month	Grab

(A) The above sampling and monitoring requirements are to apply for the full (12) months of each annual cycle beginning in June 2009, and thereafter. The Effluent Limitations (B) shall also apply to the final month of each annual cycle, until further notice from the Department.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (B)

During the period beginning June 04, 2009 and ending June 04, 2010; and thereafter, the following requirements under list (B) shall apply to the final month of each 12 month cycle, until further notice:

the discharges from the treatment facility via Outfall SP-219, Latitude 42°6′27″and Longitude 77°56′18″, to the Genessee River, Water Index Number Ont.117, Class A(T) , RECEIVING WATER, shall be limited and monitored by the operator as specified below:

Outfall Number and Parameter	Discharge Limitations		Units	Minimum Monitoring Requirements	
	Monthly Avg.	Daily Max		Measurement Frequency	Sample Type
Outfall 001 - Treated Groundwater Remediation Discharge:					

Outfall Number and Parameter	Discharge Limitations		Units	Minimum Monitoring Requirements	
	Monthly Avg.	Daily Max		Measurement Frequency	Sample Type
Flow	Monitor	216,000	GPD	Continuous	Meter
pH (range)	6.5 to 8.5		SU	Monthly	Grab
BOD5		5.0	mg/l	1/week	Grab
TSS		10.0	mg/l	1/week	Grab
TDS		200	mg/l	1/week	Grab
TKN		Monitor	mg/l	1/week	Grab
Ammonia		0.66	mg/l	1/week	Grab
Benzene		5.0	mg/l	1/week	Grab
Chloroethane		5.0	mg/l	1/week	Grab
Ethylbenzene		5.0	mg/l	1/week	Grab
Acenaphthene		10.0	mg/l	1/week	Grab
Fluorene		10.0	mg/l	1/week	Grab
Naphthalene		10.0	mg/l	1/week	Grab
Phenanthrene		10.0	mg/l	1/week	Grab
Nitrobenzene		5.0	mg/l	1/week	Grab
Toluene		5.0	mg/l	1/week	Grab
2-Methylnapthalene		42	mg/l	1/week	Grab
Xylenes, Total (*o*, *m*, and *p*)		15	mg/l	1/week	Grab
2-Butanone		50	mg/l	1/week	Grab

Aniline		10.0	mg/l	1/week	Grab
Vinyl Chloride		0.7	mg/l	1/week	Grab
1,1-Dichlorocthane		5.0	mg/l	1/week	Grab
Barium		1.0	mg/l	1/week	Grab
Iron		0.3	mg/l	1/week	Grab
Aluminum		0.1	mg/l	1/week	Grab
Arsenic**		0.036	mg/l	1/week	Grab
Manganese		0.3	mg/l	1/week	Grab
Magnesium		35.0	mg/l	1/week	Grab
Chloride		250	mg/l	1/week	Grab
Phosphorous		0.02	mg/l	1/week	Grab
Nitrite		0.02	mg/l	1/week	Grab

Additional Conditions:

(1) Discharge is not authorized until such time as an engineering submission showing the method of treatment is approved by the Department. The discharge rate may not exceed the effective or design treatment system capacity. All monitoring data, engineering submissions and modification requests must be submitted to:

Martin L. Doster, P.E., Regional Hazardous Waste Engineer
Division of Environmental Remediation (DER)
NYSDEC, 270 Michigan Avenue, Buffalo, NY 14203, (716) 851-7220

With a copy sent to:

Regional Water Engineer, Region 9
270 Michigan Avenue
Buffalo, NY 14203

(2) Only site generated wastewater is authorized for treatment and discharge.

(3) Authorization to discharge is valid only for the period noted above but may be renewed if appropriate. A request for renewal must be received 6 months prior to the expiration date to allow for a review of monitoring data and reassessment of monitoring requirements.

(4) Both concentration (mg/l or µg/l) and mass loadings (lbs/day) must be reported to the Department for all parameters except flow and pH.

(5) Any use of corrosion/scale inhibitors, biocidal-type compounds, or other water treatment chemicals used in the treatment process must be approved by the department prior to use.

(6) This discharge and administration of this discharge must comply with the substantive requirements of 6NYCRR Part 750.

APPENDIX C
FLOOD CONTROL LAND USE PERMITS

(6)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DEC PERMIT NUMBER: 09-08

FACILITY NAME: Wellsville, FCP

EFFECTIVE DATE:

EXPIRATION DATE:

APPLICATION FOR PERMIT

Under the Environmental Conservation Law
Article 16 Flood Control Land Use

TYPE OF PERMIT (Check All That Apply)
☒ New ☐ Renewal ☐ Modification ☐ Major ☐ Minor ☐ Temporary

Please Type or Print Clearly in Ink

1. NAME OF APPLICANT: Atlantic Richfield Company

2. MAILING ADDRESS: 1 West Pennsylvania Ave. Suite 440

3. TELEPHONE NUMBER: (410) 825-2880

4. CITY/POST OFFICE: Towson

5. STATE: MD

6. ZIP CODE: 21204

7. LOCATION OF STATE MAINTAINED FLOOD CONTROL LAND
City, Town or Village: Wellsville, New York

County: Allegany

Location

8. PROJECT DESCRIPTION/REASON FOR USE OF FLOOD CONTROL LAND (ATTACH SUPPORTING DOCUMENTATION)

The reason for use of flood control land along the Genesee River in Wellsville, New York is to implement the planned strategy for the Phase II Remediation at Operable Unit 2 (OU-2) for the former Sinclair Refinery in Wellsville, New York. The Final 100% Design Revisions were submitted to USEPA in June 2008. Formal approval of the 100% Design work was received on August 27, 2008.

The Phase II Remediation work involves the following components: 1) downgradient barrier (soil-bentonite slurry wall) along the Genesee River Bank; 2) excavation of 5,000 cubic yards of sediment from the Genesee River using sheet pile to contain the excavation area; 3) excavation of 2,800 cubic yards of sediment from the main drainage swale; and 4) excavation of 3,600 cubic yards of bank soils along the Genesee River. Excavated material will be placed in the existing onsite CELA (Central Elevated Landfill Area) that was constructed for Operable Unit 1. Details of the 100% Design and copies of drawings and specifications are attached.

9. DESIGN ENGINEER: Name of Agency or Individual: URS Corporation – Vik Gautam

P.E. LICENSE NO. OF INDIVIDUAL: 70374 Ohio PE

TITLE: Project Engineer

ADDRESS: 1375 Euclid Avenue, Cleveland, Ohio 44115

TELEPHONE NUMBER: (216) 622-2447

10. CONSTRUCTION ENGINEER: Name of Agency or Individual: Donald Porterfield

P.E. LICENSE NO. OF INDIVIDUAL: 071402 NY PE

TITLE: Senior Engineer

ADDRESS: 28 Corporate Drive, Suite 200, Clifton Park, New York 12065

TELEPHONE NUMBER: (518) 688-0015

11. The above named applicant hereby applies to use State maintained flood control lands as indicated above in accordance with the map and plan attached, and pursuant to the conditions and regulations, whether general or special, which are hereinafter set forth; all forming a part hereof, and will obtain any other consents or permits that may be necessary to accomplish the purposes set forth herein.

August 29, 2008 — DATE

Eric Larson — SIGNATURE

Eric Larson, Environmental Business Manager, Atlantic Richfield Company

NAME, TITLE AND COMPANY (Please type or print)

FLOOD CONTROL REGIONAL OFFICE ☒ Approved ☐ Disapproved

October 1, 2008 — DATE

Rhonda A. Myers — SIGNATURE

See Special Conditions

CORPS OF ENGINEERS - REVIEWED

23 Oct 08 — DATE

SIGNATURE

1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Permit Number 09-08

PERMIT GRANTED

PERMITTEE NAME Atlantic Richfield Company			Permission to proceed as set forth and represented in the foregoing application pursuant to Part 501, Title 6 NYCRR, and at the particular location described therein, in accordance with the map and plan hereto attached and pursuant to the conditions and regulations, whether general or special, which are hereinafter set forth; all forming a part hereof, to writ:
ADDRESS 1 West Pennsylvania Ave. Suite 440			
CITY/POST OFFICE Towson	STATE MD	ZIP CODE 21204	

Conditions and Regulations

1. The "Department" shall mean the New York State Department of Environmental Conservation.

2. This permit shall not be assigned or transferred without the written consent of the Department.

3. The work authorized by this permit shall be performed under the supervision and to the satisfaction of representatives of the Department.

4. The Department shall be given 7 days notice by said Permittee of the DATE when he intends to begin work authorized by this permit, and shall be given prompt notice of its completion.

5. The Permittee shall be responsible for all damages resulting in bodily injury, including death and/or property damage liability due to activities of the Permittee, its contractors, sub-contractors of either or both, agents or employers in connection with any act or omission hereunder; and does hereby expressly agree to indemnify and save harmless the United States of America, the Department of the Army Corps of Engineers, the People of the State of New York and /or the Department, its Commissioner, and their representatives and employees from claims, suits, actions, damages and costs of every name and description, arising out of or resulting from any act or omission hereunder.

6. The Permittee shall post a certified check or bond in the amount of $25,000.00 VH to secure the fulfillment of the terms of this permit.

7. Unless expressly waived by the Department, the Permittee shall furnish with the foregoing application a policy of protective liability insurance issued to and covering liability of the People of the State of New York and/or the Department, with respect to all operation under this permit by the Permittee or by anyone acting by, through or for the Permittee, including omissions and supervisory acts of the State. The limits of liability in such policy shall not be less than $1,000,000 per person/per accident for all damages arising out of bodily injury, including death at any time resulting therefrom, sustained by one person in any one accident and, subject to that limit for each person, not less than $2,000,000 aggregate for all damages arising out of injury to or destruction of property in any one accident, and subject to that limit per accident.

The Permittee insurance policy shall also provide protective property damage liability coverage of $1,000,000 for all damages to property in any one accident or occurrence.

Such policy(s) shall state that it(they) will not be changed or canceled until thirty days' written notice has been given to said Department.

8. The enumeration in this permit of the kind and amount of insurance shall not abridge, diminish or affect the Permittee's legal responsibilities for the consequences of accidents arising out of or resulting from the operation of the Permittee under this permit.

9. An undertaking or a certified check in the sum of $50,000.00 VH deposited with the Department by the Permittee before or at the time of issuance of this permit by the Department shall be deemed to include and be used as security that the Flood Control Works or any part thereof will be restored to its original condition where disturbed, at the expense of the Permittee, as soon as the work has been completed, and the said Department is hereby authorized to expend all or as much of such deposit as may be necessary for that purpose, should the said Permittee neglect or refuse to perform the work.

10. The said Department reserves the right to at any time revoke or annul this permit should the Permittee fail to comply with the terms and conditions upon which it is granted.

11. The Permittee agrees to pay all necessary expenses incident to supervision and inspection by reason of the granting of such permit as certified by the Field Engineer of the Department, Flood Control Section, such payment to be made within ten days from the rendering of the certified account.

12. Work under this permit shall be commenced within thirty days from date of permit and continued in an expeditious manner.

13. The Permittee shall submit to said Department a detailed plan of structure to be built, if any, with a description of proposed method of construction, before any work hereunder is started, which plans shall require the prior approval by the Department and any other agency having jurisdiction thereof.

14. Work permitted under this permit shall be progressed in such a manner as to avoid interference with the operation and maintenance of the Flood Control Works.

15. The above named permittee hereby certifies that it has secured compensation for the benefit of, and will keep insured during the performance of the above described work, such employees as are required to be insured, by the provisions of Workers' Compensation Law.

16. The use of State lands shall be subject at all times to the interests of the State and/or the United States of America in making improvements and repairs to the Flood Control Works. The Department, its agent, employees and representatives shall at all times, having a right of entry thereto, if in the judgement of the Department, the interests of the State or the United States of America shall require.

17. Monuments marking the boundary of Flood Control Lands shall be undisturbed and fully protected. A recompense for damages of not less than $25.00 will be imposed for each monument disturbed.

18. The Permittee shall pay the State of New York through the Department a fee of $25.00 for the issuance of this except as otherwise provided.

19. The Permittee shall be responsible for obtaining all necessary permits, rights of entry and other items required by other State agencies, landlords, etc., before commencing work on this permit.

20. A copy of this permit shall be in the possession of the Permittee or his representative at the site of the permitted activity and shall be promptly displayed upon request of a representative of the Department or any other person empowered to enforce the conditions of the permit.

New York State Department of Environmental Conservation
Special Conditions

1. See Attached pp. 1-5

Permit Number 09-08

IN WITNESS WHEREOF, I have hereunto set my hand on this 1 day of July, 20 09.

Department of Environmental Conservation

By _____

In consideration of the granting of the within permit, the undersigned affirming, under penalty of perjury that he/she is acting under authority hereby accepts the same, subject to the restrictions and regulations therein described.

Dated this 2 day of July, 2009.

ERIC J. LARSON
Permittee

By _____ ENVIRONMENTAL Business Mgr
Signature and Title

By _____
Notary Public

CONSTANCE HUSS NOTARY PUBLIC BALTIMORE CO., MD.

My Commission Expires 4/17/13

Permit # 09-08

Special Conditions

1. This Permit application, submitted by the Atlantic Richfield Company, is for implementation of the planned strategy for the Phase II Remediation of the Operable Unit 2 (OU-2) for the former Sinclair Refinery in Wellsville, New York. The approval for the 100% Design work was received from the United States Environmental Protection Agency (USEPA) on April 23, 2009.

   The Phase II Remediation work involves the following components: 1) downgradient barrier (soil-bentonite slurry wall) along the Genesee river Bank; 2) excavation of 5,000 cubic yards of sediment from the Genesee River using sheet pile to contain the excavation area; 3) excavation of 2,800 cubic yards of sediment from the main drainage swale; and 4) excavation of 3,600 cubic yards of bank soils along the Genesee River. Excavated material will be placed in the existing on-site Central Elevated Landfill area (CELA) that was constructed for Operable Unit 1.

   Supporting Documents and Specifications contained in the report titled, "Final (100%) Remedial Design Report - Revision 2. Phase II-2 Remediation at Operable Unit 2, Former Sinclair Refinery Site, Wellsville, New York, dated March 2, 2009" prepared for Atlantic Richfield Company by URS Corporation include:

   Supporting Documents

   "Title" of the "Final (100%) Remedial Design Report - Revision 2. Phase II-2 Remediation at Operable Unit 2, Former Sinclair Refinery Site, Wellsville, New York, dated March 2, 2009." - 1 page

   "Table of Contents" of the *"Report..."* – 2 pages

   Paragraphs 2.2.2, 2.2.2.3, and 2.2.2.4 – pp. 2-12 – 2-15

   Paragraphs 2.6, 2.6.1, 2.6.1.1, and 2.6.1.2; 2.6.2 and 2.6.2.1; 2.6.3; 2.7, 2.7.1 and 2.7.2; 2.8; 2.9; 2.10, 2.10.1, 2.10.2, 2.10.3 and 2.10.4 – pp. 2-20 – 2-30

   Paragraphs 2.12.2 and 2.12.3 – pp. 2-34 – 2-35

   Specifications

   Specifications are labeled "Not for Construction." The Section Number and Title are listed below:

Section 02055	Decontamination	- pp. 02055-1 – 02055-5
Section 02110	Site Preparation and Clearing	- pp. 02110-1 – 02110-9
Section 02115	Erosion and Sediment Control Measures	- pp. 02115-1 – 02115-11
Section 02209	Soil and Sediment Removal/Handling	- pp. 02209-1 – 02209-8

Section 02210	Earthworks	- pp. 02210-1 – 02210-19
Section 02226	Sheet Pile Wall	- pp. 02226-1 – 02226-11
Section 02715	Water Management	- pp. 02715-1 – 02715-5
Section 02939	Swale and Wetland Restoration	- pp. 02939-1 – 02939-12

The Drawings titled, "Final (100%) Phase II-2 Remedial Design, Former Sinclair Refinery Site, Wellsville, New York, prepared by URS Corporation are labeled "For Review Only Not for Construction." The Drawings include:

C-02 Remedial Design Overview and Sequence Plan, Dated 03-02-2009; no Revisions.

C-02A Soil Management Plan (North), Dated 03-02-2009; no Revisions.

C-02B Soil Management Plan (South), Dated 03-02-2000; no Revisions.

C-02C Soil and Erosion Control Details, Dated 03-02-2009; no Revisions.

C-10 Genesee River Remediation Plan, Dated 03-02-2009; no Revisions.

C-11 Genesee River Remediation Cross Sections and Details, Dated 03-02-2009; no Revisions.

C-12 Genesee River Remediation Sheet Pile Plan and Details, Dated 03-02-2009; no Revisions.

C-13 Main Drainage Swale Excavation Plan, Dated 03-02-2009; Revised 06-18-09.

C-14A Landscaping Plan and Details (Main Drainage Swale), Dated 03-02-2009; no Revisions.

C-14B Main Drainage Swale Excavation Sections and Details, Dated 03-02-2009; no Revisions.

APPROVAL NOTE: This Permit Approval is granted only for the portion of the work involving the Main Drainage Swale Excavation and appurtenant construction. Further approvals will be required for work in and along the Genesee River.

2. The Permittee agrees that all work shall be performed in accordance with the Drawings, Supporting Documents and Specifications noted in Special Condition No. 1 above.

3. The Permittee agrees to notify the Regional Flood Control Engineer of any changes to the proposed work which deviate from the attached Drawings, Supporting Documents and Specifications noted in Special Condition No. 1 above. No work which deviates from these items shall take place without the prior written approval of the Department.

4. The Permittee agrees that the proposed work shall be performed under the supervision of a New York State registered Professional Engineer (Construction Engineer). The Permittee agrees to notify the Regional Flood Control Engineer of the name address and telephone number of the Construction Engineer. The Regional Flood Control shall be notified upon any change to the designated Construction Engineer

5. The Permittee agrees to provide to the Regional Flood Control Engineer within 90 days of filing the completion notice for this approved work, three sets of "As-Built" Record Drawings and documentation of construction inspection. The Record Drawings shall be signed and sealed by the Construction Engineer and shall include identification of all deviations from the Drawings noted in Special Condition No. 1 above.

6. The Permittee agrees to establish an on-site bench mark, and to perform an instrument topographic survey of the Main Drainage Swale and Genesee River Dike from this bench mark prior to construction. This survey shall be performed at the completion of the work so that "As-Built" elevations can be compared with pre-construction elevations. A conversion factor shall be provided to allow the ready conversion of these elevations to National Geodetic Vertical Datum 1929 (NGVD 1929) elevations.

7. The Permittee agrees that excavations into the Flood Control Dike on the east side of the Main Drainage Swale shall not be permitted.

8. The Permittee agrees that prior to the construction of the temporary haul road on the Flood Control Dike on the east side of the Main Drainage Swale, geotextile will be placed on the ground surface and granular road fill material will be placed over the geotextile to a depth of at least six inches. (Reference: NYSDOT Metric Standard Sheet No. M209-7 Soil Erosion and Sediment Control- Construction Entrances)

9. The Permittee agrees to remove excess materials, debris and pollution control measures from flood control project lands upon completion of the work.

10. The Permittee agrees that any damage to existing flood control project facilities or features which occurs while undertaking the permitted work shall be repaired to the satisfaction of the Regional Flood Control Engineer.

11. The Permittee agrees that no vehicular traffic of any kind shall be allowed on flood control project land except that portion of the project which is directly involved with the authorized work.

12. The Permittee agrees that vehicles, equipment, materials and supplies shall not be stored on the flood control dike between the Genesee River and the Main Drainage Swale.

13. The Permittee agrees that precautions shall be taken to preclude the entry of pollutants and/or waste materials directly into the Genesee River or in areas where such materials would eventually be carried to the river by storm runoff.

14. The Permittee agrees that earth materials (soil, gravel, new riprap, etc.) to be used in the permitted work shall not be taken from flood control project lands.

15. The Permittee agrees that the "Main Drainage Swale Excavation" portion of the permitted work shall be maintained entirely by the Permittee or the Permittee's duly authorized agent. Further, the Permittee agrees that the Main Drainage Swale Excavation project shall not be allowed to deteriorate to such an extent such that it becomes a hazard to the Wellsville Flood Protection Project.

16. The Permittee agrees to monitor river stages, weather reports and flood forecasts on at least a daily basis and take prudent action, as necessary, to prevent loss of life and property due to flooding.

17. The Permittee agrees to provide the Regional Flood Control Engineer with a contact person roster for use during normal working hours and emergencies. This list shall include names, positions and telephone numbers for use during working hours and after working hours.

18. The Permittee agrees to seed any areas on the flood control dike where earth is exposed as a result of performing this work using the following minimum requirements:

    Topsoil: Place four inches of good quality topsoil on the areas to be seeded.

    Seed: Kentucky Bluegrass @ 1 ½ pounds per 1000 square feet.
    Creeping Red Fescue@ 1 ½ pounds per 1000 square feet.
    Annual Rye Grass @ 1 ½ pounds per 1000 square feet.

    Fertilizer: 10-10-10 @ 15 pounds per 1000 square feet.

    Mulch: Adequate straw or timothy hay @ 100 pounds per 1000 square feet.

    Further, the Permittee agrees to provide a good stand of grass for one year after the completion of this work before being relieved of his seeding responsibility.

    Note: Hydroseeding may be substituted for this seeding requirement with prior approval from the Regional Flood Control Engineer.

19. The Permittee agrees that it will be responsible for construction site security and safety measures while performing the permitted work.

20. The Permittee agrees that photographs (at least 4 inches by 6 inches) showing the project work areas from at least four directions, shall be taken immediately prior to construction and immediately upon completion of the permitted work. Three copies of each print shall be

submitted to the Regional Flood Control Engineer at the beginning of construction for the prior condition photos and at completion for the completion condition photos.

21. The Permittee agrees that this authorization shall not take effect until the certificate of insurance, as required by Condition No.7 of the "Conditions and Regulations" has been received and acknowledged by the Regional Flood Control Engineer at the address shown below:

    Regional Flood Control Engineer
    New York State Department of Environmental Conservation
    270 Michigan Avenue
    Buffalo, New York 14203

    Telephone: 716-851-7070
    Facsimile: 716-851-7009

22. The Permittee agrees that all bonds and deposits, as required by Condition No. 6 and Condition No. 9 of the "Conditions and Regulations", will be provided to the Regional Flood Control Engineer within two (2) weeks after the start of construction.

23. The Permittee agrees that vegetation management within the limits of the Wellsville Flood Protection Project shall be subject at all times to flood control project operations and maintenance requirements and activities including removal. Further, in this regard, the Permittee agrees to remove and/or replace with designated plant species any of the authorized plantings herein at the request of the Department or United States Army Corps of Engineers.

24. The Permittee agrees that the dike between the Main Drainage Swale (Auxiliary Channel on U.S. Army Corps of Engineers Drawings) and the Genesee River shall be planted only in grass.

25. The Permittee agrees that the work shall be performed in a continuous workmanlike manner until it is completed.

26. The Permittee agrees that the levee near the north end perimeter fencing shall not be disturbed.

27. The Permittee agrees that maintenance and replacement of the permitted works shall be its responsibility.

28. The duration of the permit will terminate twenty five (25) years from the issuance date, as determined by the signature date of the representative of the Department of Environmental Conservation. To extend the duration, the permittee must submit a written request to the Department at least three months in advance of the termination. After review, the Department will inform the permittee in writing of its determination to extend, or not extend the permit.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DEC PERMIT NUMBER: 09-08 Mod. 1

FACILITY NAME: Wellsville FCP

APPLICATION FOR PERMIT
Under the Environmental Conservation Law
Article 16 Flood Control Land Use

EFFECTIVE DATE:

EXPIRATION DATE: 07.06.34

TYPE OF PERMIT (Check All That Apply)
☐ New ☐ Renewal ☒ Modification # 09-08 ☐ Major ☐ Minor ☐ Temporary

Please Type or Print Clearly in Ink

1. NAME OF APPLICANT: Atlantic Richfield Company

2. MAILING ADDRESS: 1 West Pennsylvania Ave., Suite 440

3. TELEPHONE NUMBER: ( )

4. CITY/POST OFFICE: Towson

5. STATE: MD

6. ZIP CODE: 21204

7. LOCATION OF STATE MAINTAINED FLOOD CONTROL LAND
City, Town or Village: Wellsville, New York

County: Allegany

Location

8. PROJECT DESCRIPTION/REASON FOR USE OF FLOOD CONTROL LAND (ATTACH SUPPORTING DOCUMENTATION)
This modification to the Application for Permit (original submitted to NYSDEC on 9/2/2008) is to implement portions of the planned strategy for the Phase II Remediation at Operable Unit 2 (OU-2) for the Former Sinclair Refinery in Wellsville, New York. USEPA has approved the 100% Design Report on April 23, 2009.

On May 26, 2009, NYSDEC personnel indicated that the Main Drainage Swale Restoration work described in Section 2.7 of the September 2, 2008 permit application would be approved for completion in June 2009 and a permit granted. The portions of the work covered by this modification for application include the following components: 1) construction of downgradient barrier; 2) excavation of sediment from Genesee River; and 3) excavation of bank soil along Genesee River.

9. DESIGN ENGINEER: Name of Agency or Individual: URS Corporation - Vik Gautam

P.E. LICENSE NO. OF INDIVIDUAL: 70374 Ohio PE

TITLE: Project Engineer

ADDRESS: 1375 Euclid Ave., Suite 600, Cleveland, OH 44115

TELEPHONE NUMBER: (216) 622-2447

10. CONSTRUCTION ENGINEER: Name of Agency or Individual: Donald Porterfield

P.E. LICENSE NO. OF INDIVIDUAL: 071402 NY PE

TITLE: Senior Engineer

ADDRESS: 28 Corporate Drive, Suite 200, Clifton Park, New York 12065

TELEPHONE NUMBER: (518) 688-0015

11. The above named applicant hereby applies to use State maintained flood control lands as indicated above in accordance with the map and plan attached, and pursuant to the conditions and regulations, whether general or special, which are hereinafter set forth; all forming a part hereof, and will obtain any other consents or permits that may be necessary to accomplish the purposes set forth herein.

May 28, 2009
DATE

Eric J. Larson
SIGNATURE

Eric J. Larson, Environmental Business Manager, Atlantic Richfield Company
NAME, TITLE AND COMPANY (Please type or print)

FLOOD CONTROL REGIONAL OFFICE ☒ Approved ☐ Disapproved

7/28/09
DATE

Ghislaine A. Noyes
SIGNATURE

CORPS OF ENGINEERS - REVIEWED

9/2/09
DATE

Robert W. Semmons
for Tom Lavitola, LSO
SIGNATURE

Application for Permit
Article 16 Flood Control Land Use
Modification
May 27, 2009

Project Description/Reason for Use of Flood Control Land - continued

Excavated material will be placed in the existing onsite Central Elevated Landfill Area (CELA). Details of the 100% Design were included in the original application submitted on September 2, 2008.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Permit Number 09-08, Mod. 1

PERMIT GRANTED

PERMITTEE NAME Atlantic Richfield Company			Permission to proceed as set forth and represented in the foregoing application pursuant to Part 501, Title 6 NYCRR, and at the particular location described therein, in accordance with the map and plan hereto attached and pursuant to the conditions and regulations, whether general or special, which are hereinafter set forth; all forming a part hereof; to writ:
ADDRESS 1 West Pennsylvania Avenue, Suite 440			
CITY/POST OFFICE Towson	STATE MD	ZIP CODE 21204	

Conditions and Regulations

1. The "Department" shall mean the New York State Department of Environmental Conservation.

2. This permit shall not be assigned or transferred without the written consent of the Department.

3. The work authorized by this permit shall be performed under the supervision and to the satisfaction of representatives of the Department.

4. The Department shall be given 7 days notice by said Permittee of the DATE when he intends to begin work authorized by this permit, and shall be given prompt notice of its completion.

5. The Permittee shall be responsible for all damages resulting in bodily injury, including death and/or property damage liability due to activities of the Permittee, its contractors, sub-contractors of either or both, agents or employers in connection with any act or omission hereunder; and does hereby expressly agree to indemnify and save harmless the United States of America, the Department of the Army Corps of Engineers, the People of the State of New York and /or the Department, its Commissioner, and their representatives and employees from claims; suits, actions, damages and costs of every name and description, arising out of or resulting from any act or omission hereunder.

6. The Permittee shall post a certified check or bond in the amount of $ 25,000.00 VH to secure the fulfillment of the terms of this permit.

7. Unless expressly waived by the Department, the Permittee shall furnish with the foregoing application a policy of protective liability insurance issued to and covering liability of the People of the State of New York and/or the Department, with respect to all operation under this permit by the Permittee or by anyone acting by, through or for the Permittee, including omissions and supervisory acts of the State. The limits of liability in such policy shall not be less than $1,000,000 per person/per accident for all damages arising out of bodily injury, including death at any time resulting therefrom, sustained by one person in any one accident and, subject to that limit for each person, not less than $2,000,000 aggregate for all damages arising out of injury to or destruction of property in any one accident, and subject to that limit per accident.

The Permittee Insurance policy shall also provide protective property damage liability coverage of $1,000.000 for all damages to property in any one accident or occurrence.

Such policy(s) shall state that it(they) will not be changed or canceled until thirty days' written notice has been given to said Department.

8. The enumeration in this permit of the kind and amount of insurance shall not abridge, diminish or affect the Permittee's legal responsibilities for the consequences of accidents arising out of or resulting from the operation of the Permittee under this permit.

9. An undertaking or a certified check in the sum of $100,000.00 deposited with the Department by the Permittee before or at the time of issuance of this permit by the Department shall be deemed to include and be used as security that the Flood Control Works or any part thereof will be restored to its original condition where disturbed, at the expense of the Permittee, as soon as the work has been completed, and the said Department is hereby authorized to expend all or as much of such deposit as may be necessary for that purpose, should the said Permittee neglect or refuse to perform the work.

10. The said Department reserves the right to at any time revoke or annul this permit should the Permittee fail to comply with the terms and conditions upon which it is granted.

11. The Permittee agrees to pay all necessary expenses incident to supervision and inspection by reason of the granting of such permit as certified by the Field Engineer of the Department, Flood Control Section, such payment to be made within ten days from the rendering of the certified account.

12. Work under this permit shall be commenced within thirty days from date of permit and continued in an expeditious manner.

13. The Permittee shall submit to said Department a detailed plan of structure to be built, if any, with a description of proposed method of construction, before any work hereunder is started, which plans shall require the prior approval by the Department and any other agency having jurisdiction thereof.

14. Work permitted under this permit shall be progressed in such a manner as to avoid interference with the operation and maintenance of the Flood Control Works.

15. The above named permittee hereby certifies that it has secured compensation for the benefit of, and will keep insured during the performance of the above described work, such employees as are required to be insured, by the provisions of Workers' Compensation Law.

16. The use of State lands shall be subject at all times to the interests of the State and/or the United States of America in making improvements and repairs to the Flood Control Works. The Department, its agent, employees and representatives shall at all times, having a right of entry thereto, if in the judgement of the Department, the interests of the State or the United States of America shall require.

17. Monuments marking the boundary of Flood Control Lands shall be undisturbed and fully protected. A recompense for damages of not less than $25.00 will be imposed for each monument disturbed.

18. The Permittee shall pay the State of New York through the Department a fee of $25.00 for the issuance of this except as otherwise provided.

19. The Permittee shall be responsible for obtaining all necessary permits, rights of entry and other items required by other State agencies, landlords, etc., before commencing work on this permit.

20. A copy of this permit shall be in the possession of the Permittee or his representative at the site of the permitted activity and shall be promptly displayed upon request of a representative of the Department or any other person empowered to enforce the conditions of the permit.

New York State Department of Environmental Conservation
Special Conditions

1.

Permit Number 09-08 Mod 1

IN WITNESS WHEREOF, I have hereunto set my hand on this 1 day of MARCH, 2010.

Department of Environmental Conservation

By _____

In consideration of the granting of the within permit, the undersigned affirming, under penalty of perjury that he/she is acting under authority hereby accepts the same, subject to the restrictions and regulations therein described.

Dated this 8 day of March, 2010.

_____
Permittee

By Eric J. Larson Project Mgr.
Signature and Title

By _____
Notary Public

My Commission Expires 4/17/13

(2)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DEC PERMIT NUMBER: 09-08 Mod. 2

FACILITY NAME: Wellsville FCP

EFFECTIVE DATE: 10.20.10

EXPIRATION DATE: 07.06.34

APPLICATION FOR PERMIT

Under the Environmental Conservation Law
Article 16 Flood Control Land Use

TYPE OF PERMIT (Check All That Apply)
☐ New ☐ Renewal ☒ Modification ☐ Major ☐ Minor ☐ Temporary

Please Type or Print Clearly In Ink

1. NAME OF APPLICANT: Atlantic Richfield Company
2. MAILING ADDRESS: 1 West Pennsylvania Avenue, Suite 440
3. TELEPHONE NUMBER: (410) 825-2880
4. CITY/POST OFFICE: Towson
5. STATE: MD
6. ZIP CODE: 21204
7. LOCATION OF STATE MAINTAINED FLOOD CONTROL LAND City, Town or Village: Wellsville, New York
County: Allegany

Location

8. PROJECT DESCRIPTION/REASON FOR USE OF FLOOD CONTROL LAND (ATTACH SUPPORTING DOCUMENTATION)

This request is a modification to Permit Number 09-08 for the Main Drainage Swale Excavation (MDS) signed on July 2, 2009. This modification includes installation of one permanent water level control berm in the MDS. This berm is designed to provide a hydraulic barrier by raising the water level in the MDS to control groundwater seepage into the southern end. The berm will also reduce iron precipitation from groundwater that discharges into the MDS. Details of this modification are attached.

9. DESIGN ENGINEER: Name of Agency or Individual: URS Corporation – Vik Gautam
P.E. LICENSE NO. OF INDIVIDUAL: 70374 Ohio PE
TITLE: Project Engineer
ADDRESS: 1375 Euclid Avenue, Cleveland, Ohio 44115
TELEPHONE NUMBER: (216) 622-2447

10. CONSTRUCTION ENGINEER: Name of Agency or Individual: Donald Porterfield
P.E. LICENSE NO. OF INDIVIDUAL: 071402 NY PE
TITLE: Senior Engineer
ADDRESS: 28 Corporate Drive, Suite 200, Clifton Park, New York 12065
TELEPHONE NUMBER: (518) 688-0015

11. The above named applicant hereby applies to use State maintained flood control lands as indicated above in accordance with the map and plan attached, and pursuant to the conditions and regulations, whether general or special, which are hereinafter set forth, all forming a part hereof, and will obtain any other consents or permits that may be necessary to accomplish the purposes set forth herein.

29 July 2010
DATE

Eric J. Larson
SIGNATURE

Eric J. Larson, Operations Project Manager, Atlantic Richfield Company
NAME, TITLE AND COMPANY (Please type or print)

FLOOD CONTROL REGIONAL OFFICE ☒ Approved ☐ Disapproved

August 25, 2010
DATE

Theodore A. Myers
SIGNATURE

CORPS OF ENGINEERS - REVIEWED

9/9/10
DATE

Thomas Kinsella
SIGNATURE

Permit Number 09-08 Mod. 2

PERMIT GRANTED

PERMITTEE NAME: Atlantic Richfield Company			Permission to proceed as set forth and represented in the foregoing application pursuant to Part 501, Title 6 NYCRR, and at the particular location described therein, in accordance with the map and plan hereto attached and pursuant to the conditions and regulations, whether general or special, which are hereinafter set forth; all forming a part hereof; to writ:
ADDRESS: 1 West Pennsylvania Avenue, Suite 440			
CITY/POST OFFICE: Towson	STATE: MD	ZIP CODE: 21204	

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1. The "Department" shall mean the New York State Department of Environmental Conservation.

2. This permit shall not be assigned or transferred without the written consent of the Department.

3. The work authorized by this permit shall be performed under the supervision and to the satisfaction of representatives of the Department.

4. The Department shall be given 7 days notice by said Permittee of the DATE when he intends to begin work authorized by this permit, and shall be given prompt notice of its completion.

5. The Permittee shall be responsible for all damages resulting in bodily injury, including death and/or property damage liability due to activities of the Permittee, its contractors, sub-contractors of either or both, agents or employers in connection with any act or omission hereunder; and does hereby expressly agree to indemnify and save harmless the United States of America, the Department of the Army Corps of Engineers, the People of the State of New York and /or the Department, its Commissioner, and their representatives and employees from claims, suits, actions, damages and costs of every name and description, arising out of or resulting from any act or omission hereunder.

6. The Permittee shall post a certified check or bond in the amount of $ 25,000 to secure the fulfillment of the terms of this permit.

7. Unless expressly waived by the Department, the Permittee shall furnish with the foregoing application a policy of protective liability insurance issued to and covering liability of the People of the State of New York and/or the Department, with respect to all operation under this permit by the Permittee or by anyone acting by, through or for the Permittee, including omissions and supervisory acts of the State. The limits of liability in such policy shall not be less than $1,000,000 per person/per accident for all damages arising out of bodily injury, including death at any time resulting therefrom, sustained by one person in any one accident and, subject to that limit for each person, not less than $2,000,000 aggregate for all damages arising out of injury to or destruction of property in any one accident, and subject to that limit per accident.

The Permittee insurance policy shall also provide protective property damage liability coverage of $1,000.000 for all damages to property in any one accident or occurrence.

Such policy(s) shall state that it(they) will not be changed or canceled until thirty days' written notice has been given to said Department.

8. The enumeration in this permit of the kind and amount of insurance shall not abridge, diminish or affect the Permittee's legal responsibilities for the consequences of accidents arising out of or resulting from the operation of the Permittee under this permit.

9. An undertaking or a certified check in the sum of $ 50,000 deposited with the Department by the Permittee before or at the time of issuance of this permit by the Department shall be deemed to include and be used as security that the Flood Control Works or any part thereof will be restored to its original condition where disturbed, at the expense of the Permittee, as soon as the work has been completed, and the said Department is hereby authorized to expend all or as much of such deposit as may be necessary for that purpose, should the said Permittee neglect or refuse to perform the work.

10. The said Department reserves the right to at any time revoke or annul this permit should the Permittee fail to comply with the terms and conditions upon which it is granted.

11. The Permittee agrees to pay all necessary expenses incident to supervision and inspection by reason of the granting of such permit as certified by the Field Engineer of the Department, Flood Control Section, such payment to be made within ten days from the rendering of the certified account.

12. Work under this permit shall be commenced within thirty days from date of permit and continued in an expeditious manner.

13. The Permittee shall submit to said Department a detailed plan of structure to be built, if any, with a description of proposed method of construction, before any work hereunder is started, which plans shall require the prior approval by the Department and any other agency having jurisdiction thereof.

14. Work permitted under this permit shall be progressed in such a manner as to avoid interference with the operation and maintenance of the Flood Control Works.

15. The above named permittee hereby certifies that it has secured compensation for the benefit of, and will keep insured during the performance of the above described work, such employees as are required to be insured, by the provisions of Workers' Compensation Law.

16. The use of State lands shall be subject at all times to the interests of the State and/or the United States of America in making improvements and repairs to the Flood Control Works. The Department, its agent, employees and representatives shall at all times, having a right of entry thereto, if in the judgement of the Department, the interests of the State or the United States of America shall require.

17. Monuments marking the boundary of Flood Control Lands shall be undisturbed and fully protected. A recompense for damages of not less than $25.00 will be imposed for each monument disturbed.

18. The Permittee shall pay the State of New York through the Department a fee of $25.00 for the issuance of this except as otherwise provided.

19. The Permittee shall be responsible for obtaining all necessary permits, rights of entry and other items required by other State agencies, landlords, etc., before commencing work on this permit.

20. A copy of this permit shall be in the possession of the Permittee or his representative at the site of the permitted activity and shall be promptly displayed upon request of a representative of the Department or any other person empowered to enforce the conditions of the permit.

New York State Department of Environmental Conservation
Special Conditions

1. See attached.

Permit Number 09-08 Mod.

IN WITNESS WHEREOF, I have hereunto set my hand on this 19 day of OCTOBER, 2010.

Department of Environmental Conservation

By Dean A Sterle

In consideration of the granting of the within permit, the undersigned affirming, under penalty of perjury that he/she is acting under authority hereby accepts the same, subject to the restrictions and regulations therein described.

Dated this 20 day of October, 2010.

Permittee

By Ops Project Mgr
Signature and Title

By
Notary Public

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2014

Special Permit Conditions
Article 16 Flood Control Land Use Permit No. 09-08
Modification No. 2

1. This permit is for the installation of one permanent water level control berm in the Main Drainage Swale (Auxiliary Channel- U.S. Army Corps of Engineers Wellsville Local Flood Protection Project Drawings). The berm is designed to provide a hydraulic barrier by raising the water level in the Main Drainage Swale to control groundwater seepage into the southern end of the Main Drainage Swale.

   Correspondence, Attachments and Supporting Documents

   Permit Application Transmittal Letter Dated July 29, 2010 to Mr. Theodore A. Myers, P.E., New York State Department of Environmental Conservation, Division of Water, Region 9, 270 Michigan Avenue, Buffalo, New York 14203-2915 from Eric J. Larson, Operations Project Manager, Atlantic Richfield Company; Re: Revised Application to Modify Permit 09-08, Article 16 Flood Control Land Use Permit, Former Sinclair Refinery, Wellsville, New York.

   Attachment A - Application for Permit – Modification to Existing Permit No. 09-08.

   Attachment B - Plans and Specifications for Water Level Control Berms.

   Drawings included, therein, are titled, Phase II-2 Remedial Design, Former Sinclair Refinery Site, Wellsville, New York; prepared by URS Corporation and are labeled, "Permit Drawing." The drawings are:

   C-01 Site Plan and Proposed Main Drainage Swale Water Level Control Berm Locations, Dated 07-26-2010, Revision 07/14/2010.

   C-02 Main Drainage Swale Plan & Profile, Dated 07/26/2010, No Revisions.

   C-03 Main Drainage Swale Water Level Control Berm Details, dated 07/26/2010, No Revisions.

   Attachment C - No Rise Certification

   Attachment D - HEC-RAS Technical Memorandum.

   Attachment E - Groundwater Numerical Model

   Attachment F - Copies of Existing Original Permit.

   The Permittee herein is the Atlantic Richfield Company.

2. The Permittee agrees that all work shall be performed in accordance with the Drawings, Supporting Documents and Specifications noted in Special Permit Condition No. 1 above.

3. The Permittee agrees to notify the Regional Flood Control engineer of any changes to the proposed work which deviate from the attached Drawings, Supporting Documents and Specifications noted in Special Permit Condition No. 1 above. No work which deviates from these items shall take place without the written approval of the Department.

4. The Permittee agrees that the proposed work shall be performed under the supervision of a New York State registered Professional Engineer (Construction Engineer). The Permittee agrees to notify the Regional Flood Control Engineer of the name, address and telephone number(s) of the Construction Engineer. The Regional Flood Control Engineer shall be notified upon any change to the designated Construction Engineer.

5. The Permittee agrees to provide within 90 days of filing the completion notice for this approved work, three sets of "As-Built" Record Drawings and documentation of construction inspection. The Record Drawings shall be signed and sealed by the Construction Engineer and shall include identification of all deviations from the Drawings noted in Special Permit Condition No. 1 above.

6. The Permittee agrees to remove excess materials, debris and pollution control; measures from flood control lands upon completion of the work.

7. The Permittee agrees that any damage to existing flood control project facilities or features which occurs while undertaking the permitted work shall be repaired to the satisfaction of the Regional Flood Control Engineer.

8. The Permittee agrees that no vehicular traffic of any kind shall be allowed on flood control project lands except that portion which is directly involved with the authorized work.

9. The Permittee agrees that precautions shall be taken to preclude the entry of pollutants and/or waste materials directly into the Main Drainage Swale (Auxiliary Channel) or in areas where such materials would eventually be carried to it by storm runoff without treatment.

10. The Permittee agrees that earth construction materials (soil, gravel, new riprap, etc.) to be used in the permitted work shall not be taken from flood control project lands.

11. The Permittee agrees to monitor river stages, weather reports, and flood forecasts on at least a daily basis, and take prudent action, as necessary, to prevent loss of life and property due to flooding.

12. The Permittee agrees to provide the Regional Flood Control Engineer with a contact person(s) roster for use during normal working hours and emergencies/after hours. This list shall include names, positions, and telephone numbers for use during working hours and after working hours.

13. The Permittee agrees to seed any areas on flood control project lands where earth is exposed as a result of performing this work (permanent cover) using the following minimum requirements:

Topsoil:	Place four inches of good quality topsoil on the bare areas to be seeded.		
Seed:	Kentucky Bluegrass	@	1 ½ pounds per 1000 square feet.
	Creeping Red Fescue:	@	1 ½ pounds per 1000 square feet.
	Annual Rye Grass	@	1 ½ pounds per 1000 square feet.
Fertilizer:	10-10-10	@	15 pounds per 1000 square feet.

Mulch: Adequate straw or timothy hay @ 100 pounds per 1000 square feet. Further, the Permitttee agrees to provide a good stand of grass for one year after completion of the permitted work before being relieved of its seeding responsibility.

Note: Hydroseeding may be substituted for this seeding requirement with prior written approval from the Department.

14. The Permittee agrees that it will be responsible for construction site security and safety measures while performing the permitted work.

15. The Permittee agrees that photographs (at least 4 inches by 6 inches), showing the project area from at least four directions, shall be taken immediately prior to construction and immediately upon completion of the permitted work. Three copies of each print shall be submitted to the Regional Flood Control Engineer at the beginning of construction (for the prior condition photos) at completion (for the completion condition photos).

16. The Permittee agrees that sureties (bonds, deposits, etc.) as required by Condition No. 6 and Condition No. 9 of the "Conditions and Regulations" under this modification, will be provided to the Regional Flood Control Engineer within two (2) weeks after the start of construction.

17. The Permittee agrees that the permitted work will be performed in a continuous, workmanlike manor until it is completed.

18. The Permittee agrees that flood control is the primary purpose for land use within the existing New York State Flood Control Land. In this light, maintenance, rehabilitation, replacement or other changes to the permitted works shall be performed under this guiding principle. Further, the Department's easement rights remain in effect.

19. The Permittee agrees that maintenance of Water Level Control Berm No. 1 shall be the responsibility of the Permittee.

20. The Permittee agrees to obtain the Department's approval prior to making any changes to the completed permitted works beyond routine maintenance, including rehabilitation and/or replacement, thereof.

21. The Permittee agrees that replacement and/or rehabilitation of the completed permitted works shall be its responsibility.

22. The Permittee agrees that should changes to the flood control project be required within the existing New York State Flood Control Lands in the future, the Permittee shall perform any necessary required changes in the permitted works at the request of the Department and at no cost to the Department.
23. The Permittee agrees that the construction of the permitted works and activities shall be performed in a manner consistent with the hydraulic modeling which was performed to determine water surface profiles for various Genesee River discharges.

24. The Permittee agrees that in restoring flood control project facilities and while performing the permitted work, these facilities and/or features shall be returned to their pre-permit condition or better. (For example: Tie-in of the Water Level Control Berm No. 1 with the levee on the east side of the Main Drainage Swale (Auxiliary Channel.))

25. The Permittee agrees that the ground surfaces on which the Water Level Control Berm No. 1 will be constructed upon shall be properly prepared prior to construction. This preparation shall include, but not be limited to: dewatering, removal of organic material, compacting, scarifying and other conditioning required to ensure a suitable bond between the existing ground and materials used in the construction of the Water Level Control Berm No. 1.

26. The expiration date of this permit modification shall be that of Permit No. 09-08.

27. The Permittee agrees to monitor seepage beneath the flood control levee which may flow toward the Main Drainage Swale (Auxiliary Channel) and toward the Genesee River. If significant seepage is observed, the Permittee agrees to notify the Regional Flood Control Engineer and further agrees to perform any necessary actions to evaluate seepage conditions. The Permittee agrees to perform any remedial measures needed to prevent damages due to seepage or correct damage which occurs as a result of seepage.

28. The Permittee agrees to dewater the pool behind Water Level Control Berm No. 1 at the request of the Department. This may be accomplished by pumping, siphoning or by other appropriate means such as not to damage the flood control levee. Materials, manpower and equipment for draining the pool shall be readily available through the Permittee. A drain may be incorporated into the berm with approval for its design being obtained prior to its construction.

29. The Permittee agrees to maintain Water Level Control Berm No. 1 in a vegetation-free condition. Further, the Permittee agrees to mow the grass on the levee sideslope for a distance of 10 feet above flood control levee/water level control berm interface adjacent to Water Level Control Berm No. 1, such that it is at least 3 inches in length and no longer than 12 inches in length.

30. The Permittee agrees to construct and shape the northern face of Water Level Control Berm No. 1 such that water flowing over the berm shall be directed away from the flood control levee.

APPENDIX D
CELA O&M CHECKLIST

APPENDIX D
PROPOSED CELA O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*Completed (✓)*		*Completion Date*
					Yes	*No*	
Vegetative Cover	Visual inspection of CELA grade	Quarterly	Erosion Sediment buildup Local subsidence Loss of grade Water ponding Slope instability Sloughing.	Repair as needed to restore original grades. Replant disturbed areas in accordance with seed mix in Appendix C			
	Visual inspection of vegetation on CELA.	Quarterly	Stressed vegetation Trees Undesirable vegetation	Replant areas of stressed vegetation in accordance with seed mix in Appendix C. Remove trees, weeds, or undesirable vegetation.			
	Visual inspection of CELA surface	Quarterly	Burrows	Trap or evict burrowing animals. Fill burrows with topsoil and replant surrounding area.			
	Visual inspection of CELA surface	Quarterly	Evidence of fires Vandalism Litter	Replant and repair damaged areas. Remove litter.			
Trail System on CELA	Visual inspection of trails and signage	Quarterly	Erosion of trail surface. Damage or vandalized signs.	Fill eroded areas with NYSDOT 401 aggregate. Repair damage and vandalism.			
Gas Vents	Visual inspection of gas vents	Quarterly	Erosion around gas vent. Evidence of vandalism or damage.	Fill eroded areas with topsoil and reseed. Repair damage.			
	Measure VOC concentrations in vents and in breathing zone downwind of gas vents.	Quarterly	VOC concentration in excess of 1 ppm of benzene or vinyl chloride in breathing zone downwind of gas vents.	Establish barricade around gas vents to prevent access.			

APPENDIX D PROPOSED CELA O&M REQUIREMENTS FORMER SINCLAIR REFINERY WELLSVILLE, NEW YORK							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*Completed (✓)*		*Completion Date*
					Yes	*No*	
Piezometers Within CELA (P-01 through P-06) and Monitoring Wells Near CELA (MWR-1 through MWR-11)	Visual inspection of above grade portion of piezometers and monitoring wells.	Quarterly	Sediment or vegetative growth over protective cover. Erosion around surface casing. Missing or damaged lock or cover cap. Water collecting between casing and riser. Evidence of vandalism or damage.	Remove sediment or vegetation. Fill eroded areas with topsoil and seed. Replace or repair lock or cover cap. Remove water. Repair damage.			
Surface Water Drainage System	Visual inspection of perimeter ditch.	Quarterly	Obstructions which could impede flow. Damaged or eroded areas.	Remove obstructions. Repair damage. Fill eroded areas with topsoil and seed.			
	Visual inspection of culverts under trail.	Quarterly	Obstructions which could impede flow. Damaged or eroded areas.	Remove obstructions. Repair damage. Fill eroded areas with topsoil and seed.			
	Visual inspection of drainage culvert that penetrates the flood protection dike at the north end of the CELA.	Quarterly	Obstructions which could impede flow. Damaged or eroded areas.	Remove obstructions. Repair damage. Fill eroded areas with topsoil and seed.			

APPENDIX D PROPOSED CELA O&M REQUIREMENTS FORMER SINCLAIR REFINERY WELLSVILLE, NEW YORK							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*Completed (✓)*		*Completion Date*
					Yes	*No*	
Security Fence	Visual inspection of fence on west side of CELA.	Quarterly	Gates dragging on ground. "Frozen" locks or hinges at gates. Holes in fence fabric. Loose or missing connections of fence fabric to posts. Loose fence posts. Cracks in post foundations. Woody vegetation grounding onto or through fence. General deterioration.	Adjust gates to keep from dragging. Repair, lubricate, replace locks or hinges, as needed. Repair holes in fence fabric. Re-attach fabric to posts. Repair or replace posts. Repair or replace fence post foundations. Remove vegetation. Assess need to repair or replace deteriorated sections of fence.			
Groundwater Quality	Collect samples from 11 groundwater monitoring wells (MWR-1 through MWR-11) near the CELA. Analyze samples for arsenic, chromium, and VOCs. Sampling plan in Appendix E.	Every five years					
LNAPL Monitoring and Removal	Assess monitoring wells MWR-02 and MWR-03 for presence of LNAPL.	Every five years	Measurement LNAPL thickness.	Remove accumulated LNAPL prior to collection of groundwater samples. Properly dispose removed LNAPL			

APPENDIX E
GROUNDWATER COLLECTION SYSTEM CHECKLIST

APPENDIX E ***PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*Completed (✓)*		*Completion Date*
					Yes	*No*	
Manholes MH-A through MH-H	Visual inspection of covers at manholes.	Weekly	Vegetation covering manhole. Evidence of vandalism or damage.	Remove vegetation. Repair damage.			
	Confirm operation, including locks, of doors into manholes.	Quarterly	Any defect	Repair as needed			
	Perform datalogger maintenance (calibrate recorder instruments, change out desiccant caps, clean probes, etc.)	Semi-annual					
	Visual inspection of interior of manholes. Follow confined space entry procedures if personnel need to enter manholes for inspections or repairs.	Quarterly	Plumbing leaks. Evidence of vandalism or damage.	Repair as needed.			
Control Panel Cabinets	Visual inspection of cabinets housing control panels.	Weekly	Vegetation that obstructs operation of doors. Evidence of vandalism or damage.	Remove vegetation. Repair damage.			
	Confirm operation, including locks, of doors on cabinets.	Quarterly	Any defect	Repair as needed			

APPENDIX E PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS FORMER SINCLAIR REFINERY WELLSVILLE, NEW YORK							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*Completed (✓)*		*Completion Date*
					Yes	*No*	
Piezometers TPZ-01 through TPZ-09	Visual inspection of piezometers.	Quarterly	Sediment or vegetative growth over protective cover. Erosion around surface casing. Missing or damaged lock or cover cap. Water collecting between casing and riser. Evidence of vandalism or damage.	Remove sediment or vegetation. Fill eroded areas with topsoil and seed. Replace or repair lock or cover cap. Remove water. Repair damage.			
	Perform datalogger maintenance (calibrate recorder instruments, change out desiccant caps, clean probes, etc.)	Semi-annual					
Access paths and turnouts at manholes	Visual inspection of surface.	Monthly	Erosion	Fill eroded areas with NYSDOT 401 aggregate			
Pumping Systems	Confirm manhole pump operation.	Weekly	Pump not operating	Troubleshoot and repair as needed			
	Record instantaneous flow measurements and totalized flow measurements for each manhole.	Weekly	Flow meter or totalizer not working. Average flow outside desired operating range.	Troubleshoot and repair as needed. Adjust gate valves on lines that connect manholes to conveyance lines to adjust flow rates.			
	Maintain and calibrate flowmeters	Annual					

APPENDIX E *PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS* *FORMER SINCLAIR REFINERY* *WELLSVILLE, NEW YORK*							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*Completed (✓)*		*Completion Date*
					Yes	*No*	
Conveyance lines	Exercise all valves on lines that connect manholes to the conveyance lines.	Annual	Valves do not operate properly	Repair as needed			
	Exercise valves for by-pass lines.	Annual	Valves do not operate properly	Repair as needed			
	Conduct camera survey of interior of conveyance lines within 100 feet of cleanout boxes for accumulation of scale.	Every five years	Blockage greater than 30%	Clean conveyance lines			
Cleanout boxes	Inspect exterior and interior of cleanout boxes.	Annual	Vegetation covering structure. Evidence of damage or vandalism. Leaking cleanouts on conveyance lines.	Remove vegetation. Repair damage. Repair leaks.			

APPENDIX E PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS FORMER SINCLAIR REFINERY WELLSVILLE, NEW YORK							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*Completed (✓)*		*Completion Date*
					Yes	*No*	
Groundwater Elevations	Monitor groundwater elevations at 17 locations (MH-A through MH-H and piezometers TPZ-01 through TPZ-09) in GWCT using electronic recorders (In-situ LevelTROLL datalogger or equivalent). Set dataloggers to collect groundwater elevations at 30-minute intervals (17520 points per year), which will provide enough points to conduct forensic analysis on pumping history or other problems.	Continuous	Dataloggers not operating properly.	Troubleshoot and repair as needed.			
	Manually measure groundwater elevations at 17 locations (MH-A through MH-H and piezometers TPZ-01 through TPZ-09) in GWCT and compare to information from dataloggers	Monthly	Variance between manual measurements and dataloggers greater than 0.1 foot.	Recalibrate dataloggers, as needed.			

APPENDIX E ***PROPOSED GROUNDWATER RECOVERY SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*Completed (✓)*		*Completion*
Groundwater Elevations (continued)	Download dataloggers	Monthly					
	Obtain stage information from the USGS National Water Information System for the Genesee River at USGS gauging station 04221000, which is approximately 1.8 miles downstream of site. Convert river stage information to river elevations adjacent to site using conversion chart in Appendix G.	Monthly					
	Compare groundwater elevations in GWCT to river elevations adjacent to site.	Monthly		Adjust elevations of float switches in manholes.			

APPENDIX F
WETLAND TREATMENT SYSTEM CHECKLIST

APPENDIX F
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
					Yes	*No*	*Date*
Treatment System Performance	Calculate monthly discharge from treatment system based on volumes pumped from collection system and other sources.	Monthly					
	Calculate annually discharge from treatment system based on monthly discharges.	Annually in June					
	Analyze samples of influent for parameters in List A in the SPDES limitations issued by NYSDEC. Analysis plan is in Appendix I.	Monthly					
	Analyze samples of effluent for parameters List A the SPDES limitations issued by NYSDEC. Analysis plan is in Appendix I.	Monthly					

APPENDIX F
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
					Yes	*No*	*Date*
Treatment System Performance (continued)	Analyze samples of influent for parameters List B in the SPDES limitations issued by NYSDEC. Analysis plan is in Appendix I.	Annually in June					
	Analyze samples of effluent for parameters List B in the SPDES limitations issued by NYSDEC. Analysis plan is in Appendix I.	Annually in June					
Cascade Splitter Structure and Cascade Aerator	Exercise weir gates to confirm operation. Reseal cover over splitter structure if it needs to disturbed to exercise gates.	Annual	Gate doesn't operate for full range	Repair as needed			
	Check that flow from each corrugated pipe is approximately equal	Monthly	Unequal flows	Adjust weir gates to equalize flows.			
	Inspect outlet pipes from splitter structure to manholes for obstructions for sediment buildup.	Quarterly	Blockage greater than 25%	Clean pipes.			

APPENDIX F
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
					Yes	*No*	*Date*
Cascade Splitter Structure and Cascade Aerator (continued)	Inspect corrugated pipes for sediment buildup.	Quarterly	Blockage greater than 25% or more than 4-inches of buildup	Clean pipes.			
Biofilter	Check for evidence of burrowing animals.	Quarterly	Burrows present	Fill burrows with mulch.			
	Check moisture content of media at approximately 6-inches below surface of media.	Monthly in summer	Media is dry.	Add water to media			
	Check depth of media in biofilter.	Annual	Freeboard greater than four-inches.	Add pine bark mulch to replenish media.			
Biofilter Blower	Check blower vacuum and record value.	Monthly	On-Site to provide operating data	Check lines to blower and cover on cascade aerator for leaks and repair leaks, if present.			
	Check oil level in blower.	Monthly	Low oil level.	Replenish oil.			
	Check blower for oil leaks	Monthly	Oil leaks below blower	Repair as needed			
	Open valve on inlet line to drain condensate.	Monthly	Valve doesn't operate	Repair as needed			

APPENDIX F
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
					Yes	*No*	*Date*
Biofilter Blower (continued)	Check condition of enclosure and lines.	Monthly	Damage	Repair as needed			
Sedimentation Pond	Visual inspection for vegetation in or around pond.	Quarterly	Vegetation	Remove vegetation.			
	Check for animals burrowing around pond.	Quarterly	Burrows	Fill burrows with topsoil			
	Check position and condition of turbidity curtains.	Monthly	Curtains are not secured to anchor blocks. Curtains are damaged.	Re-attach curtains to anchor blocks. Repair or replace curtains.			
	Assess need to clean pond based on iron concentrations in influent since last cleaning and prior cleaning results.	Semi-annual	Operator judgment.	Clean pond			
Sedimentation Pond Outlet	Set outlet for summer operation.	Annual in spring	After potential for freezing is past.				
	Set outlet for winter operation.	Annual in late fall	Before potential for formation of more than 1-inch of ice.				

APPENDIX F ***PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
Hydraulic Control / Splitter Structure	Exercise weir gates to confirm operation.	Annual	Gate doesn't operate for full range	Repair as needed			
	Check that water level in sedimentation pond is approximately 1,508 feet-msl.	Monthly	Water level in sedimentation pond is below 1,507.5 feet-msl.	Adjust weir gates to raise water level in sedimentation pond.			
	Check that flow to each of surface flow wetlands is approximately equal.	Monthly	Unequal flows	Adjust weir gates to equalize flows.			
	Confirm that there is no debris in structure and no blockages of the pipes to the SFWs.	Bi-Weekly	Debris or blockage	Clean as needed.			
Recycle Pump in Hydraulic Control Splitter	Assess need to operate recycle pump by reviewing previous effluent analytical results.	Quarterly	Consistent or frequent exceedances of the SPDES discharge limits while the aerator blowers for the SFWs are operating.	Operate recycle pump.			
	Check pump operation	Quarterly	Pump does not operate.	Troubleshoot and repair.			

APPENDIX F
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
Surface Flow Wetlands	Check for geese establishing residence within or near wetlands	Whenever present at site	Waterfowl in and near wetlands. Nesting geese or other waterfowl.	Harass geese and other waterfowl to prevent nesting (see Appendix zz for methods). If geese are nesting, assess whether damage warrants obtaining permit from USDA and NYSDEC to disturb nests.			
	Check for presence of muskrats within wetlands.	Monthly	Muskrats observed in or near wetlands. Muskrat dens on platforms in wetlands.	Trap muskrats in accordance with current NYSDEC Permit to Take Destructive Wildlife (see Appendix K).			
	Visual inspection of condition of vegetation on platforms in basins.	Monthly	Areas of impacted or missing vegetation	Implement geese and muskrat control measures, if needed (see above). Transplant cattails from an off-site source to fill areas of sparse vegetation.			
	Measure thickness of topsoil on vegetated platforms.	Annual	Topsoil thickness less than 3-inches.	Add topsoil to bring thickness to 6-inches.			
	Visually inspect condition of base of deep basins in surface flow wetlands.	Once every three years	More than 0.5-inch of iron precipitates.	Develop and implement plan to remove precipitate.			
	Survey dikes around and between wetlands to assess settlement.	Every two years for 10 years, then every five years.	Settlement greater than 0.1 foot from design elevation of 1,508.5 ft-msl or previous survey.	Develop and implement plan to address settlement.			

APPENDIX F ***PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
Surface Flow Wetlands (continued)	Topsoil on walls of basin berms.	Quarterly	Areas of sloughing. Exposed liner or erosion	Backfill eroded areas and restore as needed. Cover exposed liner with topsoil and seed.			
Surface Flow Wetland Blowers	Evaluate whether blower is to be operated by reviewing previous effluent analytical results, expected weather conditions, and expected influent.	Monthly	Consistent or frequent exceedances of the SPDES discharge limits in conjunction with cold weather (average temperature less than 30°F) and high VOC loading in influent.	Operate blowers			
	Check blower pressure and record value, if operating	Weekly	On-Site to provide operating data	(Need input form On-Site)			
	Check oil level in blowers, if operating	Weekly	Low oil level	Replenish oil.			
	Check blowers for oil leaks, if operating	Weekly	Oil leaks below blower	Repair as needed			
	Check condition of enclosures	Weekly	Damage	Repair as needed			
	Check aeration lines in surface wetlands for leaks, if operating	Weekly	Leaks Floating lines	Repair as needed			

APPENDIX F
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
Surface Flow Wetland Hydraulic Control Structures	Exercise weir gates to confirm operation.	Annual	Gate doesn't operate for full range	Repair as needed			
	Confirm that there is no debris in structure and no blockages on the outlet pipes.	Weekly	Debris or blockage	Clean as needed.			
	Set water level to approximately 4 to 6 inches above vegetated benches.	Annual in spring	After potential for freezing is past.				
	Set water level to at least 18 inches above vegetated benches.	Annual in late fall	Before potential for formation of more than 1-inch of ice.				
Vertical Flow Wetland Splitter Structure	Exercise weir gates to confirm operation	Annual	Gate doesn't operate for full range	Repair as needed			
	Confirm that there is no debris in structure and no blockages on the outlet pipes.	Weekly	Debris or blockage	Clean as needed.			
	Confirm that flow is approximately equal to each of the five vertical flow wetlands.	Monthly	Unequal flows	Adjust weir gates to equalize flows.			

APPENDIX F
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
Vertical Flow Wetlands	Check for animals burrowing around cell.	Quarterly	Burrows present	Cover burrows with topsoil and reseed.			
	Survey dikes around and between wetlands to assess settlement.	Every two years for 10 years, then every five years.	Settlement greater than 0.1 foot from design elevation of 1,505.5 ft-msl or previous survey.	Develop and implement plan to address settlement.			
	Topsoil on walls of basin berms.	Quarterly	Exposed liner or erosion	Cover exposed liner with topsoil and seed. Backfill eroded areas and restore as needed.			
	Visual inspection of limestone	Annual	More than 0.5-inch of iron precipitate on surface of limestone	Remove and replace upper 1-foot of limestone			
	Evaluate effectiveness of limestone by reviewing pH in effluent for past 12 months.	Annual	pH level consistently trending downward toward discharge limit.	Remove and replace limestone			
Dosing Siphon Structures	Visual inspection of interior of structures.	Quarterly	Debris or blockage	Clean as needed.			
	Confirm that dosing siphons are cycling.	Monthly	Water level does not change in wetland	Troubleshoot and repair as needed			
Effluent Manhole and	Visual observation of flow in effluent manhole	Monthly	Discolored or no flow.	Troubleshoot and repair as needed.			

APPENDIX F
PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
Outfall	Visual observation of flow at outfall	Monthly	Discolored or no flow.	Troubleshoot and repair as needed.			
	Visual inspection of effluent manhole	Monthly	Debris or blockages	Clean, as needed			
	Visual inspection of outfall pipe in swale	Monthly	Debris or blockages	Clean, as needed			
Drying Beds	Check condition of stop logs when residuals are stored in drying beds	Weekly	Leakage	Repair stops logs and cleanup leakage			
	Confirm that sand layer in base of bed is adequate.	Prior to transferring residuals to beds	Sand layer less than 12-inches thick	Add sand			
	Check for standing liquids in beds	Weekly	Free liquids in beds	Open valves on drainage lines.			
	Check for debris or blockages in catch basin on pad west of beds	Monthly	Blockage or excessive debris	Clean catch basin			
	Assess moisture content of residuals in drying beds	Quarterly	Material will pass paint filter test	Schedule transport for off-site disposal a licensed facility as needed.			

APPENDIX F PROPOSED WETLAND TREATMENT SYSTEM O&M REQUIREMENTS FORMER SINCLAIR REFINERY WELLSVILLE, NEW YORK							
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	Completed (✓)		Completion
Drying Bed Sump Pump	Exercise valves on drainage lines from drying beds to drainage sump.	Annual and prior to transferring sludge to drying beds	Valves do not operate properly	Repair as needed			
	Confirm pump operation	Monthly and prior to transferring sludge to drying beds.	Pump does not operation	Troubleshoot and repair as needed			
	Confirm function of check valve in meter box.	Monthly	Improper operation.	Troubleshoot and repair as needed			
	Float switch elevations	Quarterly	Elevations deviate from plan by more than 0.25-feet.	Adjust elevations of float switches.			
	Float switch operation	Monthly	Switches do no operate	Troubleshoot and repair as needed			
	High high level alarm	Whenever at the site	High high level alarm is on	Troubleshoot and repair as needed			

APPENDIX G
PROCEDURE FOR CLEANING SEDIMENTATION POND

SEDIMENTATION POND CLEANING PROCEDURE
FORMER SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

SUMMARY

The sedimentation pond (sed pond) requires cleaning to remove iron precipitant on a periodic basis. Currently cleaning is conducted on an approximately annual frequency during late spring or early summer. However, the cleaning frequency maybe adjusted in the future as site conditions warrant. The treatment system will be shut down for an anticipated two week period to facilitate the cleaning work. Cleaning work will include draining water from the sed pond, removal of iron precipitant to the onsite drying beds and cleaning of wetland system components as appropriate. A generalized work task breakdown is provided below. Work tasks may be modified as necessary.

TASK LIST

1. Preparation Activities
    - Order and receive required equipment and supplies.
    - Verify all necessary hose/pipe connections and fittings.
    - Complete Work Risk Analysis and Task Safety Environmental Analysis.

2. Clean Sedimentation Pond
    - Shutdown groundwater collection and treatment system and remove sed pond discharge riser pipe to allow approximately 1.5 feet of water to drain from the sed pond to surface flow ponds. Allow approximately one day for water to gravity drain from sed pond.
    - Pump water/precipitant from sed pond to drying beds utilizing appropriate pump(s) and temporary above ground piping.
    - Remove turbidity curtains from sed pond as appropriate.
    - Push precipitant to suction hose as necessary utilizing appropriate equipment such as skid steer equipped with manure squeegee attachment.
    - A vacuum truck or trailer may also be used as necessary.
    - Rinse sed pond perimeter rocks and turbidity curtains as appropriate.
    - Once sed pond pumping is complete, flush and clean pumps, piping and store for future sed pond cleanings as appropriate.

3. Reinstall Sed Pond Turbidity Curtains
    - Once sed pond cleaning is complete, reinstall turbidity curtains utilizing appropriate equipment.

4. Other System Component Cleaning

    Other system components may be cleaned during the shutdown as deemed necessary. Some of these components may include the i) sedimentation pond hydraulic splitter structure; ii) pipes from splitter structure to cascade manholes; iii) cascade manholes; iv) cascade aeration pipes; and v) various structures downstream of the sed pond.

APPENDIX H
PERMIT TO TAKE DESTRUCTIVE WILDLIFE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH, WILDLIFE AND MARINE RESOURCES

COMPLAINT RECORD AND PERMIT FORM

Permit to take destructive wildlife pursuant to Environmental Conservation Law 11-0521

9	10	1031	MK
REG	YEAR	REC NO.	

☐ CHECK IF DATA ENTERED

REGIONAL WILDLIFE OFFICE Region 9
182 East Union, Suite 3, Allegany, NY 14706 716-372-0645

NAME	TELEPHONE NUMBER (Home)	TELEPHONE NUMBER (business)
Eric Larson	443-807-6233	

STREET ADDRESS	ORGANIZATION (if applicable)
2446 County Rt 44	Sinclair Refinery

CITY/STATE/ZIP CODE	SITE LOCATION IF DIFFERENT
Wellsville, NY 14895	

Location of Problem:

WMU 9X UTM NAD 83 2570525.89, 4665650.38

County Allegany Town Wellsville Quad

DATE RECEIVED	DATE HANDLED/ISSUED	DATE EXPIRES
12 Mo 20 Day 10 Year	1 Mo 1 Day 11 Year	12 Mo 31 Day 11 Year

Permit to take DEER ☐ Repeat Complaint Previous Permit # _____

☐ **General Permit** You and your agent must comply with all standard conditions of this permit listed on this or additional pages.

☐ **Permit with Special Conditions** You and your agents must comply with all special conditions listed on this or additional pages.

Killing of deer may only be accomplished by use of those weapons checked:

☐ Bow with legal hunting broadhead ☐ Shotgun with single projectile ☐ Rifle with centerfire cartridge

Type of problem, check all that apply

☐ Corn ☐ Grain ☐ Orchard ☐ Vineyard ☐ Nursery ☐ Natural Communities ☐ Community Garden ☐ Ornamental

☐ Beans ☐ Forage ☐ Airport ☐ Truck Farm ☐ Christmas Trees ☐ Forest Regeneration ☐ Home Garden

☐ Other _____

Number of Tags Issued _____ Carcass Tag Number(s) _____ Number killed on permit _____

Special Conditions for Deer _____

Permit to take OTHER SPECIES ☒ Repeat Complaint Previous Permit # 9-09-0678

☐ Beaver ☒ Muskrat ☐ Bear ☐ Turkey ☐ Other (Specify)

For beaver, type of problem:

☐ Public Road ☐ Private Road ☐ RR ☐ Agriculture ☐ Timber ☒ Impoundments ☐ Residential

Other _____

You or your agents must comply with all standard or special conditions of this permit listed on this or additional pages. This permit does not authorize trespassing.

You or your agent MAY:

☒ take and/or ☒ harass the species checked above, at the problem location, by:

☒ trapping ☒ shooting ☐ other method (list) _____

☒ Bury carcasses ☐ Sell/keep beaver pelts – through May 15 (after May 15 - beaver must be buried)

Pursuant to ECL 11-0505 or ECL 11-1101, you may:

☐ disturb beaver dams (see standard condition 4) ☐ disturb beaver lodges ☐ set traps within 15 feet of beaver lodge

other _____ ☐ set traps within 15 feet of beaver dam

☐ Agents certified by DEC may use cable restraints to take beaver

WATER LEVEL CONTROL DEVICE: ☐ Recommended ☐ Installed

Other Permits Issued:

☒ ARTICLE 11 ☐ ARTICLE 15 Stream _____ ☐ ARTICLE 24 Wetland Number _____

Actions Taken:

☐ Technical advice only ☐ Field visit ☐ Hunter/Trapper referral Total time spent _____ Handled by M. Koch

Other Actions: _____

STANDARD CONDITIONS FOR GENERAL DEER DAMAGE PERMIT

PERMIT CONDITIONS

1. Only the Permittee and Agents may use this permit.
2. Permit is valid for antlerless deer only.
3. Agents must possess a valid NYS hunting license, hunter education certificate, or certificate of safe firearms training.
4. Agents must be at least 18 years of age.
5. Persons who have had their NYS hunting privileges revoked or suspended may not act as an Agent on this permit.
6. Permittee and Agents must abide by local firearms discharge ordinances or obtain a written waiver from local authorities.
7. If a waiver is required, it must be attached to the permit.
8. Permittee and Agents must possess a copy of the permit and carcass tag when using this permit.
9. Permittee must first obtain permission from the landowner before using this permit on leased or rented lands.
10. Shooting hours are from ½ hour before sunrise to 11 p.m.
11. This permit is not valid unless or until the AGREEMENT TO CONDITIONS is signed by the Permittee.
12. This permit is valid only on lands owned, rented or leased by the Permittee, where damage is occurring, as specified in the permit.
13. The Permittee must maintain a log of Agents using the permit. The log must be available for inspection at any time.
14. Agents must sign the log prior to using this permit.
15. The Permittee is responsible for any property damage caused by the Agents while using the permit.
16. The use of artificial lights is permitted when shooting after sunset.
17. Permit is not valid during any open deer hunting season in the area issued, except as specified as a permit condition by the Regional Wildlife Manager.
18. The DEC has the right to inspect any building, structure or property used for any activity pursuant to this permit.
19. Shooting within 500 feet of a dwelling, farm building or occupied structure is prohibited unless the shooter owns or leases the building or has the owner's written consent.
20. No one may sell: a nuisance deer permit, a carcass tag, the ability to be an agent on a permit or the opportunity to shoot a deer on a permit, or a deer shot on a deer damage permit.

ENVIRONMENTAL CONSERVATION LAW:

- Possession of a loaded firearm in or on a motor vehicle is prohibited.
- Shooting from a motor vehicle or across any part of a public highway is prohibited.
- Shooting within 500 feet of a school, playground, or an occupied factory or church is prohibited.

TAGGING, PROCESSING AND REPORTING THE DEER:

- All deer taken must be tagged with a completed carcass tag and reported. Deer must be tagged before being transported.
- An effort should be made to use the deer for human consumption. Venison donation programs may exist in your area.
- You must return the completed Summary Report WITHIN 10 DAYS of expiration date of your permit to the DEC office listed on your permit. Failure to report can be grounds for denial of future permits. Unused carcass tags must be destroyed.
- If you expect to need another deer damage permit next year, sign the statement on the completed Summary Report when you return it to DEC.

STANDARD CONDITIONS FOR NUISANCE BEAVER, MUSKRAT, BEAR or TURKEY PERMIT

1. In executing this permit you and your agent must obey all State and local laws and ordinances governing such actions (e.g., firearms discharge) and obtain any additional permits as required.
2. This permit does not authorize you or your agent to trespass. You must first obtain permission from the landowner for you and/or your agent to go on land you do not own to execute this permit.
3. Your and/or your agent must carry a copy of this permit while executing this permit.
4. When removing a beaver dam, water levels above and below must be equalized by slow and partial breaching before the entire dam is removed.

AGREEMENT TO CONDITIONS

Failure to comply with the conditions, outlined above and elsewhere in this permit may result in denial of future permits and may be considered violations of state laws. This permit may be revoked at any time.

I have read and fully understand the above permit conditions and agree to abide by them.

Permittee: Eric [illegible] Date: January 1, 2011

APPENDIX I
RIVER CHANNEL AND SWALE CHECKLIST

APPENDIX I
PROPOSED RIVER CHANNEL AND SWALE O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

								Completed (✓)		Completion
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*TYPE*			*Yes*	*No*	*Date*
					RP	*IM*	*GO*			
Rip-rap revetment on east river bank near CELA	Visual inspection	Annual during low river flow (<180 cfs)*	Damage. such sloughing or erosion.	Repair damage by replacing rip-rap to design grades.	X					
	Visual inspection	After each high water period (>4,500 cfs)*	Damage, such as sloughing or erosion	Repair damage by replacing rip-rap to design grades.	X					
Dike between CELA and Genesee River	Visual inspection of rip-rap revetment	Annual during low river flow (<180 cfs)*	Damage. such sloughing or erosion.	Repair damage by replacing rip-rap to design grades.	X					
	Visual inspection of rip-rap revetment	After each high water period (>4,500 cfs)*	Damage, such as sloughing or erosion	Repair damage by replacing rip-rap to design grades.	X					
	Visual inspection, if safe.	During high water event (>4,500 cfs)*, if safe	Damage that might jeopardize the integrity of the dike.	Repair damage, as needed, after water level recedes	X					
	Visual inspection of trail on top of dike.	Annual	Water ponding or ruts	Fill low areas with NYSDOT 401 aggregate	X					

APPENDIX I
PROPOSED RIVER CHANNEL AND SWALE O&M REQUIREMENTS
FORMER SINCLAIR REFINERY
WELLSVILLE, NEW YORK

								Completed (✓)		Completion
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*TYPE*			*Yes*	*No*	*Date*
					RP	*IM*	*GO*			
	Survey elevation of top of dike CELA and river at 200-foot intervals to assess settlement. Survey toe of slope to check for displacement or settlement of rip-rap revetment.	Every five years during a low river flow (<180 cfs)*	Excessive settlement or movement.	Review information with NYSDEC to evaluate whether correction action is needed.	X					
Rip-rap revetment and dike on west river bank downstream of lower drop structure	Visual inspection	Annual during low river flow (<180 cfs)*	Damage. such sloughing or erosion.	Repair damage by replacing rip-rap to design grades.	X					
	Visual inspection	After each high water period (>4,500 cfs)*	Damage, such as sloughing or erosion	Repair damage by replacing rip-rap to design grades.	X					
	Survey toe of slope to check for displacement or settlement of rip-rap revetment.	Every five years during a low river flow (<180 cfs)*	Excessive settlement or movement.	Review information with NYSDEC to evaluate whether correction action is needed.	X					
Water Level Control Berm at South End of Swale	Visual inspection	Quarterly	Damage. such sloughing or erosion. Vegetation.	Repair damage by replacing rip-rap to design grades. Remove vegetation.	X					

APPENDIX I ***PROPOSED RIVER CHANNEL AND SWALE O&M REQUIREMENTS*** ***FORMER SINCLAIR REFINERY*** ***WELLSVILLE, NEW YORK***										
								Completed (✓)		*Completion*
COMPONENT	*INSPECTION or MONITORING ACTION*	*FREQUENCY*	*TRIGGER FOR CORRECTIVE ACTION*	*CORRECTIVE ACTION*	*TYPE*			*Yes*	*No*	*Date*
					RP	*IM*	*GO*			
Water Level Control Berm at South End of Swale (continued)	Visual inspection of vegetation on side slope of levee between the WLCB and the Genesee River.	Monthly Bi-Weekly during summer months.	Vegetation taller than 12-inches within 10 feet of the interface of the WLCB and levee.	Cut to height no shorter than 3-inches.	X		X			
	Monitor toe of levee between the WLCB and the Genesee River for seepage.	Quarterly	Observation of significant seepage	Review information with NYSDEC to evaluate whether correction action is needed.	X					
	Dewater pool behind WLCB.	When requested by NYSDEC			X					

Notes:
RP – Include in Work Plan to Agencies
IM – Include in Integrity Management Plan
GO – Good Operating Practice included in Integrity Management Plan
* - River flow data is available from the USGS National Water Information System for the Genesee River at USGS gauging station 04221000, which is approximately 1.8 miles downstream of site.