POST-CONSTRUCTION
STORMWATER MANAGEMENT (PCSM) REPORT

FOR

ELCON
RECYCLING

FALLS TOWNSHIP
BUCKS COUNTY, PA

FILE NO. 2012-07083

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Prepared For:

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The Erosion and Sediment Control Plans and Calculations and the Post-Construction Stormwater Management Plans and Calculations have been provided, designed, and implemented to be consistent with one another. Please refer to the Erosion and Sediment Control Plans and Calculations for project, dated July 12, 2019, as last revised.

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PROJECT DATA SHEET

1. Development Name: Elcon Recycling
   Date: February, 2020

2. Location: Falls Township, Bucks County, PA

3. Facility Owner: Elcon Recycling Services, LLC
   1720 Walton Road
   Blue Bell, PA 19422
   Telephone No.: (855) 463-6364

4. Person Responsible for Construction and Maintenance of earth moving operations and Erosion and Sediment Pollution Controls: (list all responsible parties if duties are assigned to more than one party.)

   Not available at this time.

   Telephone No.:

5. Post-Construction Stormwater Management Plan Preparer:

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   New Britain, PA 18901
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PCSM PLAN PREPARER INFORMATION

NAME OF PLAN PREPARER: James J. Hersh, P.E.

FORMAL EDUCATION:

Name of College or Technical Institute: Northeastern University
Curriculum or Program: Civil Engineering
Dates of Attendance: 2003 to 2008
Degree Received: Bachelor of Science in Civil Engineering

EMPLOYMENT HISTORY:

Current Employer: Gilmore & Associates, Inc.
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PCSM NARRATIVE

1.0 PROJECT DESCRIPTION

The subject site (Tax parcel 13-51-1-5) is located in the Materials Processing and Manufacturing (MPM) zoning district. The site is bound by Phoenix Metals, Arley Wholesale, A&A Machinery, and Univar USA along Dean Sievers Place to the east, Sims Metal Management to the north, and Steel Road South to the west and south, in Falls Township. The attached USGS Quadrangle depicts the site location. The 32.30-acre site is currently undeveloped. The site is generally flat, but slopes toward the existing wetland at approximately one (1) percent. The majority of the site currently sheet flows directly to the existing wetland (POI-A), with a small portion of the site sheet flowing to an existing drainage swale along Dean Sievers Place and then to the wetland. The remaining portion of the site sheet flows to an adjacent property, TMP 13-51-1-6 (POI-B). The existing wetland system eventually discharges to Biles Creek, which is classified as WWF, MF in Chapter 93.

The project proposes a network of interconnected buildings covering approximately 108,600 square feet for the purpose of treating industrial waste. Drive aisles capable of accommodating a WB-67 truck and a 43-foot fire truck per Falls Township requirements will be provided throughout the site. A designated truck unloading area, a main parking area for 66 vehicles, and a small parking area for 5 vehicles are also provided. The truck unloading area is graded to be self-contained and will direct runoff collected in this area to the processing plant as an extra precaution against leaks or spills. The process tank farm in the large central island will also be self-contained and direct runoff to be processed. The processing plant will handle runoff from these areas up to the 25-year storm. For storm events larger than the 25-year storm, overflow runoff will be directed to one (1) stormwater basin along with runoff from the majority of the disturbed area. It should be noted that the proposed stormwater basin has been designed to account for runoff from the entire drainage area as if none of the runoff will be treated by the processing plant.

The proposed development will occur within approximately 13.83 acres of the 32.30-acre site. The 13.83 acres of development includes ±1.50 acres of BMP 5.6.1 minimize total disturbed area grading. Therefore, the total area to be disturbed is approximately 12.33 acres. The existing ground cover on the area of the site to be developed is approximately 2.53 acres of brush, and the remaining ±9.80 acres is considered meadow. The proposed project will increase the impervious coverage within the limit of disturbance by approximately 8.94 acres. The remaining ±3.38 acres are considered lawn area.

1.1 PAST, PRESENT, AND PROPOSED LAND USES: §102.8(F)(3)

The property is located on a former US Steel site at the corner of Steel Road South and Dean Sievers Place in Falls Township, Bucks County, PA. According to aerial photographs dated 1938, 1944, and 1950, this site was used as farmland for agricultural purposes prior to 1952. In 1952, borrow pits were constructed across the numerous properties owned by US Steel in order to raise the facility above the 100-year floodplain. This property was developed with a rail yard and used as a steel facility for US Steel

starting in 1952. The small sanitary waste processing building that is currently located at the bend in Steel Road South can be seen in aerial photographs dated as early as 1964. Aerial photographs also show that Steel Road South and the wet pond located on this property were constructed between 1964 and 1971. US Steel began shutting down the steel operation plants in 1984, and steel-making operations were fully stopped in 1991. By 1999, this property was graded to its current existing condition, and has remained a vacant unused lot since that time. The proposed use for this site is commercial for the treatment and storage of hazardous and residual liquid waste streams.

1.2 PROJECT LOCATION MAP

Trenton West Quadrangle
1" = 2,500'

2.0 SITE CHARACTERISTICS

2.1 TOPOGRAPHIC FEATURES

Topographic information was obtained from a field survey performed by Gilmore & Associates, Inc. in March of 2014. Vertical Datum is NAVD88 and was established by Global Positioning System (GPS) with observations referenced to the TopCon TopSurv GPS Base Station Network.

The site is generally flat, but slopes toward the existing wetland at approximately one (1) percent. The majority of the site currently sheet flows directly to the existing wetland (POI-A), with a small portion of the site sheet flowing to an existing drainage swale along Dean Sievers Place and then to the wetland. The remaining portion of the site sheet flows to an adjacent property, TMP 13-51-1-6 (POI-B). The existing wetland system eventually discharges to Biles Creek, which is classified as WWF, MF in Chapter 93.

2.2 RECEIVING WATERS

The site is located in the Delaware River South Sub-Basin of the Pidcock-Mill Creeks Watershed in Falls Township, Bucks County, PA. The nearest receiving watercourse to receive runoff is Biles Creek, and the designated and existing uses are identified as warm water fishes (WWF) and migratory fish (MF) according to PA Code, Chapter 93. This portion of Biles Creek is classified as impaired according to Category 4 of the PA Integrated Water Quality Monitoring and Assessment Report for organics and Polychlorinated Biphenyls (PCBs). It also has a TMDL according to Category 5 of the PA Integrated Water Quality Monitoring and Assessment Report, per the Delaware River Estuary PCB TMDLs. The project area is not located within any Exceptional Value (EV) or High Quality (HQ) watersheds, and there is an Approved Act 167 Plan and River Conservation Plan.

2.3 PROJECT AREA SOILS

Soils classification information for the project site was obtained from the Web Soil Survey of Bucks County, Pennsylvania. Urban Land (UfuB) is the only soil mapped within the proposed area of disturbance. The *Project Soils Map*, along with *Table 1*, *Table 2*, and *Table 3* below, identify the soil classifications, limitations, and resolutions located on the site.

A more traditional infiltration basin was included in the original design of this project. However, during Elcon's application review process for a Hazardous and Residual Waste Treatment and Storage Permit, PA DEP Waste Management Program personnel specifically requested that Elcon not incorporate an infiltration basin into the stormwater design. PA DEP personnel requested that the proposed basin be lined with an impermeable barrier to further protect the environment in the event that a spill bypasses the containment system and ends up in the stormwater basin. Therefore, to satisfy PA DEP's request, the basin was redesigned as a Managed Release Concept Basin with an

impermeable liner. Additional information, as prepared by the Applicants environmental consultant, IES Engineers, can be found in Appendix 9.1 of this report. Since infiltration is not included as a design feature in the proposed stormwater basin for the reasons mentioned above, infiltration testing is not being performed for the proposed project. Based on soil borings performed as part of the Act 2 work for this site, depth to groundwater ranges from 5 to 13.5 feet below ground surface.

Project Soils Map

Table 1: Existing Soils Classification

Symbol	Soil Name	Rating	Slope
UfuB	Urban Land		0-8%
Na	Nanticoke-Hatboro Silt Loams	C/D	0-1%
W	Water		

Table 2: Soil Limitations

PER TABLE E.1 OF THE EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL DATED MARCH 2012, THE FOLLOW TABLE DISPLAYS THE LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTHMOVING PROJECTS FOR THE SOILS LOCATED ON THE PROJECT SITE.

SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL*	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE	HYDRIC/HYDRIC INCLUSIONS	LOW STRENGTH/ LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK -- SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
ABBOTTSTOWN	X	C/S		X		X	X	X	X	X	X	X				X
CROTON	X	C/S		X		X	X	X	X	X	X	X			X	X
PENN	X	C	X				X	X		X	X	X				
READINGTON	X	C/S		X		X	X	X	X	X	X	X				X
ROWLAND	X	C/S		X	X	X	X	X	X	X	X	X				X
URBAN LAND**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE: ABSENCE OF AN X DOES NOT MEAN "NO POTENTIAL LIMITATION"
* C = CONCRETE, S = STEEL
** 'URBAN LAND' NOT INCLUDED IN TABLE E.1

Table 3: Soil Limitations and Resolutions for Limitations

LIMITATION	RESOLUTION OF LIMITATIONS
CUTBANKS CAVE	PROVIDE APPROPRIATE BENCHING AND/OR SHORING IN AREAS OF EXCAVATION
CORROSIVE TO CONCRETE/STEEL	PROVIDE ALL PIPES IN TRENCHES WITH SELECT MATERIAL BACKFILL, AND ALL PIPES SHALL HAVE WATERTIGHT CONNECTIONS.
DROUGHTY	SOIL SHOULD BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO USE ON SITE. ANY RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER SHALL BE FOLLOWED PRIOR TO USE OF SOIL.
EASILY ERODIBLE	SOILS SHALL BE STABILIZED WITH EITHER TEMPORARY OR FINAL STABILIZATION IN AREAS WHERE EARTHWORK IS DELAYED OR STOPPED FOR FOUR CONSECUTIVE DAYS.
FLOODING	AVOID CONSTRUCTION WITHIN THESE SOILS AS MUCH AS POSSIBLE. SOIL SHOULD BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO USE ONSITE. ANY RECOMMENDATIONS BY THE ENGINEER SHOULD BE FOLLOWED PRIOR TO USE OF SOIL.
DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE	SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOILS TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
HYDRIC/HYDRIC INCLUSIONS	SOIL SHOULD BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO USE ON SITE. ANY RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER SHALL BE FOLLOWED PRIOR TO USE OF SOIL.
LOW STRENGTH/ LANDSLIDE PRONE	SOILS SHALL BE STABILIZED WITH EITHER TEMPORARY OR FINAL STABILIZATION IN AREAS WHERE EARTHWORK IS DELAYED OR STOPPED FOR FOUR CONSECUTIVE DAYS.
SLOW PERCOLATION	SOIL SHOULD BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO USE ON SITE. ANY RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER SHALL BE FOLLOWED PRIOR TO USE OF SOIL.
PIPING	AREAS OF EMBANKMENTS WITH PIPES PASSING THROUGH THEM SHALL HAVE ANTI-SEEP COLLARS INSTALLED PER PADEP E&S DESIGN MANUAL.
POOR SOURCE OF TOPSOIL	SOILS SHOULD BE AMENDED AS RECOMMENDED TO PROVIDE ADDITIONAL ORGANIC CONTENT AND WATER HOLDING CAPACITY.
FROST ACTION	SOILS SHOULD BE FREE OF FROZEN OR MUCKY MATERIALS. FILL SHOULD NOT BE PLACED ON SATURATED OR FROZEN SURFACES. EARTHWORK INVOLVING THESE SOILS SHOULD BE LIMITED TO WARMER MONTHS WHEN PRACTICABLE.
WETNESS	SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF SOILS ARE DEEMED TOO WET FOR SITE WORK BY GEOTECHNICAL ENGINEER, SOILS ARE TO BE DRIED OR AMENDED PER ENGINEER'S RECOMMENDATIONS.

2.4 ACT 2 INVESTIGATION ON TAX PARCEL 13-51-1-5

The Act 2 Final Report for 32-Acre Parcel (Act 2 Report) without its appendices, as prepared by GHD Group and dated September 8, 2015, is included as Appendix 9.4 to this report. According to the Act 2 Report, US Steel has, "demonstrated attainment with the SHS (Statewide Health Standard) for Site compounds of concern (COC) for soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2)" (page 1).

In 1998, there were 10 soil samples taken from test pits, 4 soil samples taken from soil borings, and 3 sediment samples taken from the stormwater ditch on the west side of the parcel. Those samples were analyzed for select volatile organic compounds (VOCs), select semi-VOCs (SVOCs), Total Petroleum Hydrocarbons (TPH), and priority pollutant (PP) metals. In June 2014, 14 surficial (0-2 feet below ground surface) soil samples were taken from boreholes, 14 sub-surface (greater than 2 feet below ground surface) soil samples were taken from boreholes, and 3 surface water samples were taken and analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, polychlorinated biphenyl (PCBs), and PP metals (Act 2 Report, page 2). Quality control samples were also taken during sampling, and the chemical analysis for all samples was performed by TestAmerica (Act 2 Report, page 4).

The analytical results for the soil samples provided by TestAmerica were below the Medium-Specific Concentrations (MSC) for surficial samples (0 to 2 feet below ground surface) and subsurface samples (2 to 15 feet below ground surface) for non-residential direct-contact values. All soil samples were also below the MSCs for the soil to groundwater numerical values for non-residential, non-use qualifiers. Finally, all soil samples were also below the USEPA-PA Defaults Nonresidential Volatilization to Indoor Air numerical values. The analytical results for the surface water samples were below the Chapter 93.8c, Table 5, Water Quality Criteria for Toxic Substances (Fish and Aquatic Life Criteria and Human Health Criteria) (Act 2 Report, page 4). Actual analytical values for each sample can be found in Tables 4.1 through 4.5 in the Act 2 Report.

A non-use aquifer determination was approved by PA DEP in April 1999, and eliminates the groundwater exposure pathway. PA DEP also provided a release of environmental liability for COCs in the entire US Steel facility in a letter dated April 11, 2011. There are no uses of groundwater for potable or non-potable purposes between the up-gradient boundary of this site and the Delaware River. The use of groundwater is restricted through the implementation of an Environmental Covenant and all present and future use of groundwater from any source on this site shall be prohibited, except for purposes of monitoring groundwater quality. This site is located in the Materials Processing and Manufacturing (MPM) zoning district, and an Environmental Covenant also restricts the uses on this site to be only non-residential in the future. There is no completed pathway to on-site groundwater due to existing restrictions (Act 2 Report, page 5).

Ultimately, there are no exposure pathways on this site. There is no exposure pathway or receptors to COCs in the soil because the concentrations of COCs were below the

applicable MSCs for direct-contact in a non-residential use scenario for both surface and subsurface soil. There is also no exposure pathway from soil to groundwater because the soil concentrations of COCs were below the applicable MSCs for soil to groundwater criteria for non-use aquifers. Finally, there is no exposure pathway or receptors to COCs as a result of indoor air because the soil concentrations at the site reported concentrations of COCs below the applicable USEPA-PA Defaults Nonresidential Volatilization to Indoor Air numerical values (Act 2 Report, pages 5, 8). A detailed explanation of the exposure pathway and receptor evaluation can be found in Section 6 of the Act 2 Report.

US Steel has demonstrated attainment of a Statewide Health Standard (SHS) on this property for surficial and subsurface soil based on the following conditions:

1. The site has been utilized for industrial purposes since 1952, and there are no foreseeable changes for the use of the property.
2. The random surficial and subsurface soil sampling program has demonstrated attainment of the SHS for soil.
3. An Environmental Covenant has been drafted in accordance with the Uniform Environmental Covenants Act (UECA), and will be executed for the property restricting residential use. This Covenant will make the property subject to activity and use limitations, which the owner and subsequent owners shall abide by to ensure the future use of the property is limited to non-residential use.
4. No current or future pathways to surficial or subsurface soil with unacceptable risk have been identified.

As a result, US Steel has requested a release from environmental liability for COCs in soil and no further post-remediation care will be implemented (Act 2 Report, pages 9-10).

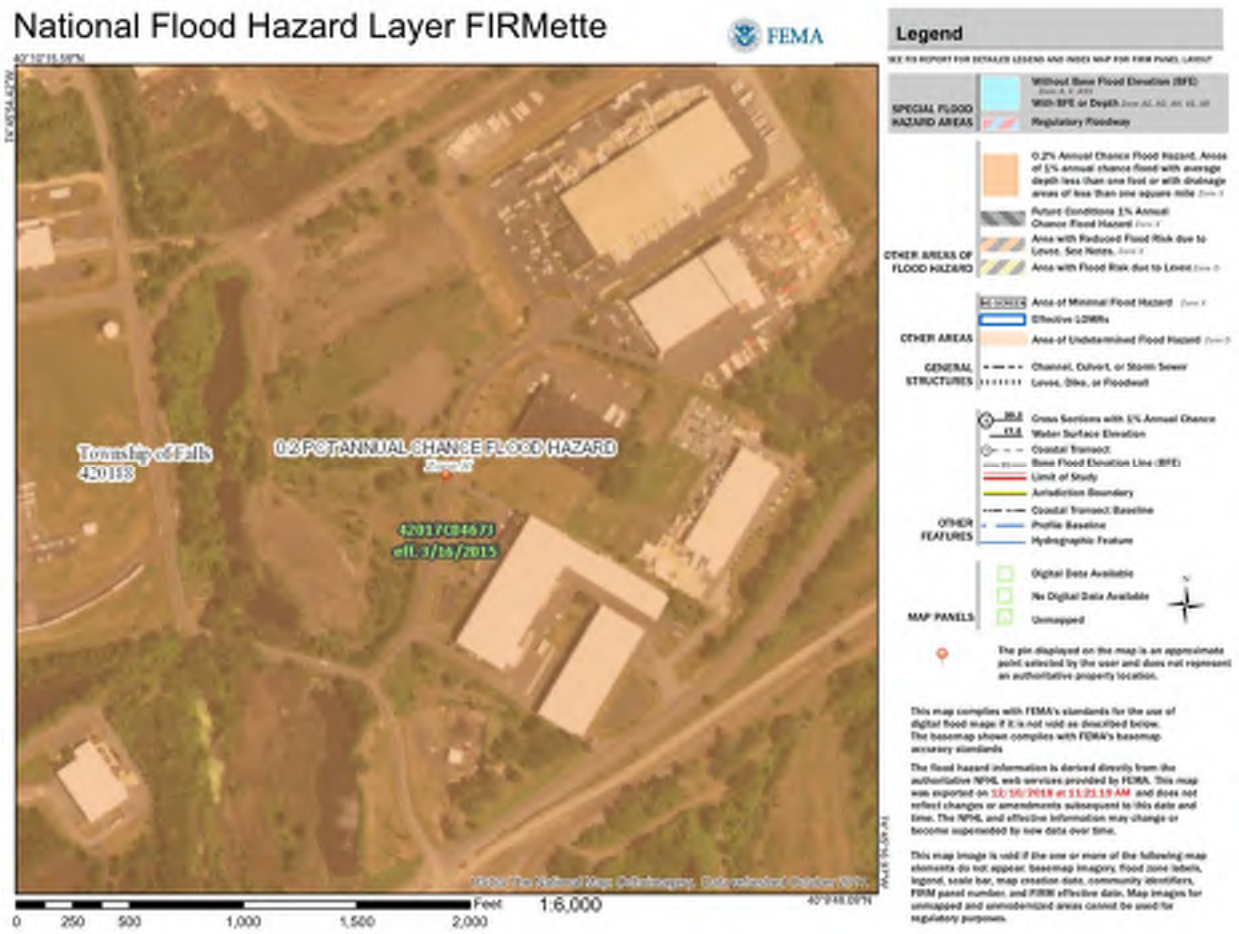
Additional information about the Act 2 work performed for this site can be found in the Act 2 Report, included as Appendix 9.4 to this report.

2.5 VEGETATION AND FIRM FLOODPLAIN MAPPING

The existing land coverage types within the limit of disturbance for the project site are brush and grass area. There are no delineated wetlands within the proposed project area, but the wetlands on the property to which the project will drain are delineated on the plans. The full Wetland Delineation Report, as prepared by Conestoga-Rovers & Associates and dated August 13, 2014, is included as Appendix 9.2 to this report and the Army Corps of Engineers Jurisdictional Determination dated January 5, 2015 is included as Appendix 9.3. Existing trees to be removed will be replaced in accordance with the landscape plans of the project.

According to Flood Insurance Rate Map (FIRM) 42017C0467J, effective on March 16, 2015, the entire site is located in Zone X, 0.2% annual chance flood hazard.

FIRM 42017C0467J, effective on March 16, 2015, includes the entire property, and is displayed below:



2.6 HYDROLOGY AND STORMWATER RECHARGE

The pre-development stormwater analysis divides the site into two (2) Points of Interest (POI). Both POI-A and POI-B eventually drain to the on-site wetland system and ultimately to Biles Creek. The total drainage area analyzed for peak rate reduction in accordance with PA DEP and Falls Township's Stormwater Management Ordinance is the area of land to be disturbed, or approximately 12.32 acres.

The post-development stormwater analysis shows the runoff will be controlled by a proposed impermeable-lined managed release concept (MRC) basin designed to capture and treat runoff from the majority of the proposed lawn and impervious areas of the site. This Best Management Practice (BMP) will be the main component for meeting the stormwater management requirements. Subsurface storm sewer conveyance systems will be installed to direct the stormwater runoff collected by inlets and roof drains toward the proposed basin. A perforated underdrain with upturned elbow and perforated cap in the outlet control structure will be installed to control the runoff release from the managed release concept basin and encourage evapotranspiration to the maximum extent possible. The basin will incorporate an impermeable liner to prevent infiltration to satisfy a specific request from PA DEP Waste Management Program personnel. The proposed

stormwater design routes stormwater through a treatment train of BMPs to prevent an increase in runoff and maximize water quality to the maximum extent possible.

Table 4: Land Cover Breakdown for Each POI within LOD (Acres)

Cover Type	POI-A		POI-B	
	Pre-Development	Post-Development	Pre-Development	Post-Development
Impervious	0.00	8.90	0.00	0.04
Lawn	0.00	3.28	0.00	0.11
Meadow	8.50	0.00	1.31	0.00
Brush	2.34	0.00	0.19	0.00
Total	**10.84**	**12.18**	**1.49**	**0.15**

3.0 DESIGN CRITERIA

The stormwater design standards for the proposed development are set forth by Chapters 191 (Subdivision and Land Development) and 187 (Stormwater Management) of the Falls Township Code of Ordinances as well as the PADEP Erosion and Sedimentation Control Regulations and the PADEP Stormwater BMP Manual. Specific design standards and project site conditions are as follows:

1. §187-Attachment 1 Appendix A Table A-1 – Design Storm Rainfall Amount (inches):
    a. One year – 2.7 inches
    b. Two years – 3.3 inches
    c. Five years – 4.2 inches
    d. Ten years – 5.0 inches
    e. Twenty-five years – 5.8 inches
    f. Fifty years – 6.4 inches
    g. One hundred years – 7.2 inches
2. §187-9.A.(2) – Standards for managing runoff from Subarea C in the Delaware River South Watershed is shown below:
    a. Design Storm 2-year peak runoff rate must be reduced to Pre-Development 1-year
    b. Design Storm 5-year peak runoff rate must be reduced to Pre-Development 2-year
    c. Design Storm 100-year peak runoff rate must be reduced to 50% of Pre-Development 100-year

4.0 METHODOLOGY

The NRCS (SCS) Method was utilized for pre-development and post-development stormwater volume and peak rate analysis. The computer program "Hydraflow Hydrographs 2007" by Intelisolve was utilized to calculate and plot the runoff hydrographs. The SCS Method incorporates the time of concentration (Tc), Curve Number (CN) values, 24-hour precipitation depth, and associated drainage areas to calculate the runoff rates. Input values were obtained from existing and proposed site conditions, PennDOT Design Manual No. 2, PADEP Erosion and Sediment Pollution Control Program Manual, Technical Release-55, and the Stormwater Management requirements and standards outlined in the Falls Township Stormwater Management Ordinance.

To develop the Post-Construction Stormwater Management Plan, the pre-development and post-development peak discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year rainfall events were calculated utilizing the SCS Method. The calculations utilize the SCS Type II 24-hour precipitation values to compare pre- and post-development stormwater rates. The post-development peak discharge rates were calculated considering all site improvements proposed for the project. Due to the proposed managed release concept basin, addition of amended soils, re-vegetation using native species, and the minimization of disturbed area, the post-development peak discharge rates are lower than the pre-development rates at POI-A and POI-B.

For purposes of meeting the requirements of Section D.3 and D.4 of the PADEP's NPDES Permit for runoff volume and water quality control, the NRCS (SCS) Method is utilized to effectively manage the difference in the 2-year 24-hour volume for the site from the pre- to post-development condition. Runoff Curve numbers were obtained in accordance with the Falls Township Stormwater Management Ordinance.

5.0 ANALYSIS

For stormwater management analysis, two (2) Points of Interest were utilized for the pre- and post-development conditions based on existing topography of the on-site and off-site areas, and the natural resources and drainage outlets for the site. The following list details the pre- and post-development areas and their corresponding points of interest:

5.1 PRE-DEVELOPMENT POINTS OF INTEREST

- **Pre-Development Point of Interest A (POI-A)** is located on the western portion of the site where runoff from the site drains to an existing wetland system. This area captures brush and meadow areas, and includes approximately 10.84 acres within the overall proposed limits of disturbance.

- **Pre-Development Point of Interest B (POI-B)** is located at the northern property line of the site where runoff from the site drains towards an existing basin located on the adjacent property (T.P. 13-51-1-6). This area captures brush and meadow areas, and includes approximately 1.49 acres within the overall proposed limits of disturbance.

5.2 POST-DEVELOPMENT POINTS OF INTEREST

- **Post-Development Point of Interest A (POI-A)** is located on the western portion of the site where runoff from the site drains to an existing wetland system. This area captures grass and impervious areas from the proposed development. The proposed managed release concept basin is within the area that drains to POI-A. The proposed post-construction stormwater management facilities will reduce the peak post-development flow rates to below the pre-development peak flow rates for each storm event, as shown in *Table 5* below.

- **Post-Development Point of Interest B (POI-B)** is located at the northern property line of the site where runoff from the site drains towards an existing basin located on the adjacent property (T.P. 13-51-1-6). This area captures grass and impervious areas from the proposed development. The significant reduction in area compared to the pre-development condition will reduce the peak post-development flow rates to below the pre-development peak flow rates for each storm event, as shown in *Table 5* below.

5.3 PEAK DISCHARGE SUMMARY TABLE

Table 5 below compares the pre-development and post-development peak discharge rates at the two (2) Points of Interest for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year rainfall events:

Table 5: Peak Discharge Rate (cfs) at Points of Interest

Storm Event	POI-A		POI-B		Total Site		Total Site Percent Reduction
	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development	
1-year	2.90	1.72	0.88	0.20	3.78	1.92	49.2%
2-year	5.05	2.48	1.50	0.29	6.55	2.77	57.7%
5-year	8.83	3.92	2.56	0.43	11.39	4.35	61.8%
10-year	12.53	5.70	3.60	0.56	16.13	6.26	61.2%
25-year	16.46	7.55	4.71	0.70	21.17	8.25	61.0%
50-year	19.50	9.04	5.56	0.80	25.06	9.84	60.7%
100-year	23.67	11.07	6.73	0.93	30.40	12.00	60.5%

6.0 PCSM PLANNING AND DESIGN

The management of post-construction stormwater shall be planned and conducted to the maximum extent practicable. The project was designed to provide the following measures to limit negative impacts to the environment:

I. STREAM INTEGRITY PRESERVATION: §102.8(b)(1)

The proposed BMPs included in the Post-Construction Stormwater Management (PCSM) Plan have been planned and provided in order to preserve the integrity of stream channels, and maintain and protect the physical, biological, and chemical qualities of the receiving stream.

II. PREVENT STORMWATER RUNOFF RATE INCREASE: §102.8(b)(2)

The proposed PCSM Plan will prevent an increase in stormwater runoff rates through the use of a managed release concept basin, amended soils, re-vegetation using native species, and the minimization of disturbed area.

III. MINIMIZE STORMWATER RUNOFF VOLUME INCREASE: §102.8(b)(3)

The proposed PCSM Plan will minimize the increase in stormwater runoff volume through the use of a managed release concept basin, amended soils, re-vegetation using native species, and the minimization of disturbed area.

IV. MINIMIZE IMPERVIOUS AREAS: §102.8(b)(4)

The proposed PCSM Plan and development layout provide an efficient configuration of impervious surfaces in order to minimize the amount of impervious coverage to the maximum extent possible.

V. MAXIMIZE DRAINAGE PROTECTION: §102.8(b)(5)

The existing drainage features and vegetation shall be protected to the maximum extent practicable. The proposed PCSM Plan maximizes the protection of existing drainage features and existing vegetation. To achieve this goal, the areas on-site, outside of the limits of disturbance, are subject to the following criteria:

- Areas shall not be subject to grading or movement of existing soil.
- Existing vegetation in a healthy condition may not be removed.
- Invasive non-native vegetation may be removed.
- Pruning or other required maintenance of vegetation is permitted. Additional planting is permitted.
- Areas shall be protected and delineated in the field.

VI. MINIMIZE LAND CLEARING AND GRADING: §102.8(b)(6)

In order to minimize land clearing and grading, the areas on-site that are identified on the PCSM Plans, and areas outside of the limits of disturbance, will be protected by tree protection fencing and subject to the following criteria:

- Areas shall not be subject to grading or movement of existing soil.
- Existing vegetation in a healthy condition may not be removed.
- Invasive non-native vegetation may be removed.
- Pruning or other required maintenance of vegetation is permitted. Additional planting is permitted.
- Areas shall be protected and delineated in the field.

VII. MINIMIZE SOIL COMPACTION: §102.8(b)(7)

The limits of disturbance have been delineated as the minimum practical areas. All other areas shall not be disturbed, and are subject to the following criteria:

- Areas shall not be subject to grading or movement of existing soil.
- Existing vegetation in a healthy condition may not be removed.
- Invasive non-native vegetation may be removed.
- Pruning or other required maintenance of vegetation is permitted. Additional planting is permitted.
- Areas shall be protected and delineated in the field.

VIII. OTHER CONTROLS TO MINIMIZE RUNOFF: §102.8(b)(8)

Other structural or non-structural measures and controls shall be utilized to prevent or minimize the generation of additional stormwater runoff, such as the following:

- Minimize Total Disturbed Area - Grading (BMP 5.6.1)
- Re-Vegetate and Re-Forest Disturbed Areas, Using Native Species (BMP 5.6.3)
- Managed Release Concept (Issued December 13, 2018)
- Soil Amendment & Restoration (BMP 6.7.3)

The PCSM Plan and Narrative have been prepared by James J. Hersh, P.E., and the professional staff of Gilmore & Associates, Inc. It has been prepared in accordance with the standards and criteria of the PADEP Best Management Practice (BMP) Manual, USDA TR-55 Manual, and the Falls Township Code of Ordinances.

PCSM COMPLETENESS REVIEW CHECKLIST ITEMS:

EXISTING TOPOGRAPHIC FEATURES OF THE PROJECT SITE AND THE IMMEDIATE SURROUNDING AREA: §102.8(f)(1)

- A topographic map of the project site is provided on the PCSM Plans.
- A location map (USGS quadrangle) is provided on the PCSM Plans and in Section 1.2 of this report.
- The type of cover on the project site is identified on the PCSM Plans.

TYPES, DEPTH, SLOPE, LOCATIONS AND LIMITATIONS OF THE SOILS AND GEOLOGIC FORMATIONS: §102.8(f)(2)

- A soil map of the project site is provided on the PCSM Plans and in Section 2.3 of this report.
- Soil use limitations and their resolutions are provided in Section 2.3 of this report.
- Site characterization of soil and geology, including appropriate infiltration and geological studies that identify location, depths, and methodology is provided on the PCSM Plans and in Sections 2.3 and 2.4 of this report.
- Geologic mapping features are addressed on the PCSM Plans and in Sections 2.3 and 2.4 of this report.

CHARACTERISTICS OF THE PROJECT SITE, INCLUDING THE PAST, PRESENT AND PROPOSED LAND USES AND THE PROPOSED ALTERATION TO THE PROJECT SITE: §102.8(f)(3)

- Permit boundaries are shown on the PCSM Plans.
- Proposed limits of disturbance are shown on the PCSM Plans.
- Proposed contours and grades are shown on the PCSM Plans.
- Proposed improvements (i.e. roads, buildings, utilities etc.) are shown on the PCSM Plans.
- Past, present and proposed land uses are identified in Section 1.1 of this report.
- Proposed waterways and stormwater management facilities are shown on the PCSM Plans.
- Proposed impervious areas have been minimized to the maximum extent practicable, and are shown on the PCSM Plans.

NET CHANGE IN VOLUME AND RATE OF STORMWATER: §102.8(f)(4)

- The design storms used for calculations are identified in Section 3.0 of this report.
- Pre- and post-construction hydrology runoff rate and volume are identified for each drainage area of the entire project site in Section 8.0 of this report.
- The net change in runoff rate and volume are identified for each drainage area of the entire project site in Sections 5.3 and 8.0 of this report.
- The summary table in the NOI is consistent with runoff calculations provided in Sections 5.3 and 8.0 of this report.
- Documentation summarizing the PCSM requirements (rate, volume, and water quality) for a DEP approved Act 167 plan have been met by the proposed stormwater design.
- Documentation summarizing the alternative approach's design criteria for rate, volume and water quality is provided in Section 8.0 of this report.

RECEIVING SURFACE WATERS: §102.8(f)(5)

- Existing streams, wetlands, floodways, and watercourses are shown on the PCSM Plans.
- Existing and designated uses are identified on the PCSM Plans and in Section 2.2 of this report.
- Boundaries for Exceptional Value (EV) or High Quality (HQ) watersheds are not applicable to this project, as discussed on the PCSM Plans and in Section 2.2 of this report.
- Wetland boundaries are shown on the PCSM Plans as identified in Section 2.5 of this report.

WRITTEN DESCRIPTION OF PCSM BMPS: §102.8(f)(6)

The PA DEP Chapter 102 Regulations, which became effective on November 19, 2010, require a Licensed Professional or his/her Designee to be present on-site to observe, inspect, and sign-off on the Critical Stages of the Post-Construction Stormwater Management implementation and facility installation. The Licensed Professional or Designee shall be present on-site for the **Critical Stages** of the PCSM Plan as identified below:

- Minimize Total Disturbed Area – Grading (BMP 5.6.1)
  Without changing the building program, you can reduce site grading, removal of existing vegetation (clearing and grubbing) and total soil disturbance. This eliminates the need for re-establishment of a new maintained landscape for the site and lot-by-lot, by modifying the proposed road system and other relevant infrastructure as well as the building location and elevations to better fit the existing topography.
- Re-Vegetate and Re-Forest Disturbed Areas, Using Native Species (BMP 5.6.3)
  Sites that require landscaping and re-vegetation should select and use vegetation (i.e., native species) that does not require significant chemical maintenance by fertilizers, herbicides, and pesticides.
- Managed Release Concept (Issued December 13, 2018) – **Critical Stage**
  Managed Release Concept (MRC) is a post-construction stormwater management (PCSM) strategy that involves the collection, storage, and filtration of captured runoff through a best management practice (BMP) that is preferably vegetated and includes a release of a portion of the captured runoff through an underdrain within the BMP, or from a pool protected from solar radiation. If the MRC BMP is not vegetated, then pretreatment is required to meet water quality requirements. The MRC is intended to be used for project areas or subareas where infiltration is not feasible to meet regulatory requirements under §102.8(g)(2).

- Soil Amendment and Restoration (BMP 6.7.3) – **Critical Stage**
  Soil amendment and restoration is the process of improving disturbed soils and low organic soils by restoring soil porosity and/or adding a soil amendment, such as compost, for the purpose of reestablishing the soil's long-term capacity for infiltration and pollution removal.

SEQUENCE OF PCSM BMP IMPLEMENTATION OR INSTALLATION: §102.8(f)(7)

The sequence of PCSM BMP implementation or installation is provided on the PCSM Plans.

SUPPORTING CALCULATIONS: §102.8(f)(8)

Supporting calculations are provided in Section 8.0 of this report.

PLAN DRAWINGS: §102.8(f)(9)

Locations of all proposed BMPs with drainage areas, existing and proposed discharges and points of interest, and construction details for all PCSM BMPs are included on the PCSM plans.

The Erosion and Sediment Control plans and the Post Construction Stormwater Management plans have been provided separately; however, they have been planned, designed, and implemented to be consistent with one another in relation to proposed contours, improvements, soils, wetlands, floodways, streams, discharge locations, etc. The Post Construction Stormwater Management Plan is provided as part of the PCSM Report and the Erosion and Sediment Control Plan has been provided as part of a separate E&S Control Report. Dimensions and elevations indicated on the plans are consistent with those used in the supporting calculations.

LONG-TERM OPERATION AND MAINTENANCE SCHEDULE: §102.8(f)(10)

Long-term operation and maintenance requirements, along with inspection schedules are provided on the PCSM Plans.

RECYCLING OR DISPOSAL OF MATERIALS: §102.8(f)(11)

The PCSM and E&S Plans and Reports provide identification of anticipated project wastes and directions for recycling and/or disposal of wastes. The operator shall remove from this site, recycle, or dispose of all building materials and waste materials in accordance with the Department's Solid Waste Management Regulations at 25 PA Code 260.1 et seq., 271.1 et seq., and 287.1 et seq. The contractor shall not illegally burn, bury, dump, or discharge any building materials (used or unused) or waste materials at the site.

GEOLOGIC FORMATION OR SOIL CONDITIONS: §102.8(f)(12)

There are no geologic formations or soil conditions that could cause contaminant pollution during earth disturbance activities.

POTENTIAL THERMAL IMPACTS: §102.8(f)(13)

Potential thermal impacts during construction will be mitigated in several ways. Runoff will be filtered through compost filter socks and/or inlet protection. Following the E&S controls, runoff will sheet flow over vegetated areas reducing any thermal increase, or the runoff will enter storm sewer systems that are underground and the water will be cooled by the naturally lower underground temperatures.

Potential post-construction thermal impacts will also be mitigated in several ways. First, the existing trees and brush in areas of minimized grading and the proposed trees to be planted will provide shade to the impervious surfaces, and in turn, the shaded runoff will be cooler. Second, this project proposes to utilize BMP 5.6.1 to minimize the total disturbed area as much as possible. This will also allow existing vegetated areas to shade and mitigate runoff via turbulent flow where energy (heat) is released from the water as it flows over the vegetated areas.

RIPARIAN FOREST BUFFER MANAGEMENT PLAN: §102.8(f)(14)

There are no existing or proposed riparian forest buffers located within the limits of disturbance for this project.

7.0 CONCLUSION

The stormwater management facility design detailed within this Post-Construction Stormwater Management Report meets or exceeds the standards set forth by the Falls Township Code of Ordinances. It also meets the requirements as set forth in the PADEP Erosion and Sedimentation Control Regulations, and the Stormwater BMP Manual.

This redevelopment project has been designed with enough stormwater mitigation to reduce the post-development flow rates below the corresponding pre-development flow rates in order to maintain the viability of the existing receiving drainage systems, and to prevent downstream erosion. The BMPs incorporated into the project include: minimize total disturbed area, re-vegetate and re-forest disturbed areas using native species, managed release concept basin, and amended soils. Combined, these features will all serve to mitigate the effects of the proposed improvements on the regional stormwater management system.

8.0 STORMWATER MANAGEMENT DESIGN CALCULATIONS

8.1 90% Disturbed Area Treatment Calculations

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Limit of Disturbance (LOD) Calculations:

Proposed Drainage Area to POI-A: Majority of Site to Wetlands

Overall LOD	=	13.37	ac.
Treated Area:			
BMP 5.6.1 Minimize Grading Area	=	1.20	ac.
BMP 6.7.3 Soil Amendment (6" depth)	=	1.62	ac.
Lined MRC Basin	=	10.38	ac.
Total	=	13.20	ac.
Area of LOD Treated	**=**	**98.7**	**%**

Proposed Drainage Area to POI-B: Small Portion of Site to T.P. 13-51-1-6

Overall LOD	=	0.45	ac.
Treated Area:			
BMP 5.6.1 Minimize Grading Area	=	0.30	ac.
BMP 6.7.3 Soil Amendment (6" depth)	=	0.11	ac.
Total	=	0.41	ac.
Area of LOD Treated	**=**	**91.1**	**%**

8.2 NPDES WORKSHEETS AND CHECKLISTS

Worksheet 1. General Site Information

INSTRUCTIONS: Fill out Worksheet 1 for each watershed **POI-A**

Date: January 10, 2020

Project Name: Elcon Recycling

Municipality: Falls Township

County: Bucks County

Total Area (acres): 12.03 acres

Major River Basin: Delaware
http://www.dep.state.pa.us/dep/deputate/watermgt/wc/default.htm#newtopics

Watershed: Pidcock - Mill Creeks

Sub-Basin: Delaware River South

Nearest Surface Water(s) to Receive Runoff: Biles Creek

Chapter 93 - Designated Water Use: WWF, MF
http://www.pacode.com/secure/data/025/chapter93/chap93toc.html

Impaired according to Chapter 303(d) List?

http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/wqstandards/303d-Report.htm

Yes [X]
No [ ]

List Causes of Impairment:
Organics, Polychlorinated Biphenyls (PCBs)

Is project subject to, or part of:

Municipal Separate Storm Sewer System (MS4) Requirements?

http://www.dep.state.pa.us/dep/deputate/watermgt/wc/Subjects/StormwaterManagement/GeneralPermits/default.htm

Yes [X]
No [ ]

Existing or planned drinking water supply?

Yes [ ]
No [X]

If yes, distance from proposed discharge (miles): _____

Approved Act 167 Plan?

http://www.dep.state.pa.us/dep/deputate/watermgt/wc/Subjects/StormwaterManagement/Approved_1.html

Yes [X]
No [ ]

Existing River Conservation Plan?

http://www.dcnr.state.pa.us/brc/rivers/riversconservation/planningprojects/

Yes [X]
No [ ]

Worksheet 2. Sensitive Natural Resources

INSTRUCTIONS **POI-A**

1. Provide Sensitive Resources Map according to non-structural BMP 5.4.1 in Chapter 5. This map should identify wetlands, woodlands, natural drainageways, steep slopes, and other sensitive natural areas.

2. Summarize the existing extent of each sensitive resource in the Existing Sensitive Resources Table (below, using acres). If none present, insert 0.

3. Summarize Total Protected Area as defined under BMPs in Chapter 5.

4. Do not count any area twice. For example, an area that is both a floodplain and a wetland may only be considered once.

EXISTING NATURAL SENSITIVE RESOURCE	MAPPED? Yes / No / n/a	TOTAL AREA (Ac)	PROTECTED AREA (Ac)
Waterbodies	Yes	0.00	0.00
Floodplains	Yes	0.00	0.00
Riparian Areas	Yes	0.00	0.00
Wetlands	Yes	0.00	0.00
Woodlands	Yes	0.00	0.00
Natural Drainage Ways	Yes	0.00	0.00
Steep Slopes, 15% - 25%	N/A	0.00	0.00
Steep Slopes, over 25%	N/A	0.00	0.00
Other:			
Other:			
TOTAL EXISTING:		0.00	0.00

Notes:

Worksheet 3. Nonstructural BMP Credits

POI-A

PROTECTED AREA

1.1 Area of Protected Sensitive/Special Value Features (see WS 2)	0.00	Ac
1.2 Area of Riparian Forest Buffer Protection	0.00	Ac
3.1 Area of Minimum Disturbance/Reduced Grading	1.20	Ac
TOTAL	1.20	Ac

Site Area	minus	Protected Area	=	Stormwater Management Area
12.03	-	1.20		10.84

This is the area that requires stormwater management

VOLUME CREDITS

3.1 Minimum Soil Compaction (See Chapter 8, page 22 – SW BMP Manual)

Lawn	0	sq.ft.	x 1/4" x 1/12	=	0	cu.ft.
Meadow	0	sq.ft.	x 1/3" x 1/12	=	0	cu.ft.

3.3 Protected Existing Trees (See Chapter 8, page 23 – SW BMP Manual)

For trees within 100 feet of impervious area:

Tree Canopy	0	sq.ft.	x 1/2" x 1/12	=	0	cu.ft.

Revegetate and Reforest (See Chapter 8, page 24 – SW BMP Manual)

Deciduous Trees	28	trees	x 6 ft^3 per tree	=	168	cu.ft.
Evergreen Trees	0	trees	x 10 ft^3 per tree	=	0	cu.ft.

5.1 Disconnect Roof Leaders to Vegetated Areas (See Chapter 8 page 25 – SW BMP Manual)

For runoff directed to areas protected under 5.8.1 and 5.8.2

Roof Area	0	sq.ft.	x 1/3" x 1/12	=	0	cu.ft.

For all other disconnected roof areas

Roof Area	0	sq.ft.	x 1/4" x 1/12	=	0	cu.ft.

5.2 Disconnected Non-Roof impervious to Vegetated Areas (See Chapter 8, page 26 – SW BMP Manual)

For runoff directed to areas protected under 5.8.1 and 5.8.2

Impervious Area	0	sq.ft.	x 1/3" x 1/12	=	0	cu.ft.

For all other disconnected impervious areas

Impervious Area	0	sq.ft.	x 1/4" x 1/12	=	0	cu.ft.

TOTAL NON-STRUCTURAL VOLUME CREDIT* 168 cu.ft.

** For use on Worksheet-5*

Worksheet 4. Change in Runoff Volume for 2-YR Storm Event

PROJECT: Elcon Recycling
Drainage Area: POI-A
2-Year Rainfall: 3.30 inches NOAA Atlas 14, Volume 2, Version 3

Total Site Area: 12.03 Acres
Protected Site Area: 1.20 Acres
Managed Area: 10.84 Acres

Existing Conditions:

Cover Type/Condition		Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff (in)	Runoff Volume (cu.ft.)
Woodland	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	55	8.18	1.64	0.281	0
		C	0	0.00	70	4.29	0.86	0.887	0
		D	0	0.00	77	2.99	0.60	1.284	0
Brush	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	48	10.83	2.17	0.107	0
		C	0	0.00	65	5.38	1.08	0.650	0
		D	0	0.00	73	3.70	0.74	1.047	0
Meadow	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	58	7.24	1.45	0.377	0
		C	471,973	10.84	71	4.08	0.82	0.939	36,925
		D	0	0.00	78	2.82	0.56	1.347	0
Open Space (lawn)	good	A	0	0.00	39	15.64	3.13	0.002	0
		B	0	0.00	61	6.39	1.28	0.486	0
		C	0	0.00	74	3.51	0.70	1.104	0
		D	0	0.00	80	2.50	0.50	1.479	0
Impervious Total			0	0.00					
Impervious (80% as Impervious)			0	0.00	98	0.20	0.04	3.067	0
Impervious (20% as Meadow)			0	0.00	71	4.08	0.82	0.939	0
Wetlands			0	0.00	98	0.20	0.04	3.067	0
TOTAL:			471,973	10.84	71				36,925

Developed Conditions:

Cover Type/Condition		Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff (in)	Runoff Volume (cu.ft.)
Woodland	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	55	8.18	1.64	0.281	0
		C	0	0.00	70	4.29	0.86	0.887	0
		D	0	0.00	77	2.99	0.60	1.284	0
Brush	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	48	10.83	2.17	0.107	0
		C	0	0.00	65	5.38	1.08	0.650	0
		D	0	0.00	73	3.70	0.74	1.047	0
Meadow	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	58	7.24	1.45	0.377	0
		C	0	0.00	71	4.08	0.82	0.939	0
		D	0	0.00	78	2.82	0.56	1.347	0
Open Space (lawn)	good	A	0	0.00	39	15.64	3.13	0.002	0
		B	0	0.00	61	6.39	1.28	0.486	0
		C	142,864	3.28	74	3.51	0.70	1.104	13,143
		D	0	0.00	80	2.50	0.50	1.479	0
Impervious			387,619	8.90	98	0.20	0.04	3.067	99,073
Wetlands			0	0.00	98	0.20	0.04	3.067	0
TOTAL:			530,483	12.18	92				112,216

2-Year Volume Increase (cu.ft.): 75,291

2-Year Volume Increase (cu.ft.) = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

Q Runoff (in) = (P-0.2S)^2 / (P+0.8S) where P = 2-year rainfall, inches and S = (1000/CN) -10

Runoff Volume (cu.ft) = Q x Area x 1/12 where Area = Land use area in square feet

Note: Runoff Volume must be calculated for EACH land use type/condition and HSGI. The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. Structural BMP Volume Credits

PROJECT: Elcon Recycling

Sub Basin: POI-A

Required Control Volume (cu.ft) - from Worksheet 4: 75,291

Non-Structural Volume Credit (cu.ft) - from Worksheet 3: 168
(maximum is 25% of required volume)

Structural Volume Requirement (cu.ft): 75,123

(required control volume minus non-structural credit)

Proposed BMPs from PA Stormwater Management Practices Manual, Chapter 6		Area (sf)	Volume Reduction Permanently Removed (cf)
6.4.1	Porous Pavement		
6.4.2	Infiltration Basin		
6.4.3	Infiltration Bed		
6.4.4	Infiltration Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well/Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm/Retentive Grading		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-Use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond/Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration/Reforestation		
6.7.3	Soil Amendment	70,433	2,935
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other:	Lined MRC Detention Basin - Volume Removed	452,342	23,742
	Lined MRC Detention Basin - Geomorphologic Volume	452,342	49,223

Total Structural Volume (cu.ft): **75,900**

Structural Volume Requirement (cu.ft): 75,123

DIFFERENCE: 777

Soil Amendment Volume Calculation

Amended Soil Area (sf)	0.50 in over Amended Soil Area	1/12	Total Storage (cf)
70,433	0.50	0.083	2,935

Elcon Recycling
POI-A

Worksheet 10 – Water Quality Compliance for Nitrate		
Does the site design incorporate the following BMPs to address nitrate pollution? A summary "yes" rating is achieved if at least 2 Primary BMPs for nitrate are provided across the site or 4 secondary BMPs for nitrate are provided across the site (or the equivalent) "provided across the site" is taken to mean the specifications for that BMP set forward in Sections 5 and 6 are satisfied. Proposed BMPs from PA Stormwater Best Management Practices Manual Chapter 5 & 6		
	Yes	**No**
Primary BMPs for Nitrate:	☐	☐
NS BMP 5.4.2 – Protect/Conserve/Enhance Riparian Buffers	☐	☒
NS BMP 5.5.1 – Cluster Uses at Each Site	☐	☒
NS BMP 5.6.1 – Minimize Total Disturbed Area	☒	☐
NS BMP 5.6.3 – Re-Vegetate/Re-Forest Disturbed Areas (Native Species)	☒	☐
NS BMP 5.9.1 – Street Sweeping/Vacuuming	☐	☒
Structural BMP 6.7.1 – Riparian Buffer Restoration	☐	☒
Structural BMP 6.7.2 – Landscape Restoration	☐	☒
Structural BMP – Managed Release Concept	☒	☐
Secondary BMPs for Nitrate:	☐	☐
NS BMP 5.4.1 – Protect Sensitive/Special Value Features	☐	☒
NS BMP 5.4.3 – Protect/Utilize Natural Drainage Features	☐	☒
NS BMP 5.6.2 – Minimize Soil Compaction	☐	☒
Structural BMP 6.4.5 – Rain Garden/Bioretention	☐	☒
Structural BMP 6.4.8 – Vegetated Swale	☐	☒
Structural BMP 6.4.9 – Vegetated Filter Strip	☐	☒
Structural BMP 6.6.1 – Constructed Wetland	☐	☒
Structural BMP 6.7.1 – Riparian Buffer Restoration	☐	☒
Structural BMP 6.7.2 – Landscape Restoration	☐	☒
Structural BMP 6.7.3 – Soils Amendment/Restoration	☒	☐

Worksheet 1. General Site Information

INSTRUCTIONS: Fill out Worksheet 1 for each watershed **POI-B**

Date: January 10, 2020

Project Name: Elcon Recycling

Municipality: Falls Township

County: Bucks County

Total Area (acres): 1.79 acres

Major River Basin: Delaware
http://www.dep.state.pa.us/dep/deputate/watermgt/wc/default.htm#newtopics

Watershed: Pidcock - Mill Creeks

Sub-Basin: Delaware River South

Nearest Surface Water(s) to Receive Runoff: Biles Creek

Chapter 93 - Designated Water Use: WWF, MF
http://www.pacode.com/secure/data/025/chapter93/chap93toc.html

Impaired according to Chapter 303(d) List?

http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/wqstandards/303d-Report.htm

Yes [X]
No [ ]

List Causes of Impairment:
Organics, Polychlorinated Biphenyls (PCBs)

Is project subject to, or part of:

Municipal Separate Storm Sewer System (MS4) Requirements?

http://www.dep.state.pa.us/dep/deputate/watermgt/wc/Subjects/StormwaterManagement/GeneralPermits/default.htm

Yes [X]
No [ ]

Existing or planned drinking water supply?

Yes [ ]
No [X]

If yes, distance from proposed discharge (miles): _____

Approved Act 167 Plan?

http://www.dep.state.pa.us/dep/deputate/watermgt/wc/Subjects/StormwaterManagement/Approved_1.html

Yes [X]
No [ ]

Existing River Conservation Plan?

http://www.dcnr.state.pa.us/brc/rivers/riversconservation/planningprojects/

Yes [X]
No [ ]

Worksheet 2. Sensitive Natural Resources

INSTRUCTIONS **POI-B**

1. Provide Sensitive Resources Map according to non-structural BMP 5.4.1 in Chapter 5. This map should identify wetlands, woodlands, natural drainageways, steep slopes, and other sensitive natural areas.

2. Summarize the existing extent of each sensitive resource in the Existing Sensitive Resources Table (below, using acres). If none present, insert 0.

3. Summarize Total Protected Area as defined under BMPs in Chapter 5.

4. Do not count any area twice. For example, an area that is both a floodplain and a wetland may only be considered once.

EXISTING NATURAL SENSITIVE RESOURCE	MAPPED? Yes / No / n/a	TOTAL AREA (Ac)	PROTECTED AREA (Ac)
Waterbodies	Yes	0.00	0.00
Floodplains	Yes	0.00	0.00
Riparian Areas	Yes	0.00	0.00
Wetlands	Yes	0.00	0.00
Woodlands	Yes	0.00	0.00
Natural Drainage Ways	Yes	0.00	0.00
Steep Slopes, 15% - 25%	N/A	0.00	0.00
Steep Slopes, over 25%	N/A	0.00	0.00
Other:			
Other:			
TOTAL EXISTING:		0.00	0.00

Notes:

Worksheet 3. Nonstructural BMP Credits

POI-B

PROTECTED AREA

1.1 Area of Protected Sensitive/Special Value Features (see WS 2)	0.00	Ac
1.2 Area of Riparian Forest Buffer Protection	0.00	Ac
3.1 Area of Minimum Disturbance/Reduced Grading	0.30	Ac
TOTAL	0.30	Ac

Site Area	minus	Protected Area	=	Stormwater Management Area
1.79	-	0.30		1.49

This is the area that requires stormwater management

VOLUME CREDITS

3.1 Minimum Soil Compaction (See Chapter 8, page 22 – SW BMP Manual)

Lawn	0	sq.ft.	x 1/4" x 1/12	=	0	cu.ft.
Meadow	0	sq.ft.	x 1/3" x 1/12	=	0	cu.ft.

3.3 Protected Existing Trees (See Chapter 8, page 23 – SW BMP Manual)

For trees within 100 feet of impervious area:

Tree Canopy	0	sq.ft.	x 1/2" x 1/12	=	0	cu.ft.

Revegetate and Reforest (See Chapter 8, page 24 – SW BMP Manual)

Deciduous Trees	12	trees	x 6 ft^3 per tree	=	72	cu.ft.
Evergreen Trees	0	trees	x 10 ft^3 per tree	=	0	cu.ft.

5.1 Disconnect Roof Leaders to Vegetated Areas (See Chapter 8 page 25 – SW BMP Manual)

For runoff directed to areas protected under 5.8.1 and 5.8.2

Roof Area	0	sq.ft.	x 1/3" x 1/12	=	0	cu.ft.

For all other disconnected roof areas

Roof Area	0	sq.ft.	x 1/4" x 1/12	=	0	cu.ft.

5.2 Disconnected Non-Roof impervious to Vegetated Areas (See Chapter 8, page 26 – SW BMP Manual)

For runoff directed to areas protected under 5.8.1 and 5.8.2

Impervious Area	0	sq.ft.	x 1/3" x 1/12	=	0	cu.ft.

For all other disconnected impervious areas

Impervious Area	0	sq.ft.	x 1/4" x 1/12	=	0	cu.ft.

TOTAL NON-STRUCTURAL VOLUME CREDIT* 72 cu.ft.

** For use on Worksheet-5*

Worksheet 4. Change in Runoff Volume for 2-YR Storm Event

PROJECT: Elcon Recycling
Drainage Area: POI-B
2-Year Rainfall: 3.30 inches NOAA Atlas 14, Volume 2, Version 3

Total Site Area: 1.79 Acres
Protected Site Area: 0.30 Acres
Managed Area: 1.49 Acres

Existing Conditions:

Cover Type/Condition		Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff (in)	Runoff Volume (cu.ft.)
Woodland	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	55	8.18	1.64	0.281	0
		C	0	0.00	70	4.29	0.86	0.887	0
		D	0	0.00	77	2.99	0.60	1.284	0
Brush	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	48	10.83	2.17	0.107	0
		C	0	0.00	65	5.38	1.08	0.650	0
		D	0	0.00	73	3.70	0.74	1.047	0
Meadow	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	58	7.24	1.45	0.377	0
		C	64,997	1.49	71	4.08	0.82	0.939	5,085
		D	0	0.00	78	2.82	0.56	1.347	0
Open Space (lawn)	good	A	0	0.00	39	15.64	3.13	0.002	0
		B	0	0.00	61	6.39	1.28	0.486	0
		C	0	0.00	74	3.51	0.70	1.104	0
		D	0	0.00	80	2.50	0.50	1.479	0
Impervious Total			0	0.00					
Impervious (80% as Impervious)			0	0.00	98	0.20	0.04	3.067	0
Impervious (20% as Meadow)			0	0.00	71	4.08	0.82	0.939	0
Wetlands			0	0.00	98	0.20	0.04	3.067	0
TOTAL:			64,997	1.49	71				5,085

Developed Conditions:

Cover Type/Condition		Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff (in)	Runoff Volume (cu.ft.)
Woodland	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	55	8.18	1.64	0.281	0
		C	0	0.00	70	4.29	0.86	0.887	0
		D	0	0.00	77	2.99	0.60	1.284	0
Brush	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	48	10.83	2.17	0.107	0
		C	0	0.00	65	5.38	1.08	0.650	0
		D	0	0.00	73	3.70	0.74	1.047	0
Meadow	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	58	7.24	1.45	0.377	0
		C	0	0.00	71	4.08	0.82	0.939	0
		D	0	0.00	78	2.82	0.56	1.347	0
Open Space (lawn)	good	A	0	0.00	39	15.64	3.13	0.002	0
		B	0	0.00	61	6.39	1.28	0.486	0
		C	4,714	0.11	74	3.51	0.70	1.104	434
		D	0	0.00	80	2.50	0.50	1.479	0
Impervious			1,773	0.04	98	0.20	0.04	3.067	453
Wetlands			0	0.00	98	0.20	0.04	3.067	0
TOTAL:			6,487	0.15	81				887

2-Year Volume Increase (cu.ft.): -4,198

2-Year Volume Increase (cu.ft.) = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

Q Runoff (in) = (P-0.2S)^2 / (P+0.8S) where P = 2-year rainfall, inches and S = (1000/CN) -10

Runoff Volume (cu.ft) = Q x Area x 1/12 where Area = Land use area in square feet

Note: Runoff Volume must be calculated for EACH land use type/condition and HSGI. The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. Structural BMP Volume Credits

PROJECT: Elcon Recycling

Sub Basin: POI-B

Required Control Volume (cu.ft) - from Worksheet 4: (4,198)

Non-Structural Volume Credit (cu.ft) - from Worksheet 3: 0
(maximum is 25% of required volume)

Structural Volume Requirement (cu.ft): (4,198)

(required control volume minus non-structural credit)

Proposed BMPs from PA Stormwater Management Practices Manual, Chapter 6		Area (sf)	Volume Reduction Permanently Removed (cf)
6.4.1	Porous Pavement		
6.4.2	Infiltration Basin		
6.4.3	Infiltration Bed		
6.4.4	Infiltration Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well/Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm/Retentive Grading		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-Use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond/Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration/Reforestation		
6.7.3	Soil Amendment	4,714	196
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other:			

Total Structural Volume (cu.ft): **196**

Structural Volume Requirement (cu.ft): (4,198)

DIFFERENCE: 4,395

Soil Amendment Volume Calculation

Amended Soil Area (sf)	0.50 in over Amended Soil Area	1/12	Total Storage (cf)
4,714	0.50	0.083	196

Elcon Recycling
POI-B

Worksheet 10 – Water Quality Compliance for Nitrate		
Does the site design incorporate the following BMPs to address nitrate pollution? A summary "yes" rating is achieved if at least 2 Primary BMPs for nitrate are provided across the site or 4 secondary BMPs for nitrate are provided across the site (or the equivalent) "provided across the site" is taken to mean the specifications for that BMP set forward in Sections 5 and 6 are satisfied. Proposed BMPs from PA Stormwater Best Management Practices Manual Chapter 5 & 6		
	Yes	**No**
Primary BMPs for Nitrate:	☐	☐
NS BMP 5.4.2 – Protect/Conserve/Enhance Riparian Buffers	☐	☒
NS BMP 5.5.1 – Cluster Uses at Each Site	☐	☒
NS BMP 5.6.1 – Minimize Total Disturbed Area	☒	☐
NS BMP 5.6.3 – Re-Vegetate/Re-Forest Disturbed Areas (Native Species)	☒	☐
NS BMP 5.9.1 – Street Sweeping/Vacuuming	☐	☒
Structural BMP 6.7.1 – Riparian Buffer Restoration	☐	☒
Structural BMP 6.7.2 – Landscape Restoration	☐	☒
	☐	☐
Secondary BMPs for Nitrate:	☐	☐
NS BMP 5.4.1 – Protect Sensitive/Special Value Features	☐	☒
NS BMP 5.4.3 – Protect/Utilize Natural Drainage Features	☐	☒
NS BMP 5.6.2 – Minimize Soil Compaction	☐	☒
Structural BMP 6.4.5 – Rain Garden/Bioretention	☐	☒
Structural BMP 6.4.8 – Vegetated Swale	☐	☒
Structural BMP 6.4.9 – Vegetated Filter Strip	☐	☒
Structural BMP 6.6.1 – Constructed Wetland	☐	☒
Structural BMP 6.7.1 – Riparian Buffer Restoration	☐	☒
Structural BMP 6.7.2 – Landscape Restoration	☐	☒
Structural BMP 6.7.3 – Soils Amendment/Restoration	☒	☐

8.8 Non-Structural BMP Credits

The use of Non-structural BMPs is an important part of a project's stormwater management system. However, the BMPs must be correctly implemented to be effective.

For the Non-Structural BMPs applied, use the appropriate checklists to demonstrate that BMPs are applicable to project.

Worksheet 3 determines the amount of Volume credit or Peak Rate credit associated with Non-structural BMPs.

The following BMPs are "self-crediting" in that the use of these BMPs automatically provides a reduction in impervious area and a corresponding reduction in stormwater impacts. Additionally, the use of these BMPs may be regulated by local ordinances. Local governments and reviewing agencies are encouraged to promote the use of these BMPs where feasible:

BMP 5.5.1 Cluster Uses
BMP 5.5.2 Concentrate Uses through Smart Growth
BMP 5.7.1 Reduce Street Imperviousness
BMP 5.7.2 Reduce Parking Imperviousness

The following BMPs provide a quantitative runoff volume reduction:

BMP 5.4.1 Protect Sensitive/Special Value Features
BMP 5.4.2 Protect/Conserve/Enhance Riparian Areas
BMP 5.4.3 Protect/Utilize Natural Flow Pathways
BMP 5.6.1 Minimize Disturbed Area
BMP 5.6.2 Minimize Soil Compaction in Disturbed Areas
BMP 5.6.3 Re-Vegetate and Re-Forest Disturbed Areas
BMP 5.8.1 Rooftop Disconnection
BMP 5.8.2 Disconnection from Storm Sewers

References that support the quantitative BMP volume reduction are provided at the end of this chapter. **No more than 25% of the Volume Reduction may be met through Non-Structural BMP credits**.

Criteria and Credits for BMP 5.6.1 Minimize Total Disturbed Area - Grading

To receive credit, areas of Minimized Disturbance/Grading must meet the following criteria:

- ☒ Area shall not be subject to grading or movement of existing soils.
- ☒ Existing native vegetation in a healthy condition may not be removed.
- ☒ Invasive non-native vegetation may be removed.
- ☒ Pruning or other required maintenance of vegetation is permitted. Additional planting is permitted.
- ☒ Area shall be protected by having the limits of disturbance clearly shown on all construction drawings and delineated in the field.
- ☒ The area not subject to grading shall be clearly delineated on the Stormwater Management Plan. If future grading or disturbance of this area occurs, subsequent stormwater management must be provided to address disturbance.
- ☒ Shall be located on the development project.

CREDITS

Volume and Quality

Protected Area is not to be included in Runoff Volume calculation or Water Quality volume

Mitigation Area = (Total Area – Protected Area)

Peak Rate and Channel Protection

Runoff from the Protected Area (area not subject to grading) may be excluded from Peak Rate calculations and Channel Protection calculations for rate control, provided that the runoff from the protected area is not conveyed to and/or through stormwater management control structures. If necessary, runoff from Protected Areas should be directed around BMPs and stormwater pipes and inlets by means of vegetated swales or low berms that direct flow to natural drainage ways.

Criteria and Credits for BMP 5.6.3 Re-Vegetate and Re-Forest Disturbed Areas, Using Native Species

This BMP includes both Protection of Existing Trees and Re-forestation:

Part 1 Protect Existing Trees

To receive credit for protecting existing trees **NOT** located within Sensitive/Special Value areas, the following criteria must be met:

- ☐ Trees shall be protected by having the limits of disturbance clearly shown on all construction drawings and delineated in the field.
- ☐ Protection during construction shall entail minimizing disruption of the root system; construction shall not encroach within a space measured 10 feet outside of the drip line to the tree trunk.
- ☐ Trees credited for stormwater management shall be clearly labeled on the construction drawings and recorded on Record Plan for project.
- ☐ Trees shall be maintained and protected for the life of the project (50 years) or until redevelopment occurs.
- ☐ No more than 25% of the runoff volume can be mitigated through the use of trees.
- ☐ Pruning or other required maintenance of existing vegetation is permitted for safety purposed only, unless near a building.
- ☐ Escrow shall be provided for the replacement of any protected trees used for stormwater credit that die within 5 years of construction. Dead trees shall be replaced within 6 months.
- ☐ Shall be located on the development project.
- ☐ Existing tree canopy must be within 100 feet of impervious surfaces to gain credit.
- ☐ Only applies for trees outside Sensitive/Special Value areas.
- ☐ Applies to existing trees of 4-inch caliper or larger. Non-native species are not applicable.

CREDITS
Volume and Quality
A Volume Reduction may be credited based upon the existing tree canopy.

For Trees within 100 feet of impervious cover:
Volume Reduction (ft^3) = Existing Tree Canopy (ft^2) x 1/2" / 12

Peak Rate and Channel Protection

The Peak Rate for flood protection and channel protection will be reduced by the reduction in runoff volume provided above.

Part 2 Revegetate and Reforest

To receive credit for planting trees, the following criteria must be met:

- ☒ Trees must be native species (see Appendix), minimum 2" caliper. Minimum tree height is 6 feet.
- ☒ Trees shall be adequately protected during construction.
- ☒ Trees credited for stormwater management shall be clearly labeled on the construction drawings and recorded on Record Plan for project.
- ☒ Trees shall be maintained and protected for the life of the project (50 years) or until redevelopment occurs.
- ☒ No more than 25% of the runoff volume can be mitigated through the use of trees.
- ☒ Escrow shall be provided for the replacement of any protected trees used for stormwater credit that die within 5 years of construction. Dead trees shall be replaced within 6 months.
- ☒ Shall be located on the development project.
- ☒ May be applied for trees required under Street Tree or Landscaping requirements.
- ☒ May be applied for trees planted as part of Riparian Buffer improvement.
- ☒ Non-native species are not applicable.

CREDITS
Volume and Quality

A Volume Reduction may be credited based upon the existing tree canopy.

For Deciduous Trees:
Volume Reduction (ft^3) = 6 ft^3

For EvergreenTrees:
Volume Reduction (ft^3) = 10 ft^3

Peak Rate and Channel Protection

The Peak Rate for flood protection and channel protection will be reduced by the reduction in runoff volume provided above.

Supporting Documentation

Natural Drainage Swales (BMP 5.4.3)

"Headwater streams and wetlands have a particularly important role to play in recharge. These smallest upstream components of a river network have the largest surface area of soil in contact with available water, thereby providing the greatest opportunity for recharge of groundwater. Moreover, water level in headwater streams is often higher than the water table, allowing water to flow through the channel bed and banks into soil and groundwater. Such situations occur when water levels are high, such as during spring snowmelt or rainy seasons." "Headwaters can be intermittent streams that flow briefly when snow melts or after rain, but shrink in dry times to become individual pools filled with water…wetlands are depressions in the ground that hold water whether from rainwater, snowmelt, or groundwater welling up to the surface."

The scientific Imperative for Defending Small streams and Wetlands Judy L. Meyer, PhD, et al, American Rivers, September 2003

Trees (BMP 5.6.3)

"Besides taking in carbon dioxide and putting out oxygen, trees have an enormous impact on temperature. As much as 90 percent of the solar energy is absorbed. Trees also cool by transpiration, the evaporation of water from their leaves. A medium sized tree can move more than 500 gallons of water into the air on a hot day, thereby reducing air temperature."

The Natural Habitat Garden by Ken Druse with Margaret Roach, Timber Press 2004.

500 gal = 66.8 cf

Volume Credits (BMPs 5.4.3; 5.6.2; 5.8.2)

Protect natural drainage ways, avoiding compaction, and disconnecting impervious areas all contribute to a reduction in the volume of runoff and the rate of runoff. The amount of reduction will vary depending on the site-specific conditions, including soil type, cover, etc. The designer may request additional volume credit by providing supporting calculations. The following table compares the difference in runoff volume for protected versus disturbed area for three storm events (1.5-inch, 2.7-inch, and 3.3-inch) for different soil types using the Cover Complex Method.

For 1.5" Rainfall

	A soil	B soil	C soil	D soil
Runoff Before	0	0.00	0.10	0.23
Runoff After	0.00	0.07	0.26	0.41
Difference	***0.00***	***0.07***	***0.16***	***0.18***

For 2.7" Rainfall

	A soil	B soil	C soil	D soil
Runoff Before	0	0	0.59	0.92
Runoff After	0.03	0.52	0.97	1.27
Difference	***0.03***	***0.52***	***0.38***	***0.35***

For 3.3" Rainfall

	A soil	B soil	C soil	D soil
Runoff Before	0	0.38	0.94	1.35
Runoff After	0.13	0.84	1.41	1.77
Difference	***0.13***	***0.46***	***0.47***	***0.42***

Stormwater BMP Information Chart 5.B revised March 15, 2016

Proposed Structural BMPs (site specific)		Infiltration Information					Drainage Information						BMP Information						Total Drainage Area Adjustments					Impervious Drainage Area Adjustments			
		Measured Infiltration Rate[9]	Factor of Safety	Design Infiltration Rate	Dewatering Time[1]	Elevation of Limiting Zone - Water Table, Bedrock, etc.[2]	Total Drainage Area to BMP	Total Impervious Drainage Area to BMP	Infiltration BMP Surface Area	Total Drainage Area Loading Ratio[6]	Impervious Area Loading Ratio[7]	Volume of Runoff Tributary to BMP During the 2yr/24hr Design Storm[5]	Calculated Infiltration Volume (from storms up to and including 2yr/24hr)	Calculated Managed Volume (from storms up to and including 2yr/24hr)[8]	Maximum water surface elevation in BMP from 2yr storm[3]	Infiltration Elevation Bottom of Bed/ Basin[3]	Elevation of Infiltration Test[4]	Elevation of E&S Sediment Basin Bottom (if applies)	Total Drainage Area to BMP	Total Roof Area to BMP	Road Area Pretreated to BMP	Landscape Area Pretreated to BMP	Adjusted Total Drainage Area to BMP	Total Impervious Drainage Area to BMP	Total Roof Area to BMP	Road Area Pretreated to BMP	Adjusted Total Impervious Drainage Area to BMP
		in./hr.	*Min. of 2*	*in./hr.*	*hrs.*		*sq. ft*	*sq. ft.*	*sq. ft.*			*cf*	*cf*	*cf*					*sq. ft.*	*sq. ft.*	*sq. ft.*	*sq. ft.*	*sq. ft.*	*sq. ft.*	*sq. ft.*	*sq. ft.*	*sq. ft.*
BMP 6.4.1	**Pervious Pavement w/ Infiltration Bed**																										
BMP 6.4.2	**Infiltration Basin**																										
BMP 6.4.3	**Subsurface Infiltration Bed**																										
BMP 6.4.4	**Infiltration Trench**																										
BMP 6.4.5	**Rain Garden/Bioretention**																										
BMP 6.4.6	**Dry Well / Seepage Pit**																										
Other:																											
MRC	**Managed Release Concept (MRC) Basin**	N/A	N/A	0.00	64.90 (see attached calcs)	TBD	343,742	271,311	39,894	9 : 1	7 : 1	93,290	23,742	49,223	14.39	13.25	N/A	13.25	452,342	108,600	0	0	343,742	379,911	108,600	0	271,311
BMP 6.4.7	**Constructed Filter**																										
BMP 6.4.8	**Vegetated Swale**																										
BMP 6.4.9	**Vegetated Filter Strip**																										
BMP 6.4.10	**Infilt. Berm & Ret. Grading**																										

All information should be based on the 2-year/24-hour storm
Provide page numbers from the stormwater narrative identifying the location of the above information.

[1] Can include active infiltration time - dewatering time should not exceed 72 hours after the 2-year/24-hour storm
[2] Depth to limiting zone is recommended to be at least 2 ft below infiltration testing elevation/proposed infiltration elevation.
[3] A maximum of 2 feet of Hydraulic head is recommended.
[4] Provide supporting field notes/documenation from soil evaluation.
[5] This value should be greater than or equal to the Volume to be Infiltrated or Managed by the BMP.
[6] A maximum of 8:1 is recommended for infiltration.
[7] A maximum of 5:1 is recommended for infiltration; however, in carbonate geology areas, a maximum of 3:1 is recommended for infiltration.
[8] Calculated runoff volume that is managed in ways other than infiltration to address 25 PA Code Ch 102.8(g)(2)
[9] The infiltration testing information should be located on the plan view of the PCSM Plan and should include infiltration test elevation and rate.

Any deviations from the recommendations above should be adequately justified by a qualified professional and included with the application.

NOTE: This chart is for summary purposes only and should be consistent with all design calculations and worksheets.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MANAGED RELEASE CONCEPT (MRC) DESIGN SUMMARY

Complete One Design Summary Sheet for Each BMP Designed for MRC

GENERAL INFORMATION

Applicant Name:	**Elcon Recycling Services, LLC**	Project Name:	**Elcon Recycling**
Applicant Address:	**1720 Walton Road**	Municipality:	**Falls Township**
City, State, Zip:	Blue Bell, PA 19422	County:	**Bucks**

Permit Type: ☐ NPDES PAG-02 ☒ NPDES IP ☐ ESCGP ☐ ESP

	Pre-Development	Post-Development	Change
Impervious Area (acres):	0.00	8.72	+8.72

MRC BMP INFORMATION

MRC BMP Type: **Lined Detention Basin** Stormwater BMP Manual Section: **6.6.3**

Will the BMP Include Vegetation? ☒ Yes ☐ No

If Yes, Identify Proposed Vegetation: **Native Detention Area Seed Mix ERNMX-183**

For Non-Vegetated BMPs Will There Be Pre- or Post-Treatment? ☐ Yes (Pre-) ☐ Yes (Post-) ☐ No

If Yes, Identify Proposed Pre- or Post-Treatment: _____

Name of Surface Water to Receive MRC BMP Discharges: **Biles Creek**

Designated Use of Surface Water: **WWF, MF** Existing Use of Surface Water (if different): _____

Is the Surface Water Impaired? ☒ Yes ☐ No

If Yes, Identify Cause(s): **Organics, Polychlorinated Biphenyls (PCBs)**

Will the BMP Have a Liner? ☒ Yes ☐ No

If Yes, Identify the Type or Liner Material: **30mil Polyvinyl Chloride (PVC) Liner**

BMP Media Description: **Amended soil with 5% min. organic content**

Are Any Deviations from MRC Design Standards Proposed? ☐ Yes ☒ No

If Yes, Identify Deviations: _____

MRC BMP DESIGN VALUES AND STANDARDS

Parameter	Design Value	Design Standard
Actual Contributing Impervious Area to BMP (acres)	**8.72**	
Equivalent Contributing Impervious Area to BMP (acres)	**6.54**	
MRC BMP Release Rate (cfs)	**0.063**	*No greater than 0.01 cfs / acre of equivalent contributing impervious*
BMP Footprint Area (ft^2)	**39,894**	
Total Drainage Area to BMP (acres)	**10.38**	
Bottom BMP Elevation (ft)	**11.25**	

MRC BMP Design Summary

Parameter	Design Value	Design Standard
2-Yr/24-Hr Storm Ponding Depth (ft)	**1.14**	*1 ft (recommended) (2 ft max)*
Max. Ponding Depth (ft)	**2.90**	*4 ft (max)*
Overflow Bypass Elevation (ft)	**13.50**	
Media Depth (ft)	**2.00**	*2 ft (min) – 4 ft (max)*
Media Void Space (%)	**30**	
Internal Water Storage (IWS) Depth (ft)	**1.42**	
Top of IWS Elevation (ft)	**12.67**	
Underdrain Pipe Diameter (in)	**4.0**	
Underdrain Orifice Diameter (in)	**1-11/16**	
Underdrain Outlet Elevation (ft)	**12.67**	
IWS Used for Routing (%)	**50**	*50% max*
Separation Distance (Groundwater) (ft)	**TBD**	*1 ft (min) (2 ft recommended)*
Infiltration Rate (in/hr)	**N/A**	
1-Yr/24-Hr **Pre**-Development Peak Rate (cfs)	**2.42**	
2-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**1.37**	*1-Yr/24-Hr Pre-Development Peak Rate (or per approved Act 167 Plan)*
10-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**3.23**	*10-Yr/24-Hr Pre-Development Peak Rate*
50-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**5.30**	*50-Yr/24-Hr Pre-Development Peak Rate*
100-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**6.60**	*100-Yr/24-Hr Pre-Development Peak Rate*
a. Total 2-Yr/24-Hr Runoff Volume Managed by BMP (cf)	**72,965**	
b. Total 1.2-inch/2-Hr Runoff Vol. Permanently Removed (cf)	**23,742**	
c. 2-Yr/24-Hr Volume Managed (cf)	**49,223**	*Difference of a. and b.*
Ponding Time @ 2-Yr/24-Hr Storm (hrs)	**64.50**	*72 hrs max*
Ponding Time @ 10-Yr/24-Hr Storm (hrs)	**69.30**	*72 hrs max*
Ponding Time @ 50-Yr/24-Hr Storm (hrs)	**70.90**	*72 hrs max*
Ponding Time @ 100-Yr/24-Hr Storm (hrs)	**71.53**	*72 hrs max*

James J. Hersh

Licensed P.E. Name

Licensed P.E. Signature

PE-081807

License No.

2/7/2020

Date

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES J. HERSH
ENGINEER
PE081807

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: ~~2012-07082~~
Date: February 7, 2020

MRC BMP Design Standards

Standard 1: Runoff Capture

Runoff from the 1.2-inch/2-hour storm from the contributing watershed that the MRC is intended to treat will be captured and managed by the MRC BMP, filtered through vegetated media, and released as described below in Standard 2. The total volume managed (72,965 cf) does not exceed the volume of runoff generated in the 2-year/24-hour storm (72,965 cf). Please refer to pages 58-65 of this PCSM Report for BMP Storage and Orifice Sizing Calculations.

Standard 2: Release Rate for the 1.2-inch/2-hour Storm

The stormwater release rate from the MRC BMP for the 1.2-inch/2-hour storm (0.063 cfs) does not exceed 0.01 cubic feet per second (cfs) from the equivalent impervious area (0.0654 cfs). Please refer to pages 62-65 of this PCSM Report for BMP Orifice Sizing Calculations.

Standard 3: Internal Water Storage (IWS)

A volume for IWS is provided that is at least one foot deep (1.42 feet) below the outlet for the underdrain in the MRC BMP to encourage evapotranspiration (ET) and denitrification. It will not encourage infiltration because the proposed BMP was designed with an impermeable liner at the request of PA DEP Waste Management Program personnel. To encourage ET, the overall soil media depth, including the IWS, will not be deeper than four feet (2 feet), and 50% of the IWS void volume has been included as available storage in the hydrologic routings since this will be a vegetated MRC BMP. A void space of 30% has been used to describe the soil volume storage and recovery. Please refer to page 86 of this PCSM Report for the Hydraflow Hydrographs Pond Report and pages 47-48 for the MRC Design Summary sheets.

Standard 4: Peak Flow Attenuation for the 2-year/24-hour Event

The peak flow from the post-construction 2-year/24-hour storm (1.37 cfs) will be managed back to less than the pre-construction 1-year/24-hour storm peak flow (2.42 cfs) to ensure that the MRC BMP does not contribute to channel-eroding flows in receiving surface waters.

Due to site and cost limitations, the MRC BMP surface component has been designed to appropriately manage post-construction flows greater than the 2-year/24-hour storm to their corresponding pre-construction rates for compliance with the Falls Township Stormwater Management Ordinance requirements for District C. Please refer to pages 75-148 of this PCSM Report for the Hydraflow Hydrographs Report.

Standard 5: Stormwater BMP Manual

Design considerations for BMPs as presented in the *Pennsylvania Stormwater Best Management Practices Manual* (Stormwater BMP Manual) have been complied with, and MRC have been incorporated into the design by a licensed professional engineer.

Standard 6: MRC BMP Selection

The proposed MRC BMP surface will be entirely vegetated with Native Detention Area Seed Mix ERNMX-183.

Standard 7: Pre-Development Site Characterization and Assessment of Soil and Geology

Infiltration testing at the proposed project site has not been conducted due to the specific request by PA DEP Waste Management Program personnel to change the originally proposed infiltration basin to a basin constructed with an impermeable liner as another way of protecting the environment in the event that a spill bypasses the containment system. While no contaminants are expected to enter the proposed basin, this provides additional environmental protection beyond that which is already required. Based on soil borings performed as part of the Act 2 work for this site, depth to groundwater ranges from 5 to 13.5 feet below ground surface. Please refer to pages 150-158 of this PCSM Report for the Infiltration Explanation Letter and pages 210-336 for the Act 2 Final Report.

Standard 8: Separation Distance

Based on soil borings performed as part of the Act 2 work for this site, depth to groundwater ranges from 5 to 13.5 feet below ground surface. The existing ground surface in the area of the proposed MRC BMP ranges in elevation from approximately 14.0 to 17.5, and the water surface elevation in the wetland adjacent to the proposed BMP is approximately 10.0. The bottom of the surface component of the MRC BMP is proposed at ±13.25, and the bottom of the amended soils is proposed at ±11.25. With groundwater estimated to be at approximately elevation 10.0, the proposed MRC BMP has been designed with over one foot of separation between groundwater and the bottom of the amended soils. There is no evidence of bedrock in the area of the proposed MRC BMP from the soil borings. Please refer to pages 210-336 of this PCSM Report for the Act 2 Final Report.

Standard 9: Ponding Depth and Drawdown Time

The ponding time from the end of the storm event to when the water surface lowers to the soil surface and the maximum ponding depth can be found in the table below for each of the required storm events:

Storm Event	Ponding Time	Max. Ponding Depth
2-year	64.90 hours	1.14 feet
10-year	69.30 hours	1.96 feet
50-year	70.90 hours	2.57 feet
100-year	71.53 hours	2.90 feet

Note that all ponding times are less than the requirement of 72 hours and the maximum ponding depth of 1.14 feet for the 2-year storm event is within the one to two-foot guideline. An outlet control structure

has been designed to provide safe conveyance for storm events greater than the 2-year/24-hour storm. Please refer to pages 53-57 of this PCSM Report for the BMP Dewatering Calculations and pages 75-148 for the Hydraflow Hydrographs Report.

Standard 10: Soil Media

The proposed depth of the soil media above the invert elevation of the underdrain pipe is 2 feet in order to provide pollutant removal. The soil media infiltration rate shall be between 0.1 inch per hour and 10 inches per hour. Please refer to pages 47-48 of this PCSM Report for the MRC Design Summary sheets.

Standard 11: Underdrain Design

The underdrain should have a minimum flow rate of 10 gallons (1.34 cubic feet) per minute per linear foot of pipe not considering the flow control orifice or upturned elbow. Multiple branches of connected underdrain have been designed to provide adequate design capacity for drainage.

An upturned elbow has been included in the design of the underdrain to create an IWS zone to reduce runoff volume and improve water quality treatment to the maximum extent possible. The underdrain discharge into the outlet control structure will be capped and an appropriately sized hole will be drilled in the cap to allow access for maintenance. The drilled orifice should be clean, smooth and sanded so that no burs or irregularities are present. Further, all cleanouts and angles within the underdrain are not to exceed 45 degrees.

A 6-inch envelope of AASHTO #57 stone should be placed around the underdrain with a geotextile wrapped around the stone envelope. The stone will not be placed throughout the bottom of the BMP, but only within the envelope of the underdrain.

The end of each branch of the underdrain should be equipped with a clean-out for maintenance. Each clean-out should be watertight to ensure that surface water from the BMP does not enter the underdrain through the top of the cleanout. Please refer to the PCSM Plans for additional underdrain specifications and details.

Standard 12: Discharge Flow Path

The MRC BMP discharge will be dispersed through the use of an appropriately designed level spreader, which then discharges to a suitably vegetated, undisturbed brush area with a flow length of over 75 feet at an existing slope of approximately one percent (1%). Please refer to page 52 of this PCSM Report for the Level Spreader Design and the PCSM Plans for additional level spreader information and details.

Standard 13: Antidegradation Requirements

There are no High Quality (HQ) or Exceptional Value (EV) watersheds located on the site, but it is noted that an MRC BMP could be used to satisfy any Antidegradation Best Available Combination of Technologies (ABACT) regulatory requirements from Chapters 93 and 102, if they were applicable.

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: 2012-07083
Date: January 9, 2020

Level Spreader Design

Design Considerations from Chapter 6 in PADEP's Stormwater BMP Manual

The area of land receiving discharge from the proposed Lined MRC Basin via the proposed level spreader will be undisturbed brush extending from the discharge point at the proposed level spreader to the Point of Interest at existing Wetland Area A. This area provides a flow length of over 75 feet at an existing slope of approximately one percent (1%). Given these parameters, the proposed level spreader was designed in accordance with the PADEP Stormwater BMP Manual recommendation of "13 linear feet of level spreader for every 1 cfs flow" for the peak flow rate resulting from a 10-year/24-hour design storm.

10-year/24-hour Design Storm Flow Rate = 3.23 cfs

Length of Level Spreader Required: 13 lf/cfs × 3.23 cfs = **42.0 lf**

Length of Level Spreader Proposed: 50.0 lf

In accordance with the PADEP Stormwater BMP Manual, flows above those that are able to be controlled by the level spreader will bypass it by flowing out of a clean-out structure (OCS-2) with an open grate.

Non-woven geotextile shall be placed below the envelope of AASHTO #57 stone to discourage clogging by sediment.

8.3 BMP DEWATERING CALCULATIONS

Hydrograph Report

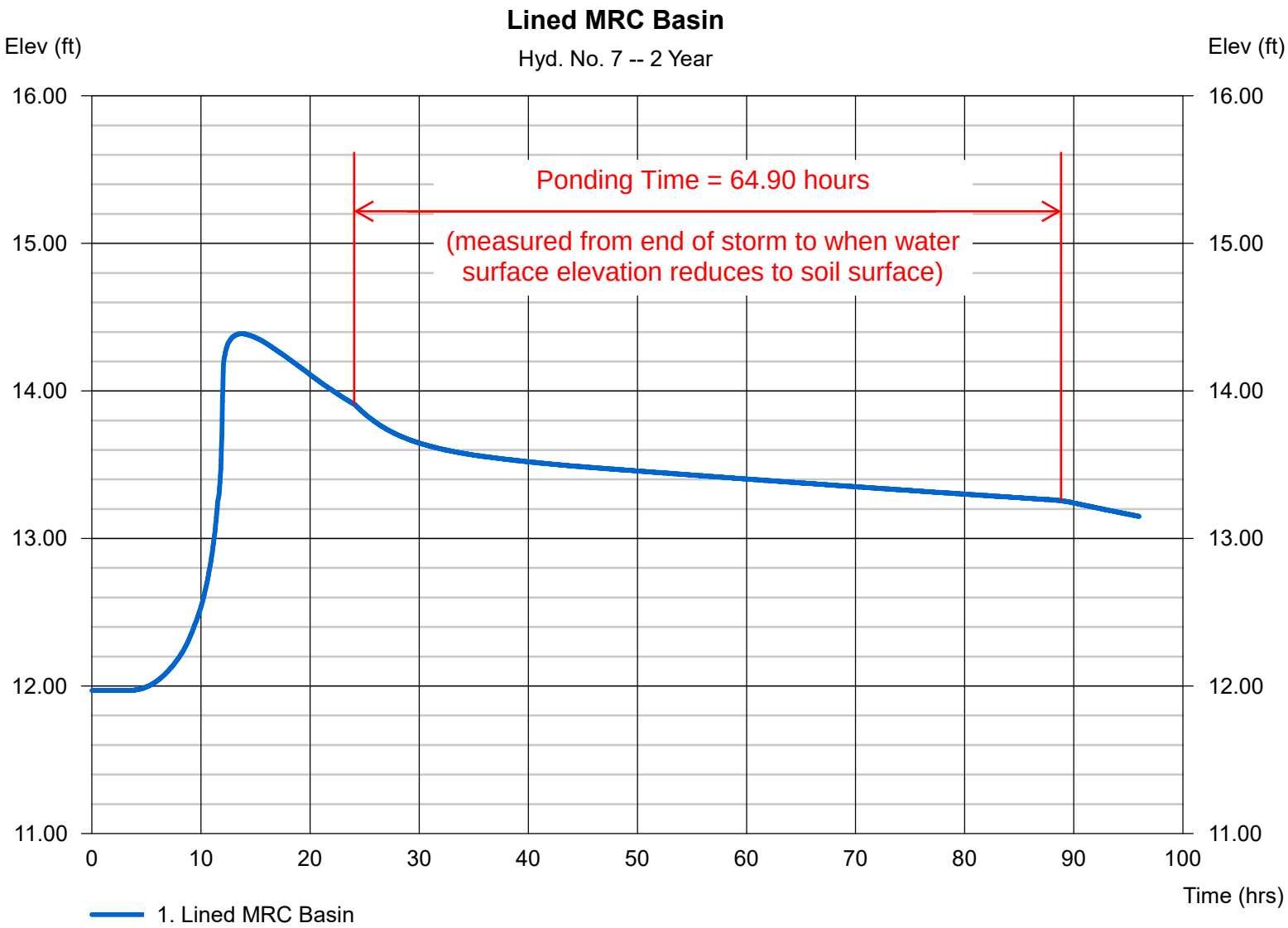
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Jan 10, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	1.373 cfs
Storm frequency	=	2 yrs	Time to peak	=	822 min
Time interval	=	2 min	Hyd. volume	=	79,215 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	14.39 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	71,359 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



Hydrograph Report

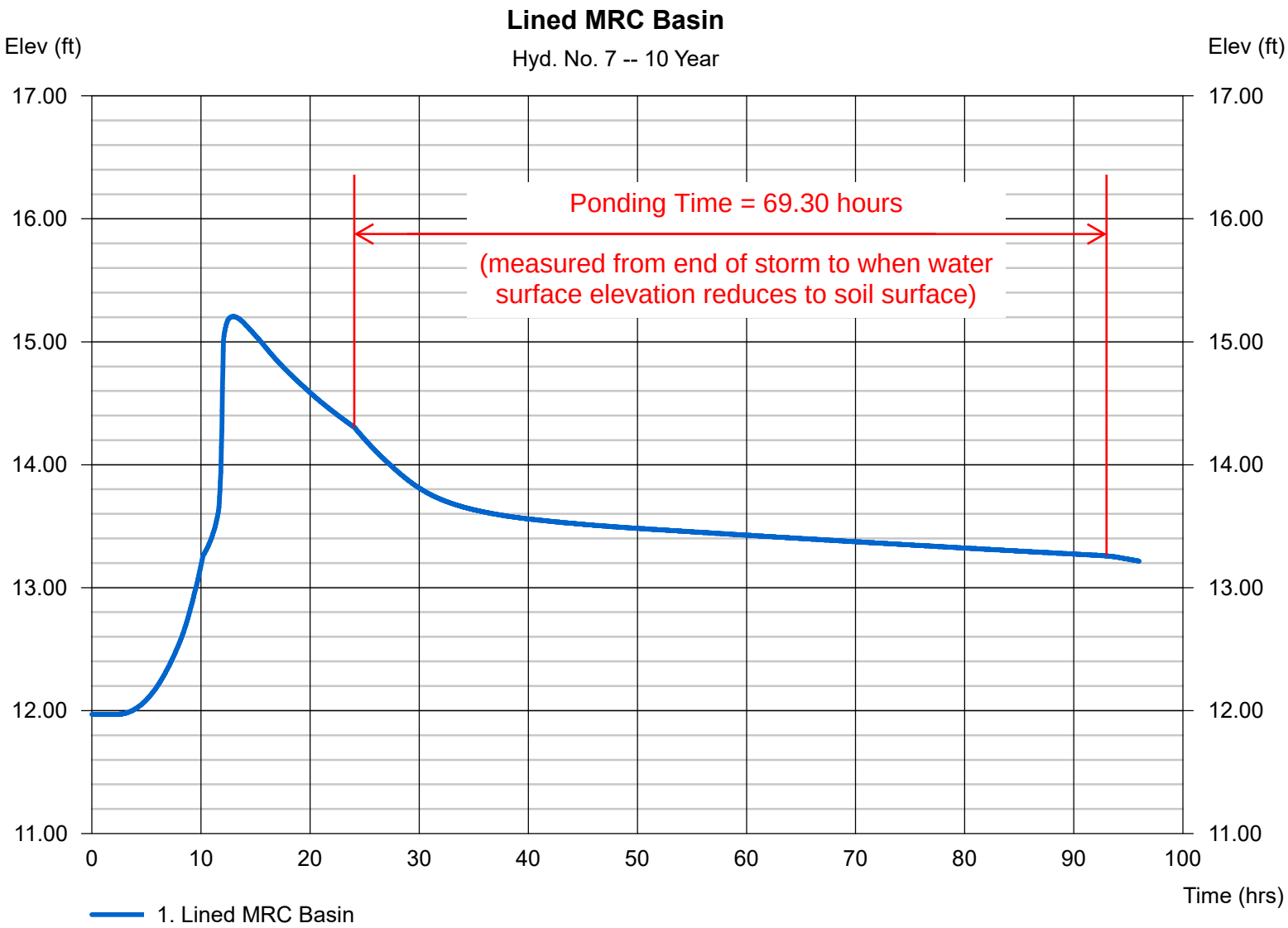
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Jan 10, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	3.232 cfs
Storm frequency	=	10 yrs	Time to peak	=	776 min
Time interval	=	2 min	Hyd. volume	=	137,313 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	15.21 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	107,542 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



Hydrograph Report

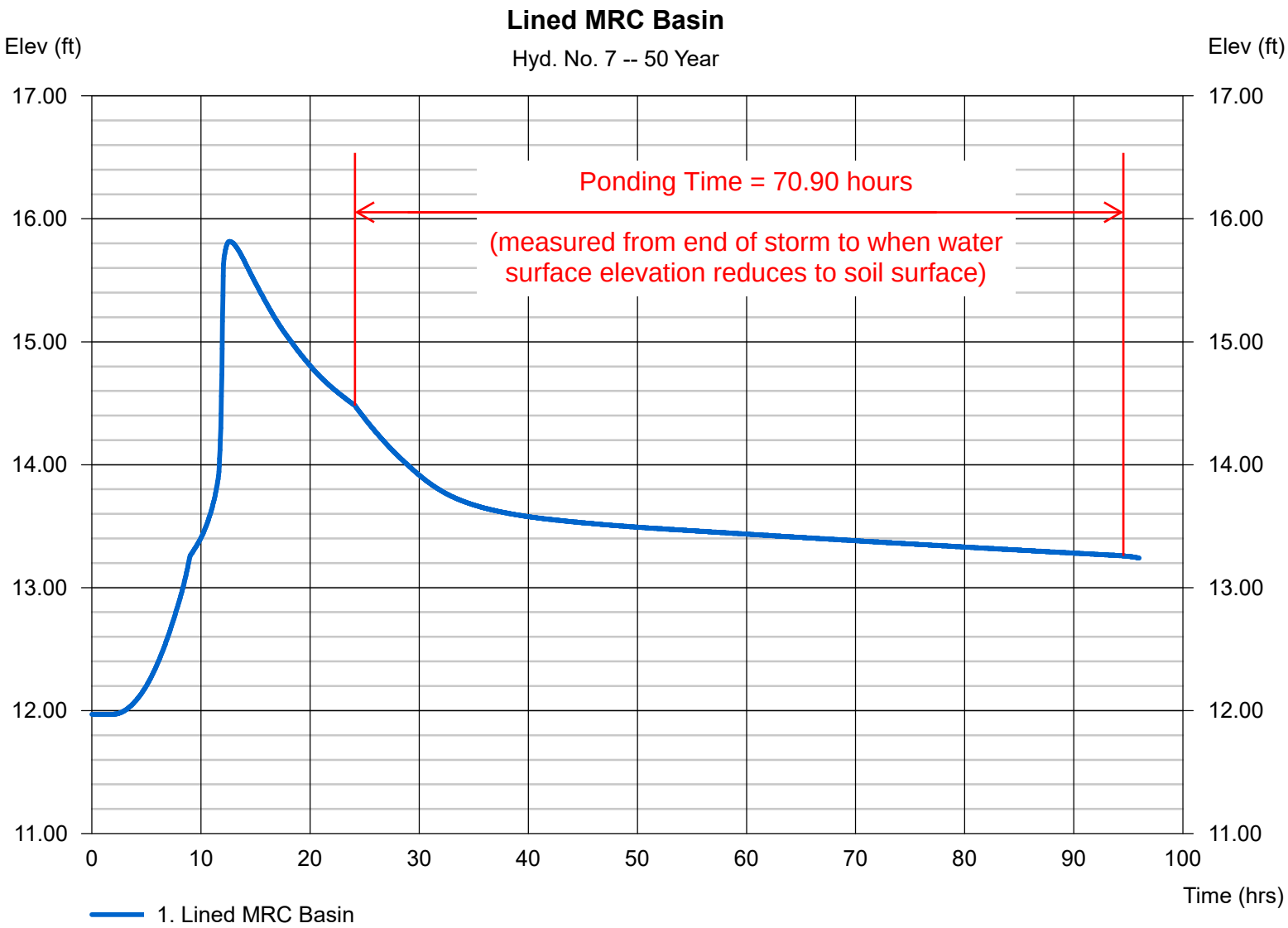
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Jan 10, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	5.298 cfs
Storm frequency	=	50 yrs	Time to peak	=	756 min
Time interval	=	2 min	Hyd. volume	=	185,937 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	15.82 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	135,912 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



Hydrograph Report

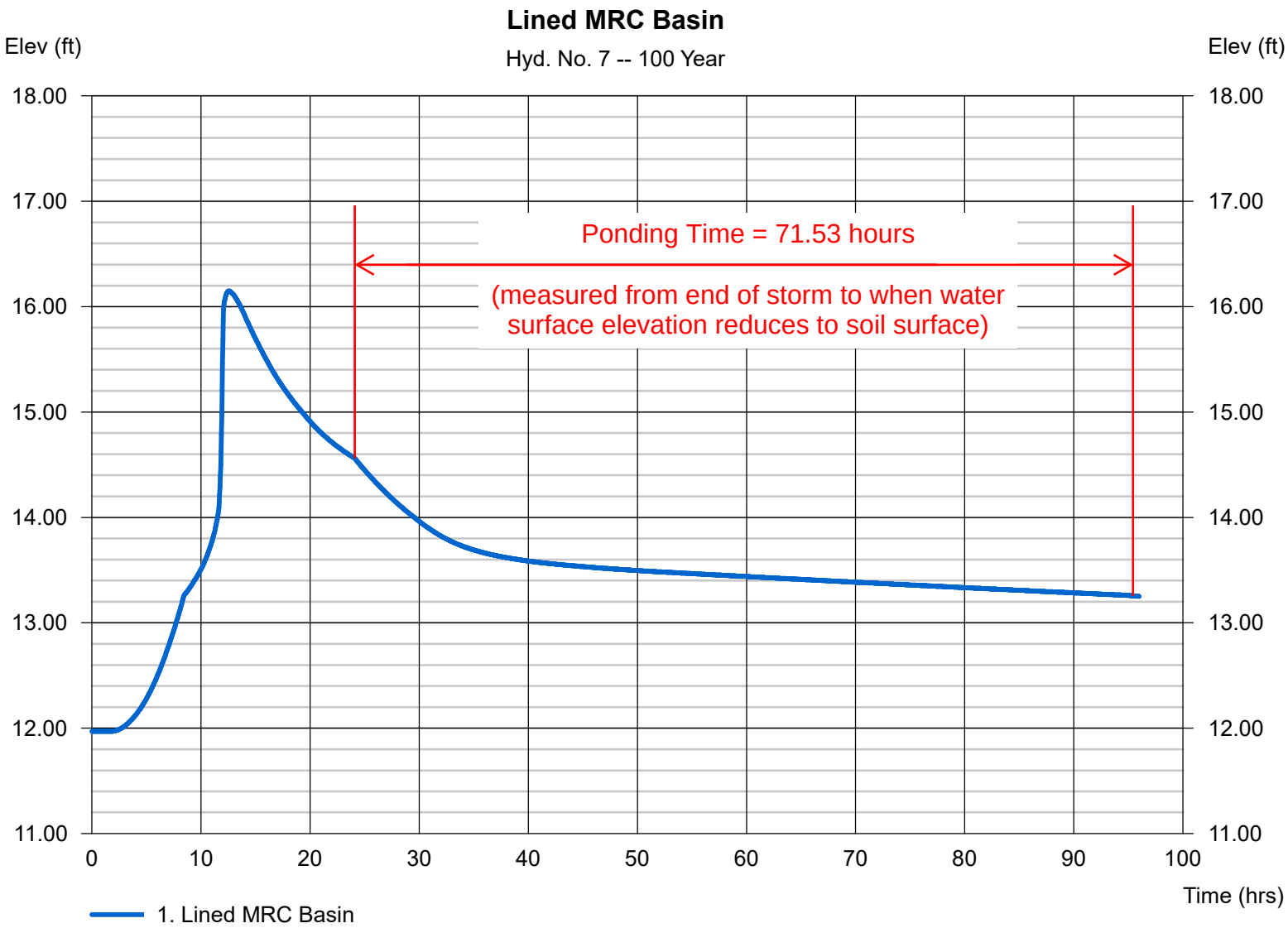
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Jan 10, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	= Reservoir	Peak discharge	= 6.603 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 213,862 cuft
Inflow hyd. No.	= 5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	= 16.15 ft
Reservoir name	= Lined MRC Basin	Max. Storage	= 151,837 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



8.4 BMP STORAGE CALCULATIONS

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: ~~2012-07083~~
Date: February 7, 2020

Lined MRC Basin Volume Calculations

Volume Permanently Removed by BMP

From page 3 of the Managed Release Concept, dated May 15, 2019, "the volume permanently removed is the summation of losses (infiltration, ET as applicable) and the volume released through the underdrain for the 1.2-inch / 2-hour runoff event."

Infiltration:

Infiltration = N/A for this Lined MRC Basin due to specific request from PA DEP Waste Management Program personnel

Evapotranspiration (ET):

ET = 10% void space over full depth of amended soil column
$ET = (0.10) \times (39{,}894\ sf) \times (2.0\ ft)$
ET = 7,979 cf

*The calculated ET volume of 7,979 cf has been conservatively omitted from the total volume permanently removed.

Volume released through the underdrain for the 1.2-inch / 2-hour event::

This BMP has been designed so that there is no overflow in the 1.2-inch / 2-hour runoff event. The maximum water surface elevation during this event is 13.46, and the invert of the lowest BMP outlet (orifice) is at 13.50. This analysis was performed using only 50% of the Internal Water Storage (IWS) for routing (bottom of amended soils = 11.25, top of IWS = invert of underdrain outlet = 12.67, wet pond elevation = 11.97). Therefore, since there is no overflow in the 1.2-inch / 2-hour runoff event, the entire volume from this event (23,742 cf) is released through the underdrain.

Volume Permanently Removed = Inf. + ET + 1.2-in / 2-hr runoff volume
Volume Permanently Removed = 0 + 0 + 23,742
Volume Permanently Removed = 23,742 cf

Total Volume Managed by BMP

From page 3 of the Managed Release Concept, dated May 15, 2019, "The volume managed through MRC is credited as the net change in the pre- vs. post-development runoff volume from the 2-year / 24-hour storm per §102.8(g)(2)."

Based on attached Worksheet 4 prepared specifically for the POI-A MRC BMP, which only accounts for the theoretical existing drainage area and the actual proposed drainage area managed by the MRC BMP, the net change in the pre- vs. post-development runoff volume from the 2-year / 24-hour storm, and therefore the **total volume managed by the BMP, is 72,965 cf**.

Geomorphologic Credit for BMP

From page 1 of the Managed Release Concept, dated May 15, 2019, "Runoff above the 1.2-inch / 2-hour storm and below the 2-year / 24-hour storm are managed back to the 1-year / 24-hour peak rate in one or more BMPs to protect and improve geomorphologic processes downstream of earth disturbances."

Geomorphologic Credit = 2-yr / 24-hr runoff volume – 1.2-in / 2-hr runoff volume
Geomorphologic Credit = 72,965 – 23,742
Geomorphologic Credit = 49,223 cf

Worksheet 4. Change in Runoff Volume for 2-YR Storm Event

PROJECT: Elcon Recycling
Drainage Area: POI-A MRC Basin
2-Year Rainfall: 3.30 inches NOAA Atlas 14, Volume 2, Version 3

Total Site Area: 9.04 Acres
Protected Site Area: 0.00 Acres
Managed Area: 9.04 Acres

Existing Conditions:

Cover Type/Condition		Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff (in)	Runoff Volume (cu.ft.)
Woodland	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	55	8.18	1.64	0.281	0
		C	0	0.00	70	4.29	0.86	0.887	0
		D	0	0.00	77	2.99	0.60	1.284	0
Brush	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	48	10.83	2.17	0.107	0
		C	0	0.00	65	5.38	1.08	0.650	0
		D	0	0.00	73	3.70	0.74	1.047	0
Meadow	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	58	7.24	1.45	0.377	0
		C	393,697	9.04	71	4.08	0.82	0.939	30,801
		D	0	0.00	78	2.82	0.56	1.347	0
Open Space (lawn)	good	A	0	0.00	39	15.64	3.13	0.002	0
		B	0	0.00	61	6.39	1.28	0.486	0
		C	0	0.00	74	3.51	0.70	1.104	0
		D	0	0.00	80	2.50	0.50	1.479	0
Impervious Total			0	0.00					
Impervious (80% as Impervious)			0	0.00	98	0.20	0.04	3.067	0
Impervious (20% as Meadow)			0	0.00	71	4.08	0.82	0.939	0
Wetlands			0	0.00	98	0.20	0.04	3.067	0
TOTAL:			393,697	9.04	71				30,801

Developed Conditions:

Cover Type/Condition		Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff (in)	Runoff Volume (cu.ft.)
Woodland	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	55	8.18	1.64	0.281	0
		C	0	0.00	70	4.29	0.86	0.887	0
		D	0	0.00	77	2.99	0.60	1.284	0
Brush	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	48	10.83	2.17	0.107	0
		C	0	0.00	65	5.38	1.08	0.650	0
		D	0	0.00	73	3.70	0.74	1.047	0
Meadow	good	A	0	0.00	30	23.33	4.67	0.085	0
		B	0	0.00	58	7.24	1.45	0.377	0
		C	0	0.00	71	4.08	0.82	0.939	0
		D	0	0.00	78	2.82	0.56	1.347	0
Open Space (lawn)	good	A	0	0.00	39	15.64	3.13	0.002	0
		B	0	0.00	61	6.39	1.28	0.486	0
		C	72,431	1.66	74	3.51	0.70	1.104	6,663
		D	0	0.00	80	2.50	0.50	1.479	0
Impervious			379,911	8.72	98	0.20	0.04	3.067	97,103
Wetlands			0	0.00	98	0.20	0.04	3.067	0
TOTAL:			452,342	10.38	94				103,766

2-Year Volume Increase (cu.ft.): 72,965

2-Year Volume Increase (cu.ft.) = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

Q Runoff (in) = (P-0.2S)^2 / (P+0.8S) where P = 2-year rainfall, inches and S = (1000/CN) -10

Runoff Volume (cu.ft) = Q x Area x 1/12 where Area = Land use area in square feet

Note: Runoff Volume must be calculated for EACH land use type/condition and HSGI. The use of a weighted CN value for volume calculations is not acceptable.

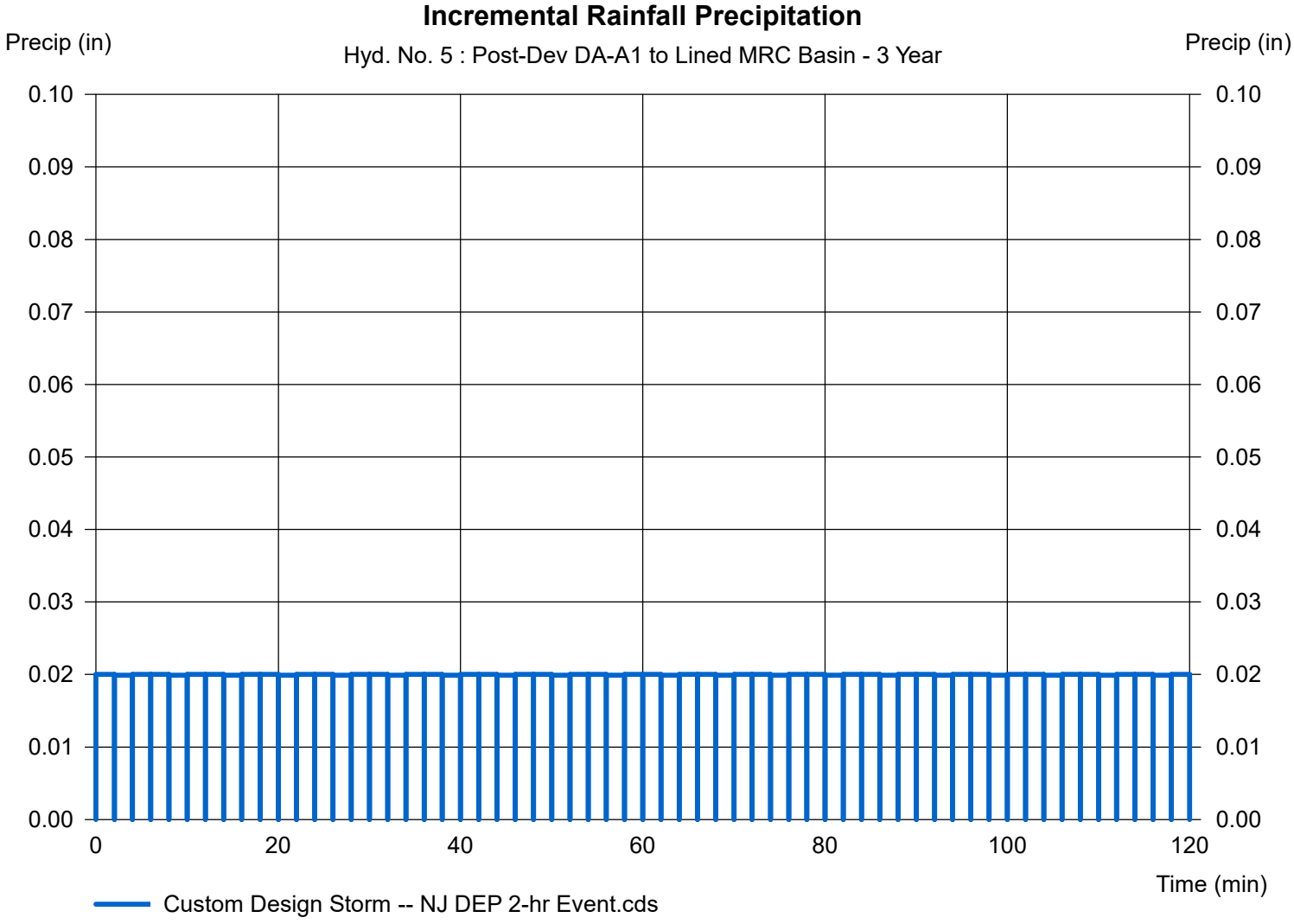
8.5 MANAGED RELEASE CONCEPT (MRC) BMP ORIFICE SIZING CALCULATIONS

Hydrograph Report

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.029 cfs
Storm frequency	=	3 yrs	Time to peak	=	120 min
Time interval	=	2 min	Hyd. volume	=	23,742 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	NJ DEP 2-hr Event.cds	Shape factor	=	484



Hydrograph Report

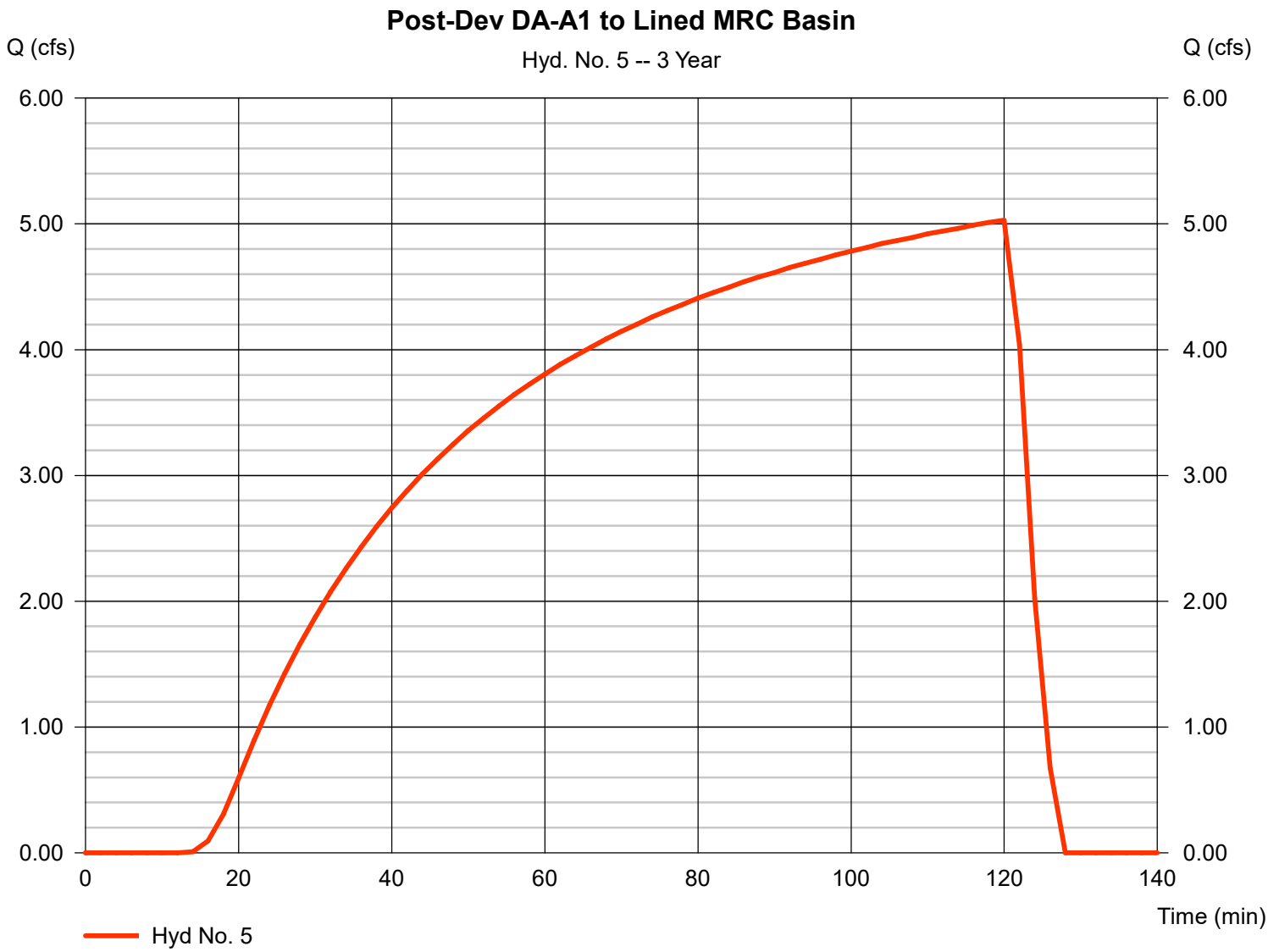
Hydraflow Hydrographs by Intelisolve v9.22 — Friday, Jan 10, 2020

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.029 cfs
Storm frequency	=	3 yrs	Time to peak	=	120 min
Time interval	=	2 min	Hyd. volume	=	23,742 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	NJ DEP 2-hr Event.cds	Shape factor	=	484

Equivalent Contributing Impervious Area = $\frac{\text{1.2-inch/2-hour runoff volume}}{0.0833 \times 43{,}560} = \frac{23{,}742 \text{ cf}}{0.0833 \times 43{,}560} = 6.54$ ac.



Hydrograph Report

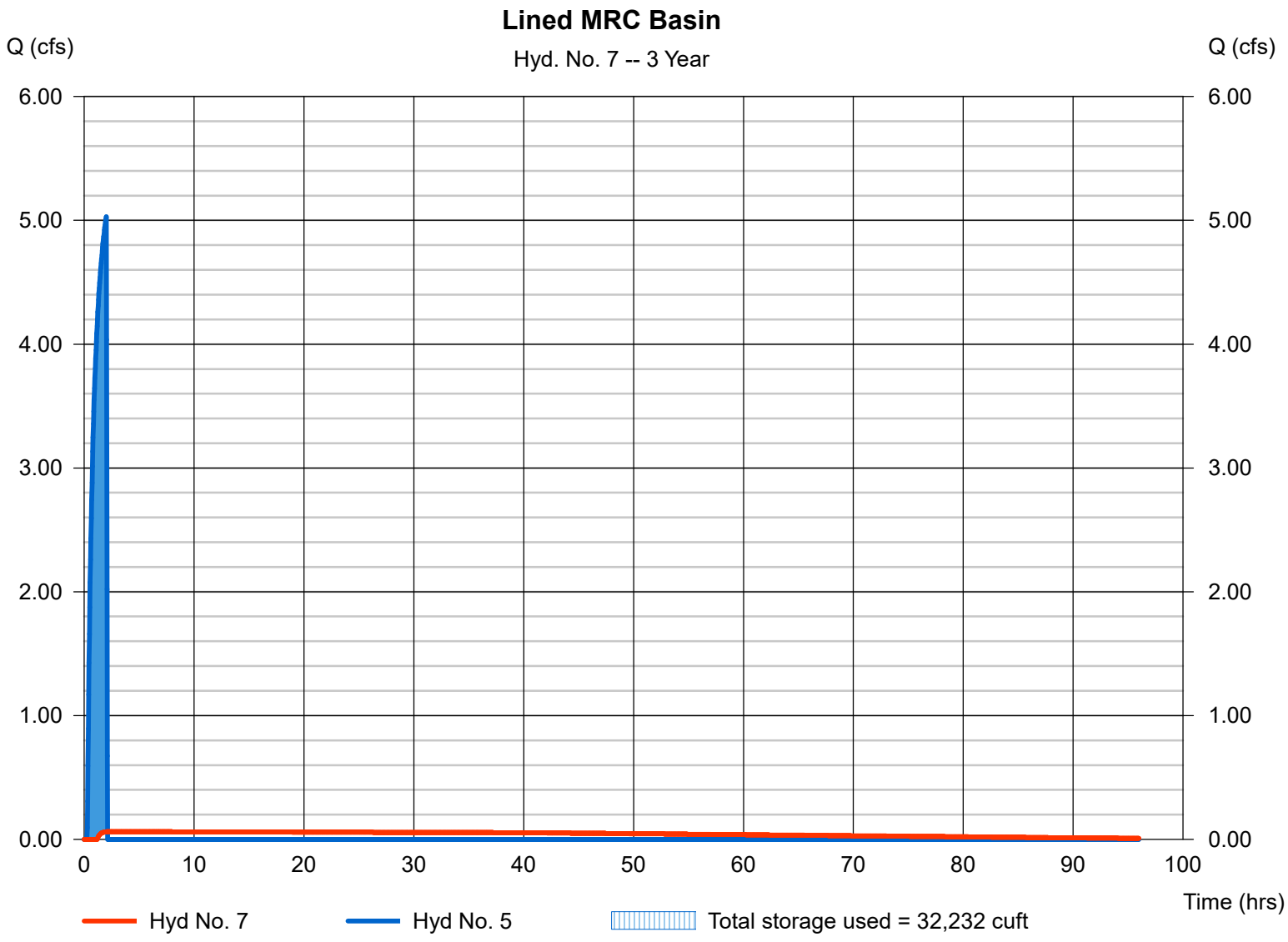
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Jan 10, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	0.063 cfs
Storm frequency	=	3 yrs	Time to peak	=	128 min
Time interval	=	2 min	Hyd. volume	=	14,436 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	13.46 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	32,232 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



8.6 EMERGENCY SPILLWAY CALCULATIONS

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: 12-07083

BMP Emergency Spillway Calculations

$Q = CLH^{3/2}$
$C = 3.10$

BMP	100-YR DWE	TOP OF BERM ELEVATION	EMER. SPILLWAY ELEVATION	EMER. SPILLWAY WIDTH (FT.)	EMER. SPILLWAY TOP WIDTH (FT.)	Q_{100}	H (FT.)	MAX. WSEL (FT.)	FREEBOARD (FT.)	SIDE SLOPE	
Lined MRC Basin	16.15	19.00	17.00	50	62	99.84	0.75	17.75	1.25	3	: 1

8.7 CN CALCULATIONS FOR HYDROGRAPH REPORTS

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: 2012-07083
Condition: Pre-Development
Area: On-Site Drainage Area A1 (Theoretical Drainage Area to Lined MRC Basin to POI-A)

Description	CN	SF	A	RCN x A
Impervious	98	0	0.00	0
Gravel (HSG-C)	89	0	0.00	0
Brush (HSG-C)	65	0	0.00	0
Meadow (HSG-C)	71	393,697	9.04	642
Grass (HSG-C)	74	0	0.00	0
Forest (HSG-C)	70	0	0.00	0
TOTAL		393,697	9.04	642

RCN 71

Time of Concentration : Use Tc = 58.5 min

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: 2012-07083
Condition: Pre-Development
Area: On-Site Drainage Area A2 (Theoretical Drainage Area to Bypass Lined MRC Basin to POI-A)

Description	CN	SF	A	RCN x A
Impervious	98	0	0.00	0
Gravel (HSG-C)	89	0	0.00	0
Brush (HSG-C)	65	0	0.00	0
Meadow (HSG-C)	71	78,276	1.80	128
Grass (HSG-C)	74	0	0.00	0
Forest (HSG-C)	70	0	0.00	0
TOTAL		78,276	1.80	128

RCN 71

Time of Concentration : Use Tc = 58.5 min

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: 2012-07083
Condition: Pre-Development
Area: On-Site Drainage Area B (Drainage Area to POI-B)

Description	CN	SF	A	RCN x A
Impervious	98	0	0.00	0
Gravel (HSG-C)	89	0	0.00	0
Brush (HSG-C)	65	0	0.00	0
Meadow (HSG-C)	71	64,997	1.49	106
Grass (HSG-C)	74	0	0.00	0
Forest (HSG-C)	70	0	0.00	0
TOTAL		64,997	1.49	106

RCN 71

Time of Concentration : Use Tc = 20.1 min

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: 2012-07083
Condition: Post-Development
Area: On-Site Drainage Area A1 (Drainage Area to Lined MRC Basin to POI-A)

Description	CN	SF	A	RCN x A
Impervious	98	379,911	8.72	855
Gravel (HSG-C)	89	0	0.00	0
Brush (HSG-C)	65	0	0.00	0
Meadow (HSG-C)	71	0	0.00	0
Grass (HSG-C)	74	72,431	1.66	123
Forest (HSG-C)	70	0	0.00	0
TOTAL		452,342	10.38	978

RCN 94

Time of Concentration : Use Tc = 5.0 min

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: 2012-07083
Condition: Post-Development
Area: On-Site Drainage Area A2 (Drainage Area to Bypass Lined MRC Basin to POI-A)

Description	CN	SF	A	RCN x A
Impervious	98	7,708	0.18	17
Gravel (HSG-C)	89	0	0.00	0
Brush (HSG-C)	65	0	0.00	0
Meadow (HSG-C)	71	0	0.00	0
Grass (HSG-C)	74	70,433	1.62	120
Forest (HSG-C)	70	0	0.00	0
TOTAL		78,141	1.79	137

RCN 76

Time of Concentration : Use Tc = 58.5 min

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Project Name: Elcon Recycling
Project Number: 2012-07083
Condition: Post-Development
Area: On-Site Drainage Area B (Drainage Area to POI-B)

Description	CN	SF	A	RCN x A
Impervious	98	1,773	0.04	4
Gravel (HSG-C)	89	0	0.00	0
Brush (HSG-C)	65	0	0.00	0
Meadow (HSG-C)	71	0	0.00	0
Grass (HSG-C)	74	4,714	0.11	8
Forest (HSG-C)	70	0	0.00	0
TOTAL		6,487	0.15	12

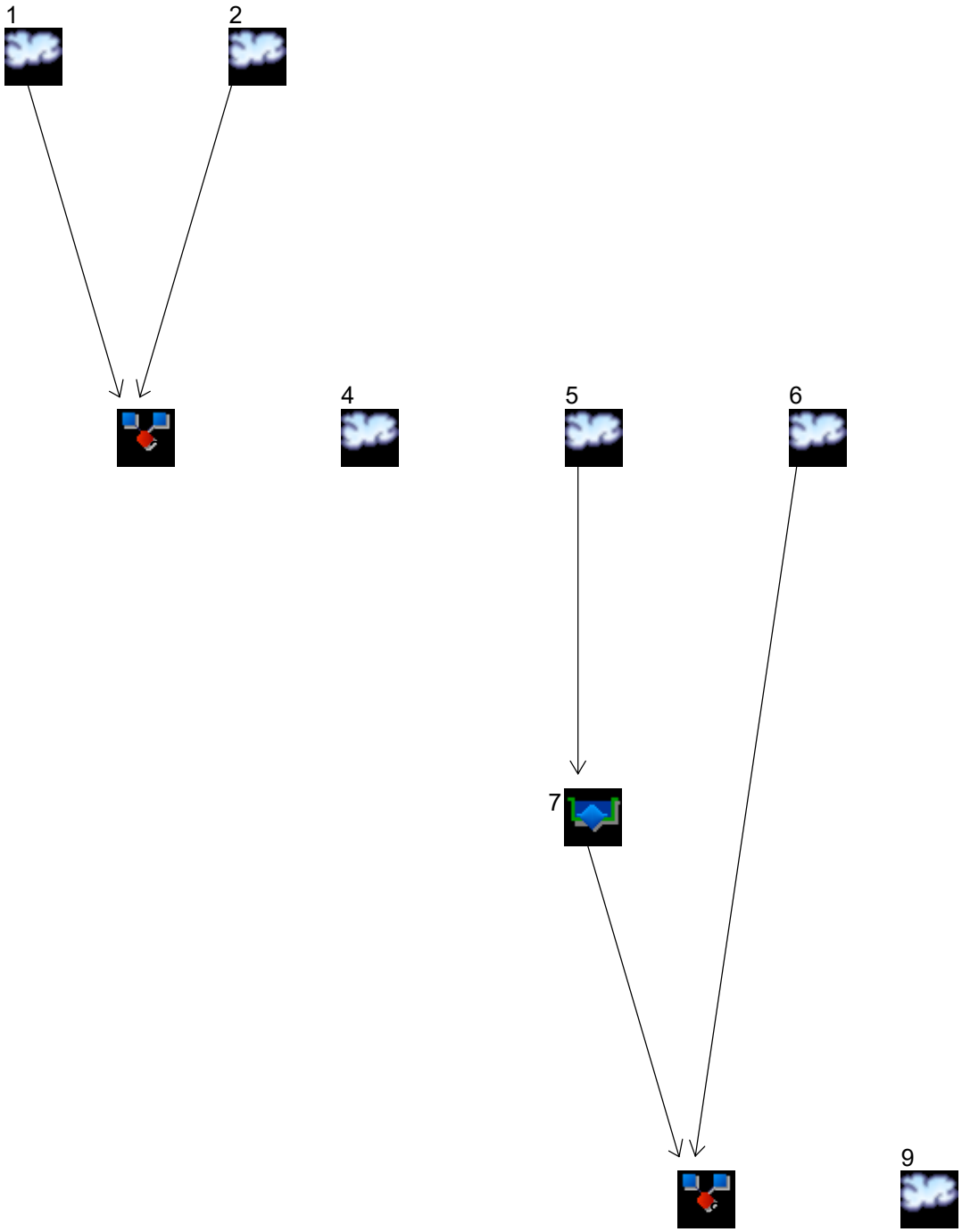
RCN 81

Time of Concentration : Use Tc = 15.8 min

8.8 1-YEAR THROUGH 100-YEAR HYDROGRAPH REPORTS

The following sheets detail the hydrologic analysis for the 1-year through 100-year storm events for the stormwater management design associated with this project.

Watershed Model Schematic



Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	2.415	4.211	0.000	7.361	10.45	13.72	16.26	19.74	Pre-Dev DA-A1 to Lined MRC Basin
2	SCS Runoff	-------	0.481	0.838	0.000	1.466	2.081	2.732	3.238	3.930	Pre-Dev DA-A2 to Bypass Lined MR
3	Combine	1, 2	2.895	5.049	0.000	8.827	12.53	16.46	19.50	23.67	Pre-Dev Total at POI-A (Wetlands)
4	SCS Runoff	-------	0.879	1.503	0.000	2.563	3.599	4.705	5.562	6.731	Pre-Dev Total at POI-B (TMP 13-51-1
5	SCS Runoff	-------	34.09	43.01	0.000	56.27	67.96	79.60	88.29	99.84	Post-Dev DA-A1 to Lined MRC Basin
6	SCS Runoff	-------	0.742	1.166	0.000	1.868	2.534	3.225	3.755	4.472	Post-Dev DA-A2 to Bypass Lined MR
7	Reservoir	5	1.045	1.373	0.000	2.171	3.232	4.353	5.298	6.603	Lined MRC Basin
8	Combine	6, 7	1.724	2.483	0.000	3.920	5.702	7.550	9.042	11.07	Post-Dev Total at POI-A (Wetlands)
9	SCS Runoff	-------	0.202	0.292	0.000	0.434	0.564	0.696	0.796	0.930	Post-Dev Total at POI-B (TMP 13-51-

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	2.415	2	752	19,498	----	------	------	Pre-Dev DA-A1 to Lined MRC Basin
2	SCS Runoff	0.481	2	752	3,882	----	------	------	Pre-Dev DA-A2 to Bypass Lined MR
3	Combine	2.895	2	752	23,381	1, 2	------	------	Pre-Dev Total at POI-A (Wetlands)
4	SCS Runoff	0.879	2	726	3,214	----	------	------	Pre-Dev Total at POI-B (TMP 13-51-1
5	SCS Runoff	34.09	2	716	72,802	----	------	------	Post-Dev DA-A1 to Lined MRC Basin
6	SCS Runoff	0.742	2	752	5,319	----	------	------	Post-Dev DA-A2 to Bypass Lined MR
7	Reservoir	1.045	2	830	59,158	5	14.07	57,539	Lined MRC Basin
8	Combine	1.724	2	752	64,477	6, 7	------	------	Post-Dev Total at POI-A (Wetlands)
9	SCS Runoff	0.202	2	722	577	----	------	------	Post-Dev Total at POI-B (TMP 13-51-

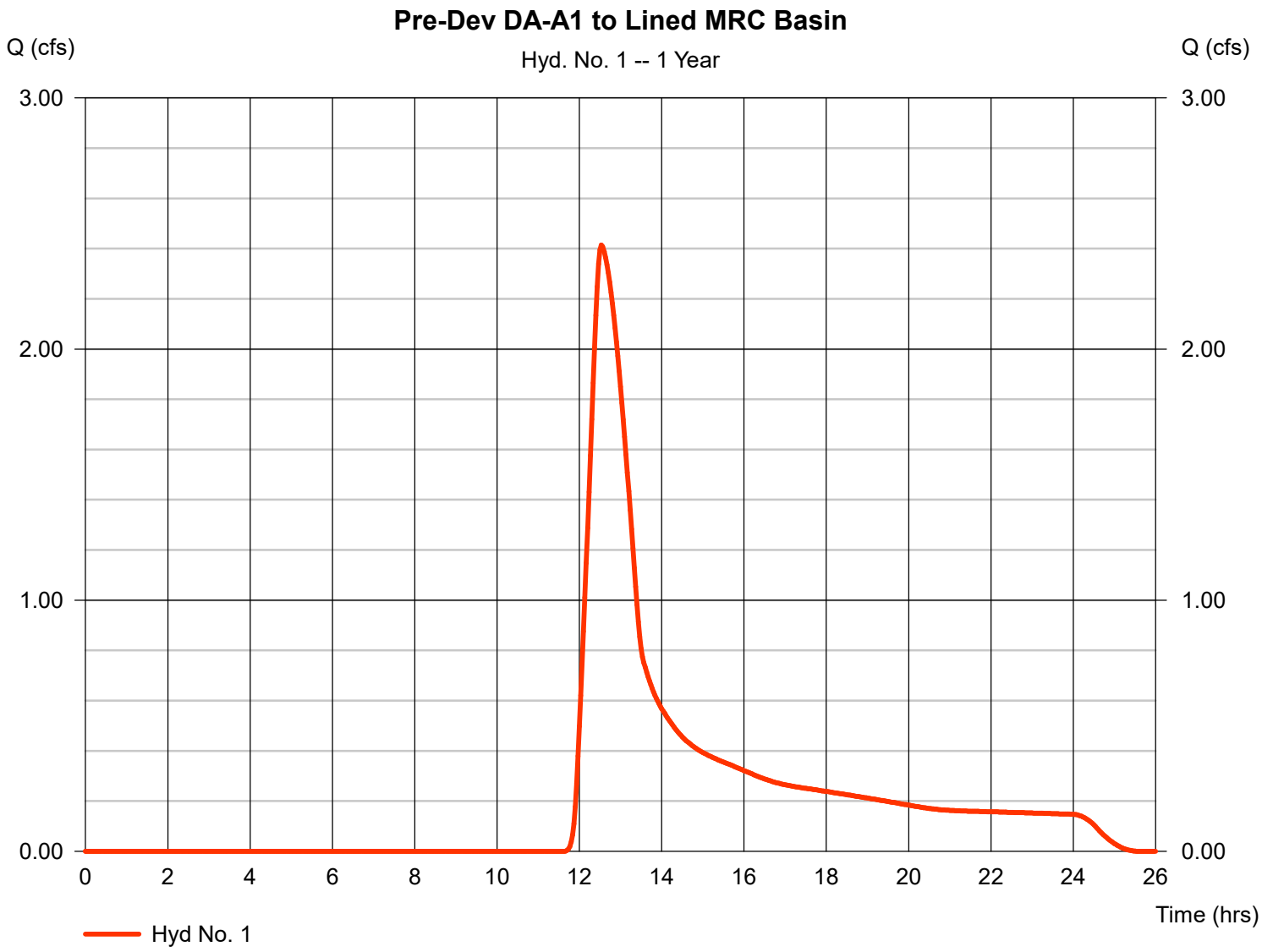
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 1

Pre-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.415 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.53 hrs
Time interval	=	2 min	Hyd. volume	=	19,498 cuft
Drainage area	=	9.040 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	2.70 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



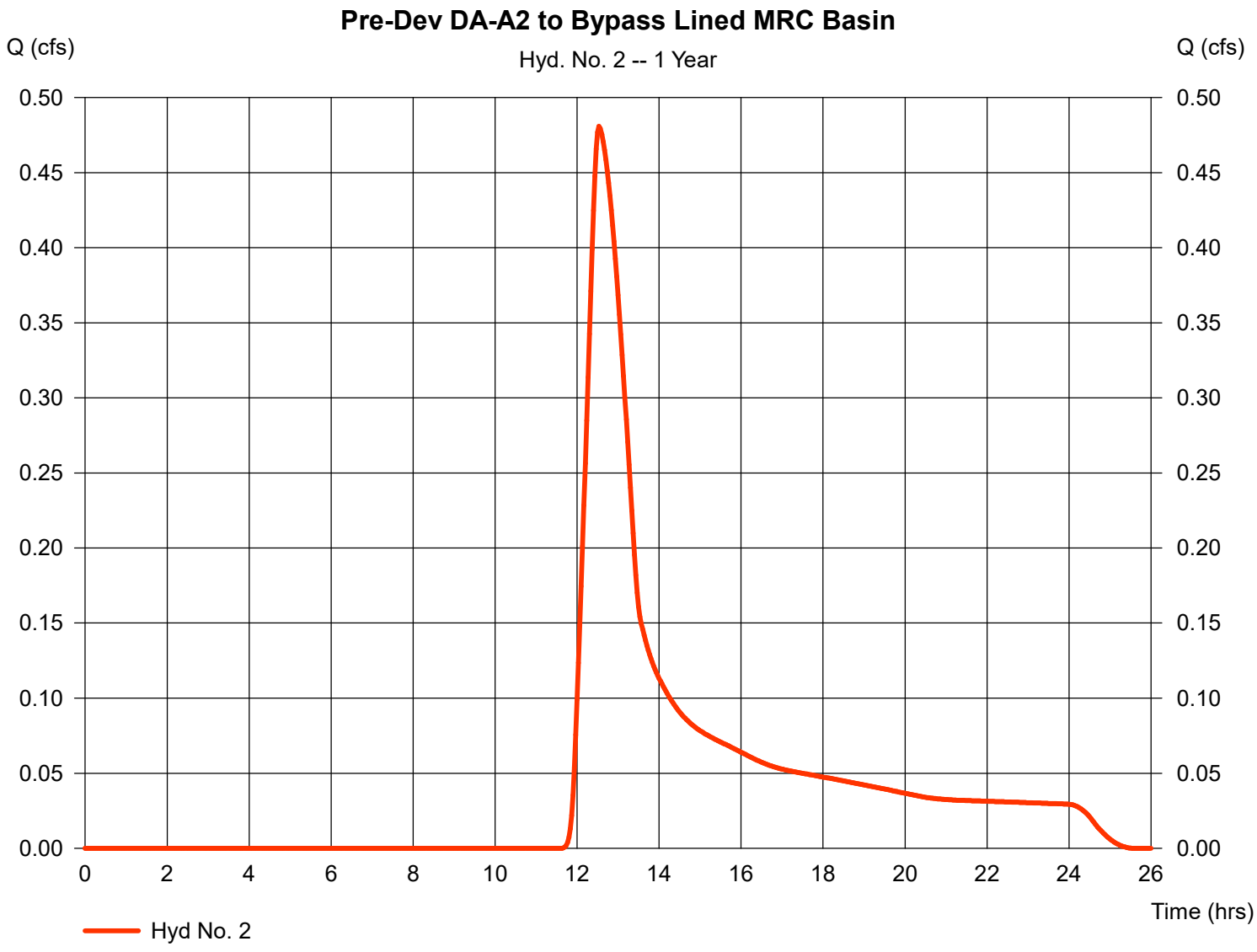
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 2

Pre-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.481 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.53 hrs
Time interval	=	2 min	Hyd. volume	=	3,882 cuft
Drainage area	=	1.800 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	2.70 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



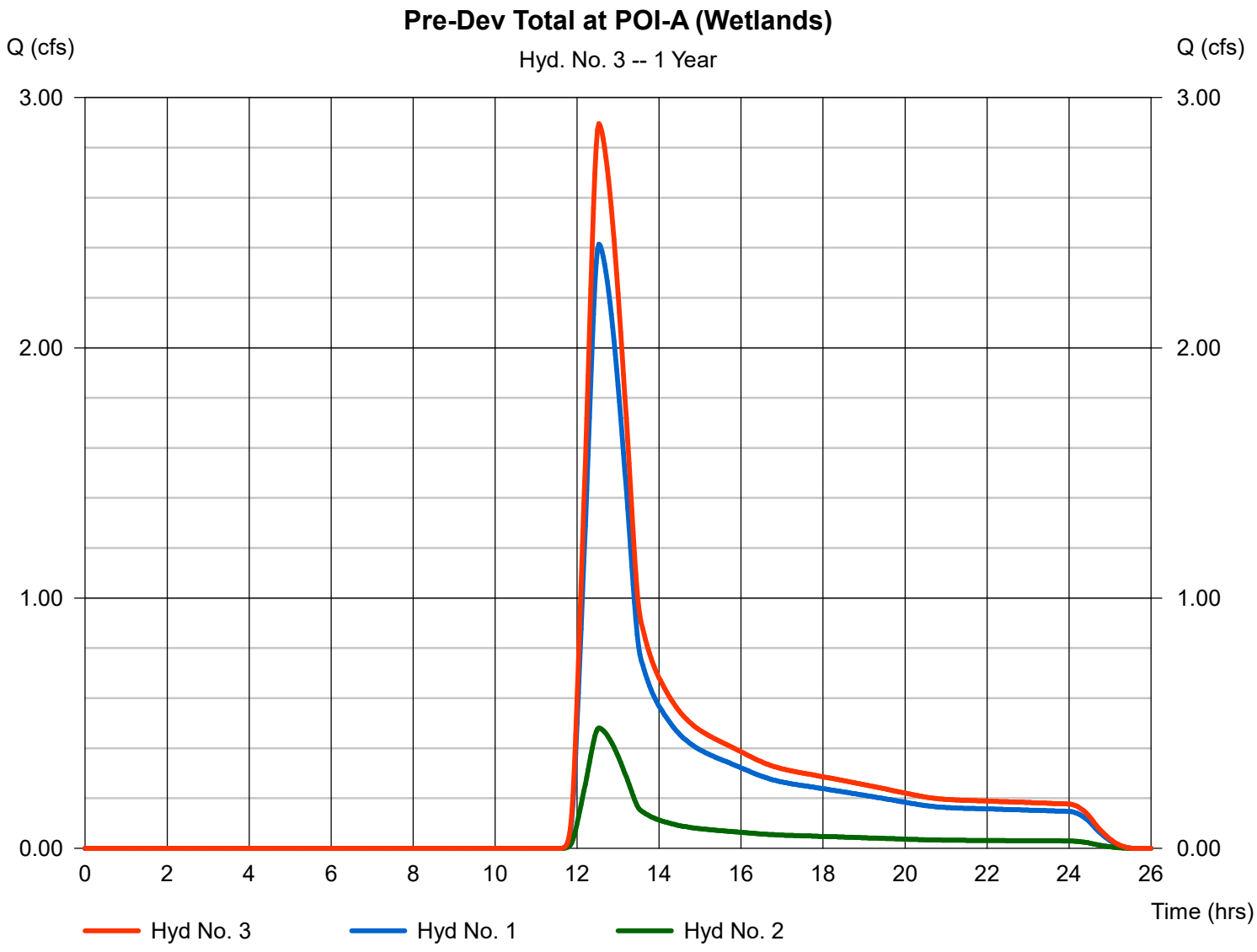
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 3

Pre-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 2.895 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 23,381 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 10.840 ac

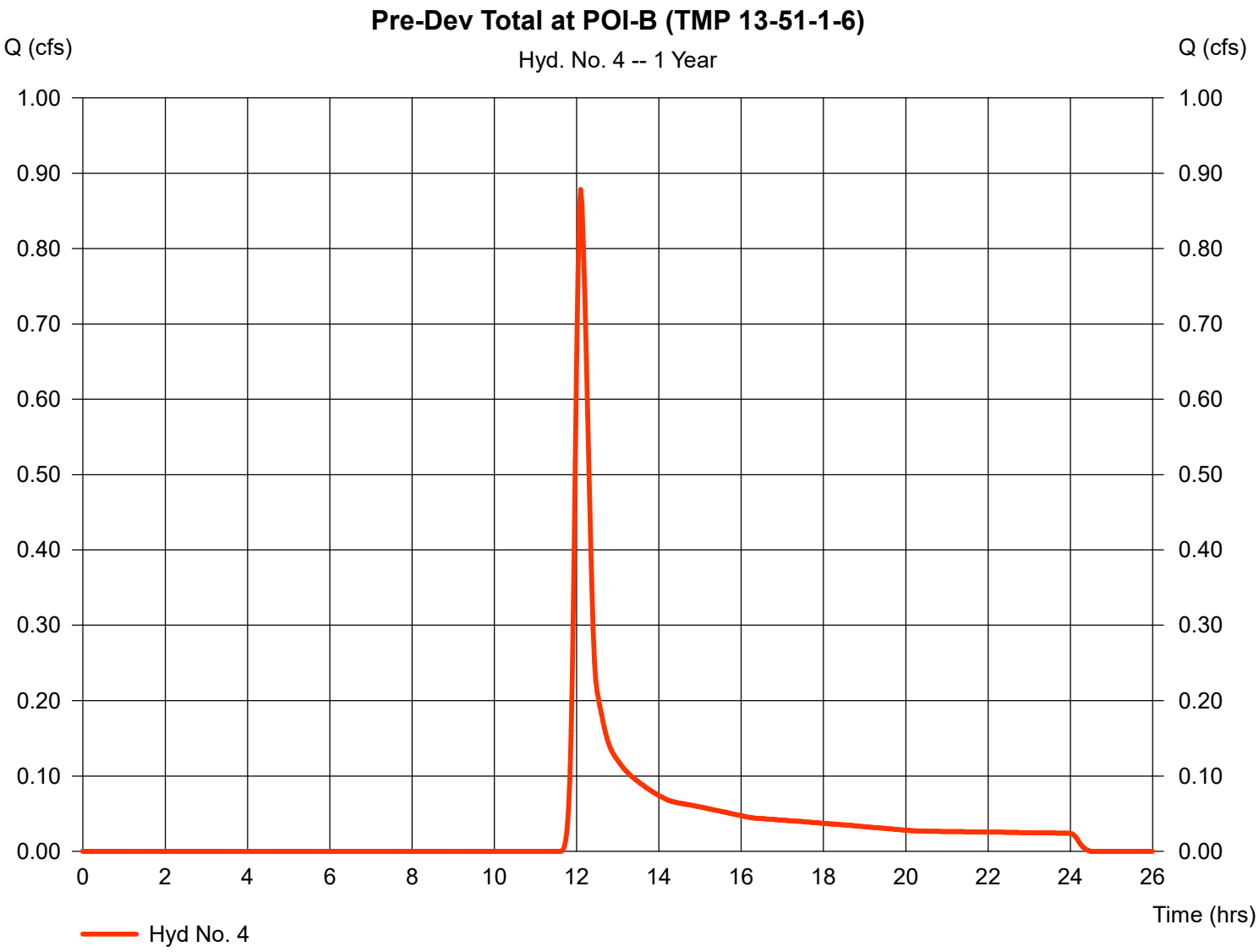


Hydrograph Report

Hyd. No. 4

Pre-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.879 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	3,214 cuft
Drainage area	=	1.490 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.10 min
Total precip.	=	2.70 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

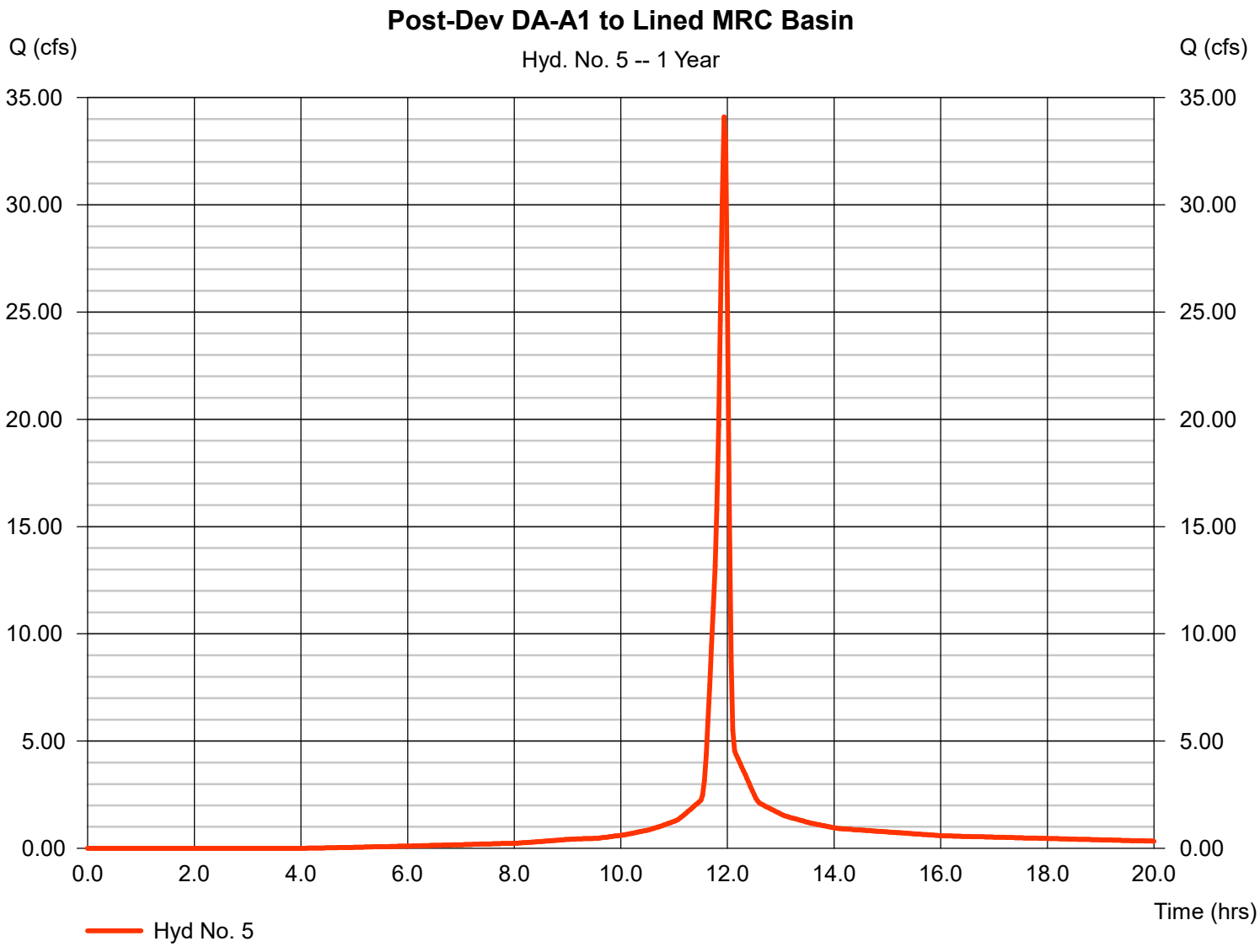


Hydrograph Report

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	34.09 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	72,802 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.70 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



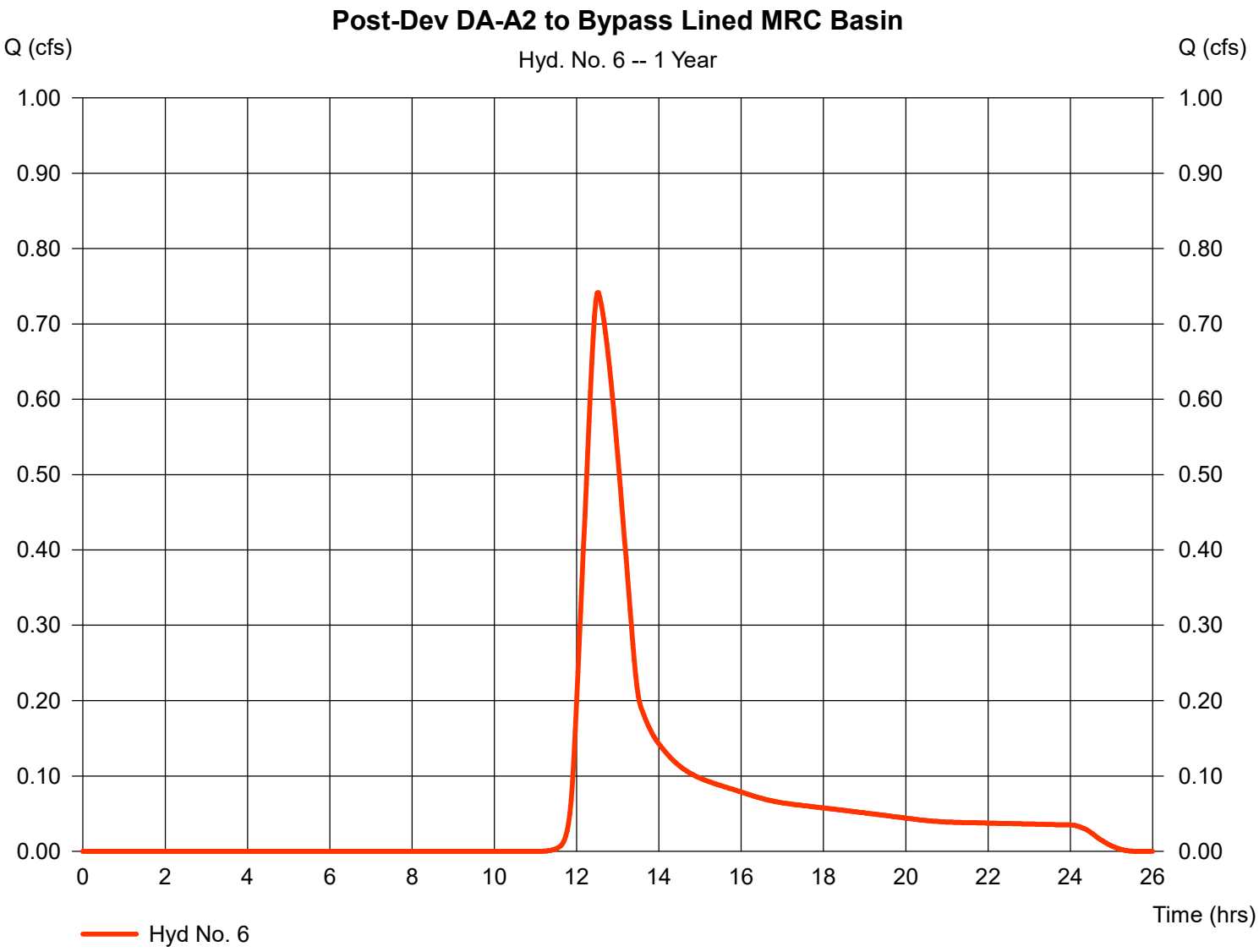
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 6

Post-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.742 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.53 hrs
Time interval	=	2 min	Hyd. volume	=	5,319 cuft
Drainage area	=	1.790 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	2.70 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

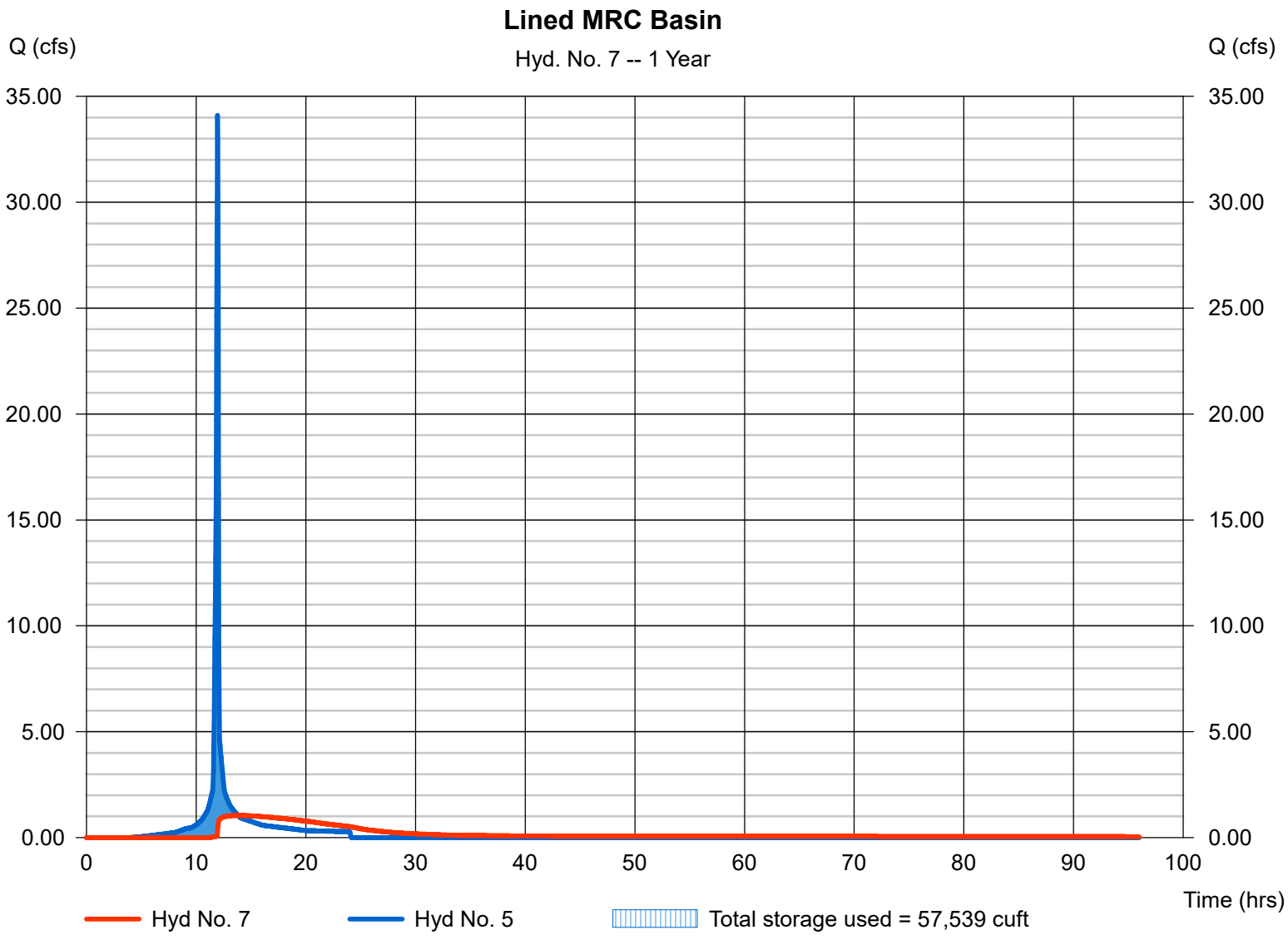
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	1.045 cfs
Storm frequency	=	1 yrs	Time to peak	=	13.83 hrs
Time interval	=	2 min	Hyd. volume	=	59,158 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	14.07 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	57,539 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



Pond Report

Pond No. 1 - Lined MRC Basin

Pond Data

UG Chambers - Invert elev. = 11.25 ft, Rise x Span = 0.33 x 0.33 ft, Barrel Len = 204.00 ft, No. Barrels = 5, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 11.25 ft, Width = 39.00 ft, Height = 2.00 ft, Voids = 30.00%
Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 13.26 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	11.25	n/a	0	0
0.20	11.45	n/a	2,426	2,426
0.40	11.65	n/a	2,410	4,836
0.60	11.85	n/a	2,387	7,223
0.80	12.05	n/a	2,387	9,610
1.00	12.25	n/a	2,387	11,997
1.20	12.45	n/a	2,387	14,385
1.40	12.65	n/a	2,387	16,772
1.60	12.85	n/a	2,387	19,159
1.80	13.05	n/a	2,387	21,547
2.00	13.25	n/a	2,387	23,934
2.01	13.26	39,894	199	24,133
2.75	14.00	42,065	30,325	54,458
3.75	15.00	45,011	43,538	97,996
4.75	16.00	48,012	46,512	144,508
5.75	17.00	51,071	49,542	194,049
6.75	18.00	54,186	52,629	246,678
7.75	19.00	57,357	55,771	302,449

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	1.69	3.75	3.00
Span (in)	= 15.00	1.69	12.00	8.00
No. Barrels	= 1	1	1	1
Invert El. (ft)	= 12.50	12.67	13.50	14.50
Length (ft)	= 48.00	0.00	0.00	0.25
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .009	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	Yes

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	50.00	0.00	0.00
Crest El. (ft)	= 16.25	17.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Rect	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	11.25	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
0.20	2,426	11.45	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
0.40	4,836	11.65	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
0.60	7,223	11.85	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
0.80	9,610	12.05	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
1.00	11,997	12.25	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
1.20	14,385	12.45	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
1.40	16,772	12.65	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
1.60	19,159	12.85	0.03 ic	0.02 ic	0.00	0.00	0.00	0.00	---	---	---	---	0.025
1.80	21,547	13.05	0.04 ic	0.04 ic	0.00	0.00	0.00	0.00	---	---	---	---	0.042
2.00	23,934	13.25	0.06 ic	0.05 ic	0.00	0.00	0.00	0.00	---	---	---	---	0.053
2.01	24,133	13.26	0.06 ic	0.05 ic	0.00	0.00	0.00	0.00	---	---	---	---	0.054
2.75	54,458	14.00	0.97 ic	0.08 ic	0.88 ic	0.00	0.00	0.00	---	---	---	---	0.958
3.75	97,996	15.00	2.63 oc	0.10 ic	1.74 ic	0.76	0.00	0.00	---	---	---	---	2.596
4.75	144,508	16.00	6.01 oc	0.10 ic	1.98 ic	3.93	0.00	0.00	---	---	---	---	6.011
5.75	194,049	17.00	11.54 ic	0.02 ic	0.36 ic	0.03	11.14 s	0.00	---	---	---	---	11.54
6.75	246,678	18.00	13.04 ic	0.01 ic	0.13 ic	0.00	12.89 s	130.00	---	---	---	---	143.03
7.75	302,449	19.00	14.32 ic	0.00 ic	0.07 ic	0.00	14.12 s	367.70	---	---	---	---	381.90

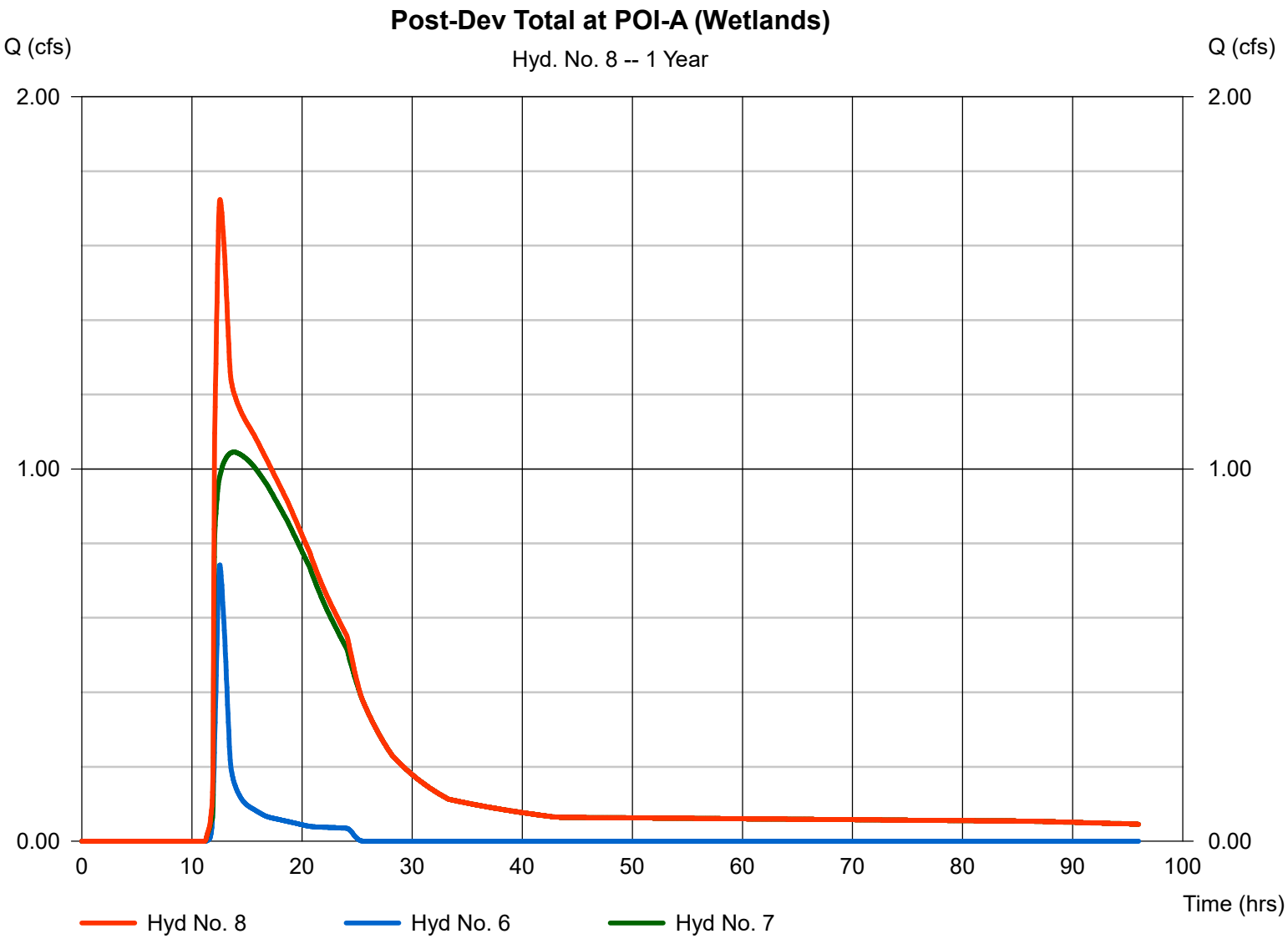
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 8

Post-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 1.724 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 64,477 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.790 ac

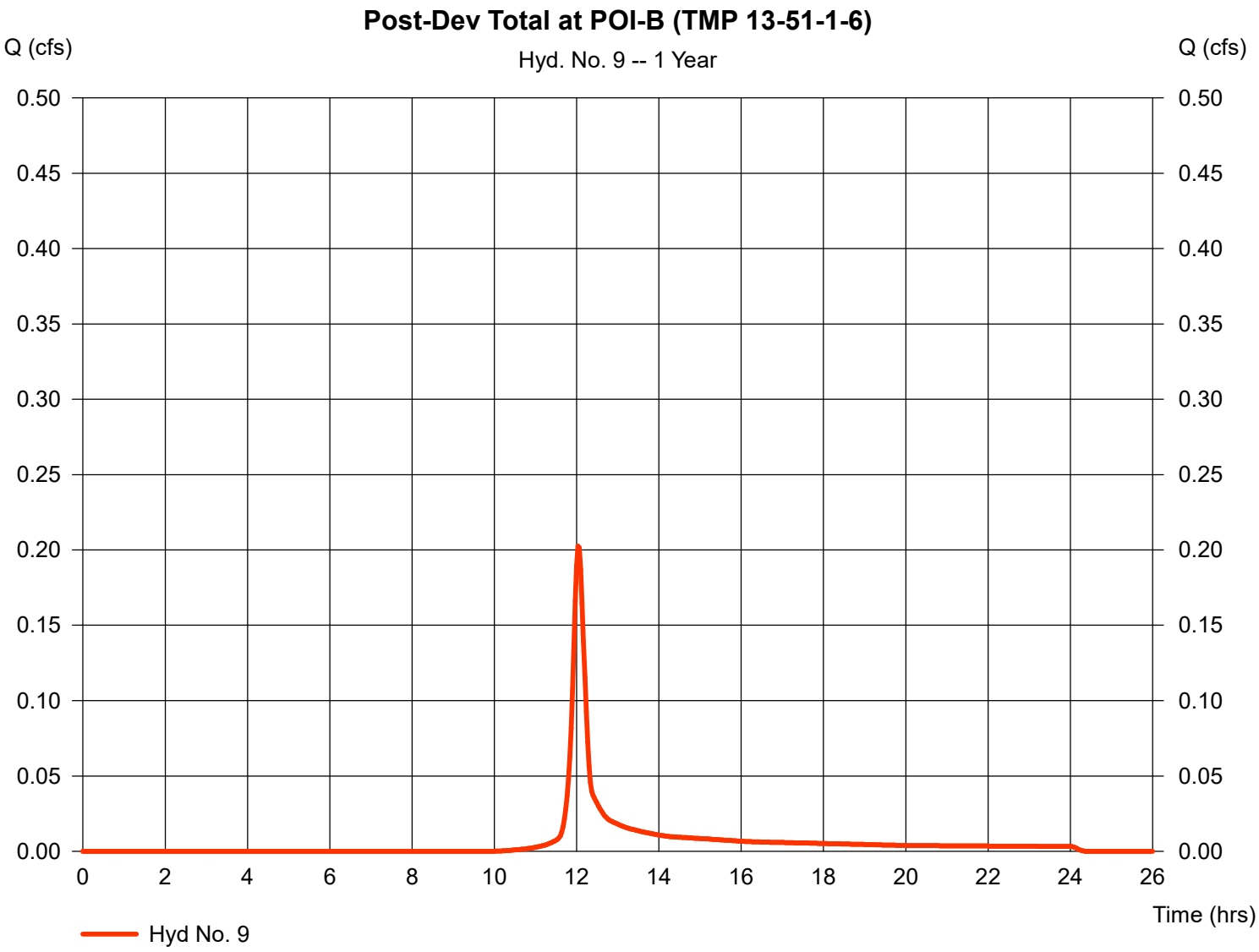


Hydrograph Report

Hyd. No. 9

Post-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.202 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	577 cuft
Drainage area	=	0.150 ac	Curve number	=	81
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.80 min
Total precip.	=	2.70 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	4.211	2	752	30,807	----	------	------	Pre-Dev DA-A1 to Lined MRC Basin
2	SCS Runoff	0.838	2	752	6,134	----	------	------	Pre-Dev DA-A2 to Bypass Lined MR
3	Combine	5.049	2	752	36,942	1, 2	------	------	Pre-Dev Total at POI-A (Wetlands)
4	SCS Runoff	1.503	2	726	5,078	----	------	------	Pre-Dev Total at POI-B (TMP 13-51-1
5	SCS Runoff	43.01	2	716	93,290	----	------	------	Post-Dev DA-A1 to Lined MRC Basin
6	SCS Runoff	1.166	2	750	7,941	----	------	------	Post-Dev DA-A2 to Bypass Lined MR
7	Reservoir	1.373	2	822	79,215	5	14.39	71,359	Lined MRC Basin
8	Combine	2.483	2	752	87,157	6, 7	------	------	Post-Dev Total at POI-A (Wetlands)
9	SCS Runoff	0.292	2	722	822	----	------	------	Post-Dev Total at POI-B (TMP 13-51-

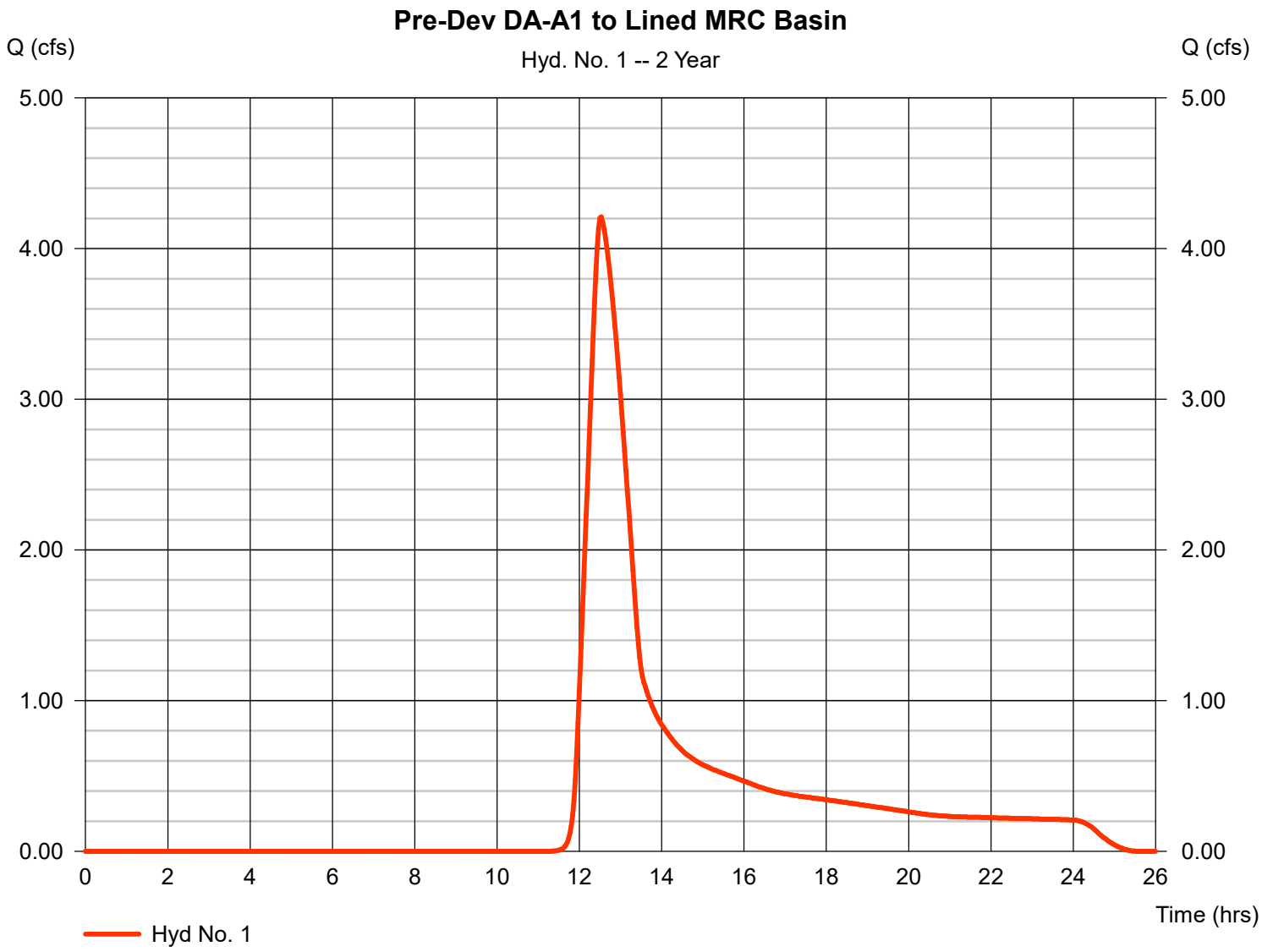
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 1

Pre-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.211 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.53 hrs
Time interval	=	2 min	Hyd. volume	=	30,807 cuft
Drainage area	=	9.040 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	3.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



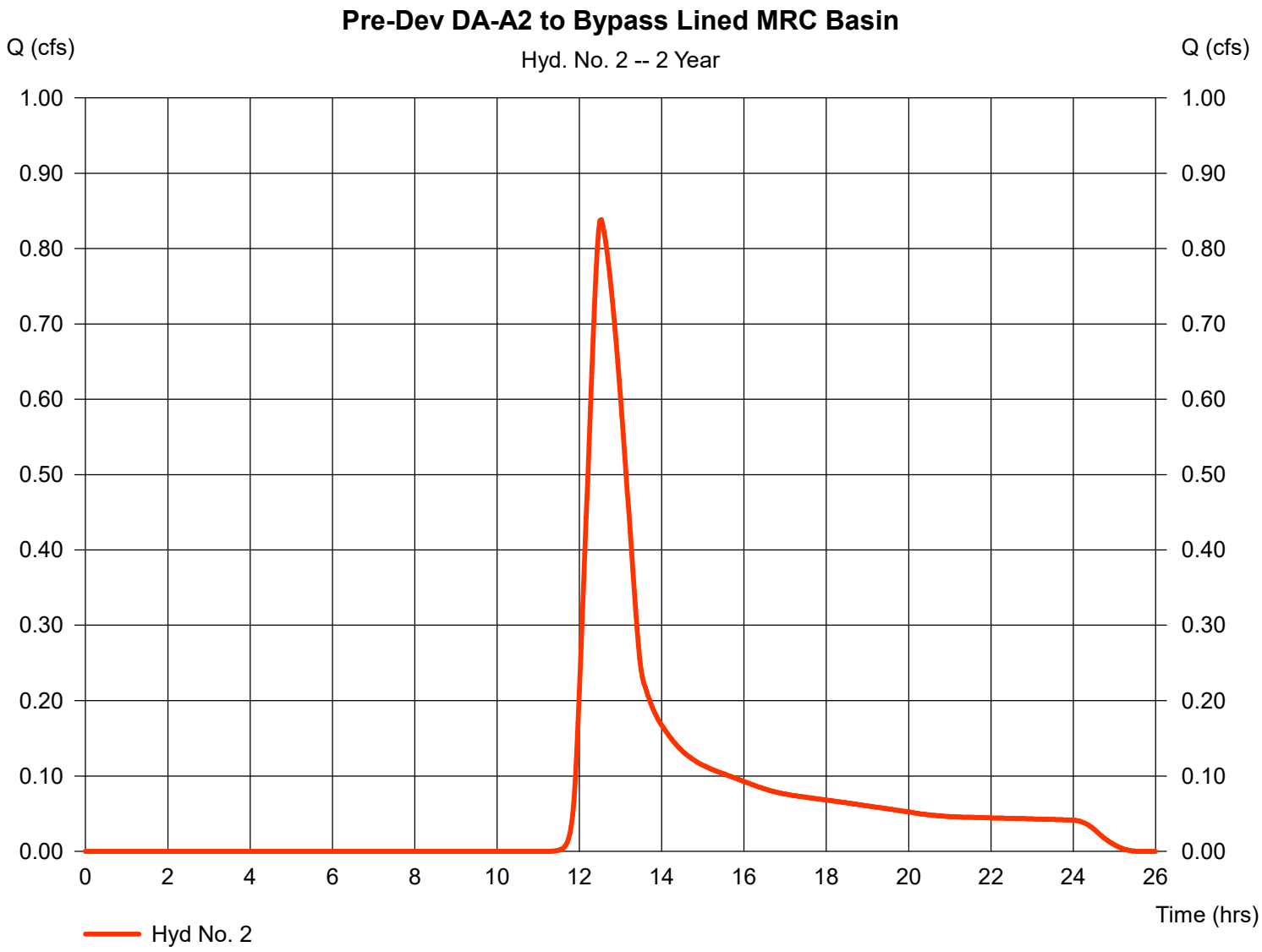
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 2

Pre-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.838 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.53 hrs
Time interval	=	2 min	Hyd. volume	=	6,134 cuft
Drainage area	=	1.800 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	3.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



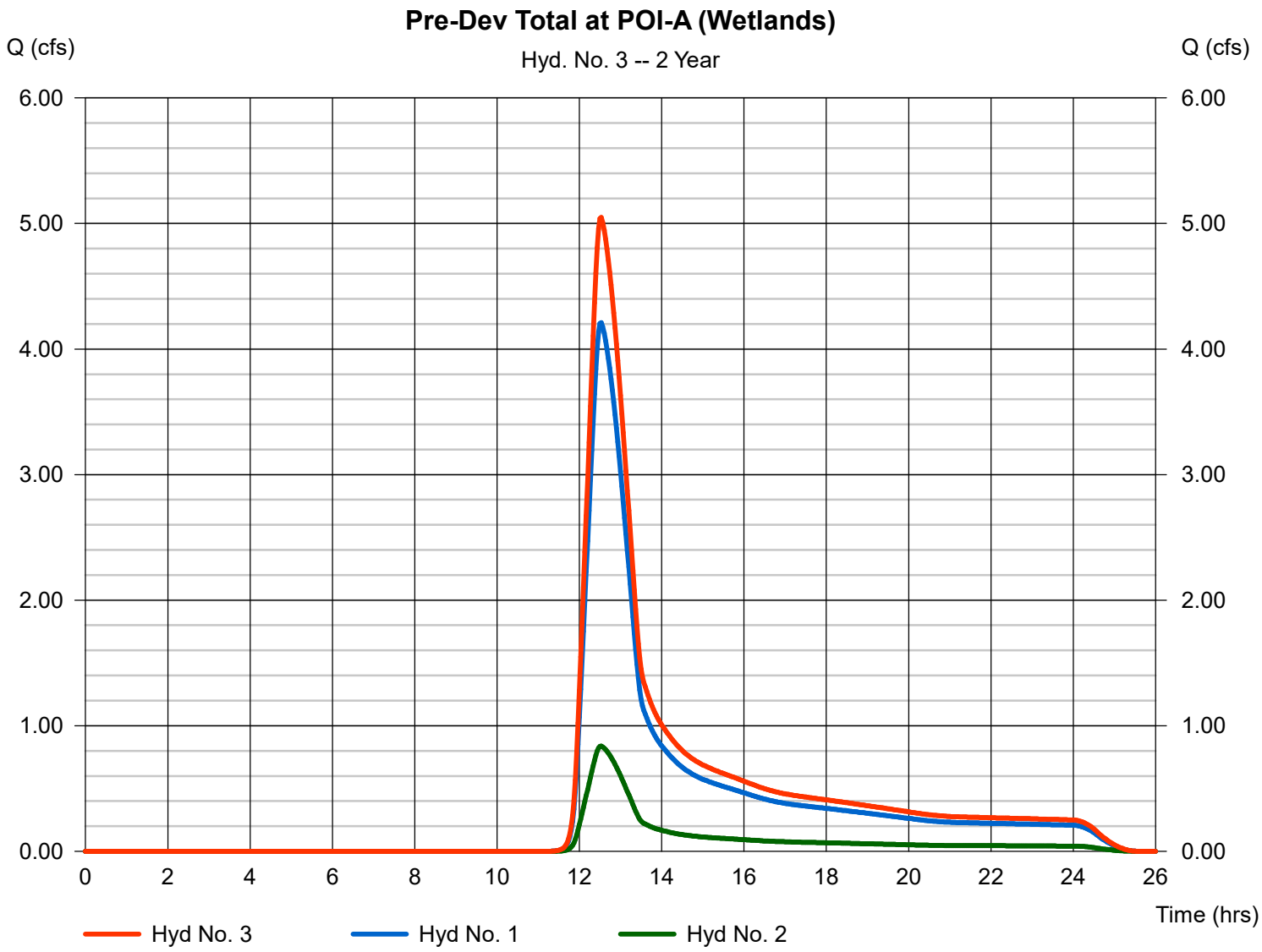
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 3

Pre-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 5.049 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 36,942 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 10.840 ac



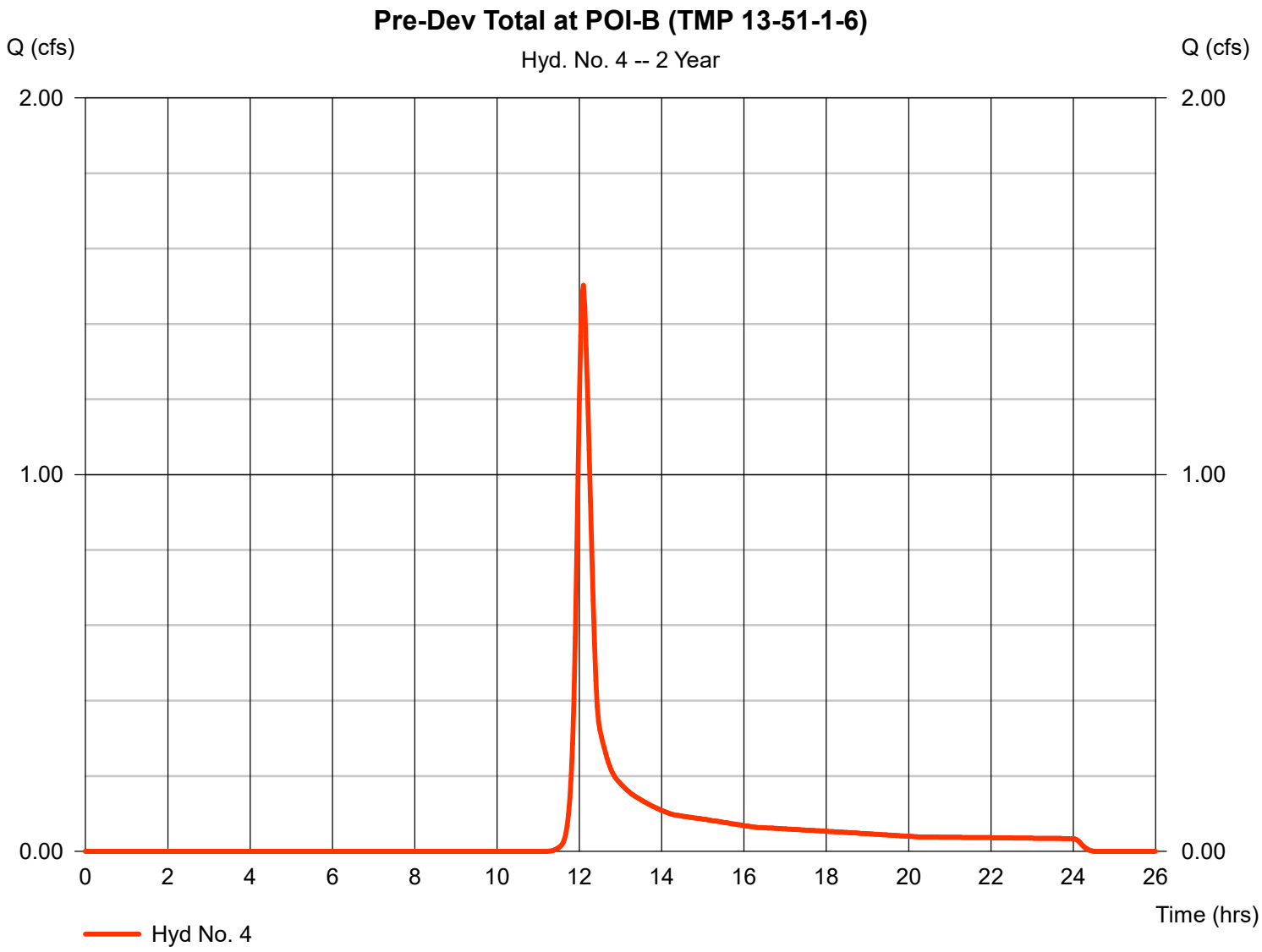
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 4

Pre-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.503 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	5,078 cuft
Drainage area	=	1.490 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.10 min
Total precip.	=	3.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



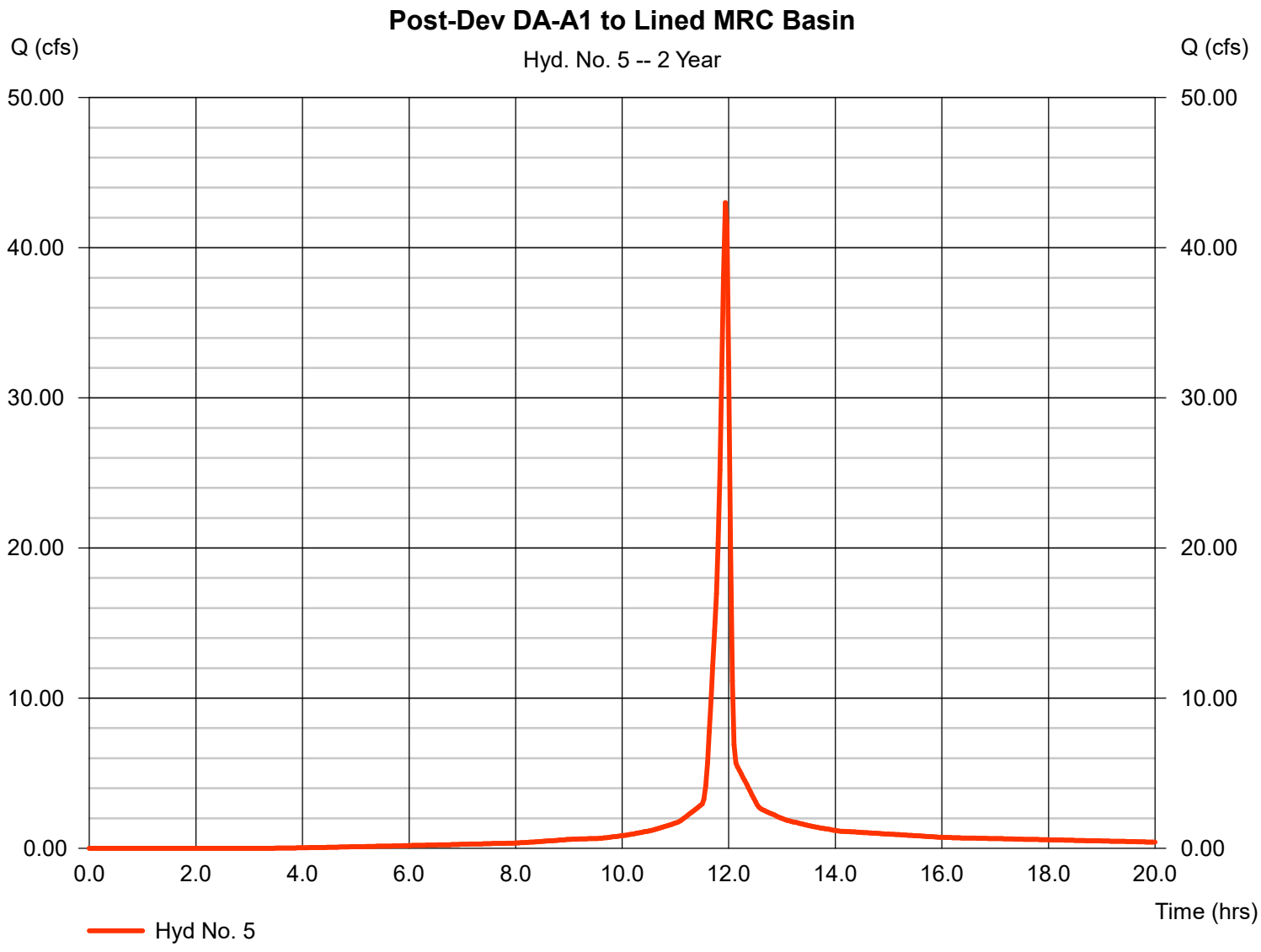
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	43.01 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	93,290 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



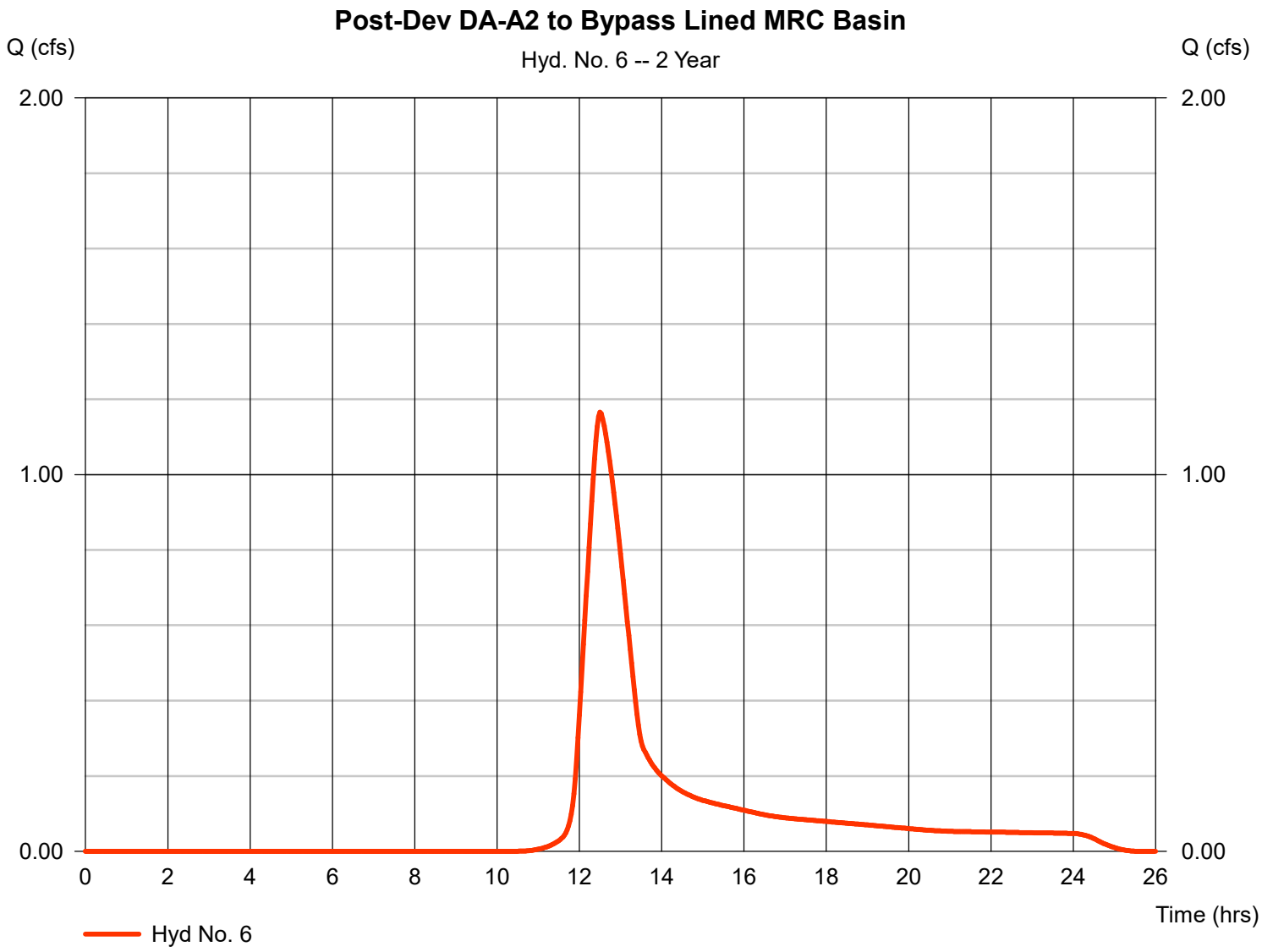
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 6

Post-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.166 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	7,941 cuft
Drainage area	=	1.790 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	3.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

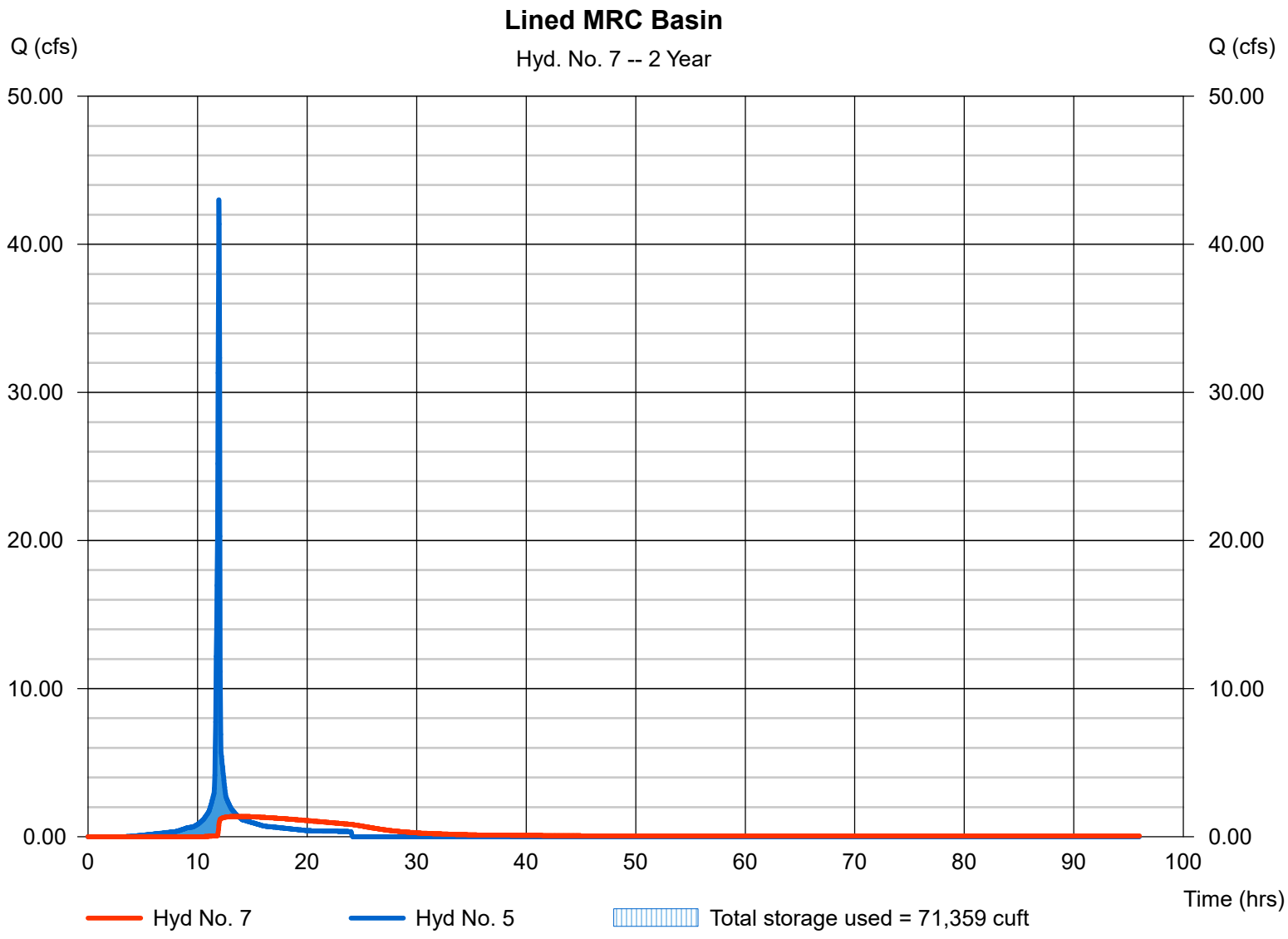
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	1.373 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.70 hrs
Time interval	=	2 min	Hyd. volume	=	79,215 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	14.39 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	71,359 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



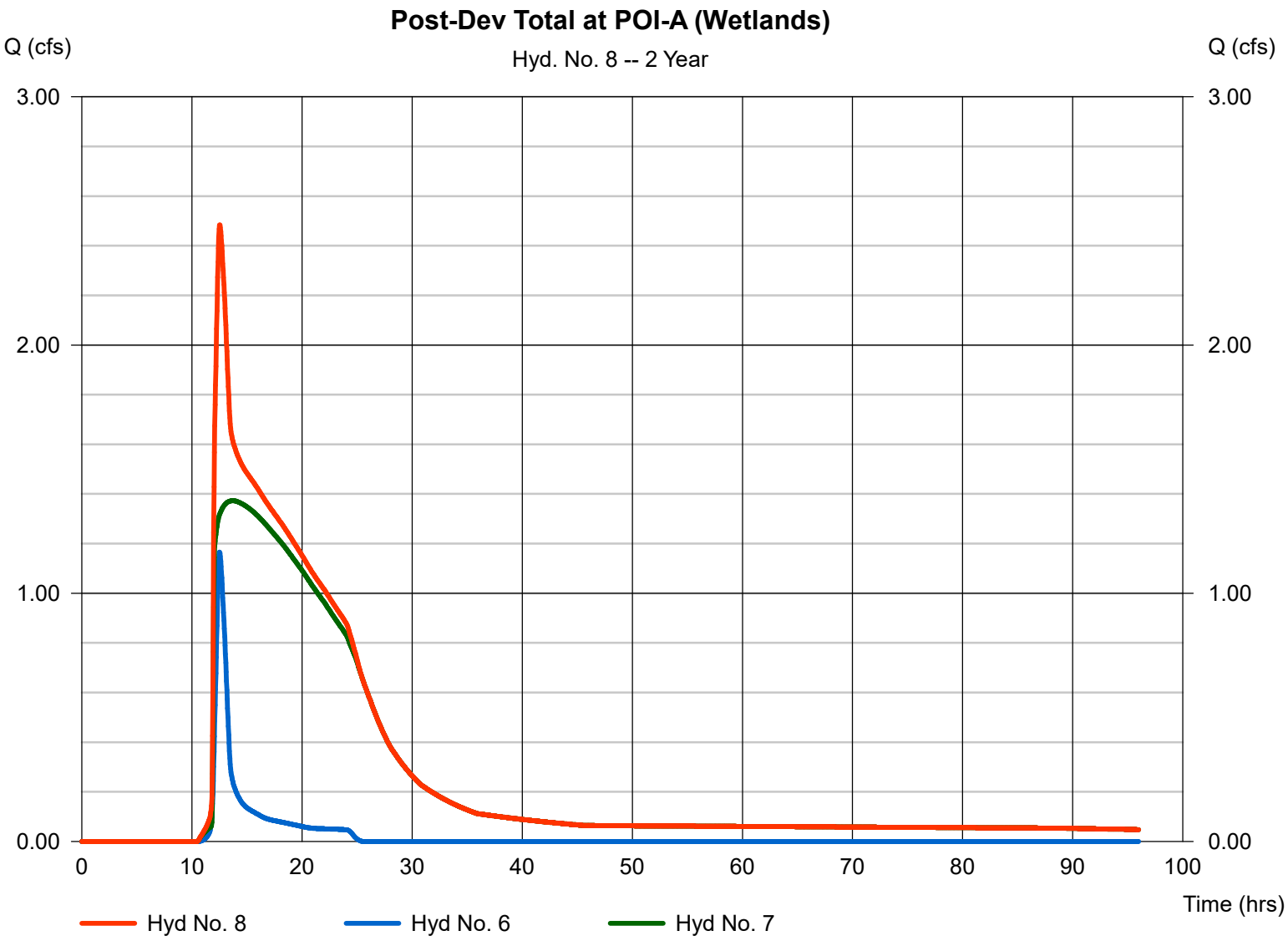
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 8

Post-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 2.483 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 87,157 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.790 ac



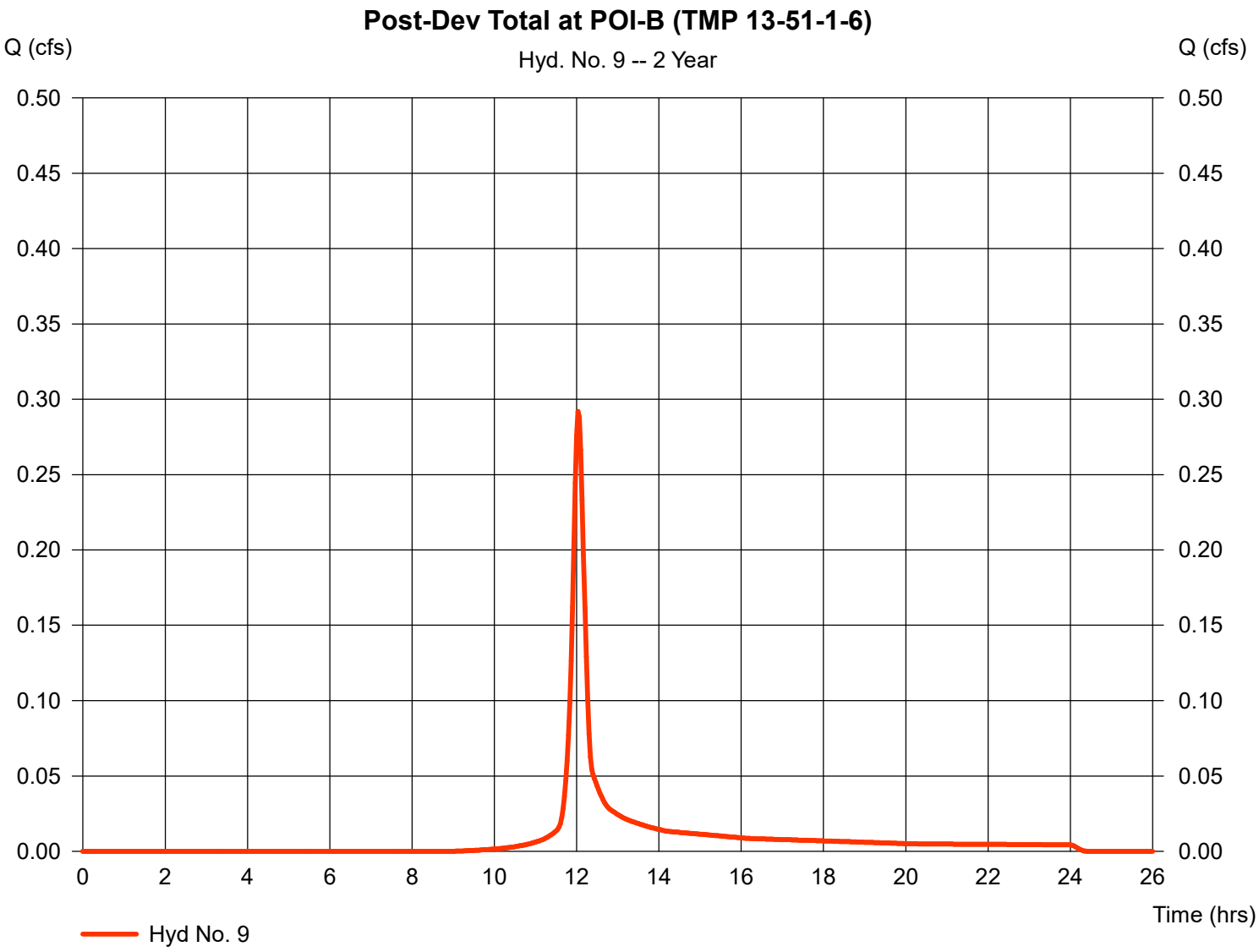
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 9

Post-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.292 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	822 cuft
Drainage area	=	0.150 ac	Curve number	=	81
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.80 min
Total precip.	=	3.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	7.361	2	750	50,295	----	------	------	Pre-Dev DA-A1 to Lined MRC Basin
2	SCS Runoff	1.466	2	750	10,014	----	------	------	Pre-Dev DA-A2 to Bypass Lined MR
3	Combine	8.827	2	750	60,309	1, 2	------	------	Pre-Dev Total at POI-A (Wetlands)
4	SCS Runoff	2.563	2	726	8,290	----	------	------	Pre-Dev Total at POI-B (TMP 13-51-1
5	SCS Runoff	56.27	2	716	124,361	----	------	------	Post-Dev DA-A1 to Lined MRC Basin
6	SCS Runoff	1.868	2	750	12,301	----	------	------	Post-Dev DA-A2 to Bypass Lined MR
7	Reservoir	2.171	2	798	109,761	5	14.84	91,232	Lined MRC Basin
8	Combine	3.920	2	752	122,061	6, 7	------	------	Post-Dev Total at POI-A (Wetlands)
9	SCS Runoff	0.434	2	722	1,216	----	------	------	Post-Dev Total at POI-B (TMP 13-51-

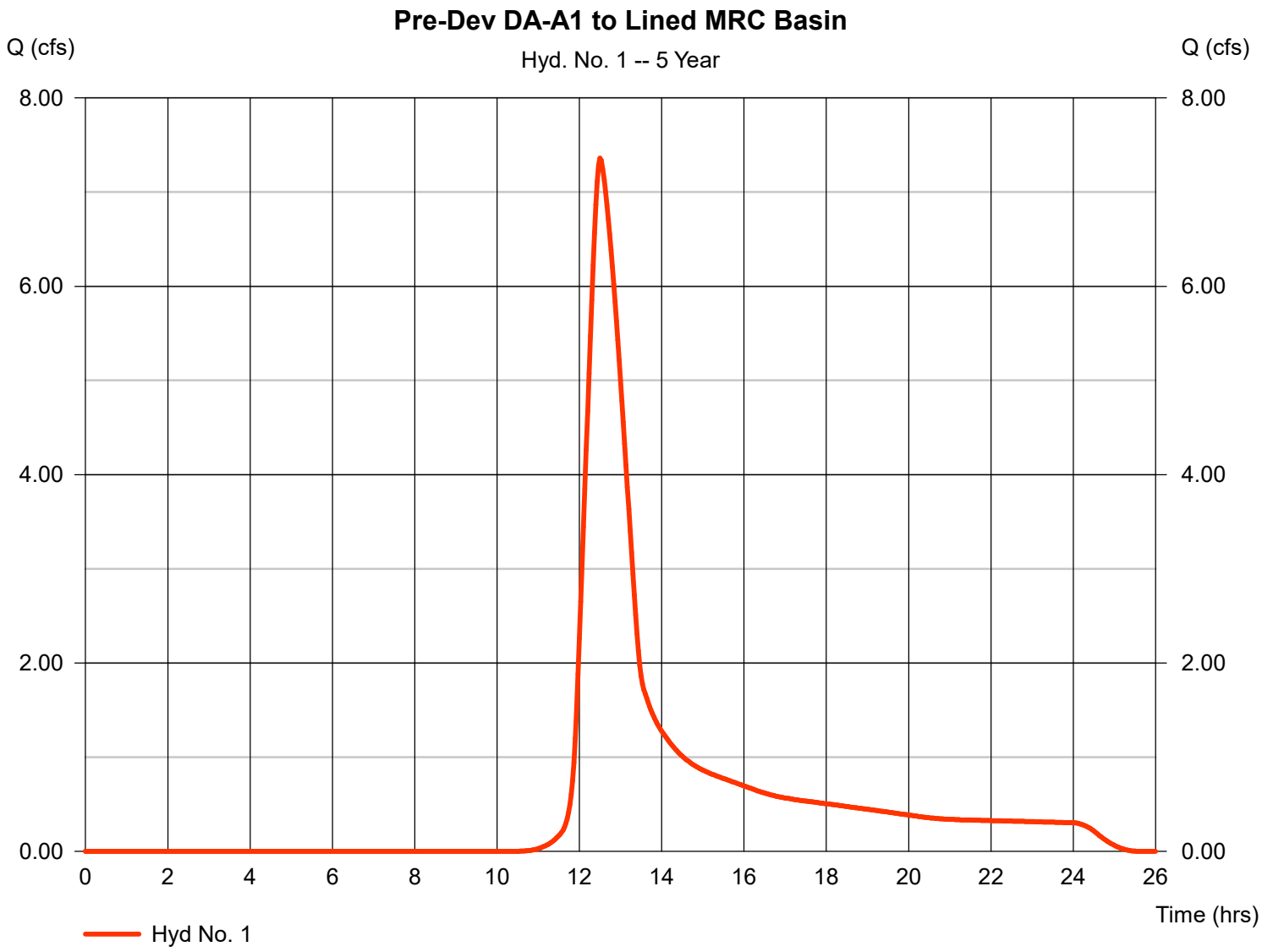
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 1

Pre-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.361 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	50,295 cuft
Drainage area	=	9.040 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	4.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



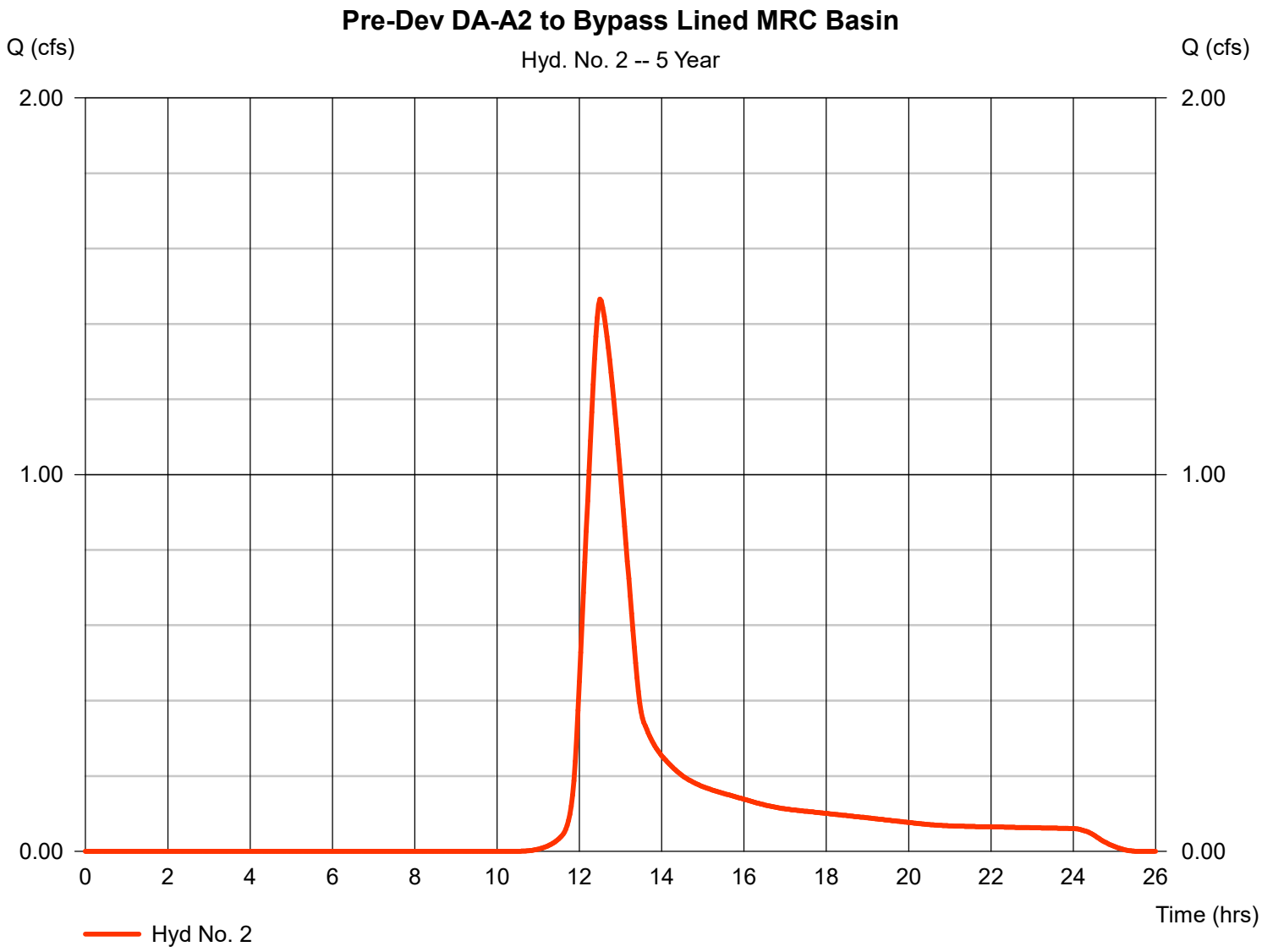
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 2

Pre-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.466 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	10,014 cuft
Drainage area	=	1.800 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	4.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



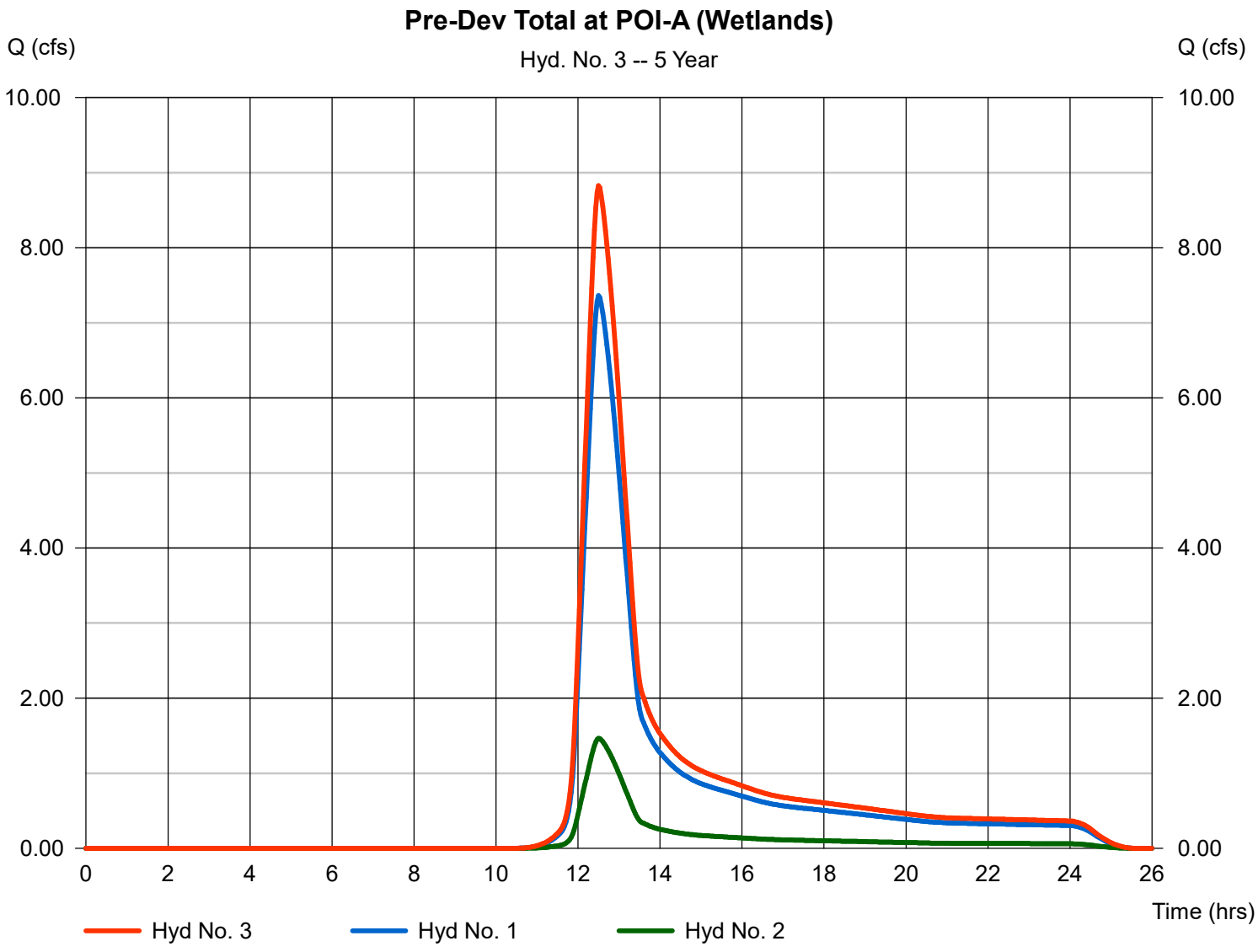
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 3

Pre-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 8.827 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 60,309 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 10.840 ac



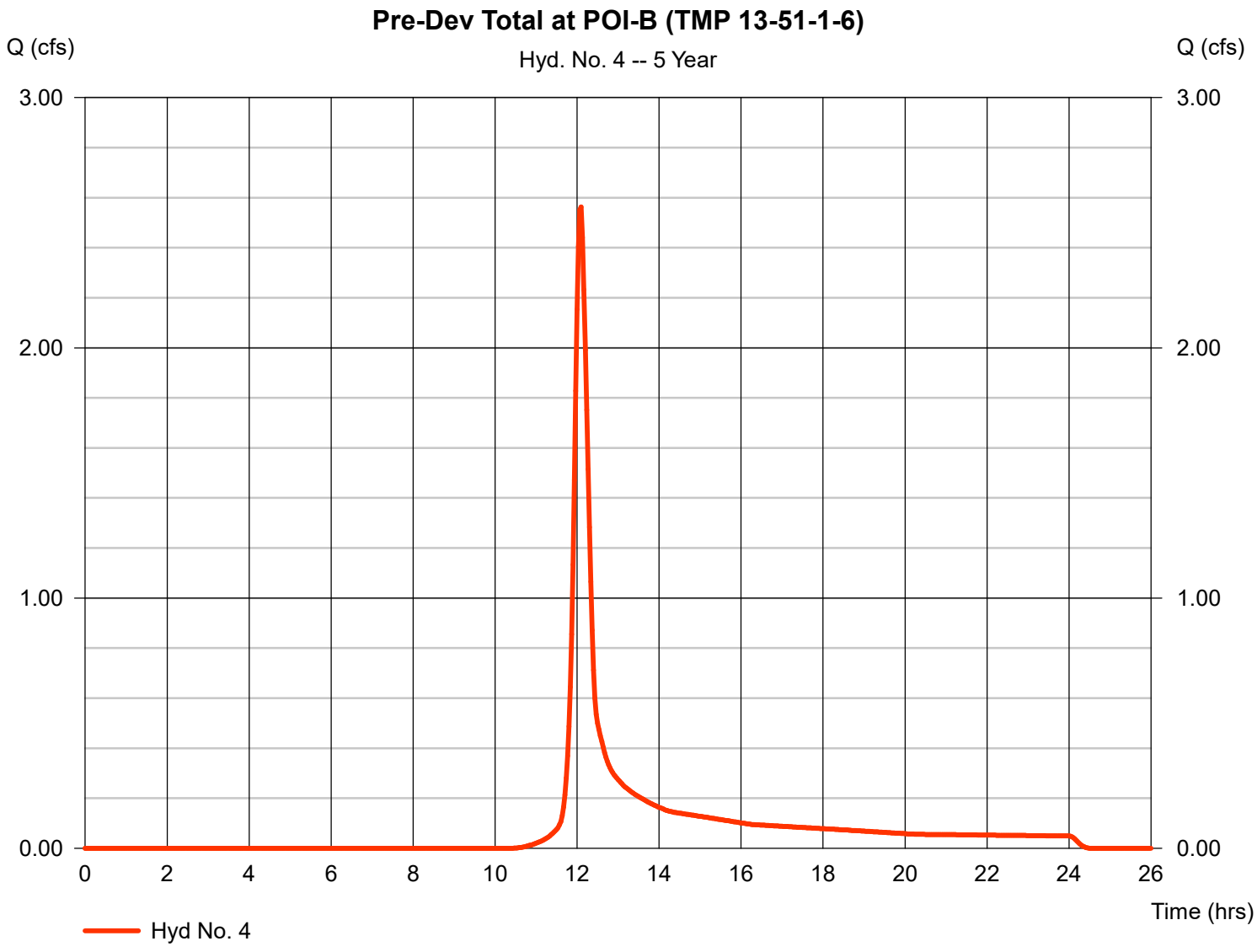
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 4

Pre-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.563 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	8,290 cuft
Drainage area	=	1.490 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.10 min
Total precip.	=	4.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



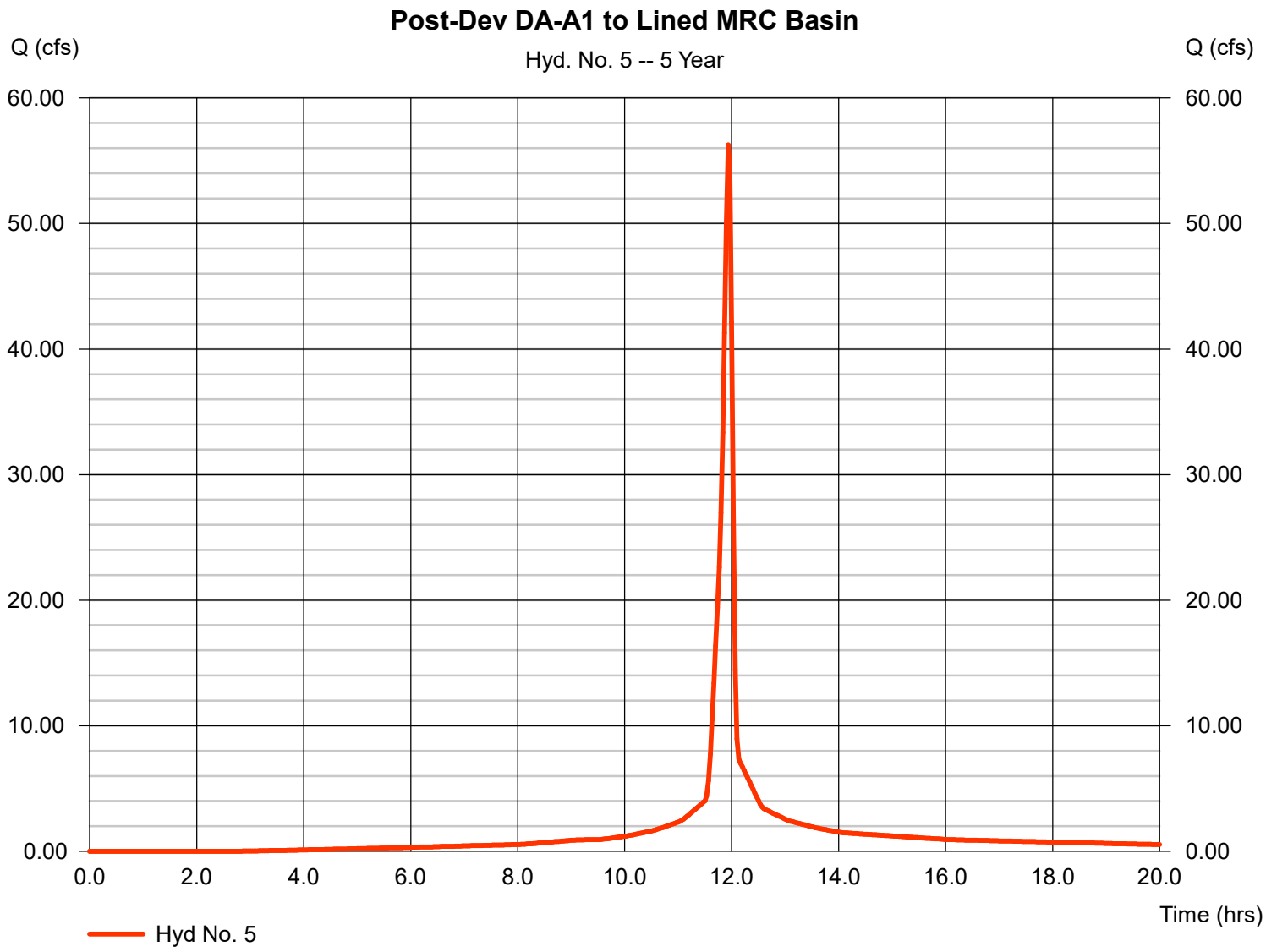
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	56.27 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	124,361 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



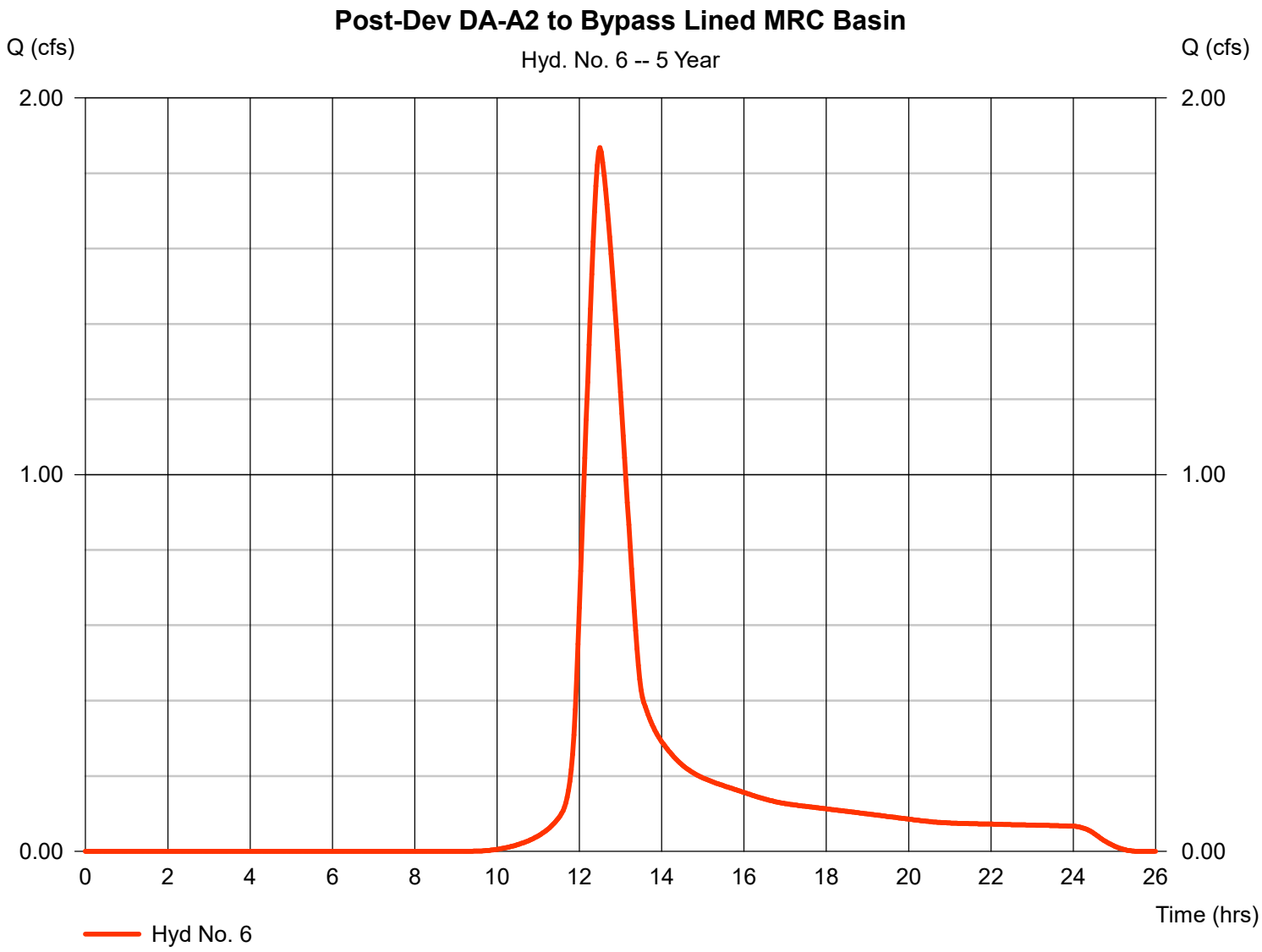
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 6

Post-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.868 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	12,301 cuft
Drainage area	=	1.790 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	4.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

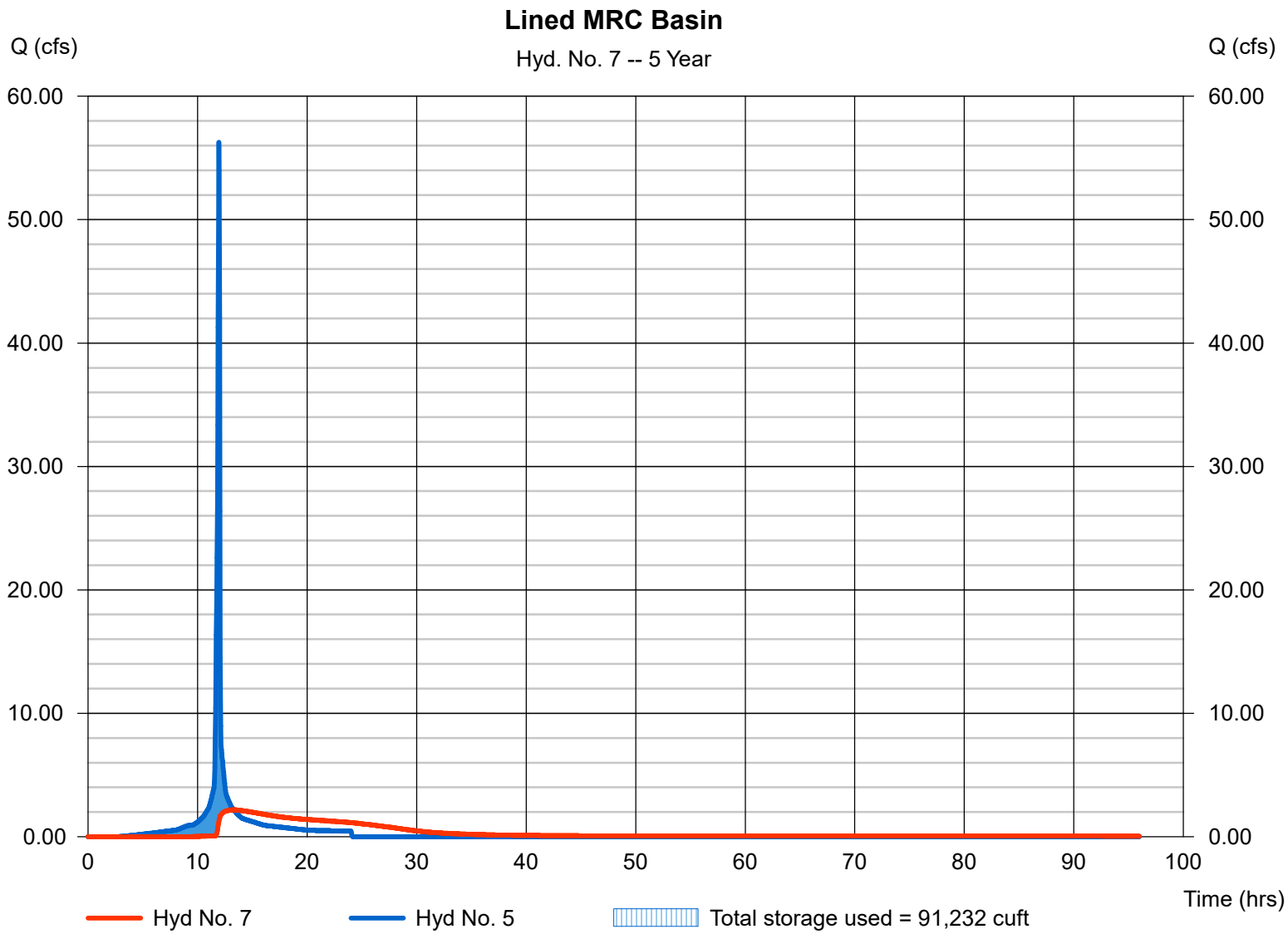
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	2.171 cfs
Storm frequency	=	5 yrs	Time to peak	=	13.30 hrs
Time interval	=	2 min	Hyd. volume	=	109,761 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	14.84 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	91,232 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



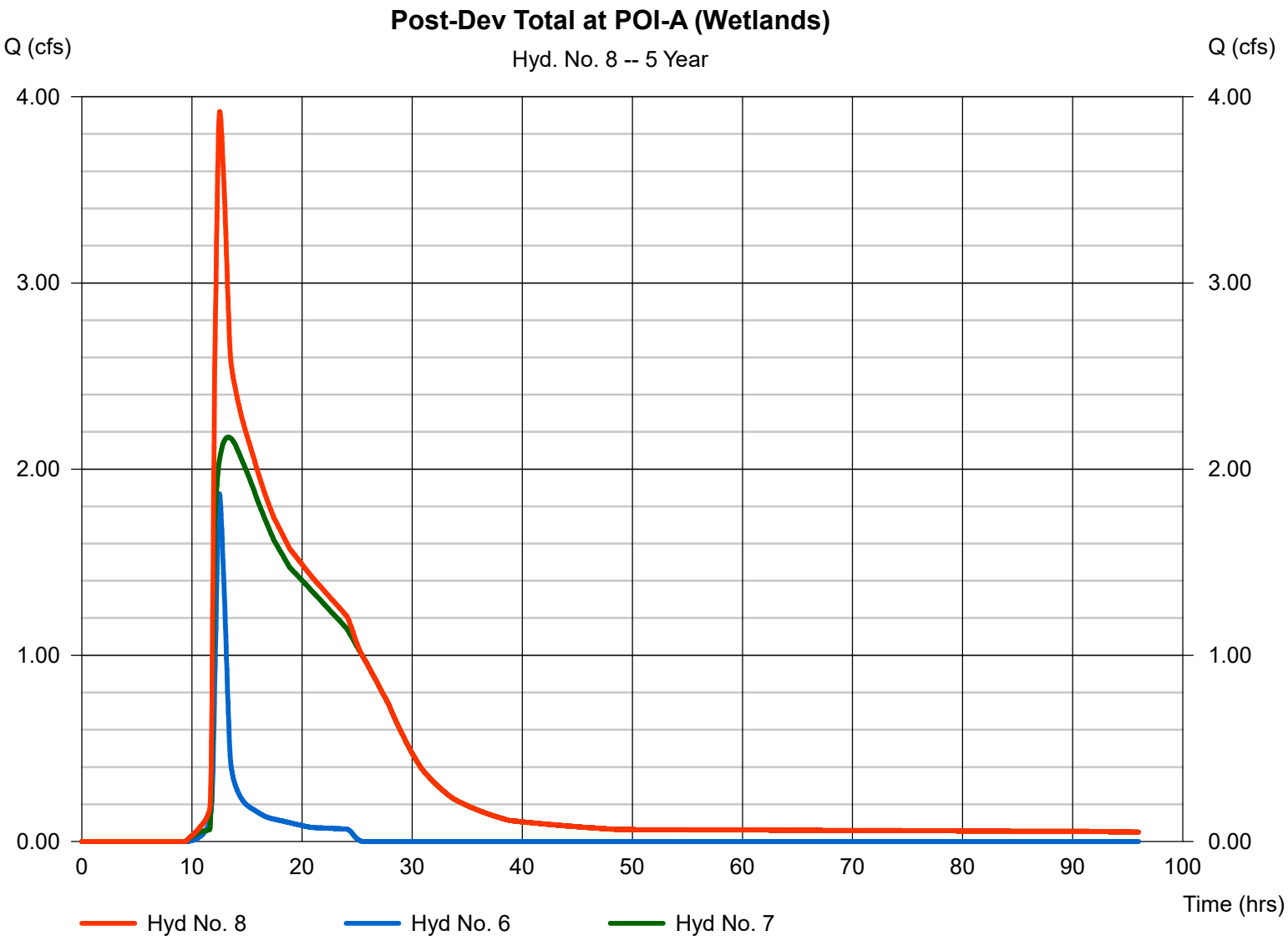
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 8

Post-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 3.920 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 122,061 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.790 ac

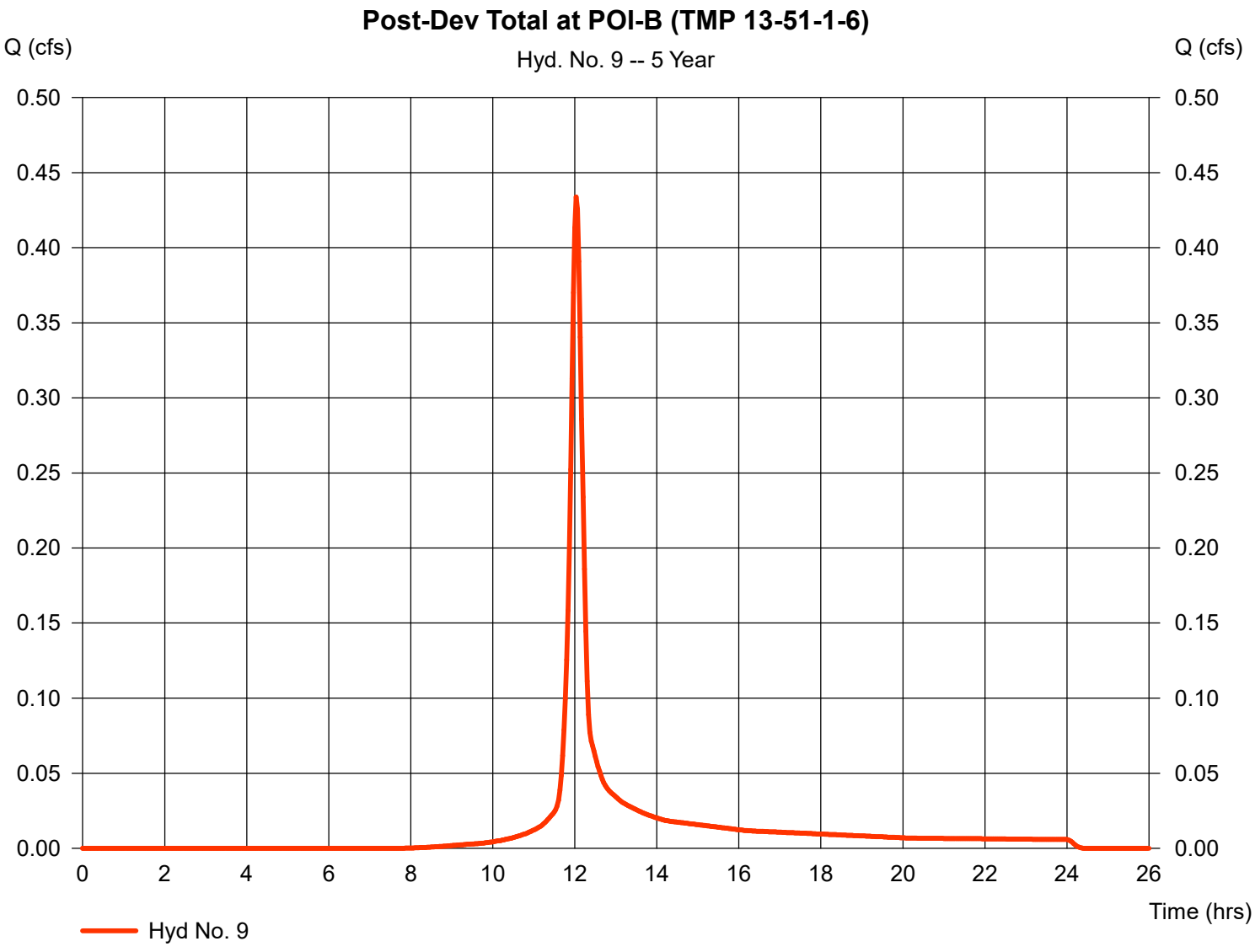


Hydrograph Report

Hyd. No. 9

Post-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.434 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	1,216 cuft
Drainage area	=	0.150 ac	Curve number	=	81
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.80 min
Total precip.	=	4.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	10.45	2	750	69,453	----	------	------	Pre-Dev DA-A1 to Lined MRC Basin
2	SCS Runoff	2.081	2	750	13,829	----	------	------	Pre-Dev DA-A2 to Bypass Lined MR
3	Combine	12.53	2	750	83,282	1, 2	------	------	Pre-Dev Total at POI-A (Wetlands)
4	SCS Runoff	3.599	2	724	11,447	----	------	------	Pre-Dev Total at POI-B (TMP 13-51-1
5	SCS Runoff	67.96	2	716	152,177	----	------	------	Post-Dev DA-A1 to Lined MRC Basin
6	SCS Runoff	2.534	2	750	16,475	----	------	------	Post-Dev DA-A2 to Bypass Lined MR
7	Reservoir	3.232	2	776	137,313	5	15.21	107,542	Lined MRC Basin
8	Combine	5.702	2	750	153,788	6, 7	------	------	Post-Dev Total at POI-A (Wetlands)
9	SCS Runoff	0.564	2	722	1,585	----	------	------	Post-Dev Total at POI-B (TMP 13-51-

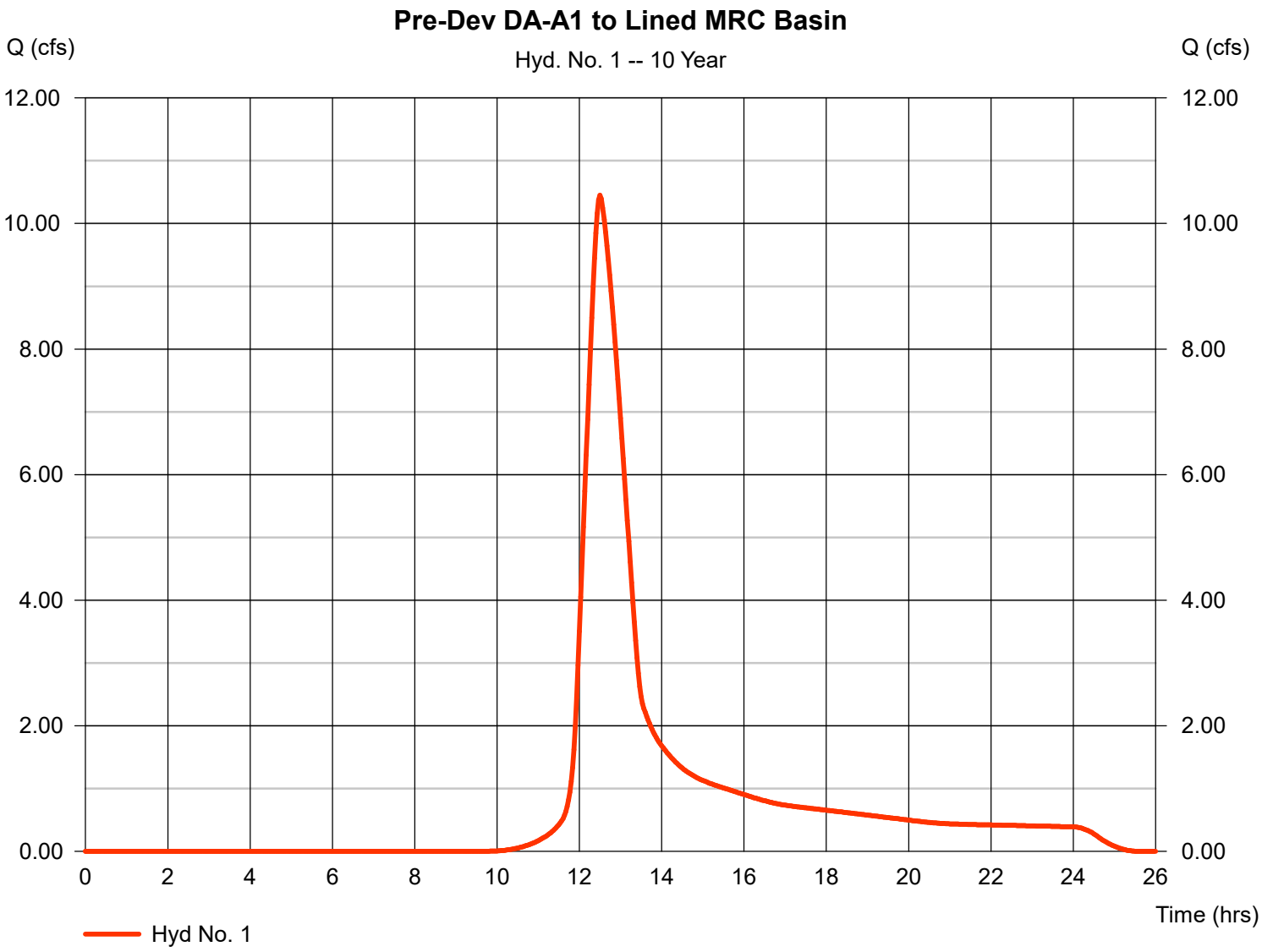
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 1

Pre-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.45 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	69,453 cuft
Drainage area	=	9.040 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	5.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



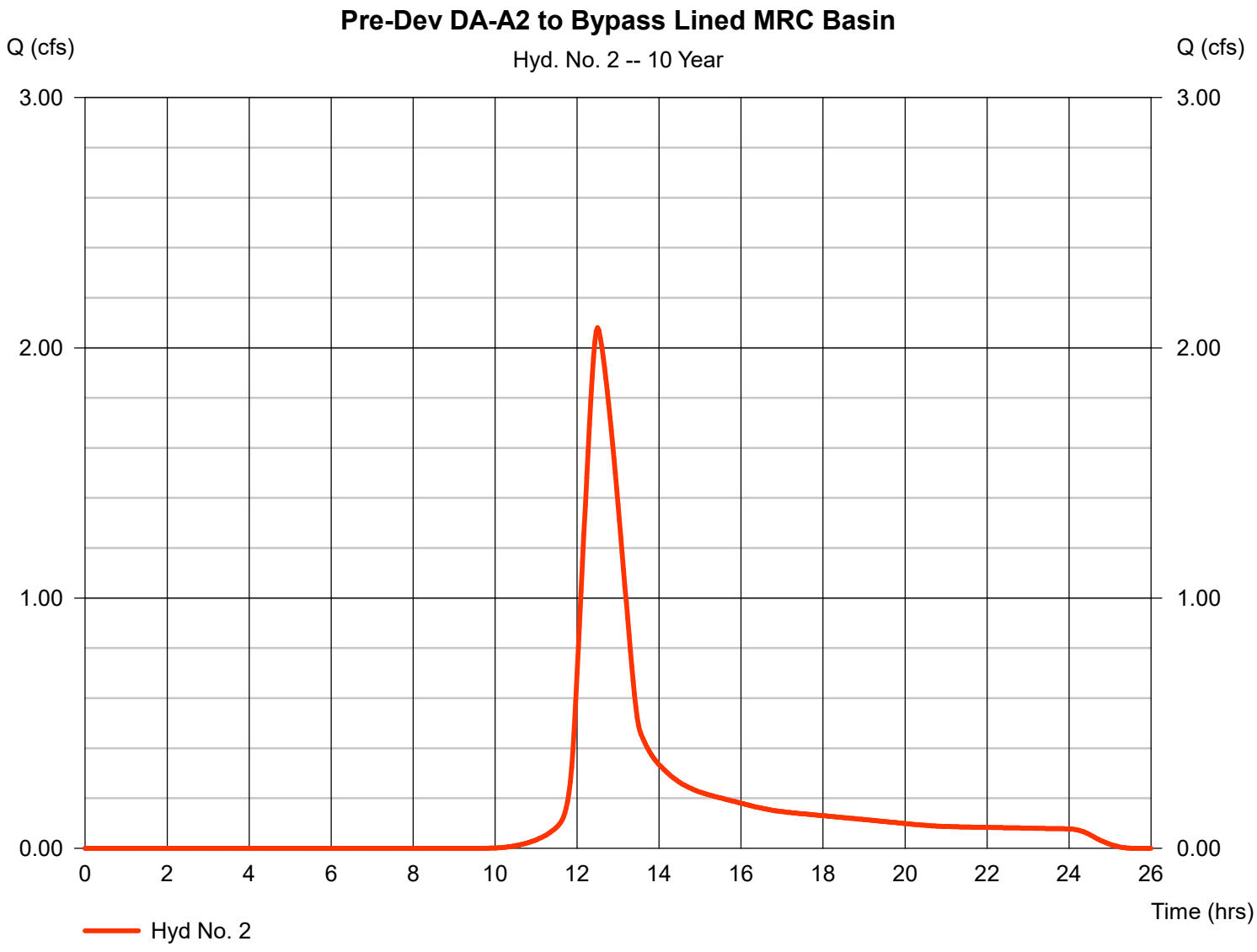
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 2

Pre-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.081 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	13,829 cuft
Drainage area	=	1.800 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	5.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



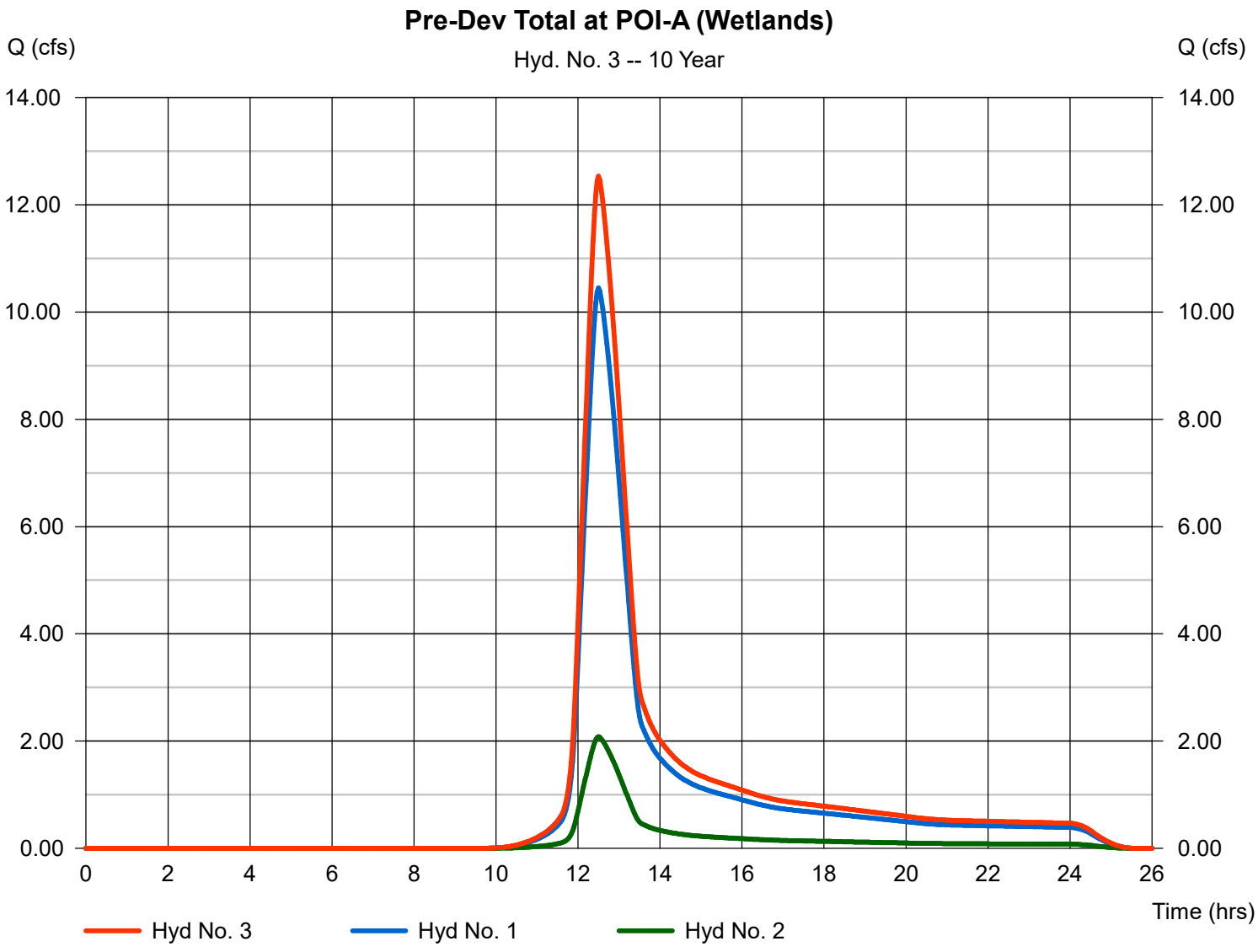
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 3

Pre-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 12.53 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 83,282 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 10.840 ac



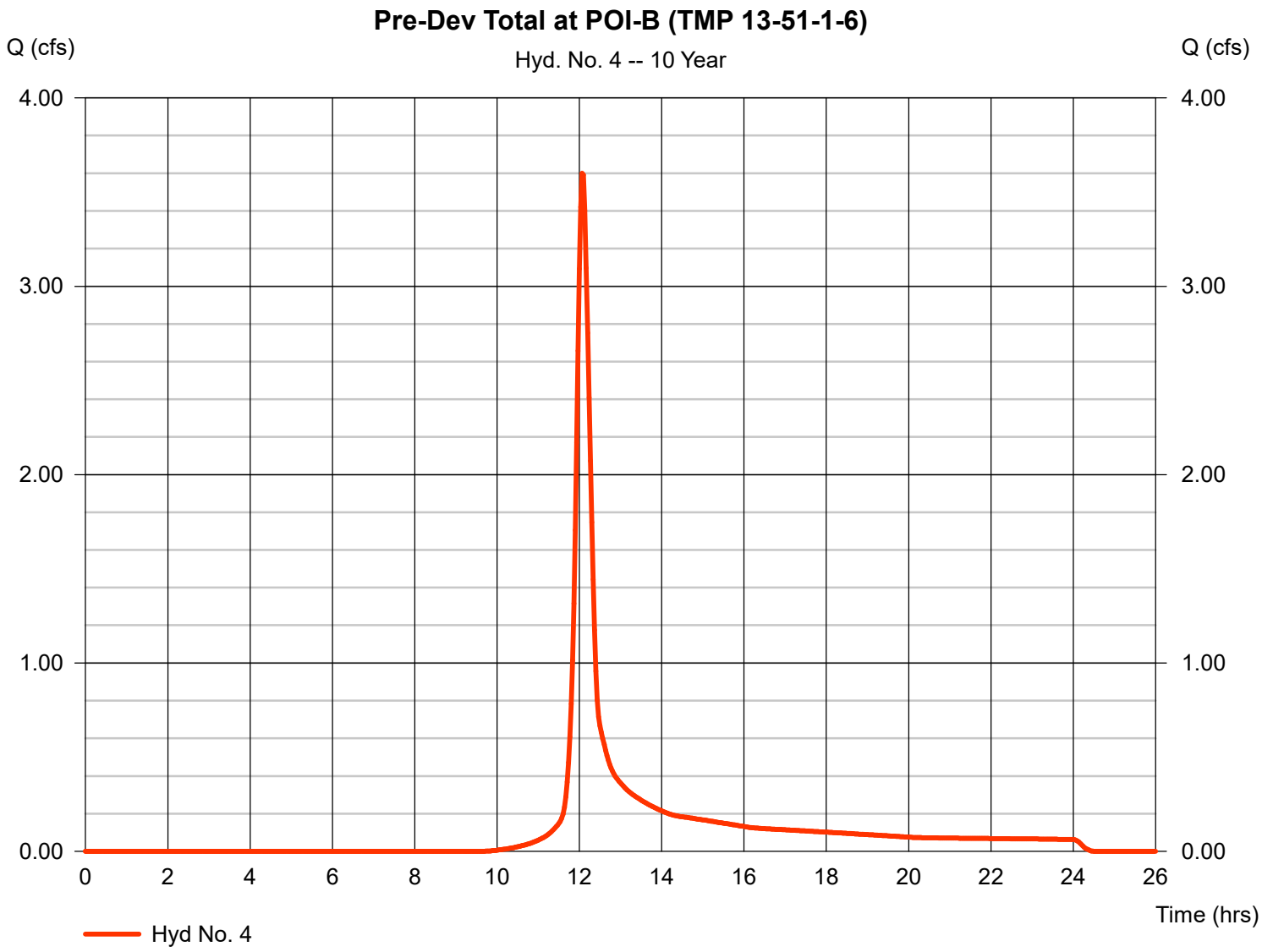
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 4

Pre-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.599 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	11,447 cuft
Drainage area	=	1.490 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.10 min
Total precip.	=	5.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



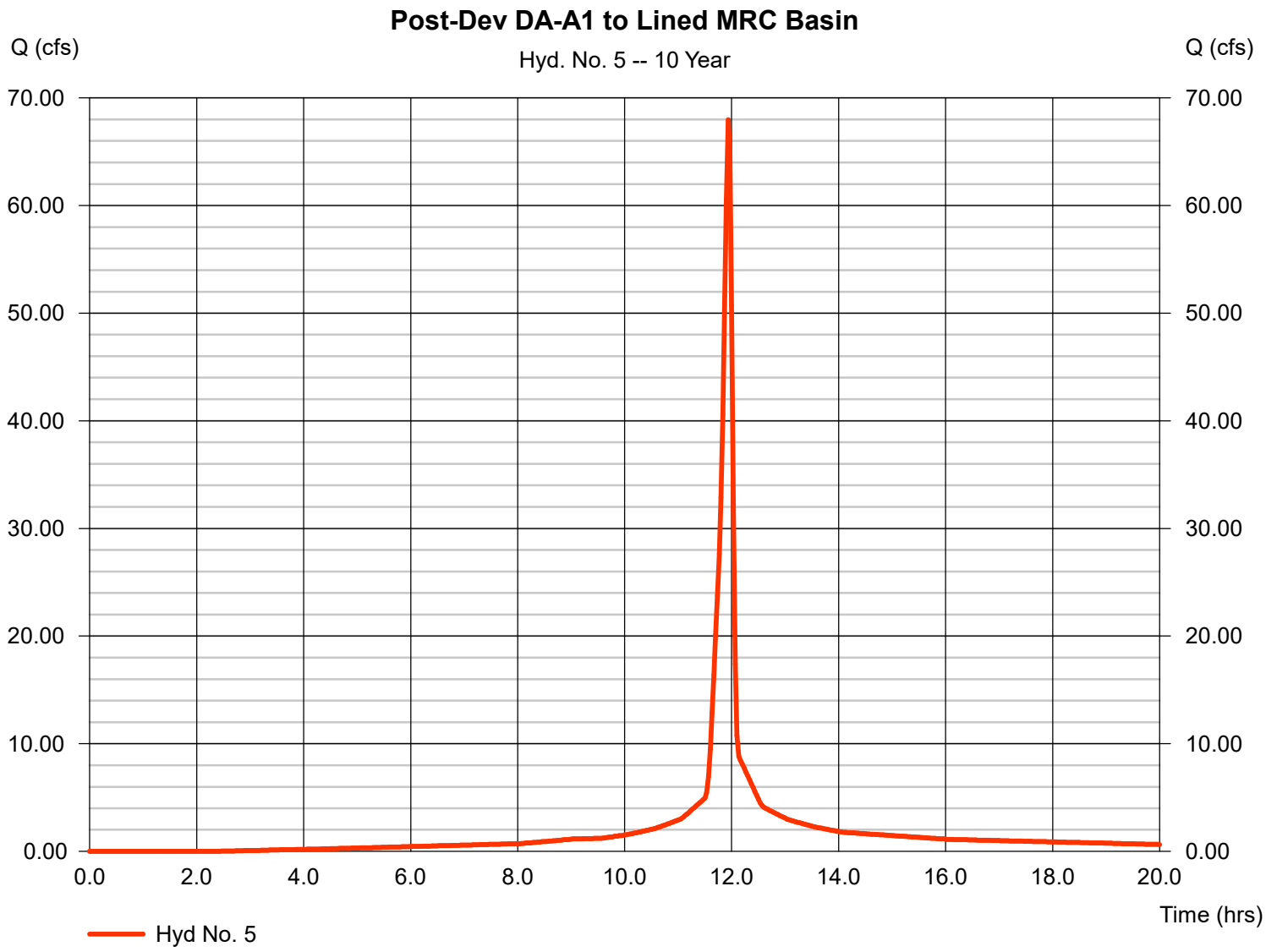
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	67.96 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	152,177 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



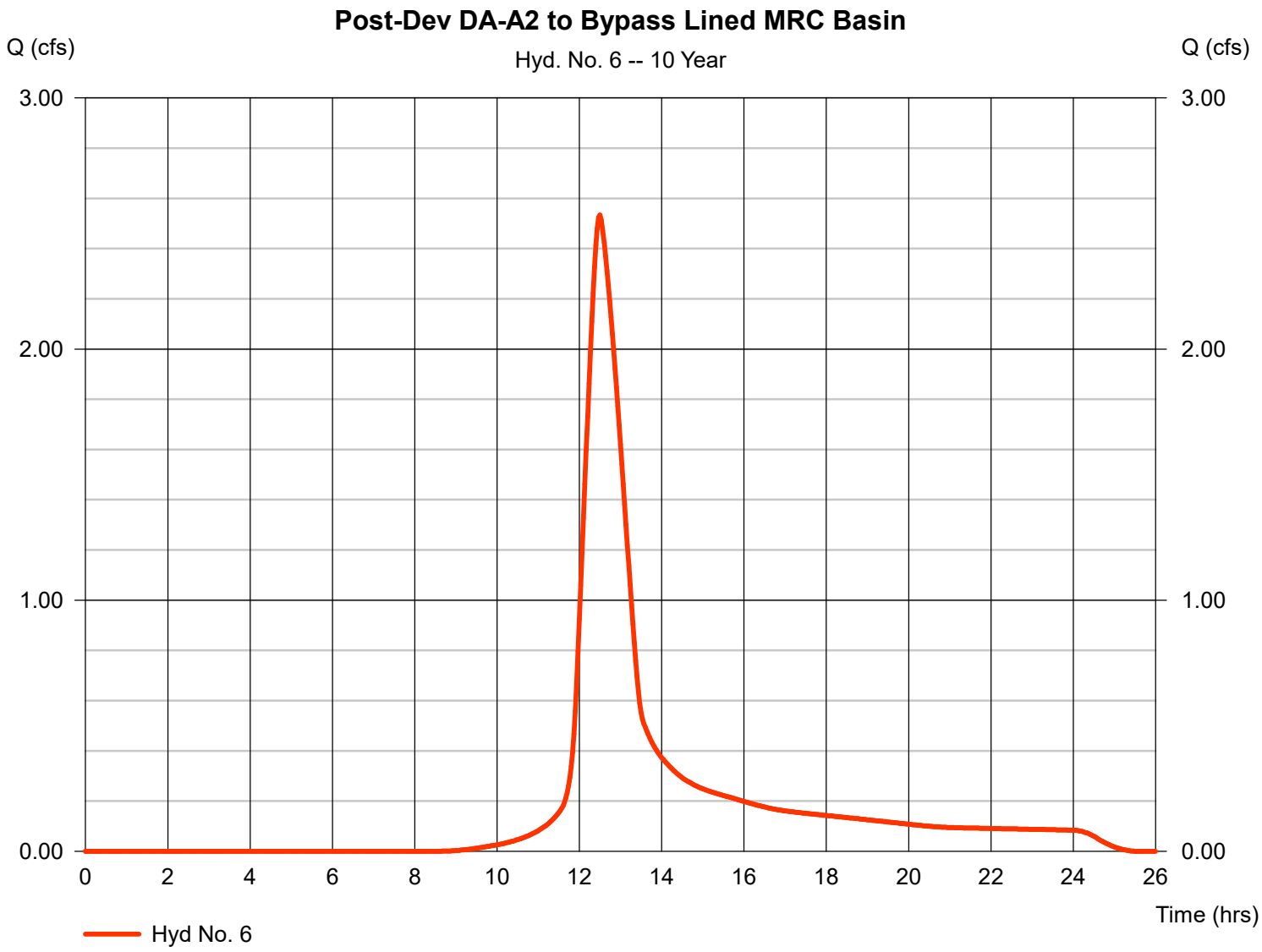
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 6

Post-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.534 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	16,475 cuft
Drainage area	=	1.790 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	5.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

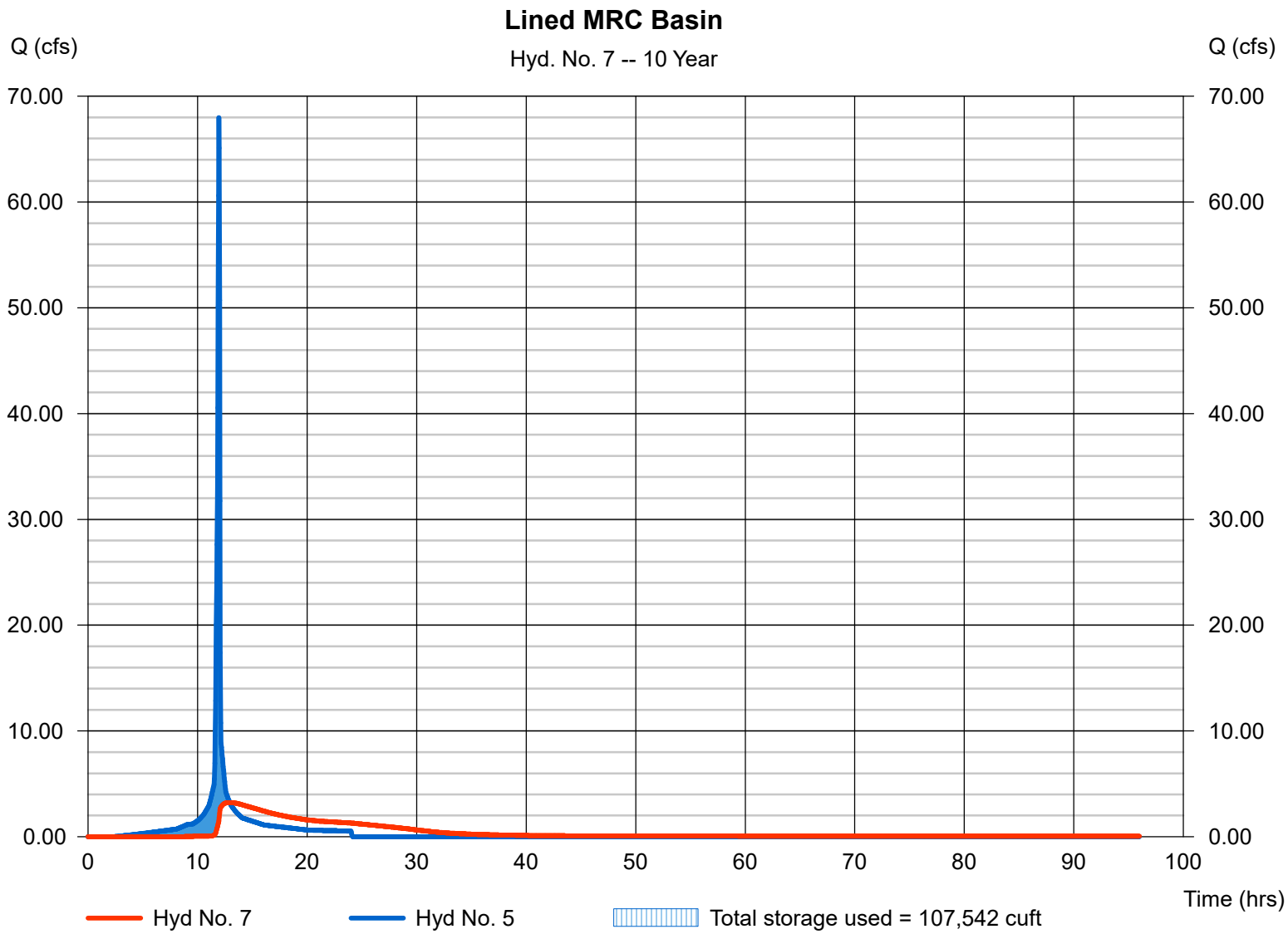
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	3.232 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.93 hrs
Time interval	=	2 min	Hyd. volume	=	137,313 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	15.21 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	107,542 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



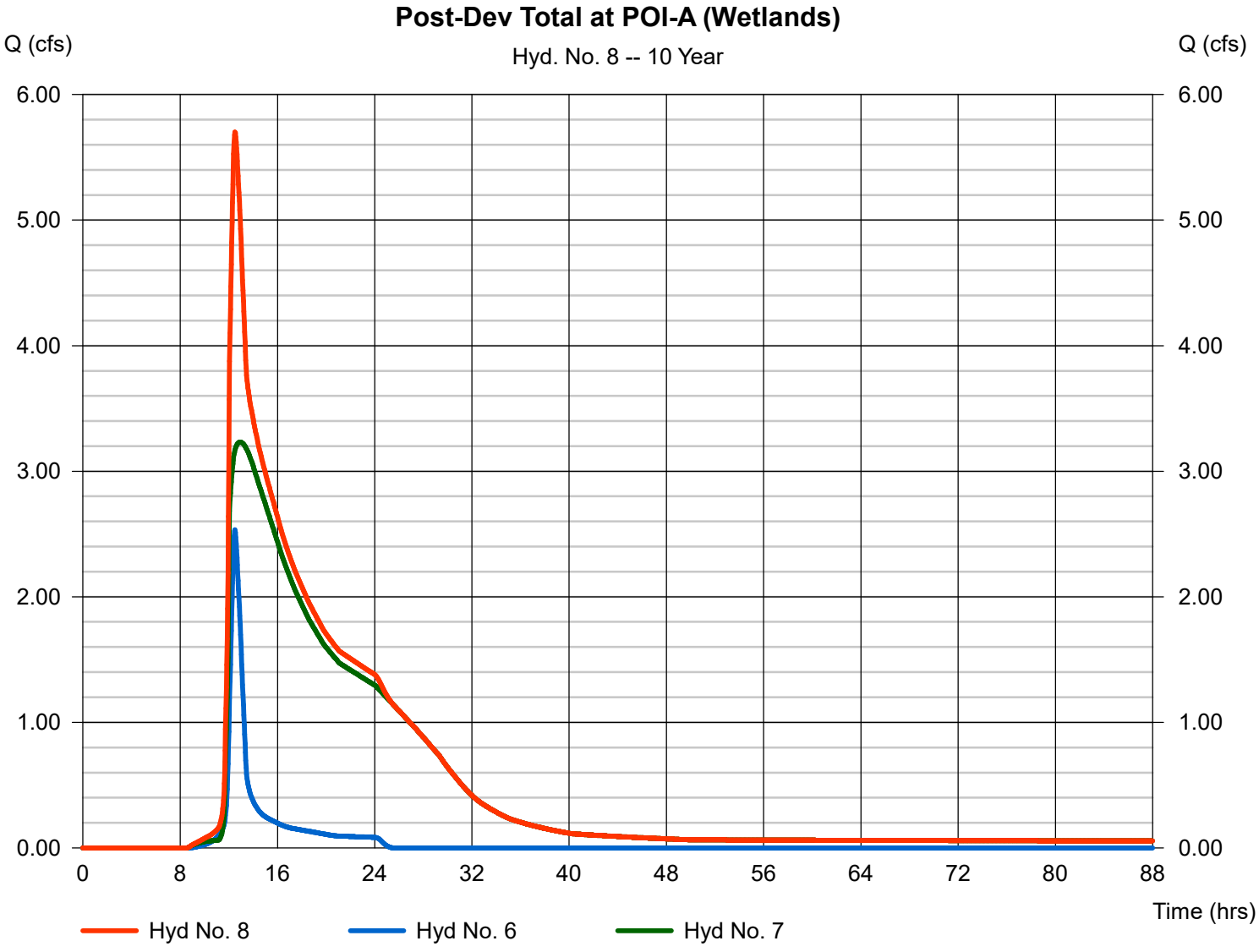
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 8

Post-Dev Total at POI-A (Wetlands)

Hydrograph type	=	Combine	Peak discharge	=	5.702 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	153,788 cuft
Inflow hyds.	=	6, 7	Contrib. drain. area	=	1.790 ac



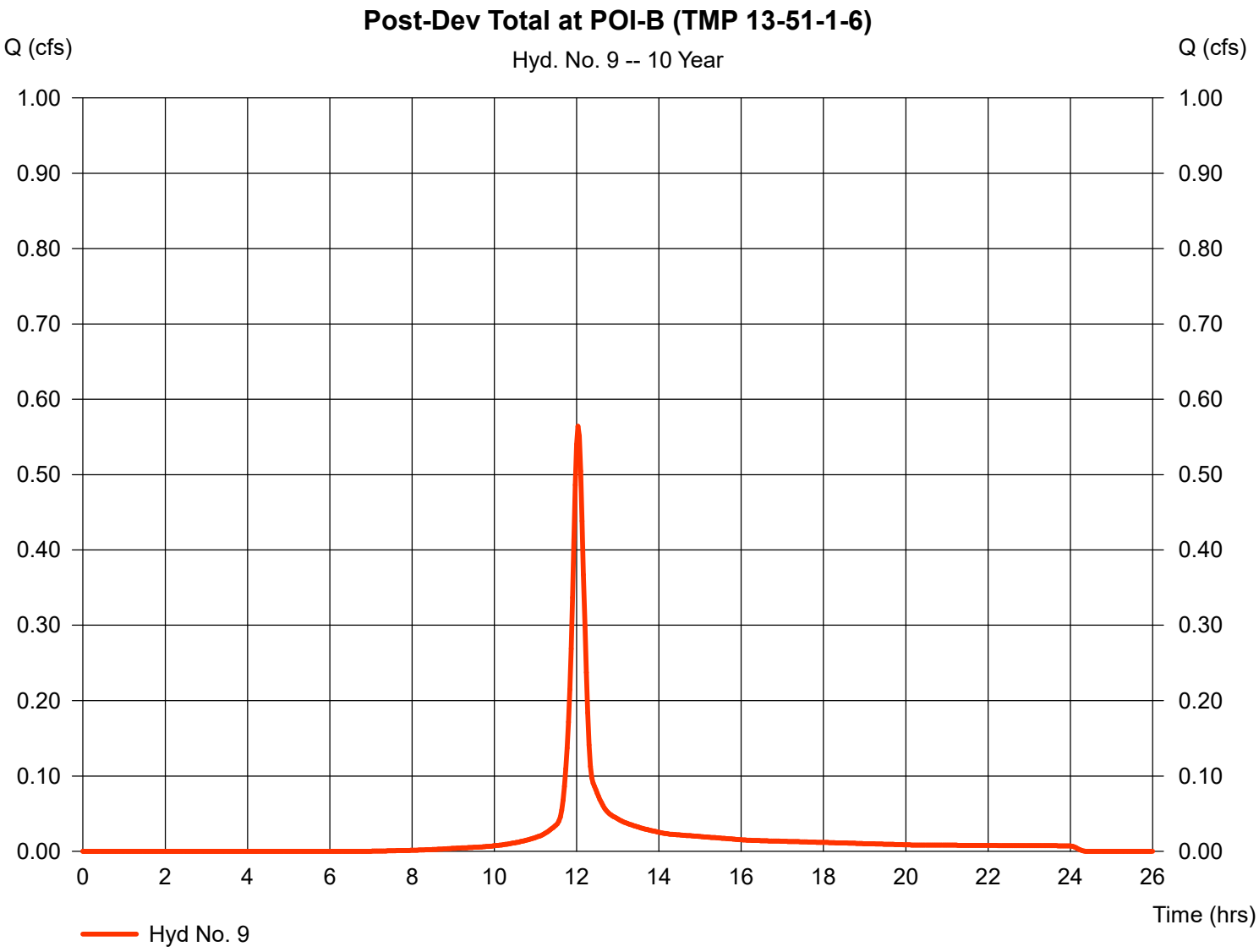
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 9

Post-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.564 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	1,585 cuft
Drainage area	=	0.150 ac	Curve number	=	81
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.80 min
Total precip.	=	5.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	13.72	2	750	89,863	----	------	------	Pre-Dev DA-A1 to Lined MRC Basin
2	SCS Runoff	2.732	2	750	17,893	----	------	------	Pre-Dev DA-A2 to Bypass Lined MR
3	Combine	16.46	2	750	107,756	1, 2	------	------	Pre-Dev Total at POI-A (Wetlands)
4	SCS Runoff	4.705	2	724	14,812	----	------	------	Pre-Dev Total at POI-B (TMP 13-51-1
5	SCS Runoff	79.60	2	716	180,105	----	------	------	Post-Dev DA-A1 to Lined MRC Basin
6	SCS Runoff	3.225	2	750	20,846	----	------	------	Post-Dev DA-A2 to Bypass Lined MR
7	Reservoir	4.353	2	764	165,051	5	15.56	123,873	Lined MRC Basin
8	Combine	7.550	2	750	185,897	6, 7	------	------	Post-Dev Total at POI-A (Wetlands)
9	SCS Runoff	0.696	2	722	1,965	----	------	------	Post-Dev Total at POI-B (TMP 13-51-

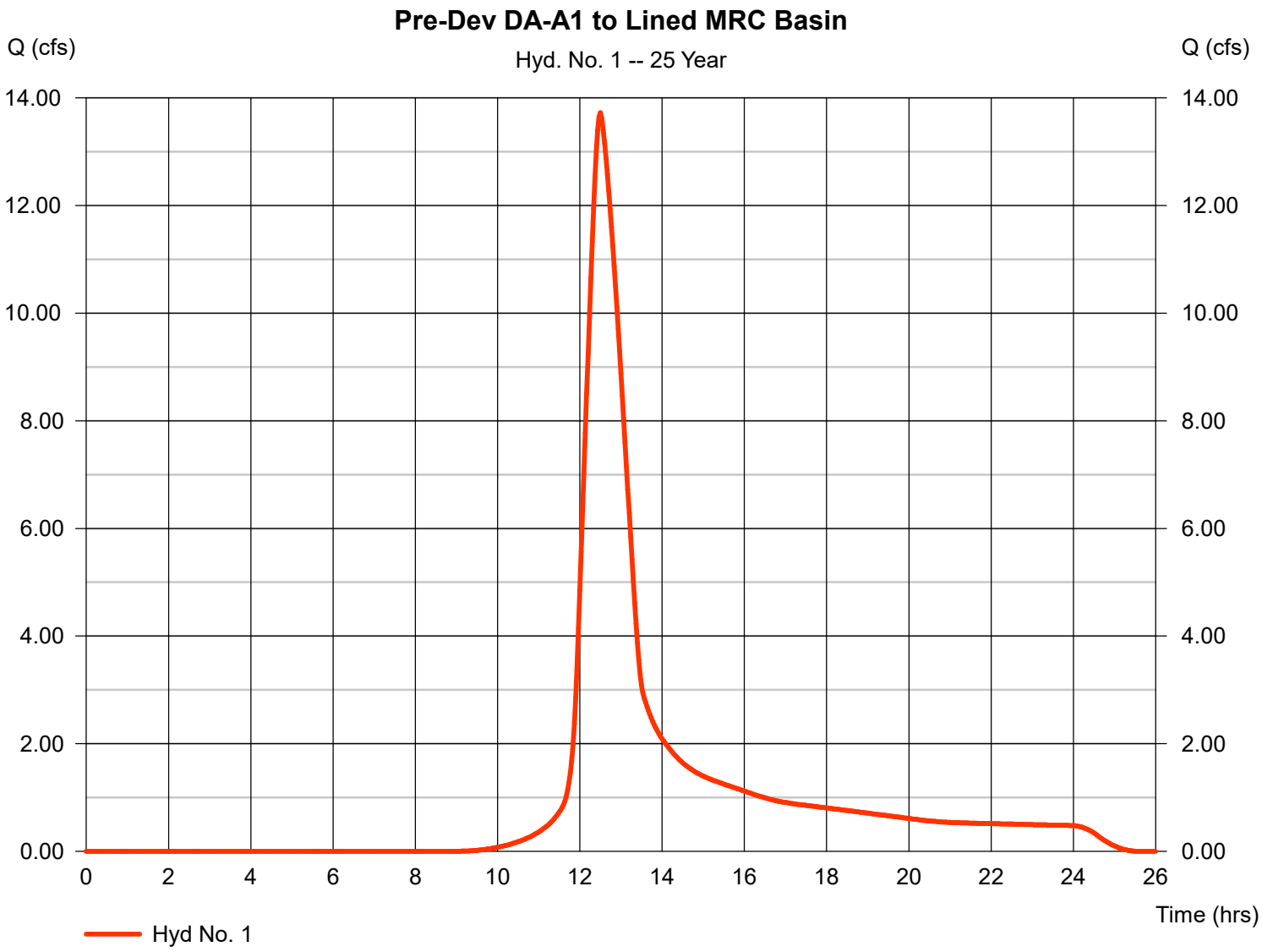
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 1

Pre-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.72 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	89,863 cuft
Drainage area	=	9.040 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	5.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



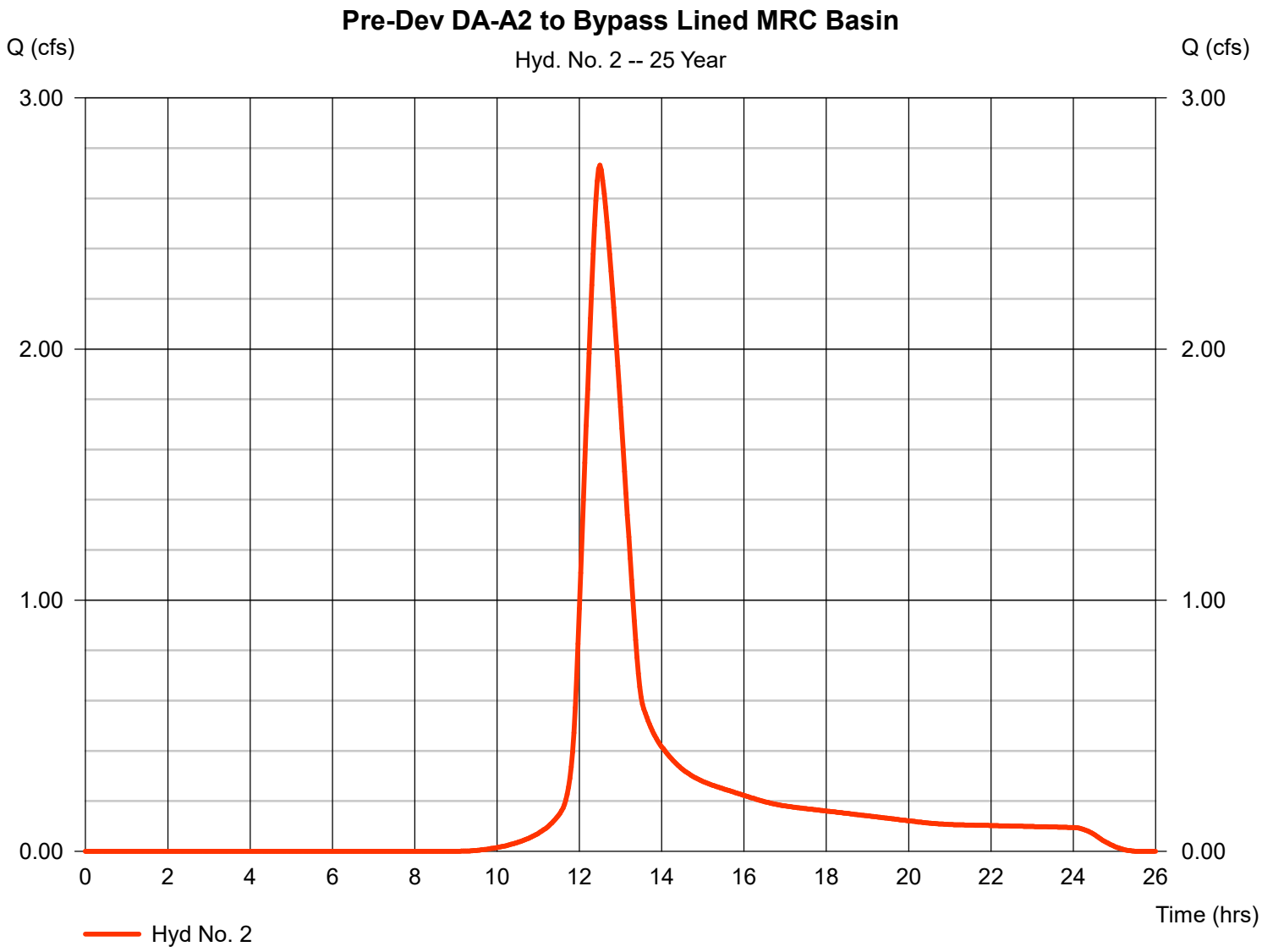
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 2

Pre-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.732 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	17,893 cuft
Drainage area	=	1.800 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	5.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



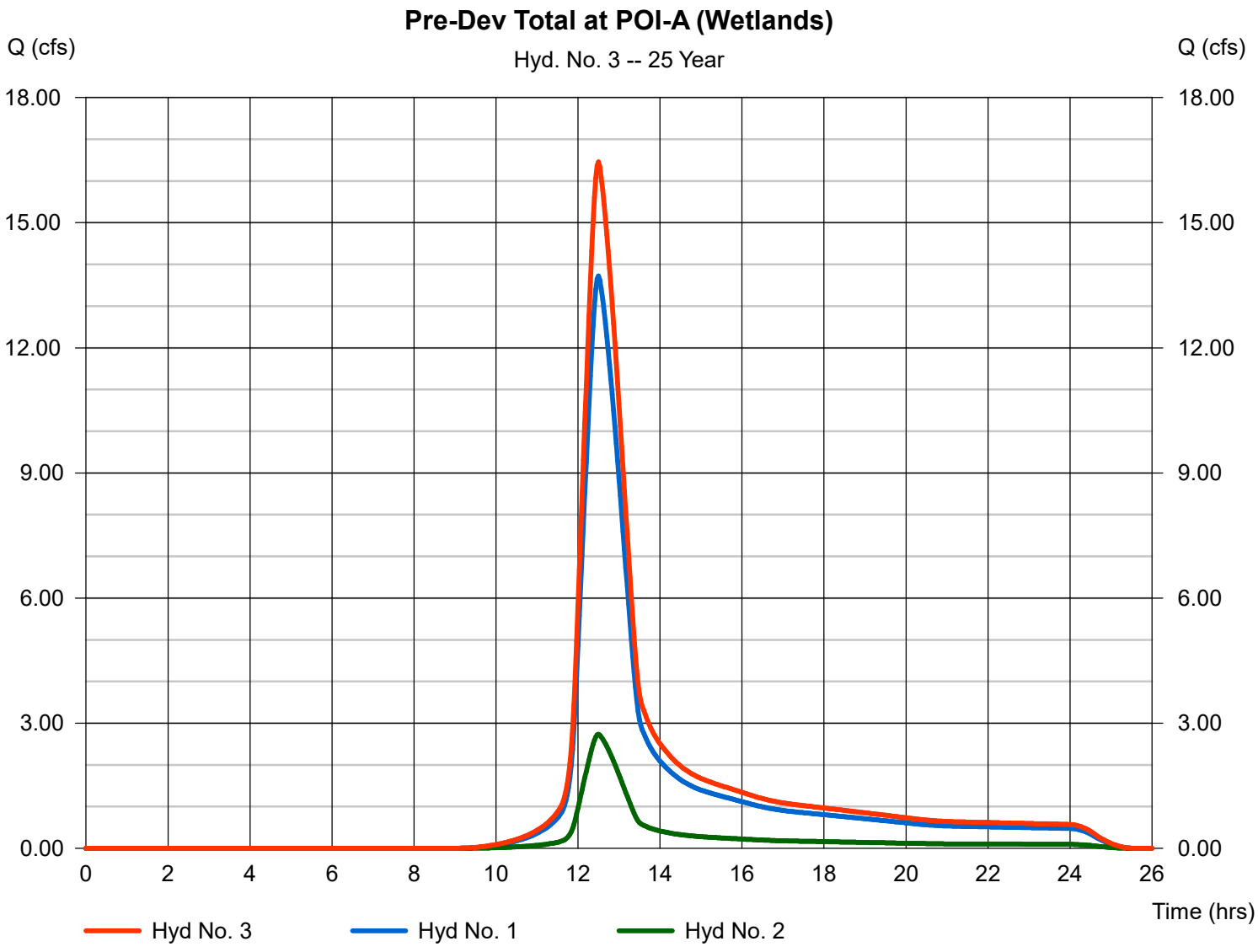
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 3

Pre-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 16.46 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 107,756 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 10.840 ac



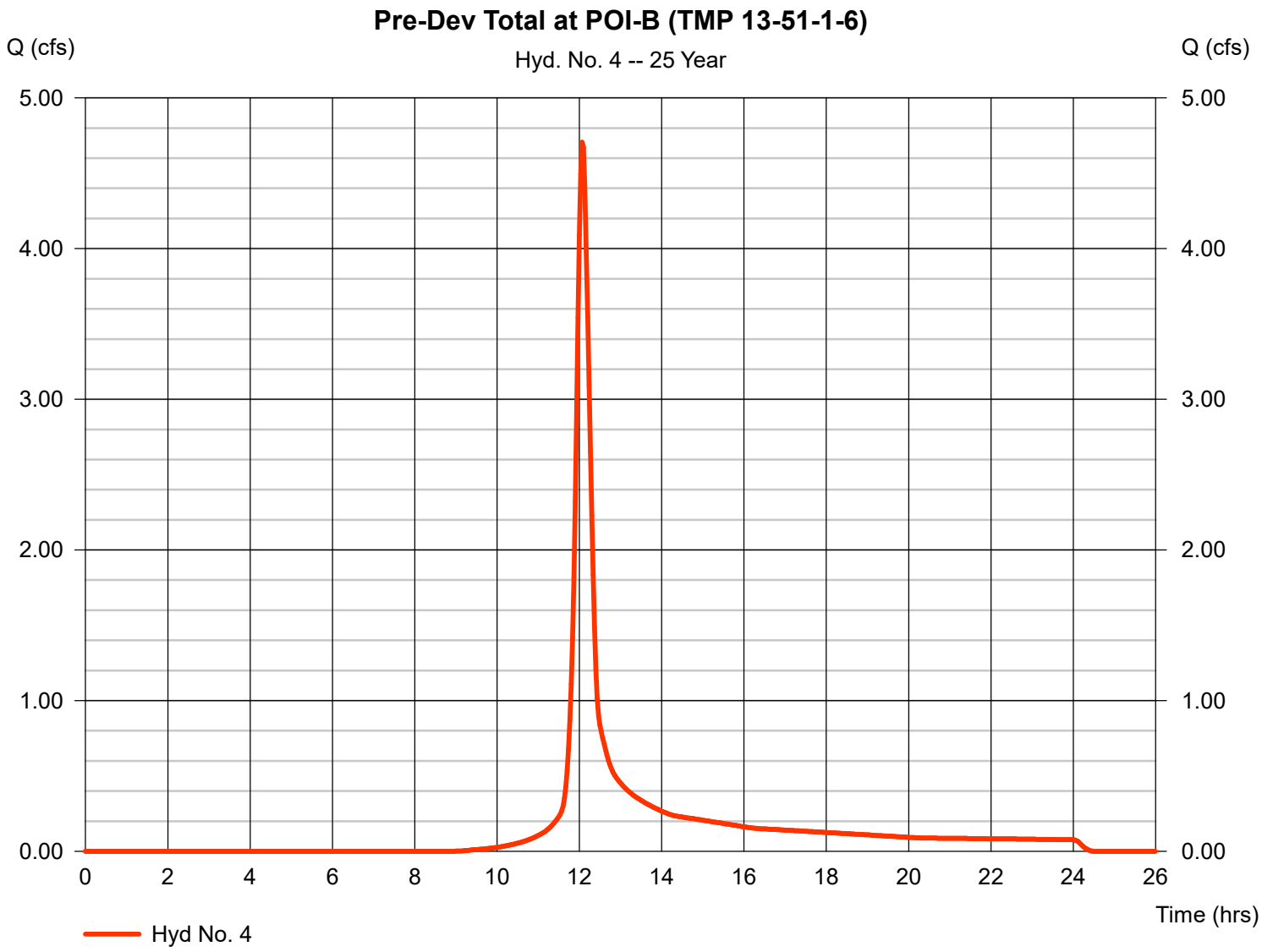
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 4

Pre-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.705 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	14,812 cuft
Drainage area	=	1.490 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.10 min
Total precip.	=	5.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

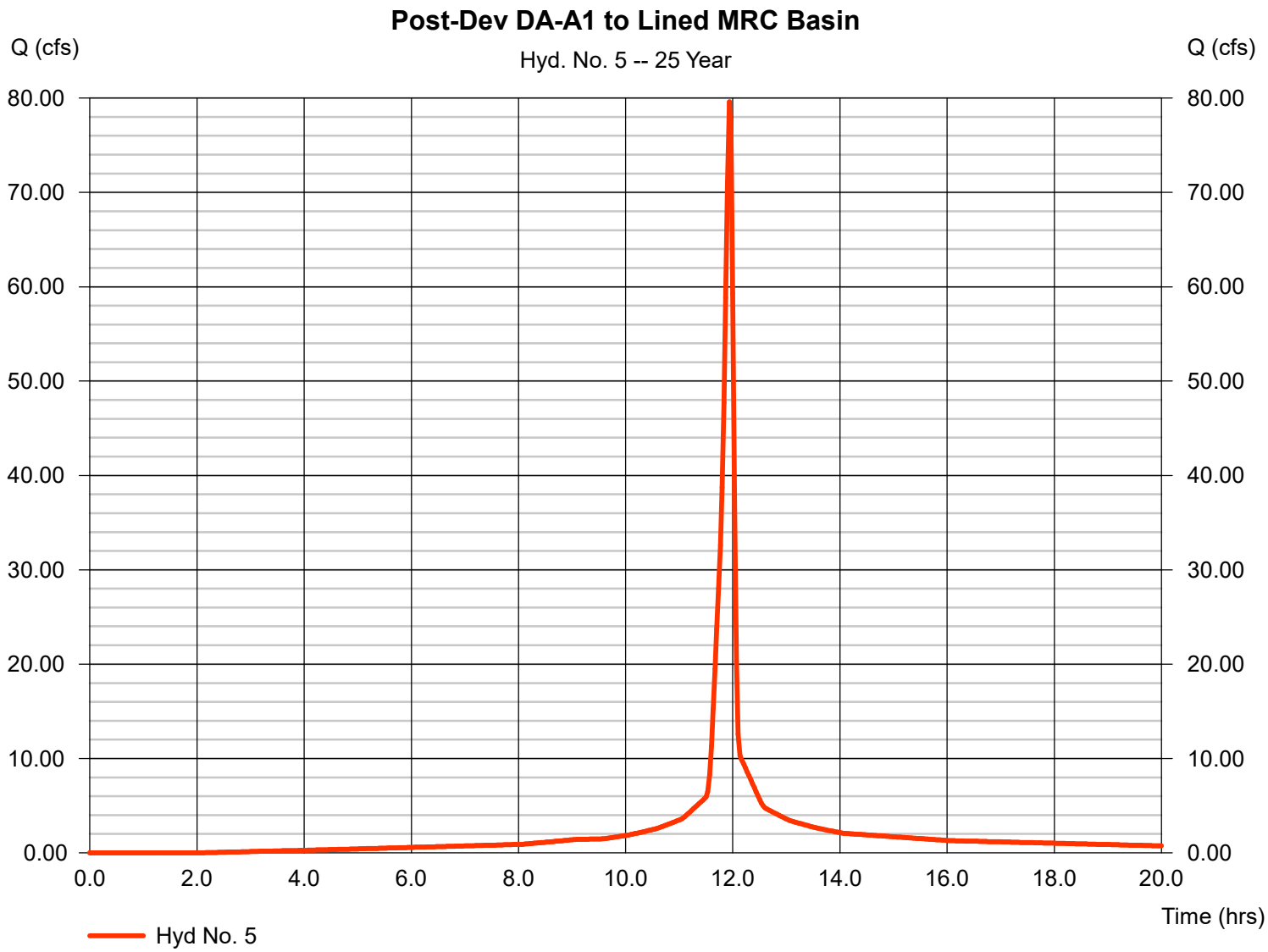


Hydrograph Report

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	79.60 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	180,105 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



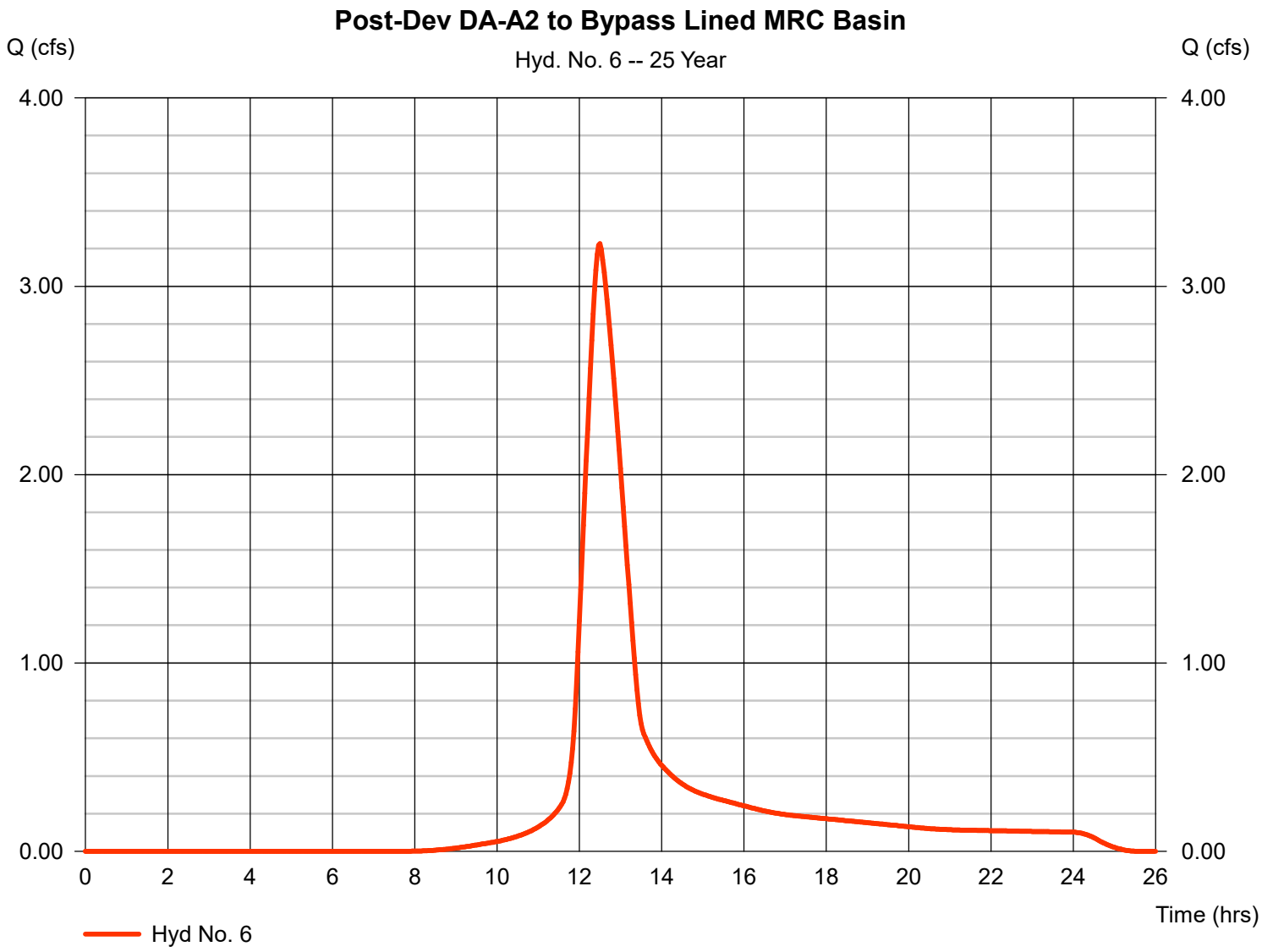
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 6

Post-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.225 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	20,846 cuft
Drainage area	=	1.790 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	5.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

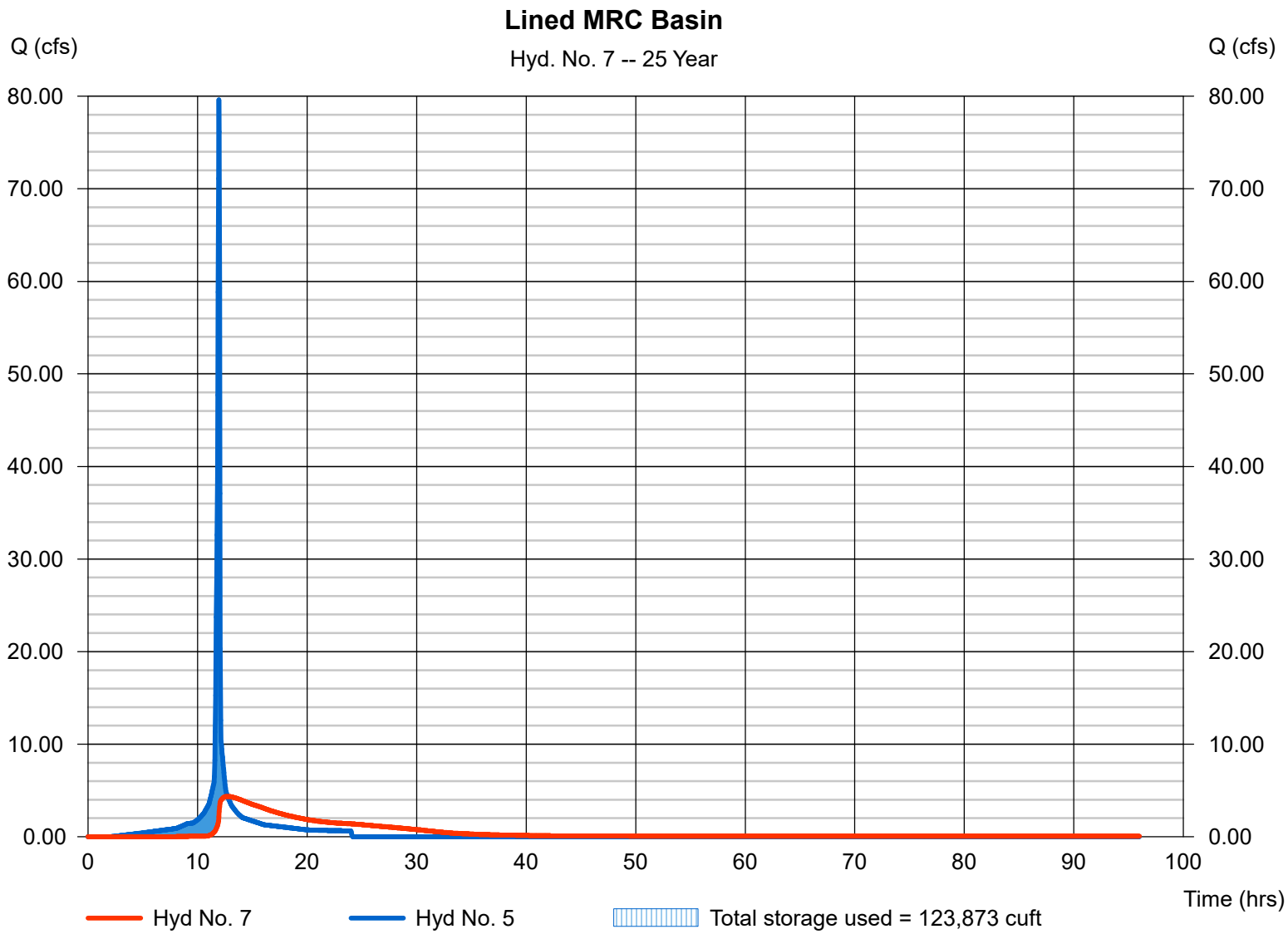
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	4.353 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.73 hrs
Time interval	=	2 min	Hyd. volume	=	165,051 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	15.56 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	123,873 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



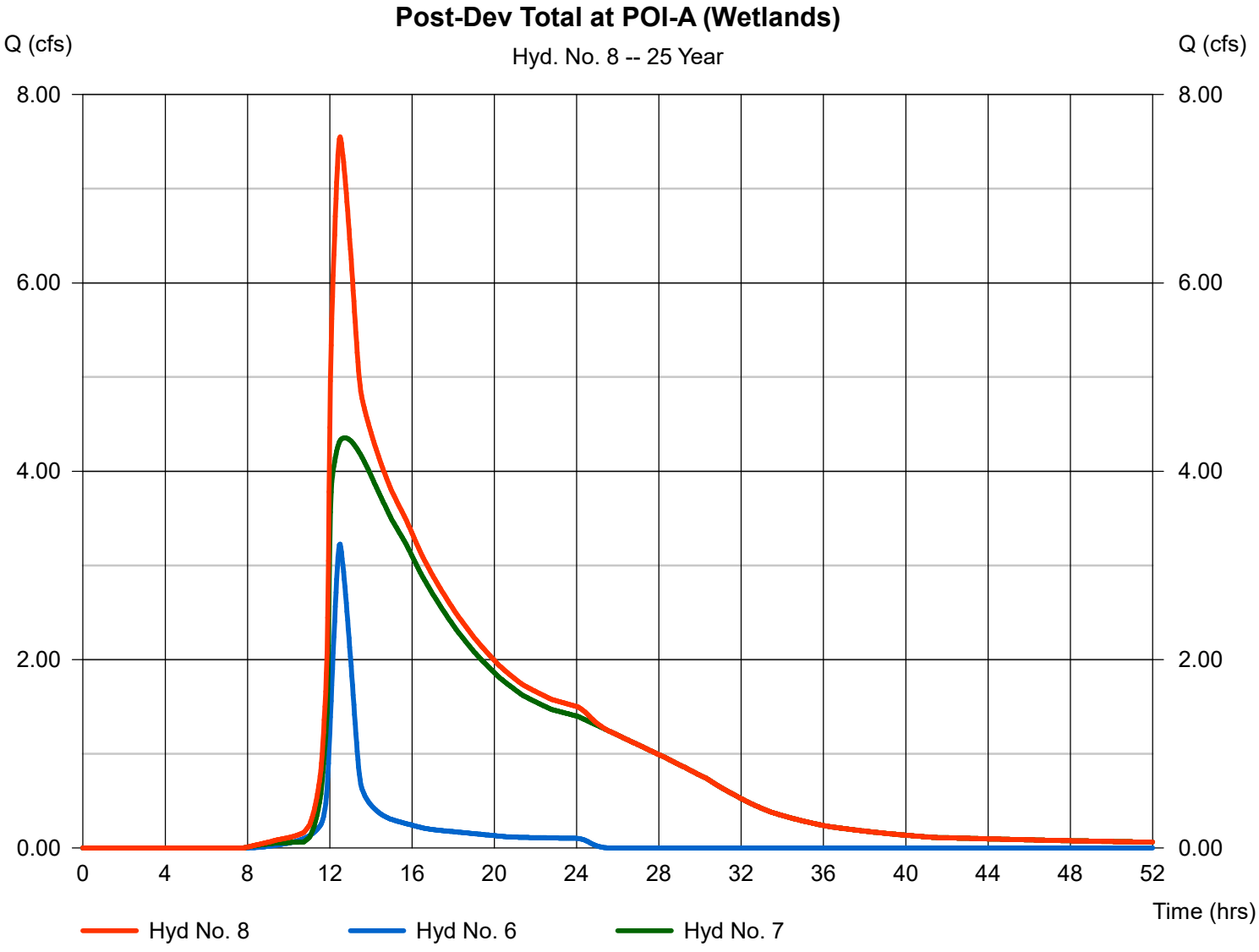
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 8

Post-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 7.550 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 185,897 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.790 ac



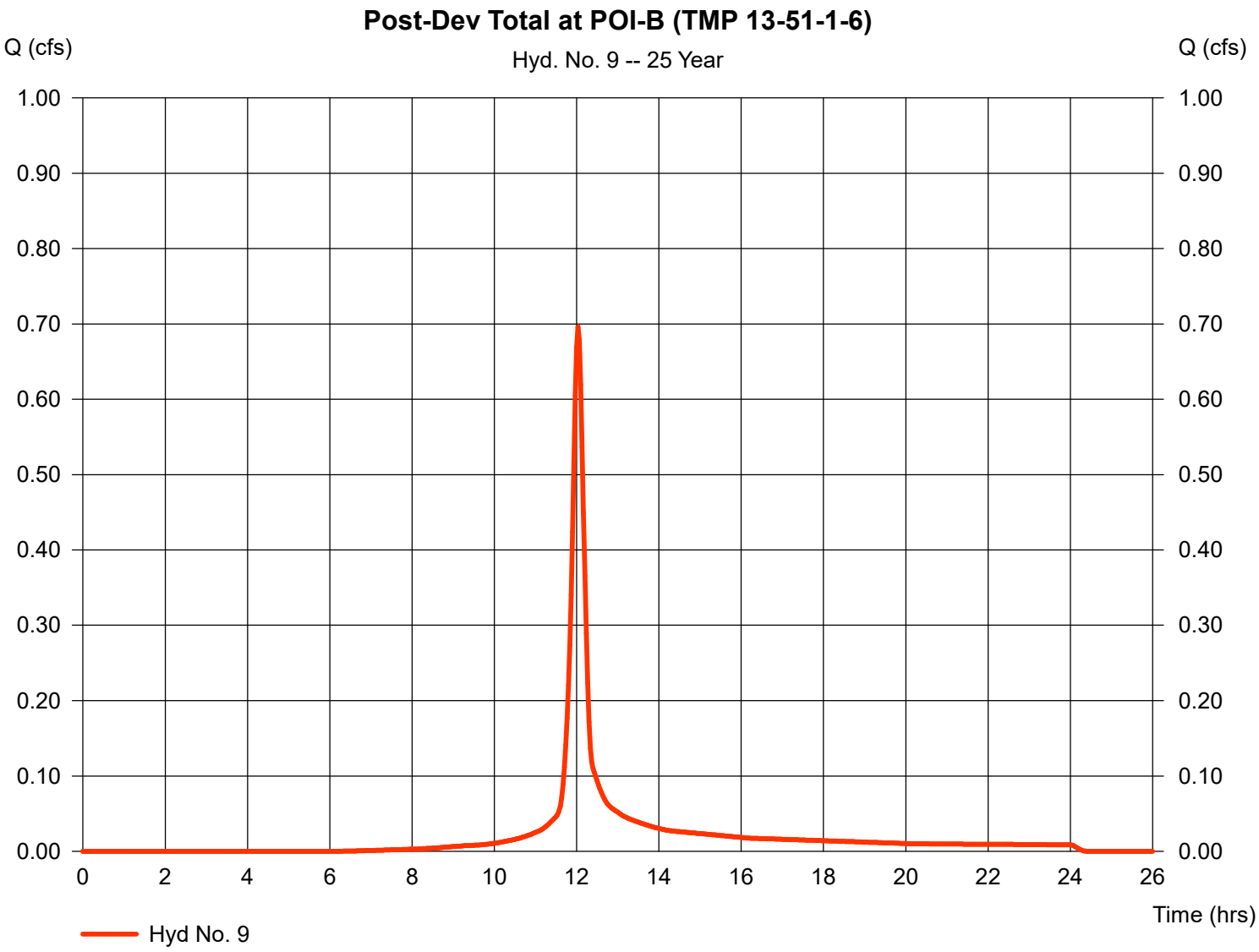
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 9

Post-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.696 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	1,965 cuft
Drainage area	=	0.150 ac	Curve number	=	81
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.80 min
Total precip.	=	5.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	16.26	2	750	105,805	----	------	------	Pre-Dev DA-A1 to Lined MRC Basin
2	SCS Runoff	3.238	2	750	21,067	----	------	------	Pre-Dev DA-A2 to Bypass Lined MR
3	Combine	19.50	2	750	126,873	1, 2	------	------	Pre-Dev Total at POI-A (Wetlands)
4	SCS Runoff	5.562	2	724	17,439	----	------	------	Pre-Dev Total at POI-B (TMP 13-51-1
5	SCS Runoff	88.29	2	716	201,102	----	------	------	Post-Dev DA-A1 to Lined MRC Basin
6	SCS Runoff	3.755	2	750	24,222	----	------	------	Post-Dev DA-A2 to Bypass Lined MR
7	Reservoir	5.298	2	756	185,937	5	15.82	135,912	Lined MRC Basin
8	Combine	9.042	2	750	210,159	6, 7	------	------	Post-Dev Total at POI-A (Wetlands)
9	SCS Runoff	0.796	2	722	2,256	----	------	------	Post-Dev Total at POI-B (TMP 13-51-

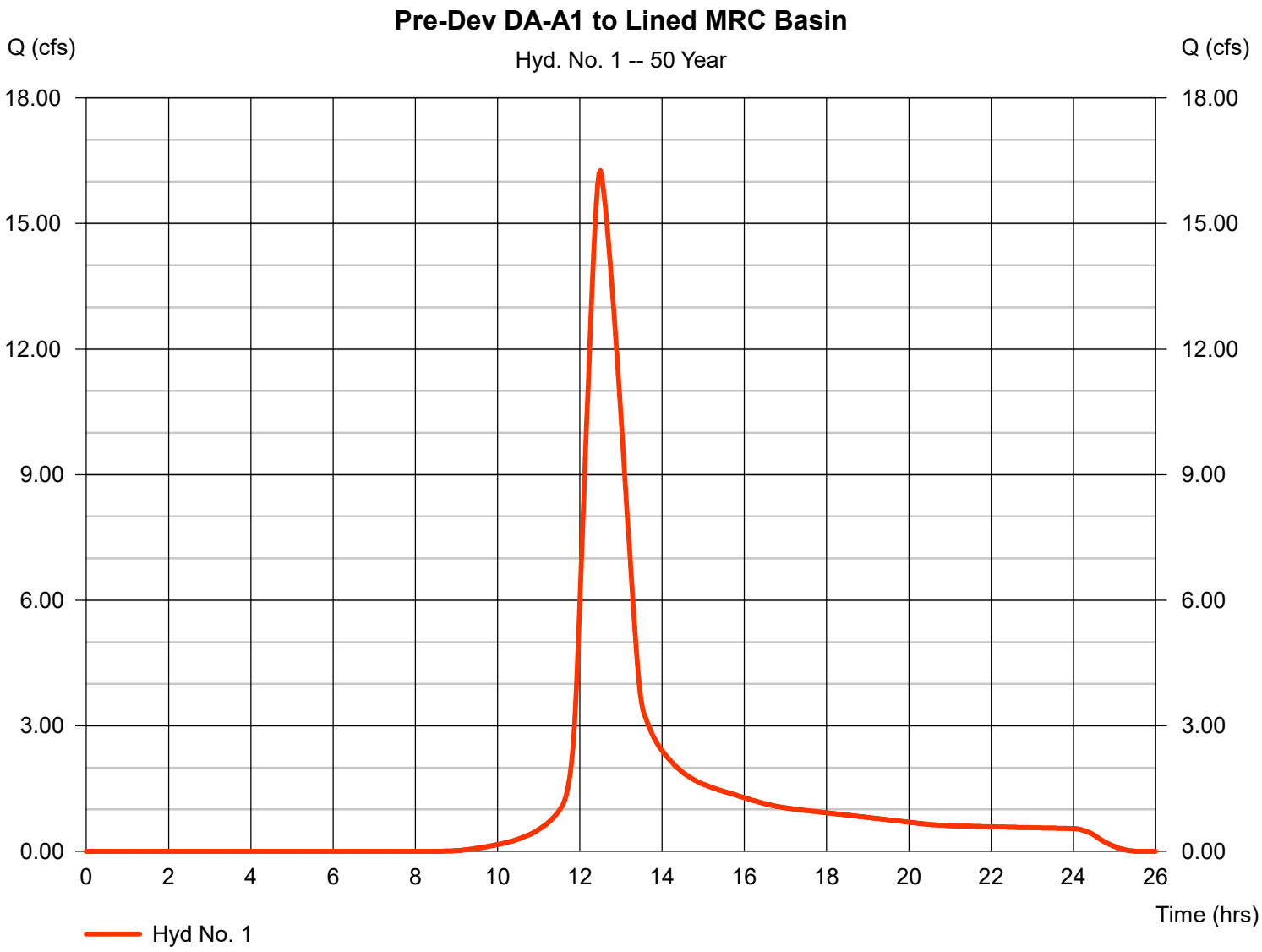
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 1

Pre-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.26 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	105,805 cuft
Drainage area	=	9.040 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	6.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



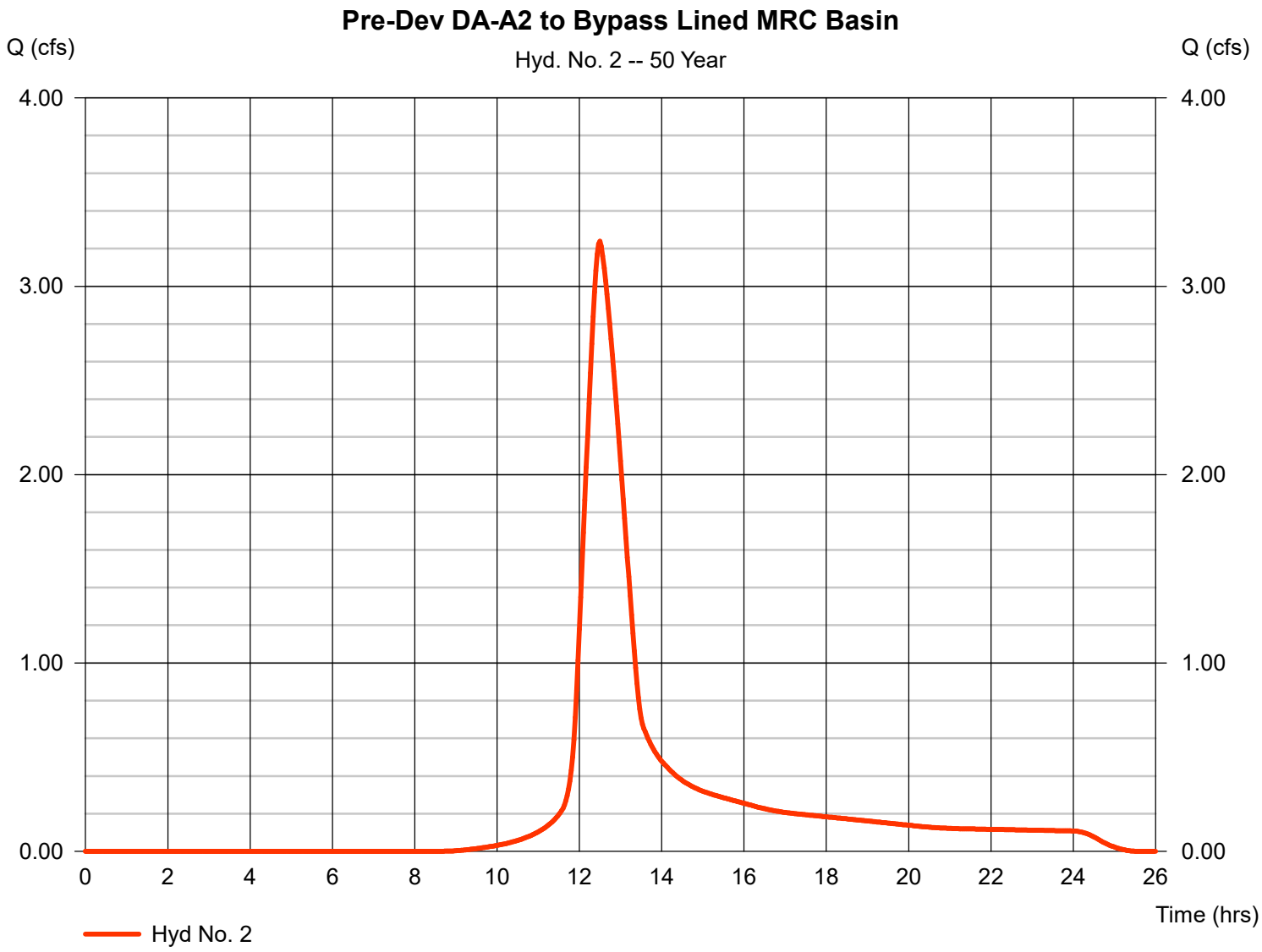
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 2

Pre-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.238 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	21,067 cuft
Drainage area	=	1.800 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	6.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



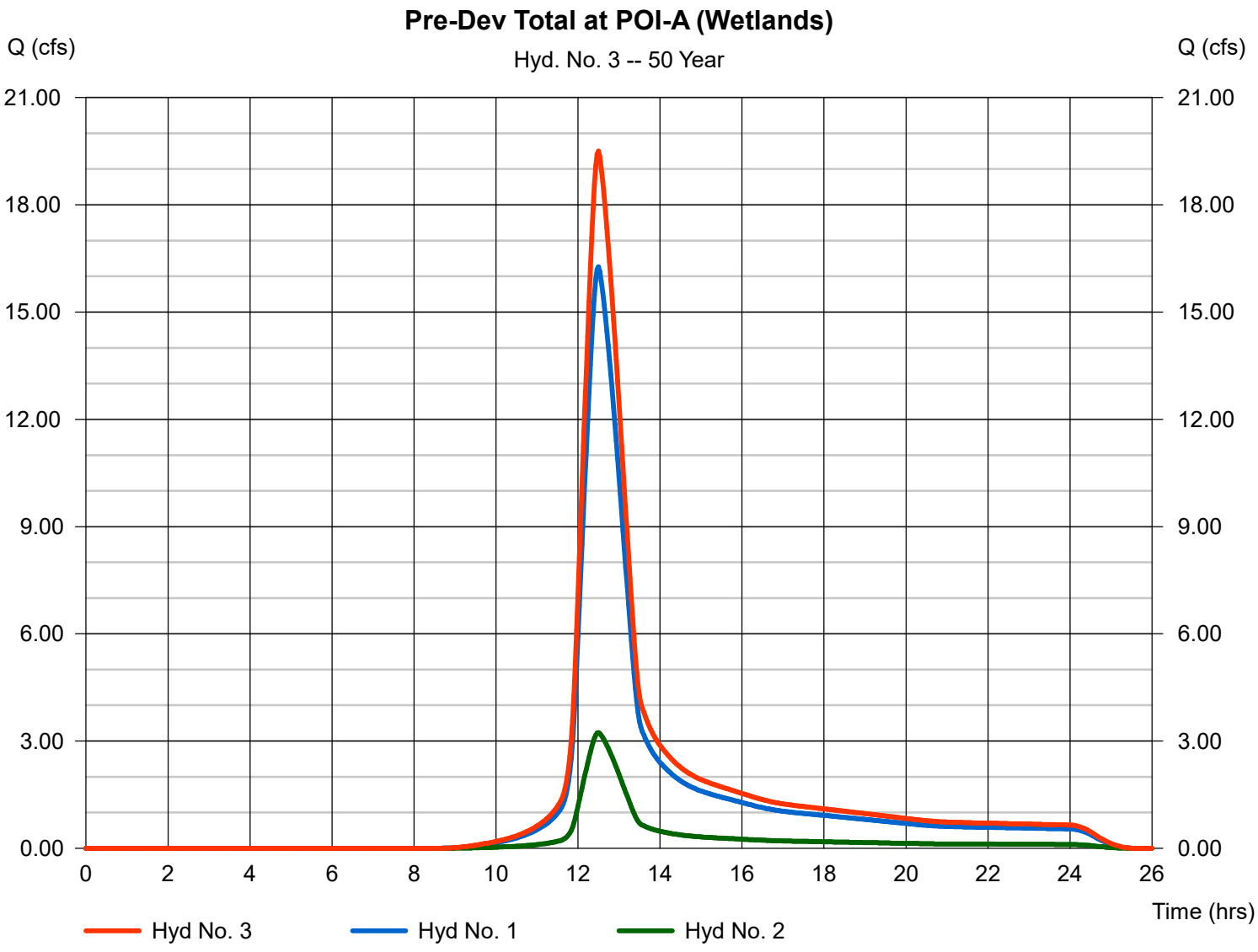
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 3

Pre-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 19.50 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 126,873 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 10.840 ac



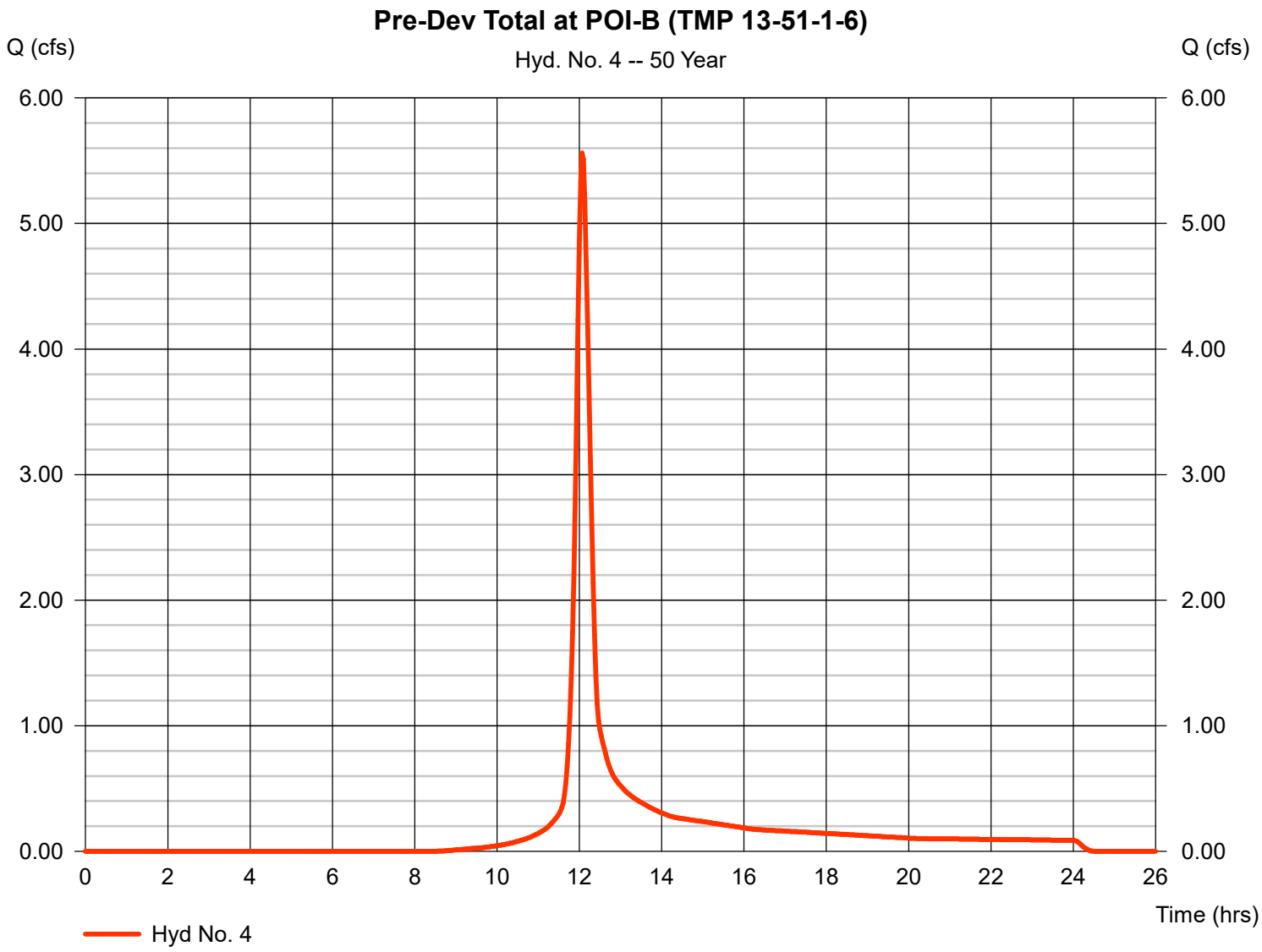
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 4

Pre-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.562 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	17,439 cuft
Drainage area	=	1.490 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.10 min
Total precip.	=	6.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



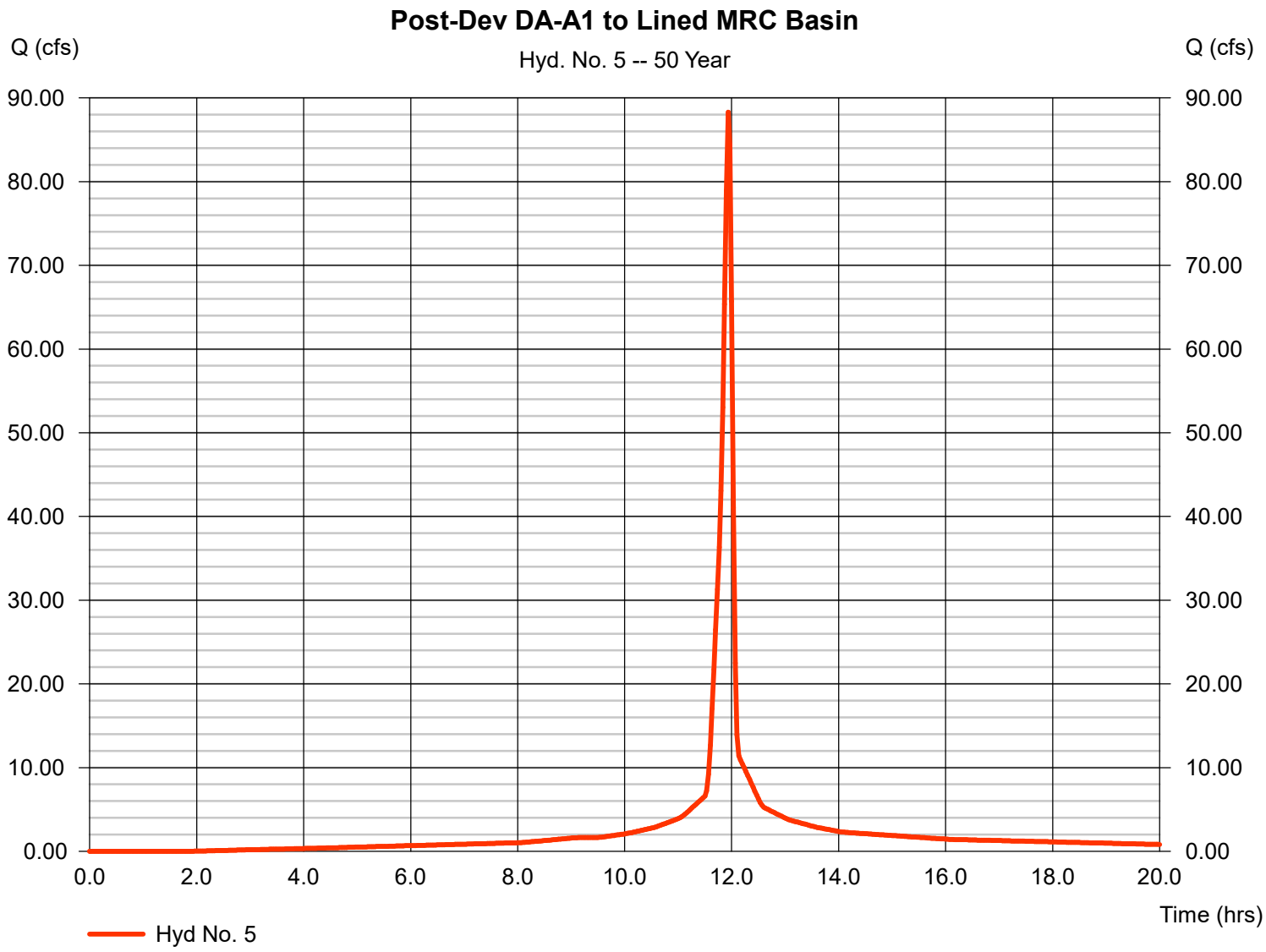
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	88.29 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	201,102 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



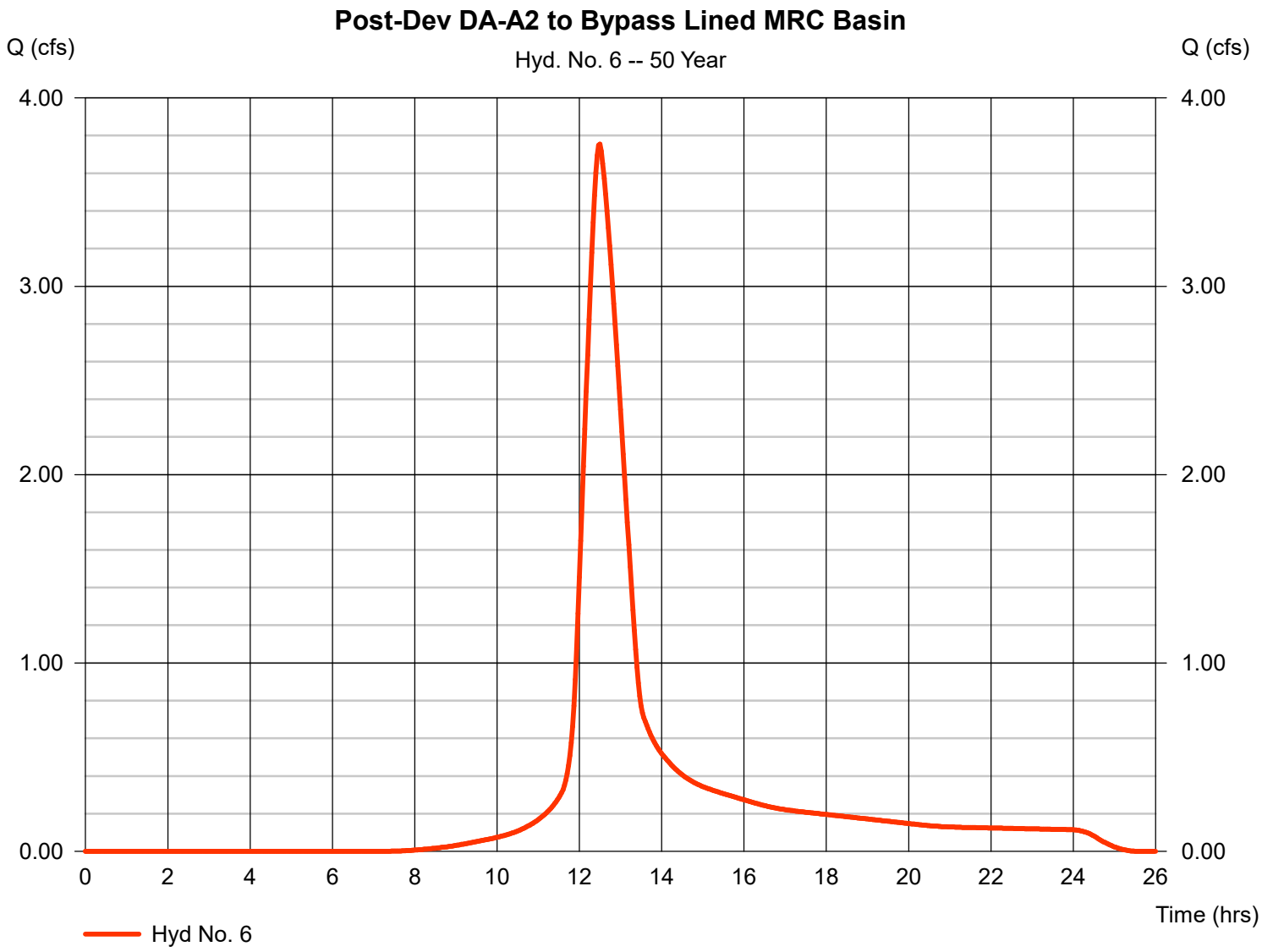
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 6

Post-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.755 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	24,222 cuft
Drainage area	=	1.790 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	6.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

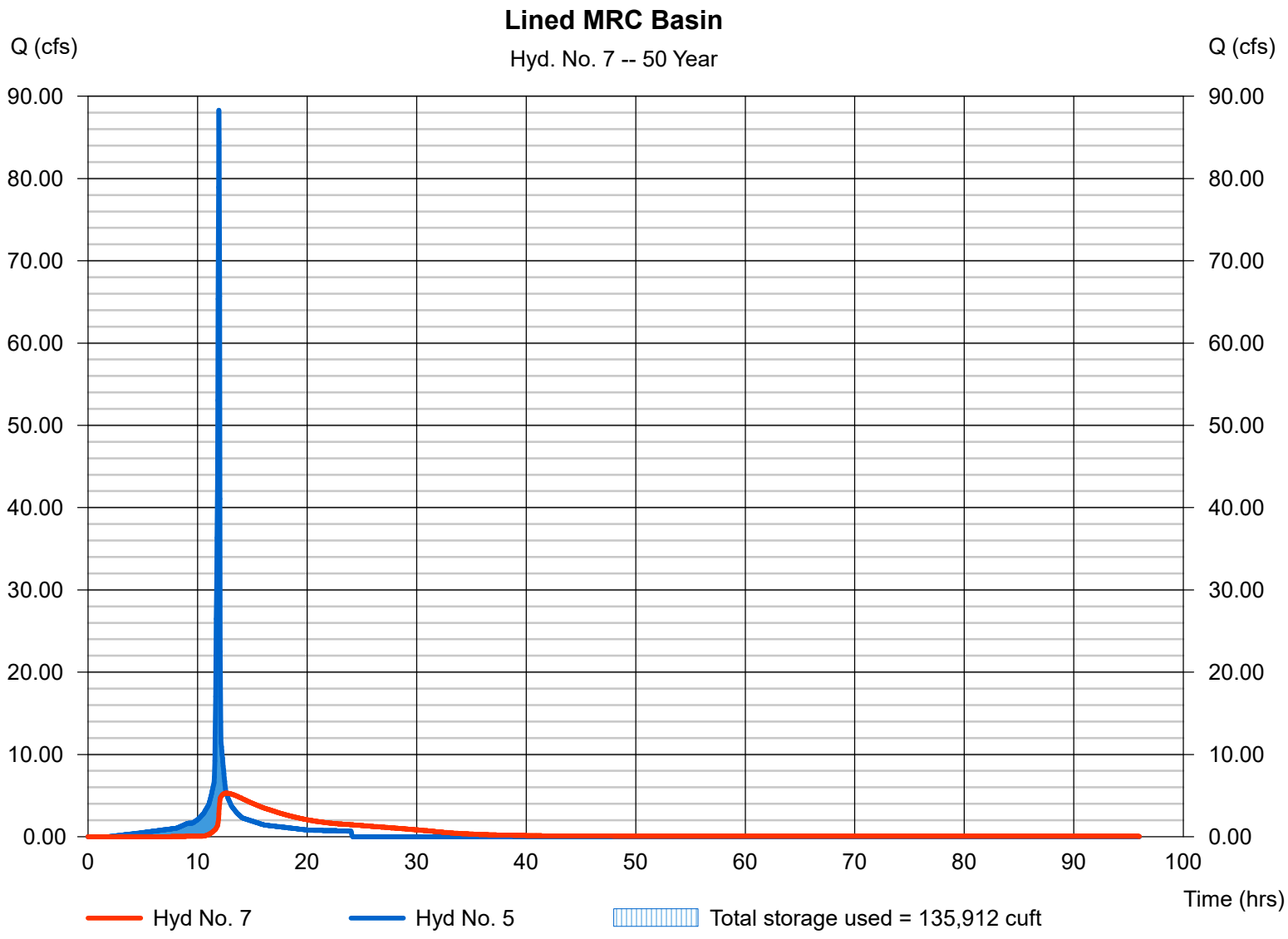
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	5.298 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.60 hrs
Time interval	=	2 min	Hyd. volume	=	185,937 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	15.82 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	135,912 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



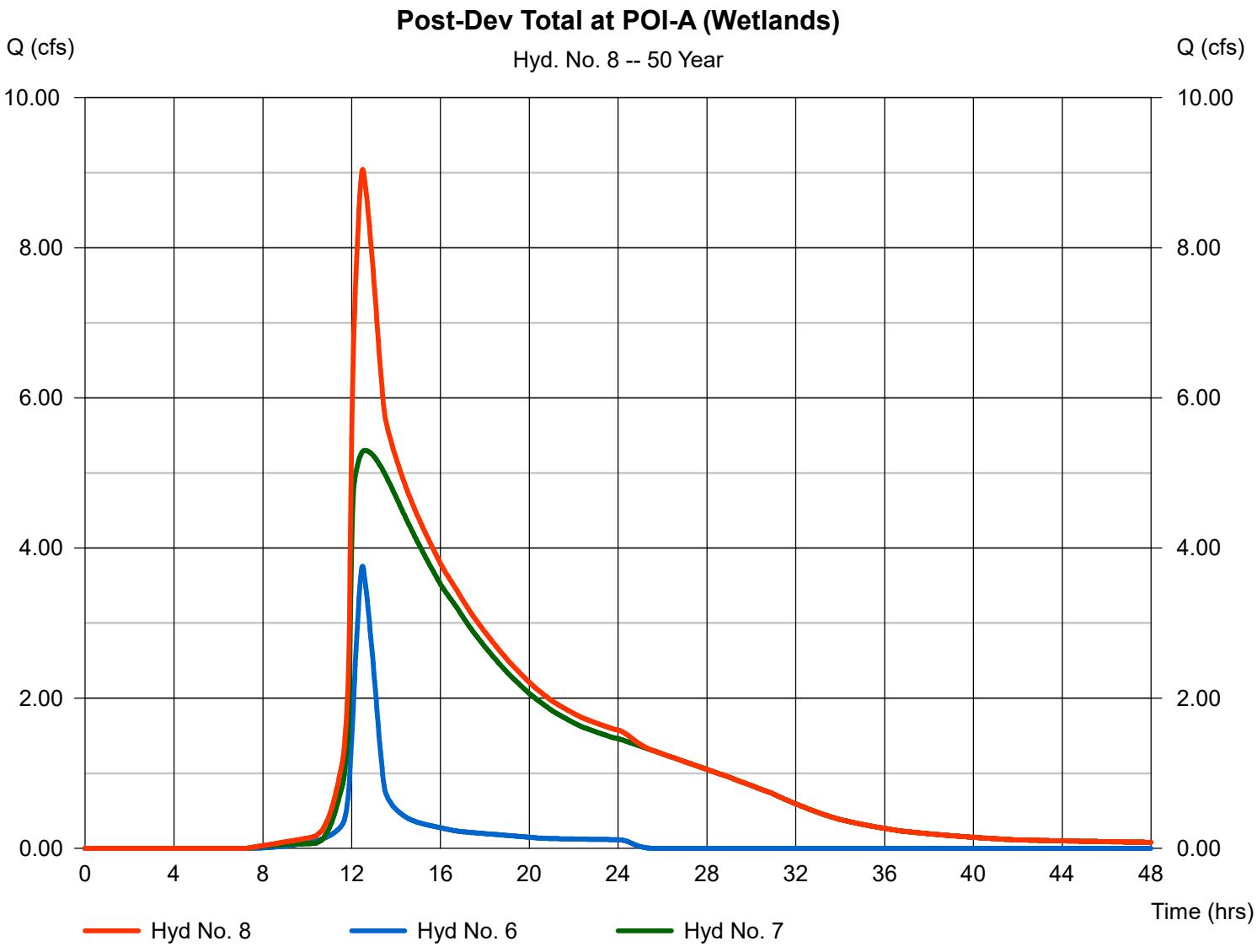
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 8

Post-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 9.042 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 210,159 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.790 ac



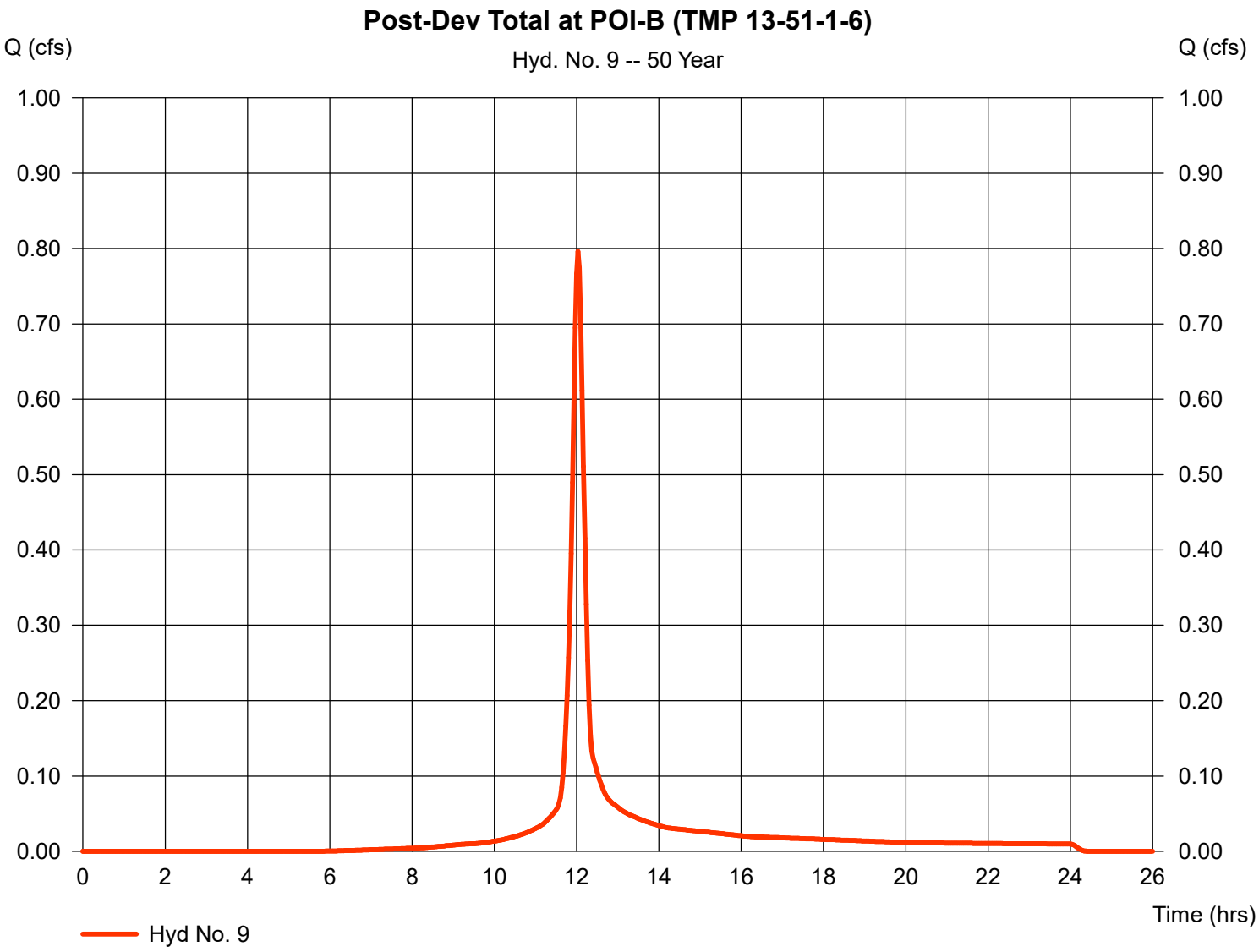
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 9

Post-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.796 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	2,256 cuft
Drainage area	=	0.150 ac	Curve number	=	81
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.80 min
Total precip.	=	6.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	19.74	2	750	127,729	----	------	------	Pre-Dev DA-A1 to Lined MRC Basin
2	SCS Runoff	3.930	2	750	25,433	----	------	------	Pre-Dev DA-A2 to Bypass Lined MR
3	Combine	23.67	2	750	153,162	1, 2	------	------	Pre-Dev Total at POI-A (Wetlands)
4	SCS Runoff	6.731	2	724	21,053	----	------	------	Pre-Dev Total at POI-B (TMP 13-51-1
5	SCS Runoff	99.84	2	716	229,145	----	------	------	Post-Dev DA-A1 to Lined MRC Basin
6	SCS Runoff	4.472	2	750	28,823	----	------	------	Post-Dev DA-A2 to Bypass Lined MR
7	Reservoir	6.603	2	752	213,862	5	16.15	151,837	Lined MRC Basin
8	Combine	11.07	2	750	242,684	6, 7	------	------	Post-Dev Total at POI-A (Wetlands)
9	SCS Runoff	0.930	2	722	2,650	----	------	------	Post-Dev Total at POI-B (TMP 13-51-

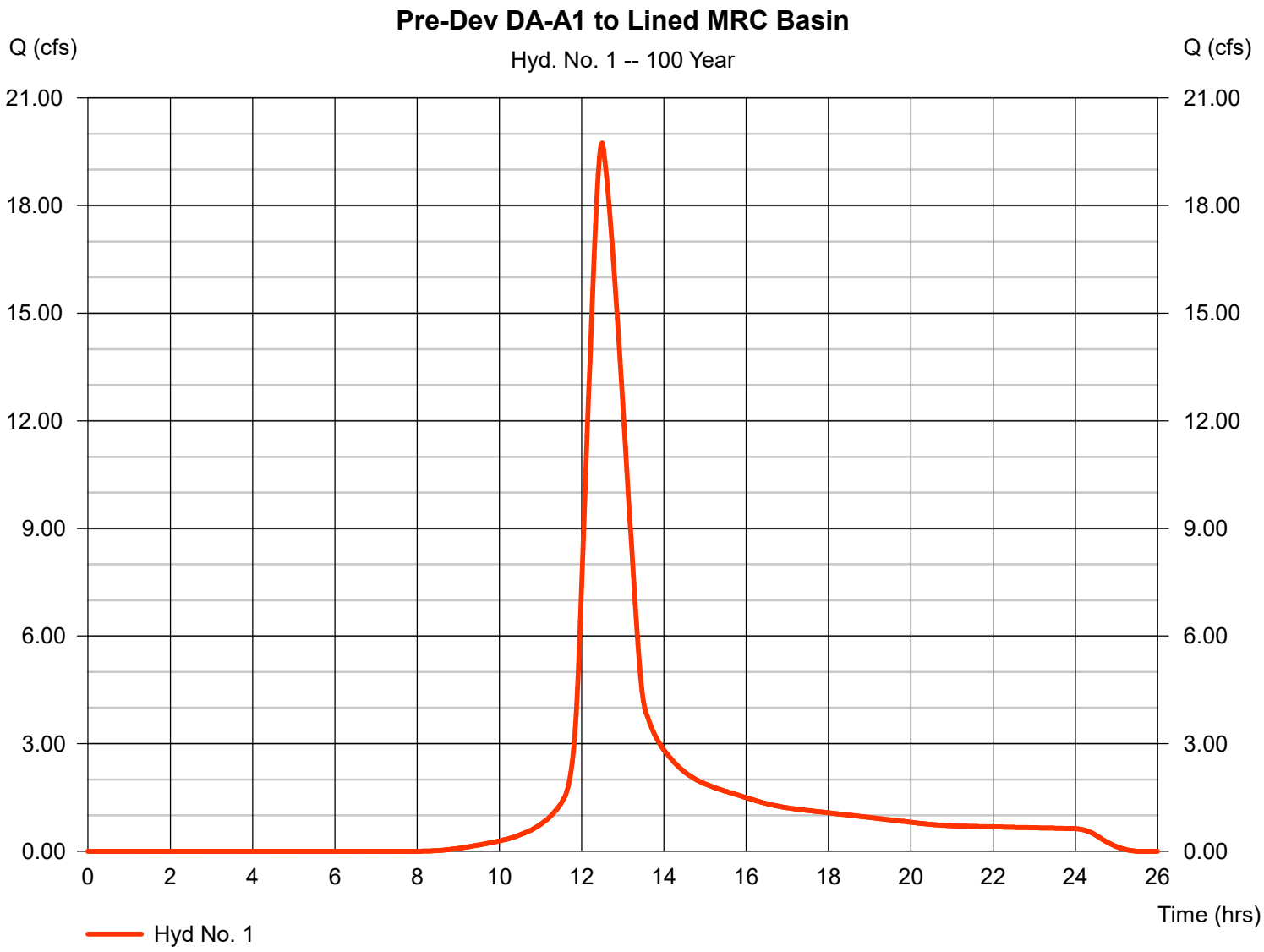
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 1

Pre-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	19.74 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	127,729 cuft
Drainage area	=	9.040 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



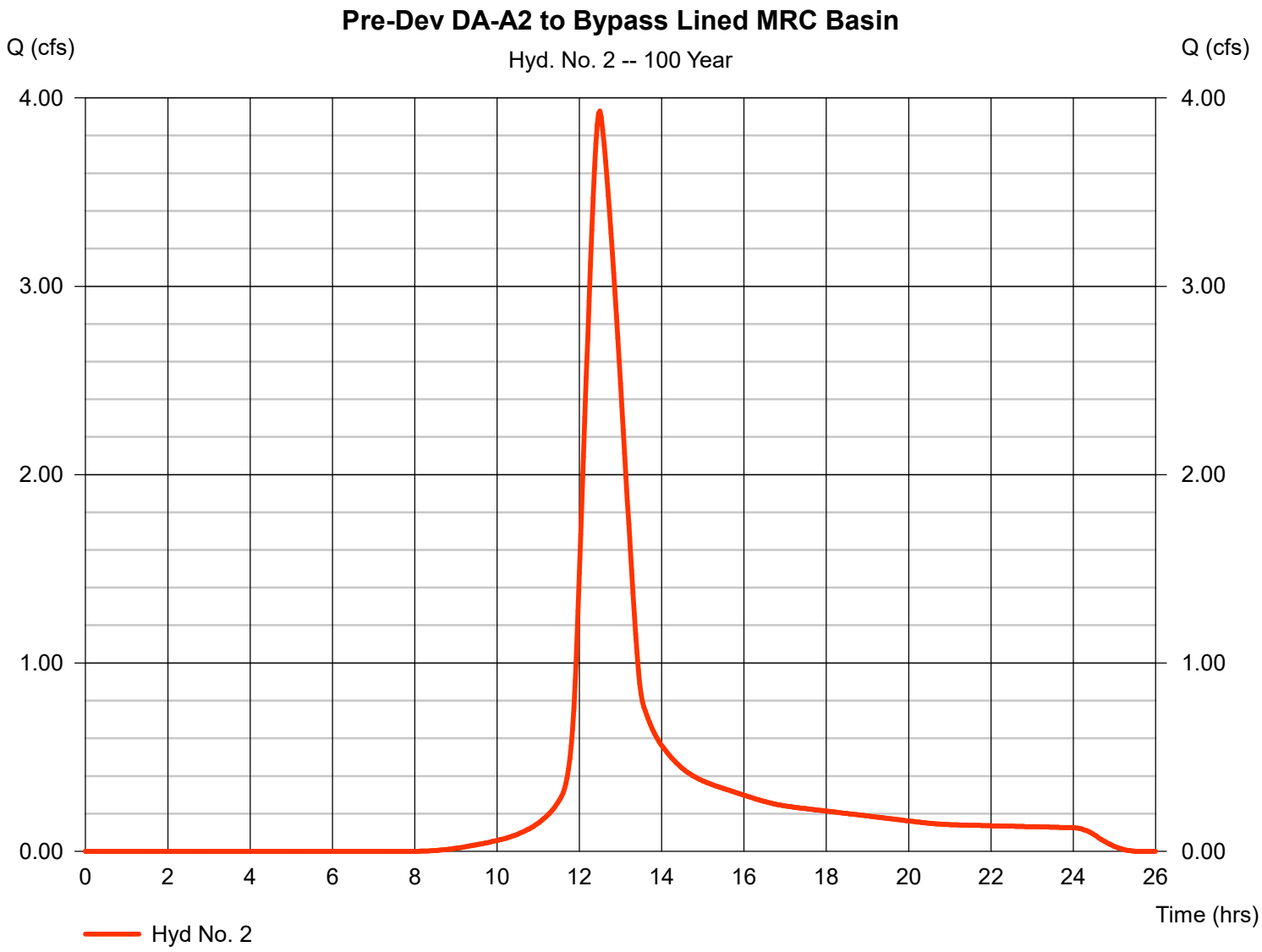
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 2

Pre-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.930 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	25,433 cuft
Drainage area	=	1.800 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



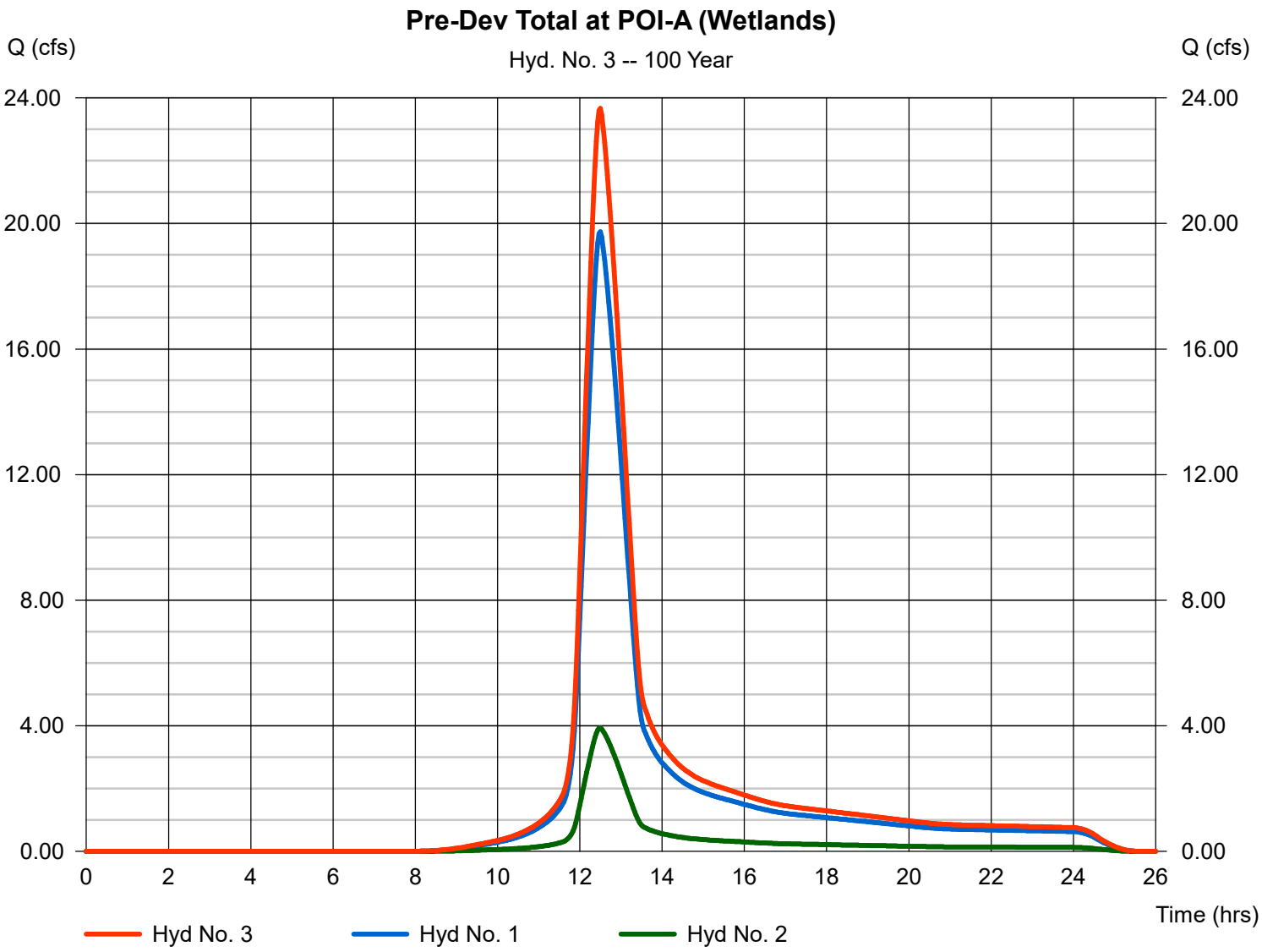
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 3

Pre-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 23.67 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 153,162 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 10.840 ac



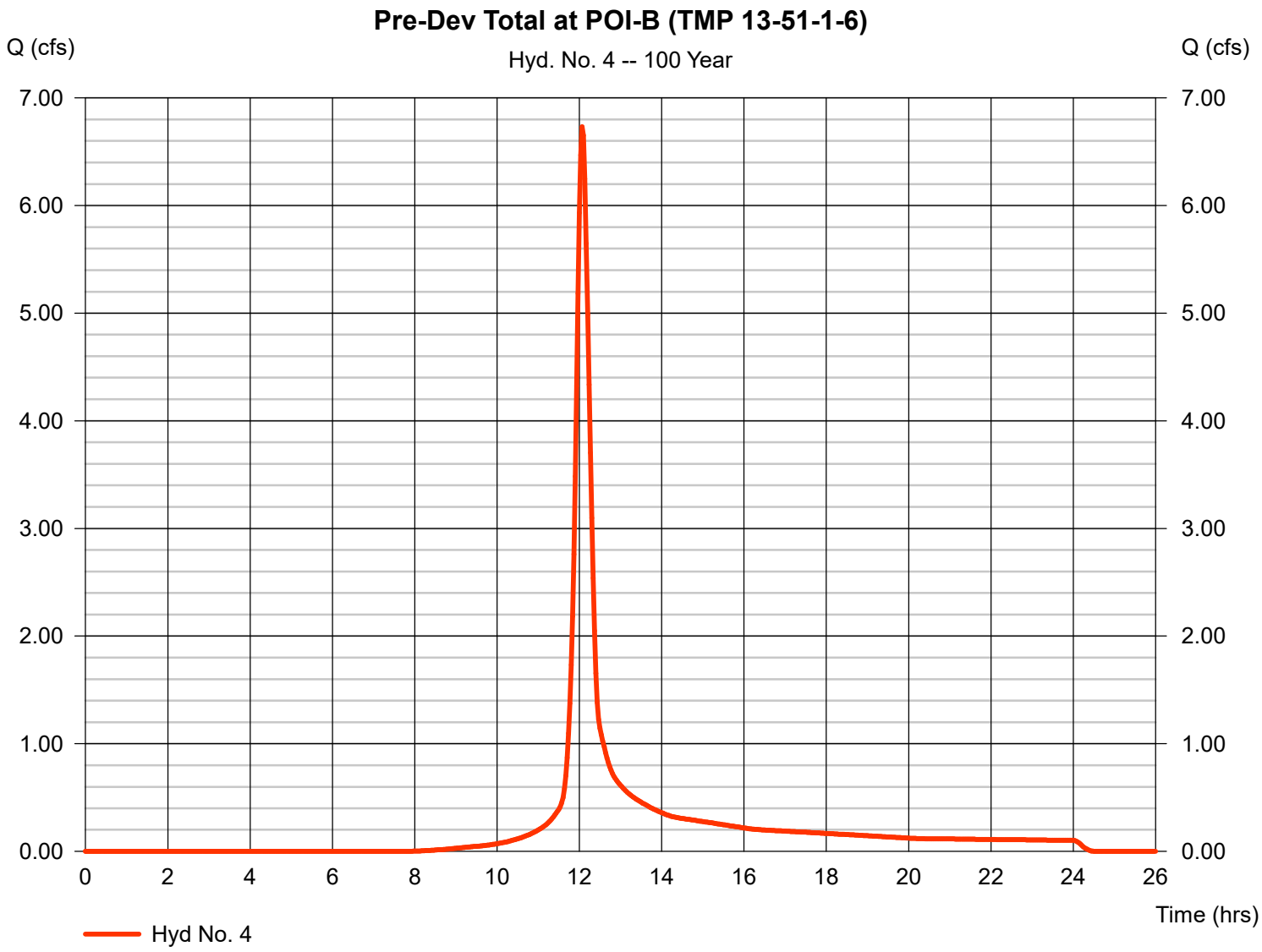
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 4

Pre-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.731 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	21,053 cuft
Drainage area	=	1.490 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.10 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



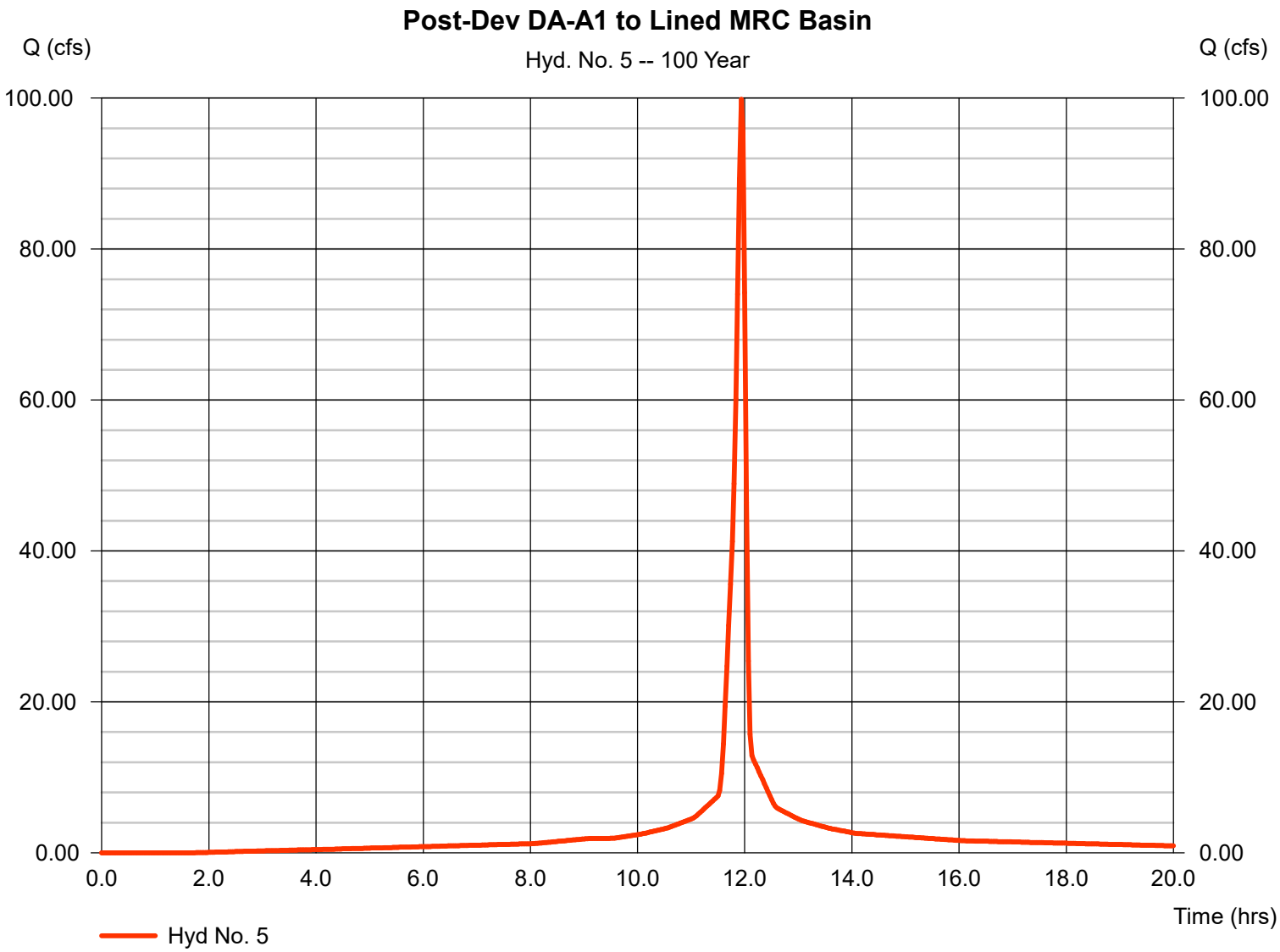
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 5

Post-Dev DA-A1 to Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	99.84 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	229,145 cuft
Drainage area	=	10.380 ac	Curve number	=	94
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



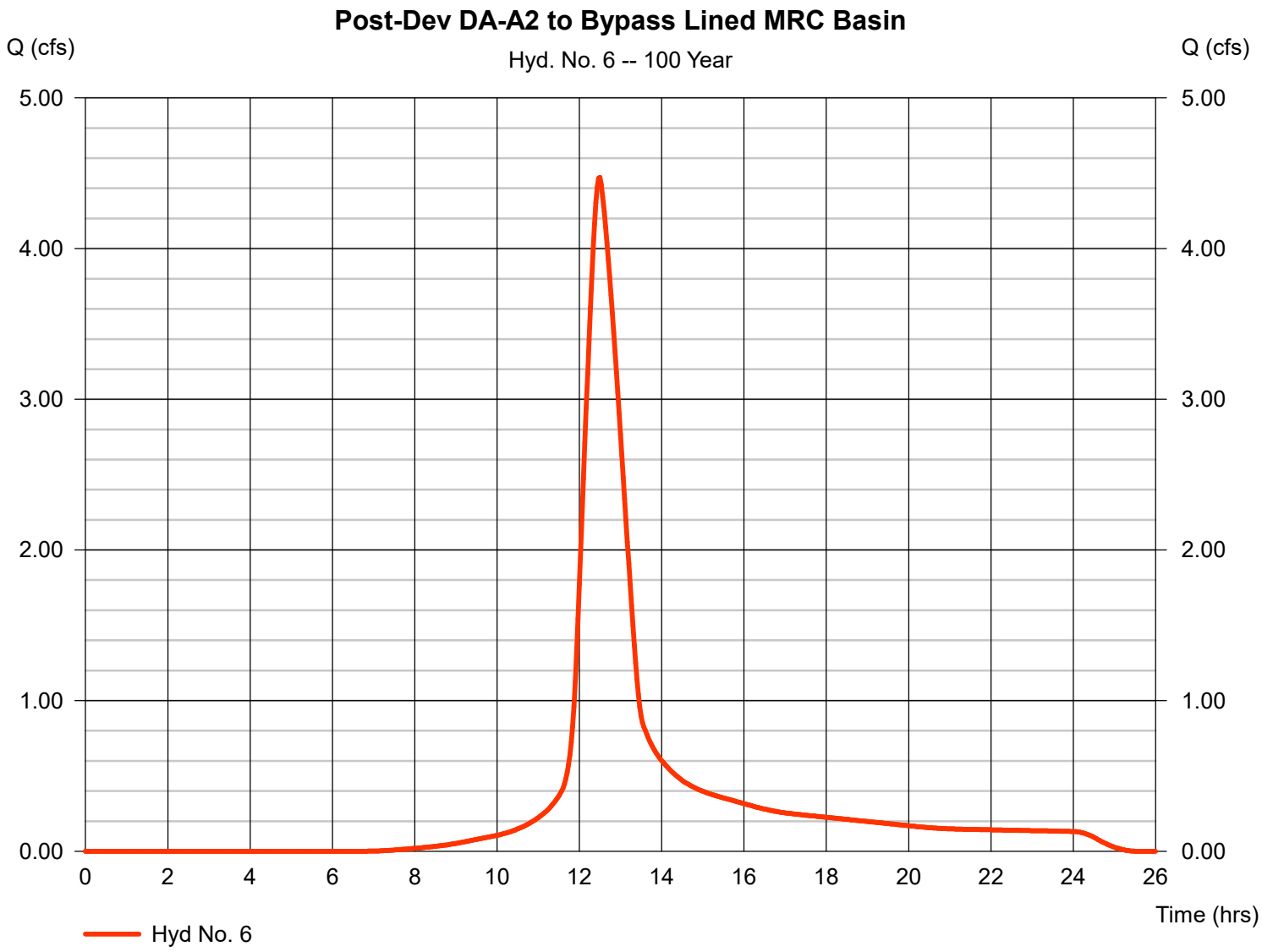
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 6

Post-Dev DA-A2 to Bypass Lined MRC Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.472 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.50 hrs
Time interval	=	2 min	Hyd. volume	=	28,823 cuft
Drainage area	=	1.790 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	58.50 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

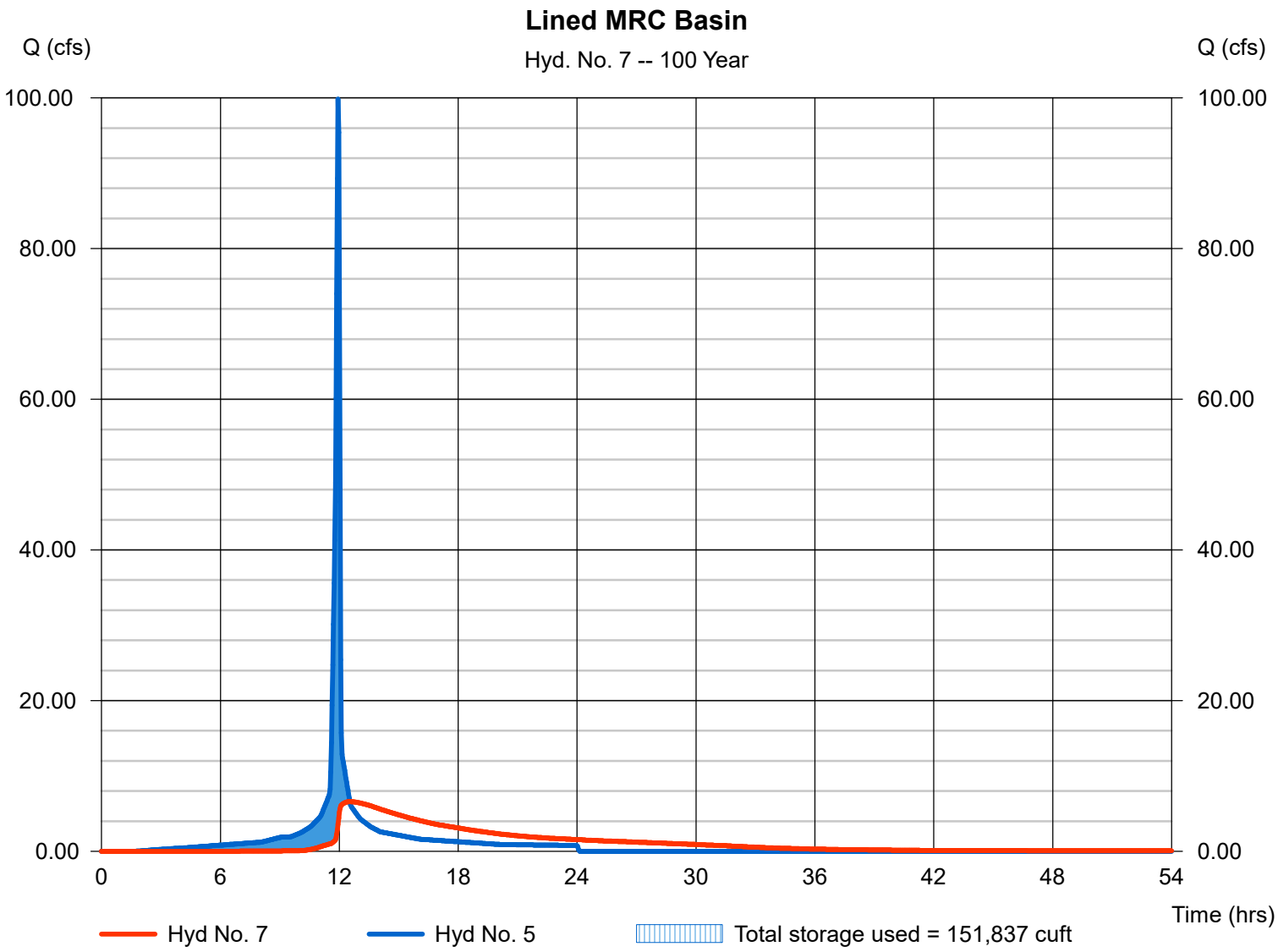
Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 7

Lined MRC Basin

Hydrograph type	=	Reservoir	Peak discharge	=	6.603 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.53 hrs
Time interval	=	2 min	Hyd. volume	=	213,862 cuft
Inflow hyd. No.	=	5 - Post-Dev DA-A1 to Lined MRC Basin	Max. Elevation	=	16.15 ft
Reservoir name	=	Lined MRC Basin	Max. Storage	=	151,837 cuft

Storage Indication method used. Wet pond routing start elevation = 11.97 ft.



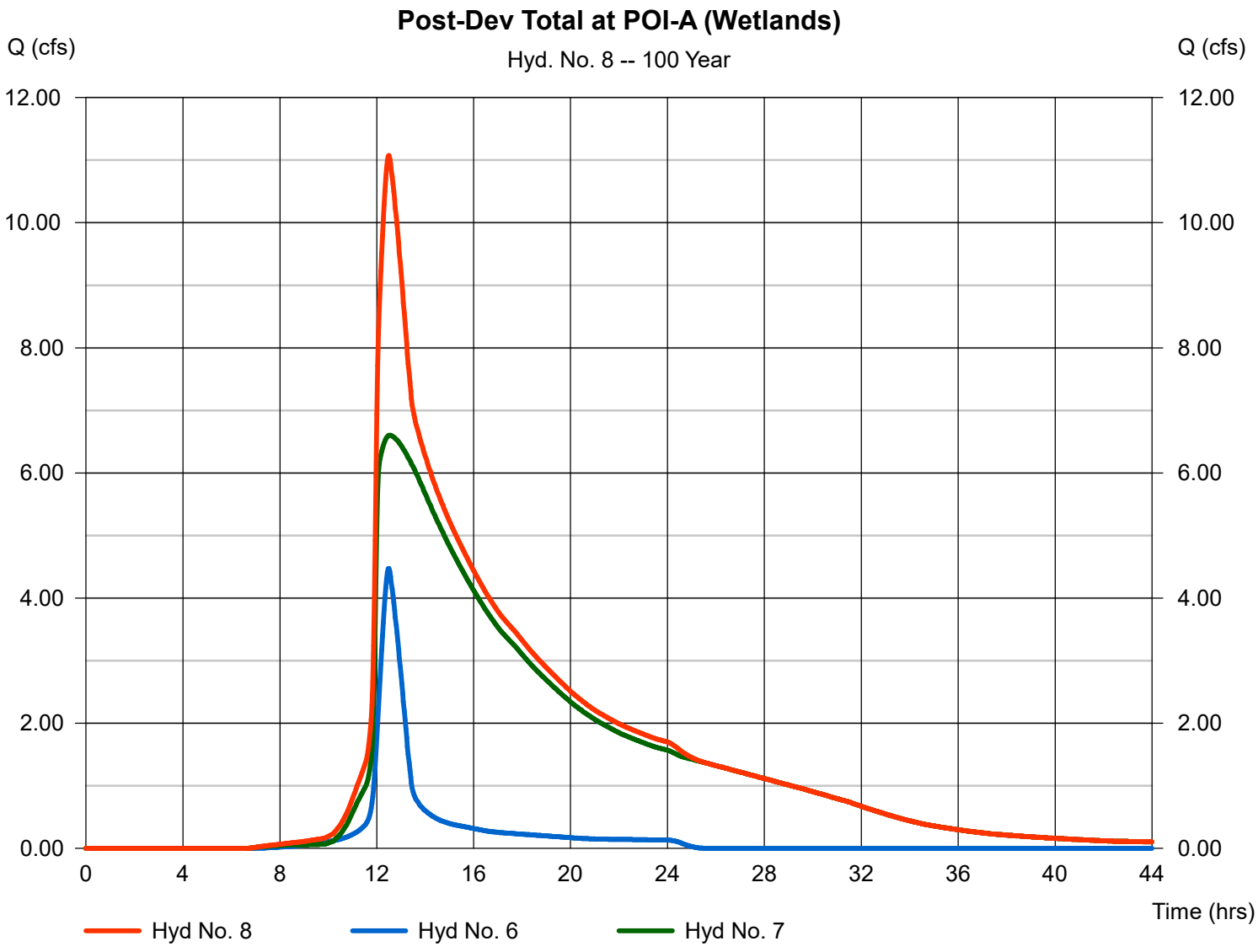
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 8

Post-Dev Total at POI-A (Wetlands)

Hydrograph type	= Combine	Peak discharge	= 11.07 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 242,684 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 1.790 ac



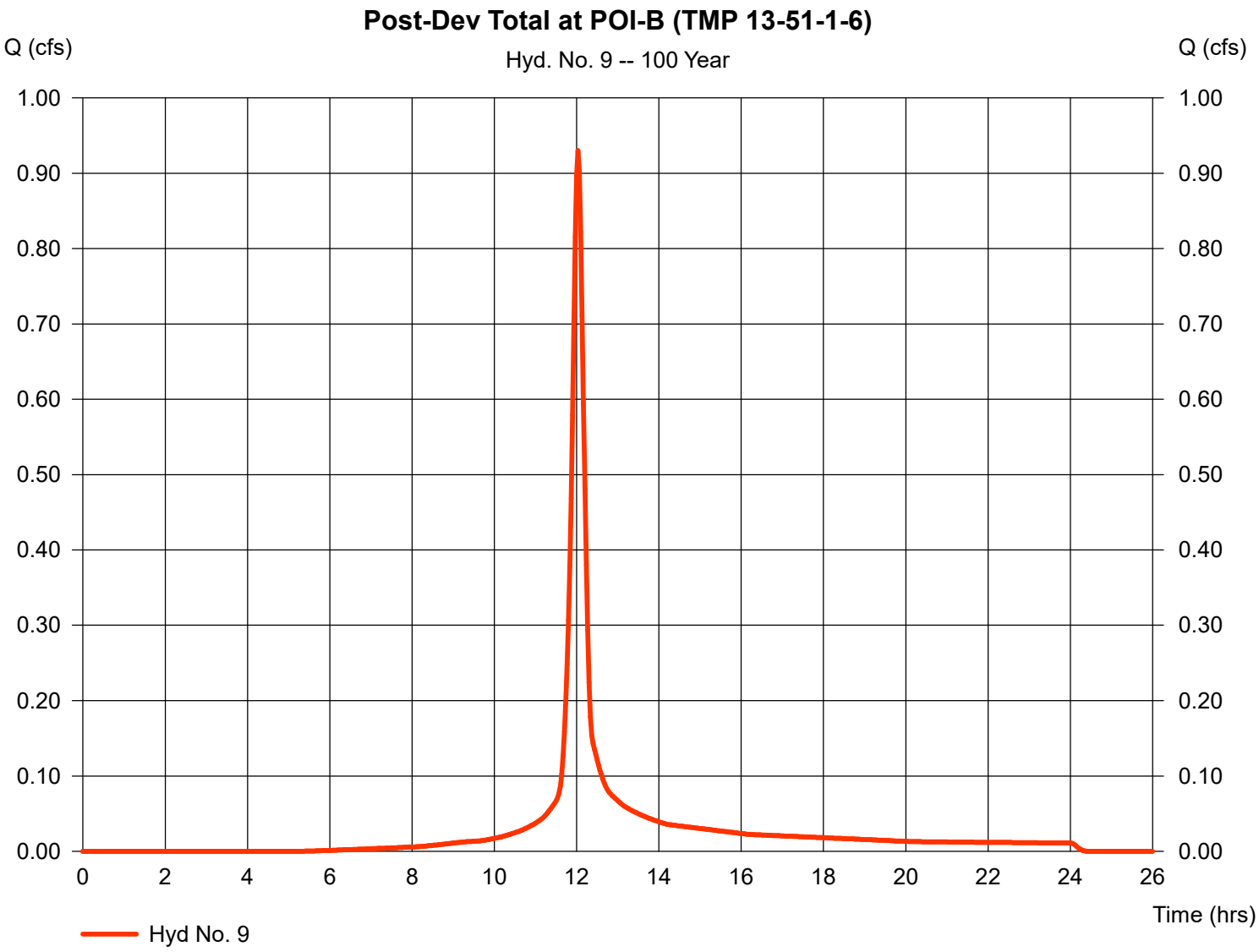
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Friday, Feb 7, 2020

Hyd. No. 9

Post-Dev Total at POI-B (TMP 13-51-1-6)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.930 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	2,650 cuft
Drainage area	=	0.150 ac	Curve number	=	81
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.80 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



9.0 APPENDICES

9.1 INFILTRATION EXPLANATION LETTER

1720 Walton Road, Blue Bell, PA 19422 610-828-3078 Fax 610-828-7842

September 17, 2019

E-MAIL
Mr. Brian M. Studer, P.E.
Project Engineer
Gilmore & Associates, Inc.
65 East Butler Ave, Suite 100
New Britain, PA 18901

Subject: Response to BCCD Letter Comments
Elcon Recycling
Permit No. PAD090044
IES Project No. EV191065.01

Dear Brian:

Pursuant to your request, IES Engineers (IES) is pleased to provide information pertaining to a question from the Bucks County Conservation District (BCCD) related to the stormwater basin at the proposed Elcon Recycling Inc. (Elcon) facility in Falls Township, Pennsylvania.

Specifically, BCCD is seeking information related to the reason Elcon is not proposing an infiltration basin as part of the proposed facility. This letter answers BCCD's question.

The original design for the basin called for the use a more traditional infiltration basin. General information on the basin was provided to the Pennsylvania Department of Environmental Protection (Department) as part of Elcon's application for a hazardous and residual waste treatment and storage permit under the Resource Conservation and Recovery Act (RCRA), commonly called a Part B permit. During its detailed technical review of the Part B application, personnel in the Department's Waste Management Program requested that Elcon not use an infiltration basin as part of the stormwater management system. The Department felt that the basin should be lined in the event a spill by-passed the legally designed secondary containment system for all waste treatment and storage operations. The Department believed that this was required as an additional layer of protection to the environment for activities at the facility.

Therefore, to satisfy the Department's request, Elcon redesigned the basin and this design is what is now presented in the application pending with BCCD. Attachment 1 to this letter provides the portion of the Department's technical comment letter requesting the change in the design of the basin. Attachment 2 to this letter provides Elcon's response to the Department's request.

If you need any additional information, please let me know.

Very truly yours,

Marjorie J. Fitzpatrick /e/
Marjorie J. Fitzpatrick, QEP
Principal Project Manager

Attachments
cc: M. Mazid, PADEP
Z. Elgat, Elcon
C. White, IES
A. Soni, IES

ATTACHMENT 1

PORTION OF DEPARTMENT'S TECHNICAL REVIEW LETTER PERTAINING TO STORMWATER BASIN

(See Item 37 at the bottom of Page 14)

b. Drawings No. USA-20200-01-102/103/104 seem missing from Appendix D-8. Provide additional drawings, as needed.

34. Many of Elcon's processes will generate hazardous waste streams by the derived-from rule. Elcon proposes to either dispose of as hazardous wastes or delist them. However, Elcon should provide adequate descriptions for both options. If not, all wastes generated by Elcon could be considered hazardous waste due to mixed-in protocol.

35. Elcon indicates in Attachment B of the October 2017 response that VOCs are treated by the thermal oxidizer, which is not subject to RCRA. Please explain how this interpretation is reached. Thermal oxidizers are 40 CFR Part 264, Subpart AA, RCRA-regulated devices that control VOC, CO, and volatile HAP emissions by combusting them to carbon dioxide (CO2) and water. Air emission control devices also need to be permitted by DEP's Bureau of Air Quality in accordance with the Federal Clean Air Act and the Pennsylvania Air Pollution Control Act. Elcon also indicated the Best Available Technology for emissions from the thermal oxidizer requires 98 percent destruction of VOCs. In a letter to Falls Township, Elcon indicated that the state-of-the-art air pollution control equipment to be used at Elcon will be able to achieve air emissions that are 99.9 percent free of contaminants. In Table D-19 (Effectiveness of Air Pollution Control Technologies Proposed for Elcon's Miscellaneous Unit Operations) of Section D, Elcon also indicated that 99.9 percent effectiveness for destruction of organic compounds by thermal oxidizer will be guaranteed by the equipment vendor. Clarification for the targeted levels of destruction in this application and coordination for compound-specific allowable emission by Elcon's air quality permit are needed.

Section E – Groundwater Monitoring

36. Elcon has the potential to release hazardous constituents from the proposed process area to the environment through air, land, and water pathways. Spills and contaminated surface runoff may contain hazardous constituents and enter the groundwater aquifer below the site, regardless of its nonuse status. Therefore, Elcon is subject to groundwater monitoring requirements in accordance with 40 CFR § 264.97.

Section F – Procedures to Prevent Hazards

37. As described in Subsection F-4.b for discharge of surface runoff, the "Infiltration Basin" may not be adequately protective of the environment, based on the geology or hydrogeology at the current location. In the event of a sizeable spill from truck(s) or overfill from secondary containment, site contaminants may quickly flow through the stormwater collection network into the infiltration basin. From the infiltration basin,

site contaminants will percolate through the porous bottom made of on-site fill material and enter the shallow groundwater aquifer or the nearby wetland and continue to migrate without much resistance or confinement. Therefore, it is preferable that Elcon design and construct the basin with an impermeable liner system and a manually and/or remotely controlled discharge shut-off valve. The basin will be designed to manage a 25-year, 24-hour storm event and be permitted by DEP in accordance with National Pollutant Discharge Elimination System ("NPDES") requirements through the Clean Stream Law. Please note that this comment regarding the concept of an infiltration basin will affect other sections throughout the application.

38. Elcon also should address precipitation on waste unloading areas in Subsection F-4.b and, when spills occur, the runoff may be contaminated. Elcon may include an unloading area within a secondary containment or install a roof or canopy over the unloading area with an impervious surface.

39. Subsection F-4.e indicates that each employee working in the production area will be issued a respirator, as needed. Elcon must issue or provide an appropriate respirator that is designed to provide protection to an employee, temporary employee, emergency responder or visitor from any airborne hazards, including dusts, organics, various vapors, etc., potentially in the work environment.

40. Appendix F-1 (Example Inspection Log Sheets) should provide supplemental checklists of equipment that are subject to inspection in accordance with various regulations, including, but not limited to, 40 CFR § 264.195 (Tank Systems), 40 CFR § 264.193 (Secondary Containment), 40 CFR § 264.174 (Containers), 40 CFR § 264.1602 (Misc. Units), 40 CFR § 264.1033 (Process Vents under Subpart AA), 40 CFR § 264.1052-1062 (Equipment Leaks under Subpart BB), and 40 CFR § 264.1088 (Air Emission Standards under Subpart CC). These supplemental checklists will guide and ensure Elcon's inspectors with proper training to inspect every piece of equipment, as required on a pre-determined schedule.

Section G – Contingency Plan

41. A Contingency Plan, or as more commonly named, a Preparedness, Prevention and Contingency ("PPC") Plan, should clearly refer to itself as being developed, maintained, and implemented in accordance with the "Guidelines for the Development and Implementation of Environmental Emergency Response Plans," Document No. 400-2200-001, which is more stringent than the requirements in 40 CFR 264, Subpart D – Contingency Plan and Emergency Procedures. The Contingency Plan must be periodically reviewed and updated, if necessary, in accordance with Section I.F of the Guidelines.

ATTACHMENT 2

PORTION OF ELCON'S RESPONSE TO DEPARTMENT'S TECHNICAL REVIEW LETTER PERTAINING TO STORMWATER BASIN

(See Response to Item 37 starting in the middle of Page 33)

thermal oxidizer chamber. The value of 99.9 percent has been consistently used in the air permit and Part B applications and in the information provided to the public.

Regarding targeted levels destruction – Elcon agrees that coordination between the various applicable programs will be required. Elcon believes that it has maintained an open dialog with the different program offices at the Department during its review process and has participated in several meetings involving the various program offices at the Department. If there is anything further that the Department is expecting from Elcon in this regard, please let us know.

***Part B, Section E, Item 36.**: Department believes Elcon is subject to RCRA groundwater monitoring requirements under 40 CFR §264.97.*

***Response to Item 36.**:*

40 CFR §264.97 applies to owners and operators of a surface impoundment, waste pile, and land treatment unit or landfill. Elcon is not proposing any of these types of installations; therefore, the well monitoring requirements do not apply to Elcon's proposed operations. However, Elcon has agreed to install monitoring wells. Attachment F includes a well monitoring plan, as requested by the Department during our meeting on December 13, 2018.

***Part B, Section F, Item 37.**: Requesting alternative approach for stormwater infiltration basin.*

***Response to Item 37.**:*

The stormwater management basin has been designed to reduce the peak flow rate for the 1, 2, 5, 10, 25, 50 and 100-year, 24-hour rainfall events. The basin is not a residual or hazardous waste disposal impoundment; its primary purpose is stormwater management to comply with the Department and Falls Township stormwater management requirements. While located within the hazardous waste permitted boundary, Elcon does not anticipate that any waste will enter the stormwater basin. All tanks and other waste storage, treatment, and unloading areas are equipped with the regulatory-required secondary containment systems.

To address the Department's concern and as an added measure of environmental protection, Elcon has revised the design of the stormwater management basin to be without infiltration. Clarifying language was added to Section F-4b (see Attachment B, under Tab F). The proposed stormwater management basin will be lined with an impermeable geomembrane liner. The basin will be capable of reducing peak flows from the post-development condition to pre-developed conditions for the same corresponding return period. This design is in compliance with 25 PA Code Chapter 102 and local requirements. In addition, the basin will be equipped with a control valve that may be closed by Elcon staff in the event that there would be a need to retain stormwater on site.

The stormwater management basin will be a geomembrane-lined basin. The basin will be designed in accordance with the Department's "Erosion and Sediment Pollution Control Program Manual" (Technical Guidance Number 363-2134-008, March 2012), and in accordance with the local government agencies (township or county) requirements, whichever is more stringent. The design storm frequency and the Program Manual are an integral part of Pennsylvania Clean Stream Law and Regulations at 25 Pa. Code Chapter 102.

The basin storage capacity, up to an elevation of 16 feet, is more than 900,000 gallons. This is more than adequate to contain a catastrophic failure of a tanker truck (6,000 gallons) or the largest tank (136,000 gallons).

The change in the basin design is reflected in the following portions of the application and revised pages are provided in Attachment B:

- Part A and Part B, various locations – figures and maps listed in the table at the beginning of the letter showing changes to the footprint of the basin
- Part B, Section A, Subsection A-11 – Identification of additional aspects of operations that are beyond regulatory requirements. (See Attachment B, under A tab, Page A-25a.)
- Part B, Section A, Appendix A-5, Page 17 Item 3 of Form 2610-PM-BWM008 (See Attachment B, A tab, behind slip sheet for Appendix A-5.)
- Part B, Section A, Appendix A-5, Attachment 16L-1, see Attachment B, under the A tab, behind the slip sheet for Appendix A-5, Attachment 16L-1
- Part B, Section A, Appendix A-5, Attachment 16L-3, see Attachment B, under the A tab, behind the slip sheet for Appendix A-5, Attachment 16L-3
- Part B, Part A, Appendix A-5, Attachment 16L-4, see Attachment B, under the A tab, behind the slip sheet for Appendix A-5, Attachment 16L-4
- Part B, Section A, Appendix A-9, new supplemental modeling report related to a release from the environment. As requested by the Department, the original modeling report showing a release from the infiltration basin will not be revised. See Attachment B, under the A tab, behind the slip sheet for Appendix A-9.
- Part B, Section B, Subsection B-2. See Attachment B, B tab, Page B-2
- Part B, Section D – Various locations. See Attachment B, D tab, various pages between D-50 through D-89.

In the near future, a revised National Pollutant Discharge Elimination System (NPDES) permit application will be submitted to the Department's Clean Water Program reflecting the change in the stormwater management basin. IES has been in communication with the Department's Southeast Regional Office, Clean Water Program, and this Program is aware of the proposed changes to the basin and that revisions will be submitted to the NPDES application will be forth coming.

9.2 WETLAND DELINEATION REPORT

CONESTOGA-ROVERS
& ASSOCIATES

410 Eagleview Blvd, Suite 110
Exton, Pennsylvania 19341
Telephone: (610) 321-1800 Fax: (610) 321-2763
http://www.craworld.com

August 13, 2014 Reference No. 085945

Marjorie J. Fitzpatrick, QEP
Principal Project Manager
IES Engineers
1720 Walton Road
Blue Bell, PA 19422

Re: Wetland Delineation Report
33-acre Elcon Parcel on KIPC
Falls Township, Bucks County County, Pennsylvania

Dear Ms. Fitzpatrick:

Conestoga-Rovers & Associates, Inc. (CRA) was retained by IES Engineers to conduct a wetland delineation on a 33-acre parcel (Site) on the Keystone Industrial Port Complex (KIPC) property located in Falls Township, Bucks County, Pennsylvania. Historically, the Site was part of the U.S. Steel Fairless Works property and was used for industrial steel manufacturing purposes. ELCON is currently proposing to redevelop the site for industrial purposes. The Site is generally located west of Dean Sievers Place and east of Steel Road South.

This report discusses the wetland delineation methodology and provides the results of CRA's field investigation. It includes copies of the United States Geologic Survey (USGS) topographic map (Figure 1), a recent aerial photograph (Figure 2), the Natural Resources Conservation Service (NRCS) web soil survey map (Figure 3), and the National Wetland Inventory (NWI) map each showing the location of the Site. The surveyed limits of the wetlands identified within the project area are shown on the Wetland Location Plan provided in Appendix A. Completed copies of the U.S. Army Corps of Engineers (COE) data forms referenced in the *Regional Supplement to the COE 1987 Wetlands Delineation Manual: Atlantic and Gulf Coast Plain Region* are provided in Appendix B. Appendix C contains color photographs of the wetlands identified during the delineation, as well as typical uplands identified on the Site.

1.0 REGULATORY FRAMEWORK AND WETLAND DELINEATION METHODOLOGY

In Pennsylvania, wetlands and waterways are regulated at the Federal level by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. Wetlands and waterways are regulated at the state level by the Pennsylvania Department of Environmental Protection (PADEP) under PA Chapter 105.

The wetland delineation for the Site was conducted on June 25, 2014 using the Routine Onsite Determination Method in the *Corps 1987 Wetland Delineation Manual* and *Regional Supplement to the COE Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*. According to this methodology, wetlands are identified by the presence of three parameters: the dominance of

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hydrophytic vegetation, the presence of hydric soils, and positive indicators of wetland hydrology. Typically, all three parameters must be present for an area to be considered jurisdictional wetlands. However, in areas where one or more of the wetland parameters have been significantly disturbed (e.g., mowed lawn areas, agricultural fields, etc.), the remaining parameters and best professional judgment were used to delineate the extent of jurisdictional wetlands.

Secondary sources of data for the Site, including the USGS topographic map, aerial photograph, NRCS soil survey, and NWI were reviewed prior to conducting the field investigation. These secondary sources of data are often useful in identifying areas that may contain wetlands based on topography, drainage ways, vegetation, and soil type.

Following the review of the secondary sources of data, wetland scientists from CRA inspected the Site and delineated the wetland and waterway boundaries based on the Corps methods. The boundaries between wetlands and uplands were flagged in the field by CRA and surveyed by Gilmore and Associates.

2.0 REVIEW OF SECONDARY DATA

Figure 1 shows the location of the Site on a portion of the Trenton West, PA USGS topographic quadrangle. As shown on the USGS topographic map provided as Figure 1, the Site is 33 acres, relatively flat, and is located within a highly industrial area. A small water body is indicated along the western side of the Site.

An aerial photograph provided as Figure 2 shows that the Site is sparsely vegetated with scattered trees and scrub vegetation. The waterbody along the western Site boundary is clearly visible. The Site is currently characterized by patchy wooded areas, open areas where the ground is covered by slag, and areas of herbaceous vegetation.

As shown on the NRCS Web Soil Survey (Figure 3), Site contains two soil types including Naticoke-Hatboro silt loam (Na) and Urban land, 0 to 8 percent slopes (UfuB). Urban Land comprises the vast majority of the Site and is not listed as a hydric soil. Naticoke-Hatboro silt loam is associated with the openwater boundary along the western boundary of the Site and is listed as hydric soil.

The NWI Map (Figure 4) identifies palustrine unconsolidated bottom openwater along the western Site boundary. No other wetlands or waterbodies are indicated on the NWI map.

3.0 RESULTS OF WETLAND DELINEATION

CRA delineated four (4) wetland areas on the Site identified as Area A, B, C, and D on the site plan in Appendix A. Each delineated area is discussed below.

3.1 AREAS A and C

Areas A is a 4.294 acre palustrine unconsolidated bottom (PUB) openwater with palustrine emergent (PEM1) littoral fringes. The openwater portions of Area A range from about a foot deep to a maximum of approximately 4 feet deep. The emergent littoral fringes are dominated by black willow (*Salix nigra*) saplings, poison ivy (*Toxicodendron radicans*), common reed (*Phragmites australis*), and marsh rosemallow (*Hibiscus moscheutos*). The soil from 0 to 12 inches was observed to be black (10YR 2/1) muck. Indicators of wetland hydrology included standing water and saturated soils throughout. Area A drains north through a 72-inch diameter reinforced concrete pipe to a ditch that flows north along Steel Road South. Area C is a short segment of the ditch along Steel Road South and totals 0.018. The ditch ultimately drains to Biles Creek northeast of the Site.

These wetlands are documented on Data Form 5 in Appendix B and in the color photographs provided in Appendix C.

3.2 AREA B

Area B is a 0.040 acre palustrine forested wetland located in an isolated sparsely vegetated topographic depression west of Area A. Area B was dominated by spice bush (Lindera benzoin). The soil was dark gray (10YR 4/1) with brown (7.5YR 4/6) concentrations. Blackened leaves were present and the soil was saturated at 12 inches.

This wetland is documented on Data Form 6 in Appendix B and in the color photographs provided in Appendix C.

3.2 AREA D

Area D is a 0.414-acre palustrine emergent wetland located north of the Ashland Rail easement along the northern property boundary. Area D is a historically disturbed area. Area D is dominated by common reed. The soil from 0 to 14 inches was dark grayish brown (10YR 4/2) with brown (7.5YR 5/4) concentrations. The soil was saturated at near surface at the time of the field investigation.

These wetlands are documented on Data Form 8 in Appendix B and in the color photographs provided in Appendix C.

3.3 UPLANDS

Almost all of the uplands on the Site are previously disturbed industrial areas of varying plant community succession on variable fill soil. The majority of the surface soils contain a large percentage of steel slag. The uplands are dominated by eastern cottonwood (*Populus deltoides*), box elder (*Acer*

negundo), black locust (*Robinia pseudoacacia*), staghorn sumac (*Rhus typhina*), mugwort (*Artemisia vulgaris*), spotted knapweed (*Centaurea maculosa*), and yellow sweet clover (*Melilotus officinalis*). The soils in the uplands are highly variable. Typical soil in the uplands was generally monochromatic yellowish brown (10YR 5/4) loamy sand with varying amounts of gravel and slag. No indicators of wetland hydrology were observed in the upland portions of the Site.

The uplands on the Site are documented on Data Forms 1-4 and 7 in Appendix B and in the color photographs provided in Appendix C.

4.0 SUMMARY & RECOMMENDATIONS

The majority of the Site consists of industrial, disturbed uplands. CRA identified and delineated four areas on site that contain wetlands designated as Areas A, B, C, and D. Areas A and C are hydrologically connected to Biles Creek which is a traditionally navigable waterway. Area B is hydrologically isolated from other wetlands on the Site but is adjacent to Area A which flows to Biles Creek. Area D is adjacent to Area C and the downstream segments of the ditch along Steel Road South. It is CRA's opinion that these areas are likely jurisdictional wetlands under Section 404 of the Clean Water Act and under PA Chapter 105. If any activities are proposed which would encroach upon these wetlands, permits from the U.S. Army Corps of Engineers and / or PADEP will likely be required.

CRA recommends that a Jurisdictional Determination be obtained from the U.S. Army Corps of Engineers, Philadelphia District in order to verify CRA's delineation and the jurisdictional status of these wetlands. If you have any questions or require additional information, please call me at (610) 321-1800 ext. 11.

Yours truly,

CONESTOGA ROVERS & ASSOCIATES

Scott E. Bush, P.W.S.
Senior Ecologist

SEB/smk/1
Encl.

FIGURES

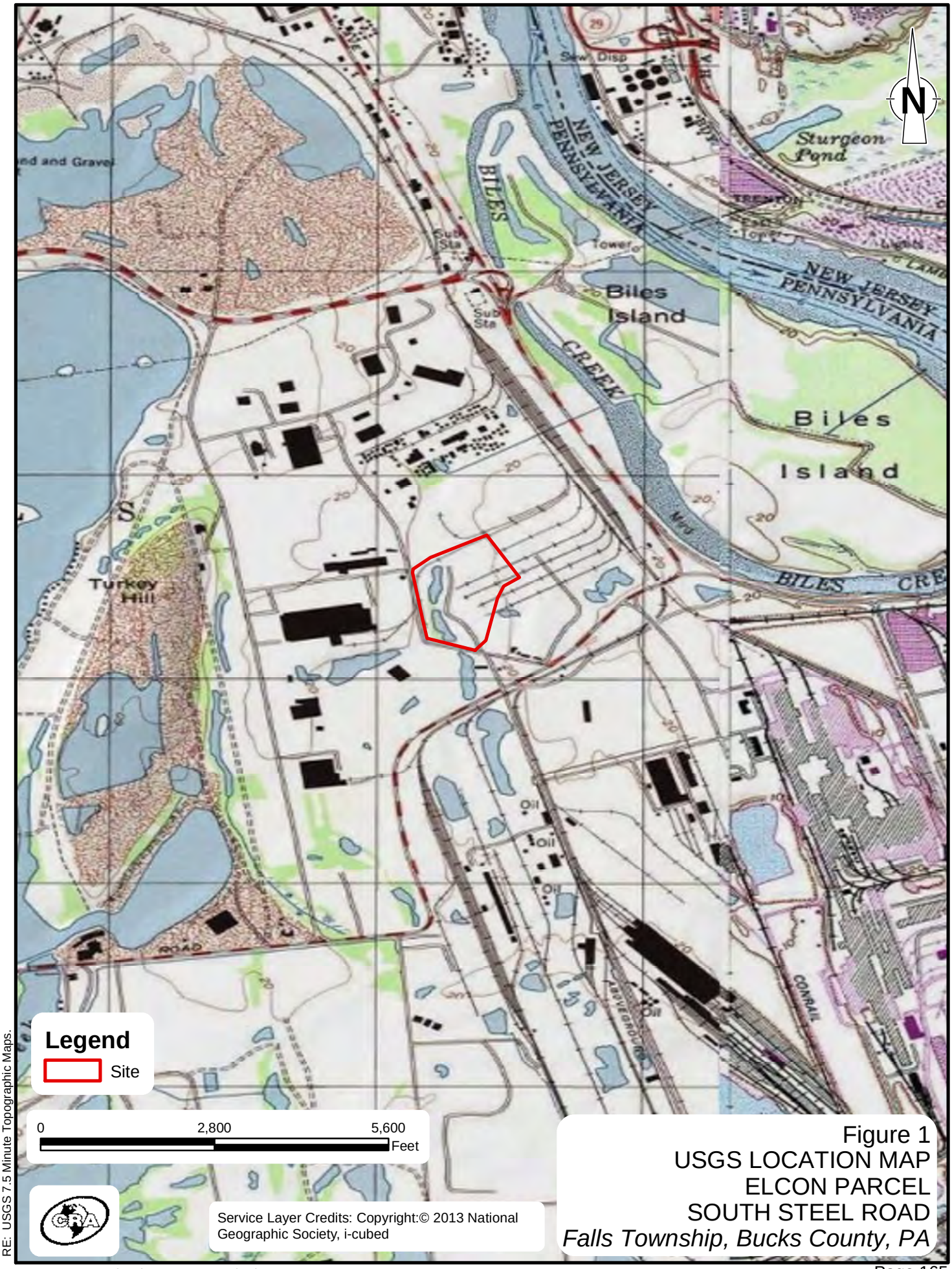


Figure 1
USGS LOCATION MAP
ELCON PARCEL
SOUTH STEEL ROAD
Falls Township, Bucks County, PA

RE: USGS 7.5 Minute Topographic Maps.

Figure 2
AERIAL LOCATION MAP
ELCON PARCEL
SOUTH STEEL ROAD
Falls Township, Bucks County, PA

RE: Aerial Location Map.

Figure 3
SOILS MAP
ELCON PARCEL
SOUTH STEEL ROAD
Falls Township, Bucks County, PA

RE: Soils Map.

Figure 4
NWI MAP
ELCON PARCEL
SOUTH STEEL ROAD
Falls Township, Bucks County, PA

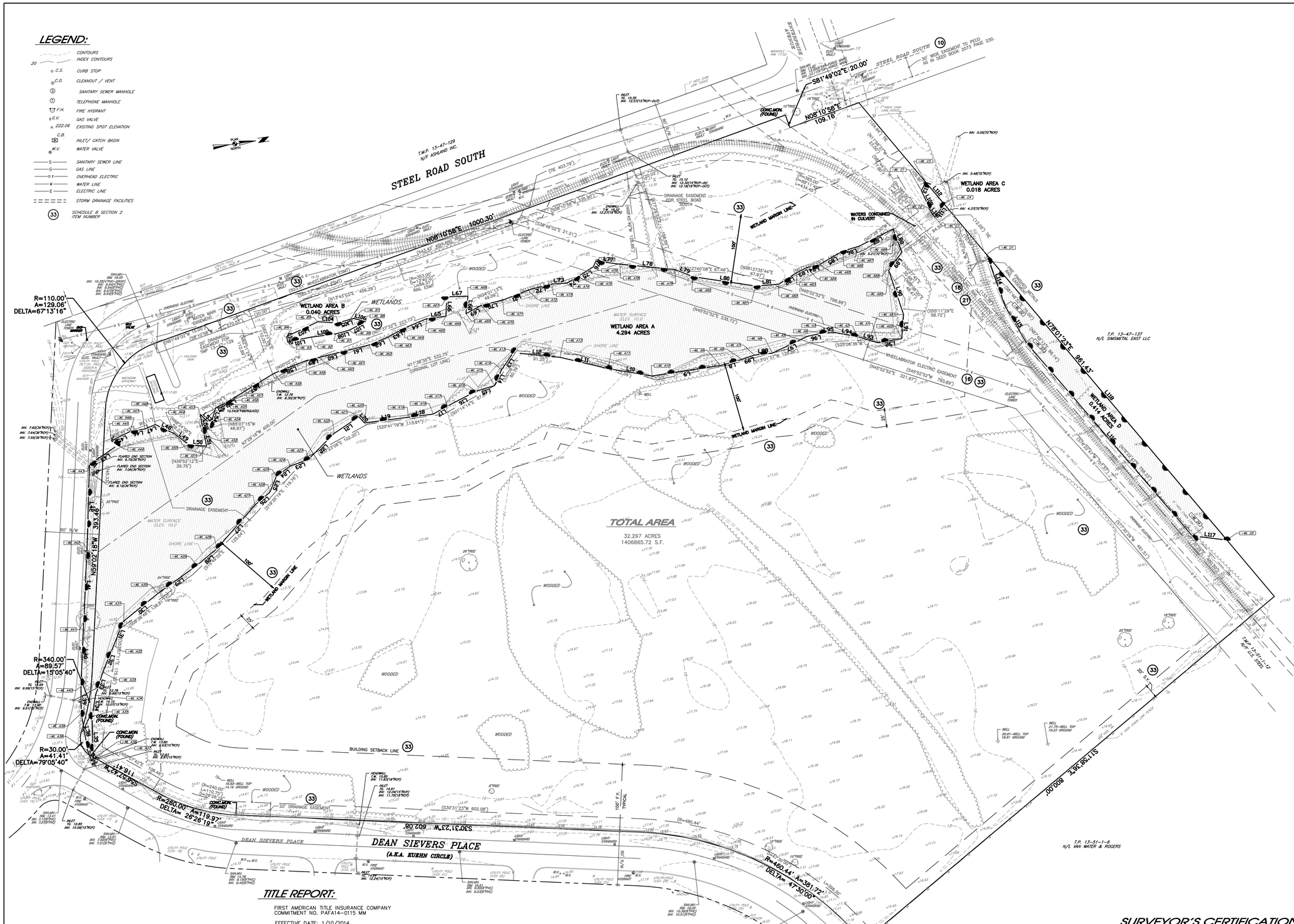
RE: NWI Map.

APPENDIX A

SURVEYED SITE PLAN

LEGEND:

- CONTOURS
- 20 INDEX CONTOURS
- C.S. CURB STOP
- C.O. CLEANOUT / VENT
- SANITARY SEWER MANHOLE
- TELEPHONE MANHOLE
- F.H. FIRE HYDRANT
- G.V. GAS VALVE
- x 222.06 EXISTING SPOT ELEVATION
- C.B. INLET/ CATCH BASIN
- W.V. WATER VALVE
- S — SANITARY SEWER LINE
- G — GAS LINE
- OHE — OVERHEAD ELECTRIC
- W — WATER LINE
- E — ELECTRIC LINE
- STORM DRAINAGE FACILITIES
- (33) SCHEDULE B SECTION 2 ITEM NUMBER



WETLAND LINE TABLE		
LINE	LENGTH	BEARING
WETLAND AREA A		
L8	33.01	S07°31'12"E
L9	103.06	S00°21'50"E
L10	66.58	S17°57'27"W
L11	73.43	S21°38'57"W
L12	70.19	S14°01'57"W
L13	38.80	S47°13'47"E
L14	25.82	S57°31'48"E
L15	29.26	S08°44'35"E
L16	47.56	S18°59'21"E
L17	24.20	S21°09'25"E
L18	37.53	S01°43'55"W
L19	65.65	S00°41'06"W
L20	12.59	S54°21'12"W
L21	44.25	S25°32'42"E
L22	54.81	S36°52'37"E
L23	28.76	S11°43'56"E
L24	25.22	S28°09'25"E
L25	25.71	S59°08'30"E
L26	29.09	S32°01'20"E
L27	86.37	S40°37'17"E
L28	38.73	S31°43'11"E
L29	72.02	S27°23'31"E
L30	65.34	S30°31'59"E
L31	39.20	S59°03'04"E
L32	42.90	S39°36'48"E
L33	35.99	S64°15'19"E
L34	31.78	S72°01'41"E
L35	63.32	S83°22'39"E
L36	4.22	S49°16'52"E
L37	16.37	S75°59'30"W
L38	57.29	S88°38'24"W
L39	39.64	N82°11'03"W
L40	97.28	N79°04'30"W
L41	107.71	N78°59'13"W
L42	126.04	N79°59'19"W
L43	50.97	N25°44'06"W
L44	11.62	S43°46'23"W
L45	30.97	N17°42'54"W
L46	22.61	N01°40'16"W
L47	16.75	N14°33'54"W
L48	32.61	N24°13'37"E
L49	25.62	N46°18'02"E
L50	26.81	N12°58'18"E
L51	15.63	S87°20'25"W
L52	32.80	S86°48'20"W
L53	22.03	N52°08'47"E
L54	25.11	N65°36'12"W
L55	19.67	N20°00'59"W
L56	9.08	N22°16'49"W
L57	73.33	N23°03'03"W
L58	51.57	N13°07'18"W
L59	18.45	N04°57'51"W
L60	40.22	N05°48'21"W
L61	37.62	N05°29'18"W
L62	30.42	N14°18'41"W
L63	27.59	N20°19'17"W
L64	36.26	N14°32'02"W
L65	28.88	N01°06'46"E
L66	28.98	N79°35'21"W
L67	31.65	N06°53'36"E
L68	26.28	S75°06'04"E
L69	25.87	N20°13'10"W
L70	33.11	N05°14'50"W
L71	40.66	N13°14'29"W
L72	36.17	N06°10'24"W
L73	22.60	N05°16'55"E
L74	19.15	N21°52'28"W
L75	27.40	N24°12'33"W
L76	10.61	N59°37'44"W
L77	35.84	N16°07'11"E
L78	82.11	N13°55'41"E
L79	29.31	N29°54'57"E
L80	94.10	N16°53'56"E
L81	34.81	N03°42'19"E
L82	31.89	N24°13'22"W
L83	16.91	N17°50'26"W
L84	19.10	N04°55'51"W
L85	40.16	N21°51'26"W
L86	25.36	N07°58'21"W
L87	56.56	N18°37'52"W
L88	36.95	N77°56'53"E
L89	33.84	S45°43'17"E
L90	69.33	N79°41'12"E
L91	36.18	S77°12'00"E
L92	36.48	S00°49'32"E
L93	30.90	S25°05'59"W
L94	34.24	S39°02'42"W
L95	18.83	S05°19'06"W
L96	22.11	S03°19'39"E
L97	58.55	S17°05'54"E
L98	26.89	S02°05'09"W
L99	19.92	S10°24'28"E
WETLAND AREA B		
L100	37.23	S00°46'18"W
L101	35.77	S03°09'10"E
L102	8.47	N88°35'36"W
L103	51.05	N16°39'54"W
L104	29.97	N11°17'24"E
L105	24.69	N07°27'05"W
L106	18.10	N25°28'42"E
L107	27.35	S18°49'38"E
L108	20.62	S06°45'43"E
WETLAND AREA C		
L109	35.33	N73°39'14"E
L110	9.06	N62°04'10"E
L111	23.90	N45°55'09"W
L112	42.74	S38°20'22"W
L113	14.27	S54°21'15"E
WETLAND AREA D		
L114	80.99	N78°44'32"E
L115	62.62	N68°25'27"E
L116	380.68	N57°46'35"E
L117	51.83	N15°10'14"E
L118	556.03	S58°20'22"W

TITLE REPORT:

FIRST AMERICAN TITLE INSURANCE COMPANY
COMMITMENT NO. PAFA14-0115 MM

EFFECTIVE DATE: 1/10/2014

SCHEDULE 'B' SECTION 2

ITEM	DESCRIPTION
8	RESTRICTIONS AS IN DEED BOOK 435 PAGE 122; *(INSUFFICIENT INFORMATION PROVIDED TO DETERMINE IF THESE RESTRICTIONS AFFECT SURVEYED PROPERTY.)*
9	RIGHT OF WAY AS IN DEED BOOK 525 PAGE 393 AND ASSIGNMENT THEREOF AS IN DEED BOOK 525 PAGE 556; *(75 FOOT WIDE RIGHT-OF-WAY TO CONSTRUCT, ERECT, OPERATE, MAINTAIN A LINE OR LINES TO TRANSPORT ELECTRICITY, TELEPHONE OR TELEGRAPH LINE. LOCATION CANNOT BE DETERMINED WITH PROVIDED INFORMATION.)*
10	RIGHTS GRANTED TO PHILADELPHIA ELECTRIC COMPANY AS IN DEED BOOKS 620 PAGE 382, 620 PAGE 445, 620 PAGE 446, 1849 PAGE 46, 2073 PAGE 324, 2073 PAGE 330, 2088 PAGE 304, 2115 PAGE 1120, 2348 PAGE 1032 AND 2590 PAGE 781; *(DEED BOOK 2079 PAGE 224 IS A GAS LINE EASEMENT THROUGH LANDS OF ER STEEL. INSUFFICIENT INFORMATION TO DETERMINE LOCATION. DEED BOOK 2073 PAGE 330 AFFECTS SUBJECT PROPERTY NEAR INTERSECTION OF ENTERPRISE AVENUE AND STEEL DRIVE SOUTH SHOWN ON PLAN. DEED BOOK 2590 PAGE 781 APPEARS TO BE A BLANKET EASEMENT FOR PHILADELPHIA ELECTRIC COMPANY TO CONSTRUCT, OPERATE AND MAINTAIN COMMUNICATIONS, GAS, AND ELECTRIC TRANSMISSION FACILITIES TO FACILITIES OF USS REALTY MAY AFFECT SUBJECT PROPERTY.)*
11	RIGHTS AS IN DEED BOOK 936 PAGE 45. *(SURVEYED PROPERTY IS SUBJECT TO RIGHTS AS IN DEED BOOK 936 PAGE 45; NOT PLOTTABLE.)*
13	RIGHTS GRANTED TO THE BELL TELEPHONE COMPANY OF PENNSYLVANIA AS IN DEED BOOK 2593 PAGE 290. *(RIGHTS TO THE TELEPHONE COMPANY OF PENNSYLVANIA AS IN DEED BOOK 2593 PAGE 290 AFFECTS SUBJECT PROPERTY BLANKET IN NATURE.)*
16	RIGHTS OF WAY AGREEMENT AS IN LAND RECORD BOOK 695 PAGE 1859. *(RIGHT OF WAY AS IN LAND RECORD BOOK 695 PAGE 1859 AFFECTS SURVEYED PROPERTY AND IS SHOWN).*
18	EASEMENT AGREEMENTS AS IN LAND RECORD BOOKS 1689 PAGE 1548, 1689 PAGE 1561, 1689 PAGE 1574, 1734 PAGE 2021, 1791 PAGE 2110, 2192 PAGE 1111 AND 4508 PAGE 1244. *(LAND RECORD BOOK 1689 PAGE 1548 AFFECTS SURVEYED PROPERTY.IN THAT VAN WATERS & ROGERS HAS RIGHTS TO UTILIZE RAIL LINES THROUGH SURVEYED PROPERTY. LAND RECORD BOOK 1689 PAGE 1561 GRANTS RIGHTS TO VAN WATERS & ROGERS TO USE INDUSTRIAL PARK ROADWAYS.)*
21	RAIL ACCESS EASEMENT AGREEMENT AS IN LAND RECORD BOOK 2657 PAGE 23 AND EXHIBIT IN PLAN BOOK 308 PAGE 81. *(LAND RECORD BOOK 2657 PAGE 23 AND EXHIBIT IN PLAN BOOK 308 PAGE 81 GRANTS RIGHTS TO OWNER OF TAX PARCEL 13-47-129 TO USE RAILROAD AS SHOWN ON PLAN.)*
23	DEVELOPMENT GRANT AS IN LAND RECORD BOOK 2970 PAGE 1221. *(LAND RECORD BOOK 2970 PAGE 1221 GRANTS RIGHTS TO VERIZON TO CONSTRUCT AND MAINTAIN COMMUNICATION LINES AND STRUCTURES; CANNOT BE PLOTTED, BLANKET IN NATURE.)*
33	PLAN RECORDED IN PLAN BOOK 340 PAGE 61 SHOWS THE FOLLOWING: (A) BUILDING SET BACK LINES; (B) 20 FEET WIDE DRAINAGE EASEMENT; (C) 20 FEET WIDE DRAINAGE EASEMENT AND VARIABLE WIDTH DRAINAGE EASEMENT; (D) WETLANDS; (E) 15 FEET WIDE WATER MAIN EASEMENT; (F) WHEELABRATOR ELECTRIC EASEMENT; (G) ASHLAND RAIL EASEMENT; (H) PRE-FINISHED METALS RAIL EASEMENT; AND (I) NOTES; *(PLAN BOOK 340 PAGE 61; SURVEYED PROPERTY IS SUBJECT TO LISTED ITEM AS SHOWN ON PLAN. SEE PLAN REFERENCE No. 1)*

LEGAL DESCRIPTION:

BEGINNING AT A CORNER, SAID CORNER BEING THE INTERSECTION OF THE REQUIRED RIGHT OF WAY LINE OF DEAN SIEVERS PLACE, TAX PARCEL 13-51-1-5 (LOT 11) AND TAX PARCEL 13-51-1-6, AND RUNNING THENCE, 1) ALONG THE REQUIRED RIGHT OF WAY, ON A CURVE TO THE LEFT HAVING A RADIUS OF 460.44 FEET, A CENTRAL ANGLE OF 47° 30' 00", AND AN ARC LENGTH OF 381.72 FEET TO A POINT; 2) ALONG SAME, S. 30° 31' 23" W., A DISTANCE OF 602.08 FEET TO A POINT; 3) ALONG SAME, ON A CURVE TO THE RIGHT HAVING A RADIUS OF 280.00 FEET, A CENTRAL ANGLE OF 26° 26' 19", AND AN ARC LENGTH OF 119.97 FEET TO A POINT; 4) ALONG SAME, S. 58° 57' 42" W., A DISTANCE OF 116.41 FEET TO A POINT; 5) ALONG SAME, ON A CURVE TO THE RIGHT HAVING A RADIUS OF 30.00 FEET, A CENTRAL ANGLE OF 79° 05' 40", AND AN ARC LENGTH OF 41.41 FEET TO A POINT; 6) ALONG THE REQUIRED RIGHT OF WAY LINE OF STEEL ROAD SOUTH, ON A CURVE TO THE LEFT HAVING A RADIUS OF 340.00 FEET, A CENTRAL ANGLE OF 15° 05' 40", AND AN ARC LENGTH OF 89.57 FEET TO A POINT; 7) ALONG SAME, N. 59° 02' 18" W., A DISTANCE OF 393.46 FEET TO A POINT; 8) ALONG SAME, ON A CURVE TO THE RIGHT HAVING A RADIUS OF 110.00 FEET, A CENTRAL ANGLE OF 67° 13' 16", AND AN ARC LENGTH OF 129.06 FEET TO A POINT; 9) ALONG SAME, N. 08° 10' 58" E., A DISTANCE OF 1000.30 FEET TO A POINT; 10) ALONG SAME, S. 81° 49' 02" E., A DISTANCE OF 20.00 FEET TO A POINT; 11) ALONG SAME, N. 08° 10' 58" E., A DISTANCE OF 109.16 FEET TO A POINT; 12) ALONG TAX PARCEL 13-47-137, N. 78° 01' 23" E., A DISTANCE OF 981.43 FEET TO A POINT; 13) ALONG TAX PARCEL 13-51-1-6, S. 11° 58' 36" E., A DISTANCE OF 800.00 FEET TO A CORNER, SAID CORNER BEING THE TRUE PLACE OF BEGINNING.

CONTAINING 32.297 ACRES, MORE OR LESS.

GENERAL NOTES:

1. THE BOUNDARY AND TOPOGRAPHY AS SHOWN ARE BASED ON A FIELD SURVEY PERFORMED BY GILMORE & ASSOCIATES INC. IN MARCH OF 2014.
2. DESIGNATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN PREPARATION OF THESE DRAWINGS; THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/ FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THESE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.
3. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 652, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121. GILMORE AND ASSOCIATES INC. HAS OBTAINED PA-ONE CALL SERIAL NUMBERS 20140340626 & 20140340618 FOR DESIGN PURPOSES ONLY.
4. VERTICAL DATUM IS NAVD88 AND WAS ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE TORCON TOPSURV GPS BASE STATION NETWORK.
5. THE WETLANDS WERE FLAGGED BY SCOTT E. BUSH, PWS CONESTOGA-ROVERS & ASSOCIATES, INC. AND LOCATED BY GILMORE & ASSOCIATES, INC. ON JUNE 30, 2014.

PLAN REFERENCE:

1. LOT 1 COMBINED PLAN AND EASEMENT PLAN PREPARED FOR USS REAL ESTATE ONE NEW FAIRLESS HILLS DRIVE MORRISVILLE, PA, SHEET 2 OF 3 PREPARED BY SHOMALTER AND ASSOCIATES DATED MARCH 29, 2006 AND LAST REVISED 01-26-14.

SURVEYOR'S CERTIFICATION:

THE UNDERSIGNED, BEING A REGISTERED SURVEYOR OF THE COMMONWEALTH OF PENNSYLVANIA CERTIFIES TO:

FIRST AMERICAN TITLE INSURANCE CO. C/O BROKERS ABSTRACT AND SEARCH CO.

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 4, 6, 7(a), 7(b1), 8, 9, 11(a), 13, 14, 16, AND 18 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED IN MARCH OF 2014.

DATE

STANLEY J. KLUSKIEWICZ, PLS
PA. LICENSE NO. SU031253E

PENNSYLVANIA ONE CALL SYSTEM, INC.
925 Irwin Run Road
West MIFFIN, Pennsylvania
15122 - 1016

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH

REV.	DESCRIPTION	DATE	BY
3	REVISED PER USACOE SITE VISIT	11-14-14	JJH
2	REVISED PER ADDITIONAL WETLANDS DELINEATION	8-20-14	JEG
1	REVISED PER NEW WETLANDS DELINEATION	7-02-14	DL

APPLICANT: ELCON RECYCLING SERVICES, LLC
P.O. BOX 1428
HAFA, ISREAL 31013

MUNICIPAL FILE NO.: --

TAX MAP PARCEL NO.: 13-51-1-5

TOTAL AREA: 32.297 AC. | TOTAL LOTS: 1

DATE: 3-28-14 | SCALE: 1"= 50'

ALTA/ACSM LAND TITLE SURVEY
ELCON RECYCLING
FALLS TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
330 EAST BUTLER AVENUE NEW BRITAIN, PA 18901-0706 • (215) 345-4330 • www.gilmoreassoc.com

50 0 50 100
SCALE IN FEET

JOB NO.: 1207083
SHEET NO.: 1 OF 1

DESIGNED BY: JEG | DRAWN BY: DL | CHECKED BY: SJK

ONLY THOSE PLANS INCORPORATING THE RAISED PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATION HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED. © COPYRIGHT 2006 GILMORE & ASSOCIATES, INC. ALL RIGHTS RESERVED.

APPENDIX B

COMPLETED DATA FORMS

ELCON PARCEL

Google earth

feet 2000
meters 600

DATA POINT LOCATION MAP

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Elcon City/County: Bucks Sampling Date: 6/25/2014

Applicant/Owner: Elcon State: PA Sampling Point: DP 1

Investigator(s): Scott Bush, PWS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): 149A Lat: 40.168567 Long: 74.759944 Datum: WGS84

Soil Map Unit Name: UfuB - Urban land, 0 - 8% slopes NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Industrial lands

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DP 1

Tree Stratum (Plot sizes: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Shrub Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (_____)			
1. Poa pratensis	50	yes	FACU
2. Centaurea stoebe	15	no	UPL
3. Panicum virgatum	10	no	FAC
4. Solidago altissima	10	no	FACU
5. Trifolium repens	10	no	FACU
6. Lolium perenne	5	no	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	
Woody Vine Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/4						Loam	
8-18	10YR 5/4						Loamy	with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Elcon City/County: Bucks Sampling Date: 6/25/2014

Applicant/Owner: Elcon State: PA Sampling Point: DP 2

Investigator(s): Scott Bush, PWS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): 149A Lat: 40.169803 Long: 74.760530 Datum: WGS84

Soil Map Unit Name: UfuB - Urban land, 0 - 8% slopes NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DP 2

Tree Stratum (Plot sizes: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	10	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	10	= Total Cover	
Sapling Stratum (_____)			
1. Lonicera tatarica	5	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	
Shrub Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (_____)			
1. Melilotus officinalis	15	yes	FACU
2. Centaurea stoebe	15	yes	UPL
3. Setaria pumila	5	no	FAC
4. Eupatorium serotinum	2	no	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	37	= Total Cover	
Woody Vine Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	10	x 3 =	30
FACU species	22	x 4 =	88
UPL species	15	x 5 =	75
Column Totals:	47 (A)		193 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 5/2						Sandy	Sandy fill and slag

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Elcon City/County: Bucks Sampling Date: 6/25/2014

Applicant/Owner: Elcon State: PA Sampling Point: DP 3

Investigator(s): Scott Bush, PWS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): 149A Lat: 40.167322 Long: 74.762298 Datum: WGS84

Soil Map Unit Name: UfuB - Urban land, 0 - 8% slopes NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DP 3

Tree Stratum (Plot sizes: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	25	yes	FAC
2. Platanus occidentalis	10	yes	FACW
3. Acer negundo	10	yes	FAC
4.			
5.			
6.			
7.			
	45	= Total Cover	
Sapling Stratum (_____)			
1. Elaeagnus autumnalis	40	yes	UPL
2. Lonicera tatarica	10	no	FACU
3.			
4.			
5.			
6.			
7.			
	50	= Total Cover	
Shrub Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (_____)			
1. Lonicera japonica	26	yes	FACU
2. Toxicodendron radicans	25	yes	FAC
3. Solidago canadensis	20	no	FACU
4. Apocynum cannabinum	10	no	FACU
5. Galium aperine	10	no	UPL
6. Parthenocissus quinquefolia	10	no	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	101	= Total Cover	
Woody Vine Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18							Slag	All slag

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No actual soil present in the upper layer of ground at this location

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Elcon City/County: Bucks Sampling Date: 6/25/2014

Applicant/Owner: Elcon State: PA Sampling Point: DP 4

Investigator(s): Scott Bush, PWS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): 149A Lat: 40.165631 Long: 74.762283 Datum: WGS84

Soil Map Unit Name: Na, Nanticoke-Hatboro silt loams NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DP 4

Tree Stratum (Plot sizes: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ailanthus altissima	20	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20	= Total Cover	
Sapling Stratum (_____)			
1. Ailanthus altissima	30	yes	FACU
2. Morus rubra	10	yes	FACU
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	
Shrub Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (_____)			
1. Toxicodendron radicans	40	yes	FAC
2. Medicago lupulina	10	no	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50	= Total Cover	
Woody Vine Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	40	x 3 =	120
FACU species	60	x 4 =	240
UPL species		x 5 =	
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DP 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10								Rip Rap

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Sample in the shoulder of Steel Road South

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Elcon City/County: Bucks Sampling Date: 6/25/2014

Applicant/Owner: Elcon State: PA Sampling Point: DP 5

Investigator(s): Scott Bush, PWS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): 149A Lat: 40.165429 Long: 74.762283 Datum: WGS84

Soil Map Unit Name: Na, Nanticoke-Hatboro silt loams NWI classification: PUB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 6
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DP 5

Tree Stratum (Plot sizes: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	20	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (_____)			
1. Hibiscus moscheutos	30	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Shrub Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (_____)			
1. Phragmites australis	60	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
Woody Vine Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DP 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1						Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ✓ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Elcon City/County: Bucks Sampling Date: 6/25/2014

Applicant/Owner: Elcon State: PA Sampling Point: DP 6

Investigator(s): Scott Bush, PWS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): 149A Lat: 40.166593 Long: 74.762761 Datum: WGS84

Soil Map Unit Name: Na, Nanticoke-Hatboro silt loams NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ✓	No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ___	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 12

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DP 6

Tree Stratum (Plot sizes: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (_____)			
1. Lindera benzoin	80	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	80	= Total Cover	
Shrub Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (_____)			
1. Polygonum cuspidatum	10	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	
Woody Vine Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	90 (A)		210 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DP 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	98	10YR 4/6	2	C	M	Loam	
8-18	10YR 4/1	98	10YR 4/6	2	C	M	Loam w	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Elcon City/County: Bucks Sampling Date: 6/25/2014

Applicant/Owner: Elcon State: PA Sampling Point: DP 7

Investigator(s): Scott Bush, PWS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): 149A Lat: 40.166593 Long: 74.762762 Datum: WGS84

Soil Map Unit Name: Na, Nanticoke-Hatboro silt loams NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: DP 7

Tree Stratum (Plot sizes: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	20	yes	FACU
2. Acer negundo	20	yes	FAC
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	
Sapling Stratum (_____)			
1. Morus rubra	60	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	60	= Total Cover	
Shrub Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (_____)			
1. Ageratina altissima	30	yes	FACU
2. Alliaria petiolata	30	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60	= Total Cover	
Woody Vine Stratum (_____)			
1. Vitis aestivalis	20	yes	FACU
2. Celastrus orbiculatus	20	yes	UPL
3.			
4.			
5.			
	40	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	20	x 3 =	60
FACU species	160	x 4 =	640
UPL species	20	x 5 =	100
Column Totals:	200 (A)		800 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DP 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4						Loam	
4-16	10YR 5/4						Loam w/	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Elcon City/County: Bucks Sampling Date: 6/25/2014

Applicant/Owner: Elcon State: PA Sampling Point: DP 8

Investigator(s): Scott Bush, PWS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): 149A Lat: 40.169745 Long: -74.762271 Datum: WGS84

Soil Map Unit Name: Na, Nanticoke-Hatboro silt loams NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 2

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DP 8

Tree Stratum (Plot sizes: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Sapling Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Shrub Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (_____)			
1. Phragmites australis	98	yes	FACW
2. Lythrum salicaria	2	no	
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

Woody Vine Stratum (_____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

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Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

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Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DP 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/2	95	7.5YR 5/4	5	C	M	Loamy	with slag gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
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- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

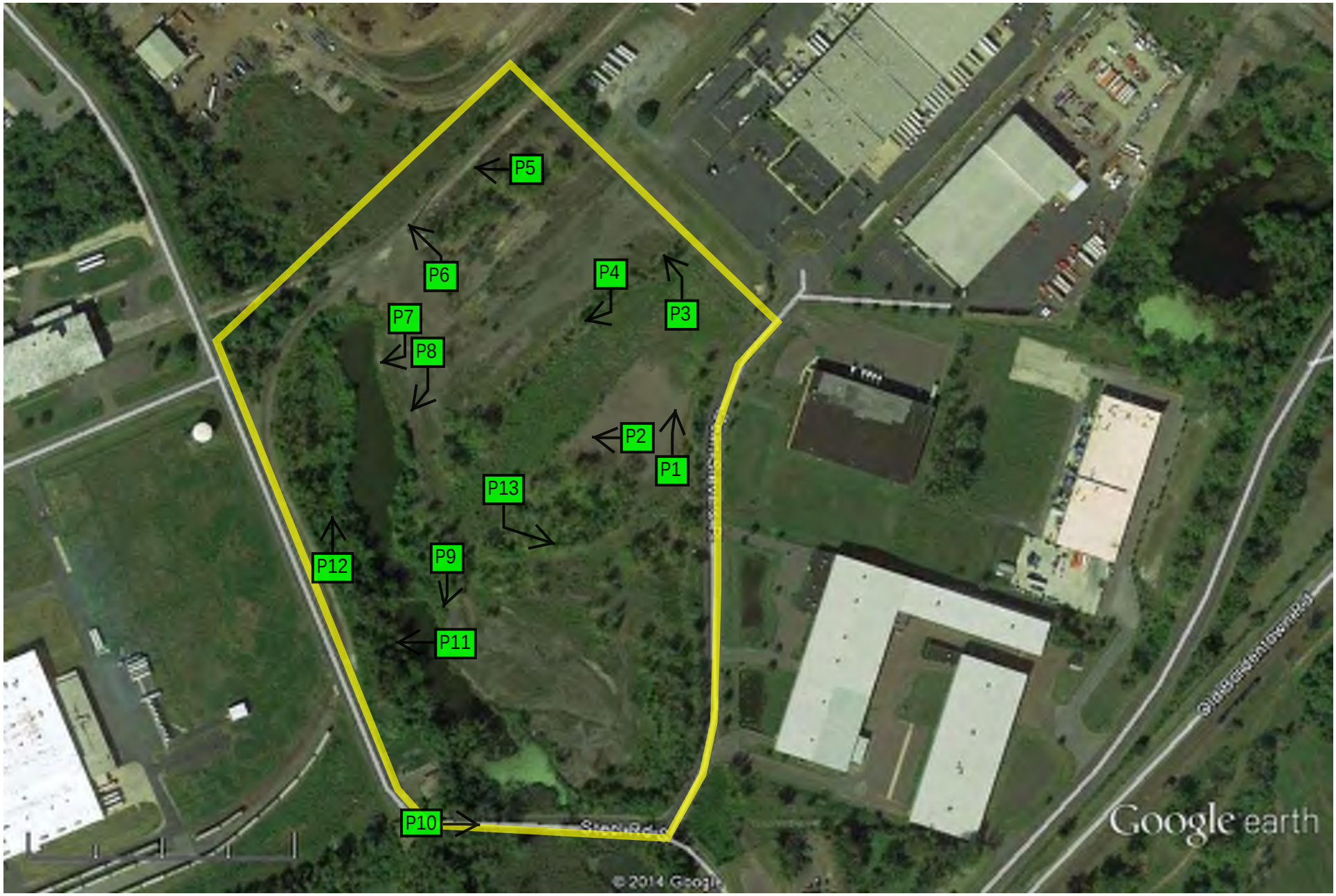
Hydric Soil Present? Yes ✓ No ___

Remarks:

APPENDIX C

COLOR PHOTOGRAPHS

ELCON PARCEL



Google earth

feet 2000
meters 600

PHOTO LOCATION MAP

1. Looking northeast at industrial uplands in the eastern part of the Site.

2. Looking west at industrial uplands in the eastern part of the Site.

3. Looking north at industrial uplands in the eastern part of the Site.

4. Looking north at industrial uplands in the northern part of the Site.

5. Looking north at industrial uplands in the northern part of the Site within the Wheelabrator Falls power line right-of-way.

6. Looking north at industrial uplands in the northern part of the Site within the Wheelabrator Falls power line right-of-way. Wetland D, dominated by Phragmites is in the background.

7. Looking east at the northern portion of Area A.

8. Looking southeast at Area A.

9. Looking south at Area A.

10. Looking west at Steel Road South adjacent to the southern Site boundary.

11. Looking at Area B, a sparsely vegetated concave depression that seasonally holds standing water.

12. Looking east at industrial uplands in the southern part of the Site.

13. Looking south east at industrial uplands in the southern part of the Site.

9.3 ARMY CORPS OF ENGINEERS JURISDICTIONAL DETERMINATION

DEPARTMENT OF THE ARMY

PHILADELPHIA DISTRICT CORPS OF ENGINEERS
WANAMAKER BUILDING, 100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107-3390

REPLY TO
ATTENTION OF

JAN 05 2015

Regulatory Branch
Application Section I

SUBJECT: CENAP-OP-R 2014-1004-39 (Preliminary JD)
Project Name: Elcon Recycling Services
Latitude and Longitude: 40.168° N/-74.761° W

Zvi Elgat
Elcon Recycling Services
11 LeParc Drive
Princeton, New Jersey 08550

Dear Mr. Elgat:

This letter is written with regard to your request for verification of a preliminary jurisdictional determination. The property associated with your request is located at, Tax Parcel Number 13-51-1-5 adjacent to Dan Sievers Place AKA Kuehn Circle, in Falls Township, Bucks County, Pennsylvania.

Pursuant to Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, a Department of the Army permit is required for work or structures in navigable waters of the United States and the discharge of dredged and/or fill material into waters of the United States, including adjacent and isolated wetlands. Any proposal to perform the above activities within any waters of the United States, including wetlands, requires the prior approval of this office.

The plans identified on the following page depict all delineated waters and wetlands on the subject site that may be jurisdictional under Section 10 of the Rivers and Harbor Act and/or Section 404 of the Clean Water Act. This preliminary determination has been conducted to identify the location(s) of waters and wetlands that may be waters of the United States for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participating in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

This preliminary jurisdictional determination is non-binding and indicates that there may be waters of the United States, including wetlands, on the parcel. Preliminary JDs are advisory in nature and may not be appealed (See attached Notification of Appeal Form (Enclosure 1)); however, the applicant retains the right to request an approved Jurisdictional Determination, which may be appealed, for the site. Also enclosed (Enclosure 2) is a copy of the Preliminary

Jurisdictional Determination Form signed by the applicant or his agent agreeing to accept a preliminary jurisdictional determination. Please be aware that for purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S.

This letter is valid for a period of five (5) years. This preliminary jurisdictional determination is issued in accordance with current Federal regulations and is based upon the existing site conditions and information provided by you in your application. This office reserves the right to reevaluate and modify the preliminary jurisdictional determination at any time should existing site conditions or Federal regulations change, or should the information provided by you prove to be false, incomplete, or inaccurate.

If you have any questions regarding this matter, please contact Mr. Lawrence Slavitter at (215) 656-6734 or write to the above address.

Sincerely,

Lawrence M. Slavitter
Biologist

****

SUBJECT PROPERTY: Elcon Recycling Services; 32 acres; Tax Map Parcel Number 13-51-1-5; adjacent to Dan Sievers Place (AKA Kuehn Circle, in Falls Township, Bucks County, Pennsylvania.

****

SURVEY DESCRIPTION: Plot plan prepared by Gilmore and Associates, Incorporated, entitled "ALTA/ACSM Land Title Survey…"; dated March 28, 2014; last revised November 14, 2014, scale 1" = 50'; sheet 1 of 1.

****

COMMENTS: Site inspection by representative of this office on November 14, 2014.

****

Enclosures

Copies Furnished:
PADEP, SE Regional Office (Norristown, PA)
Bucks County Conservation District

Scott Bush
Conestoga-Rovers & Associates, Inc.
410 Eagleview Boulevard Suite 110
Exton, Pennsylvania 19341

9.4 ACT 2 FINAL REPORT (WITHOUT APPENDICES)

Act 2 Final Report for 32-Acre Parcel

Keystone Industrial Port Complex U.S. Steel
Fairless Hills, Bucks County, Pennsylvania

USS Real Estate

410 Eagleview Boulevard, Suite 110 Exton Pennsylvania 19341
083101 | Report No 6 | September 08 2015

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Appendix A Stratigraphic Logs

Appendix B Data Validation Report

Appendix C Wetland Location Plan

Appendix D Pennsylvania Natural Diversity Inventory (PNDI) Records

Appendix E Act 2 Documentation

Appendix F Ecological Health Assessment (EHA)

1. Introduction

This Final Report is being submitted to the Pennsylvania Department of Environmental Protection (PADEP) to document the attainment of the Statewide Health Standard (SHS) for the 32-Acre Parcel (Site or Property) at the U.S. Steel (USS) Keystone Industrial Port Complex (KIPC), Fairless Hills, Bucks County, Pennsylvania (Facility). The Site characterized and evaluated in this report is approximately 32 acres of the industrial KIPC. The Site included operations that supported the former industrial operations. This Final Report demonstrating attainment of the SHS for soil was prepared in accordance with Pennsylvania Chapter 250, the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2), Section 312. The Facility location is presented on Figure 1.1. The Site location is presented on Figure 1.2.

Based on current Site conditions, the results for the Site characterization and previous assessments, evaluation of potential receptors and exposure pathways, and execution of an Environmental Covenant with activity use limitations to ensure future use restrictions, USS has demonstrated attainment with the SHS for Site compounds of concern (COC) for soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2).

2. Site Description

2.1 Facility and Site Location

The Facility is located on the west bank of the Delaware River, approximately 1 mile west of Bordentown, New Jersey, 2 miles south of Trenton, New Jersey and 3 miles east of Levittown, Pennsylvania (Figure 1.1). The Facility is approximately 2,800 acres. The Facility is bounded to the east and southeast by low-lying wetlands, tidal marshes, and forested areas that represent former farmed fields. To the southwest of the Facility is the Geological Reclamation Operations and Waste Systems Inc. (G.R.O.W.S) landfill, a subsidiary of Waste Management of Pennsylvania (WMPA). To the northwest of the Facility is the New Ford Mill Industrial Park and property belonging to Wheelabrator Environmental Systems, Inc. To the northeast of the Facility is Biles Island (owned by WMPA).

The Site characterized and evaluated in this Final Report consists of an approximately 32-acre parcel as shown on Figure 1.2. The Site is bounded to the north, south, east, and west by former Facility operational areas.

2.2 Facility and Site Background

Facility

Prior to 1952, the Facility was used for agricultural purposes. During construction of the Facility, numerous borrow pits were excavated to provide fill material to raise the Facility above the elevation of the 100-year floodplain. The Facility began operations in 1952. Its primary activities were integrated steel-making and finishing. The majority of the Facility operations were constructed in the early 1950s. Additional development took place in the 1960s and the early 1970s, including the construction of the electric arc furnace, rod mill, and wire mill. In the early 1980s the electric arc furnace and several finishing operations (rod, bar, rolling, and wire mills) were shut down. In 1984, the coke and coal chemical plants were shut down. The sinter plant ceased operations in 1990.

Steel-making operations ceased in 1991 when the last blast furnace, open hearths, and primary mills were shut down. Currently, only the galvanizing facility is still operating.

Site

The Site area includes a small portion of former borrow pit BP-31A. The portion of borrow pit BP-31A (approx. 0.7 acres) that is on the Site is presented on Figure 3.1. Borrow Pit BP-31A was part of a complex of pits that includes BP-21 and BP-31. Borrow Pit BP-31A was located adjacent to Steel Road South by Dean Siever's Place. This pit is irregular in shape and occupies approximately 28.5 acres. Only a small portion of BP-31A (approx. 0.7 acres) extends onto the Site. The pit was filled with blast furnace slag. The central portion of the borrow pit was filled to grade. This pit was active from 1952 to 1980. The Description of Current Conditions (DOCC; BCM, 1994) did not identify any sources or risk of contamination in this area. The Site also includes a storm water ditch of approximately 2.6 acres on the west side of the parcel which was formerly referred to as North Canal system, which drains north and then east to Biles Creek. The Site lays in close proximity to other waterbodies that area currently known to support State-listed species of concern (i.e., rare, threatened, and endangered fish, reptiles, and amphibians).

Fourteen soil samples (four from soil borings and ten from test pits) were collected from the 32-acre area in 1998 and analyzed for select volatile organic compounds (VOCs), select semi-VOCs (SVOCs), Total Petroleum Hydrocarbons (TPH), and priority pollutant (PP) metals. In addition, three sediment samples were also collected from the stormwater ditch on the west side of the parcel in 1998 and analyzed for select VOCs, select SVOCs, TPH, and PP metals.

In addition, 28 soil samples from 14 boreholes (14 surficial [0-2 feet (ft) below ground surface (bgs)] and 14 sub-surface soil samples [greater than 2 ft bgs]) and 3 surface water samples were collected between June 24, 2014 and June 26, 2014 from the 32-acre area and analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, polychlorinated biphenyl (PCBs), and PP metals.

2.3 Physiography and Topography

The Facility is located on a broad alluvial plain of the Delaware River (Figure 1.1). The Facility elevation is approximately 10 to 20 ft above mean sea level (AMSL). The alluvial plain lies on the inside bend of a major change in the river channel direction from southeast to southwest. The change in direction corresponds to the emergence of the river from the undulating, rolling low relief hills of the Piedmont Physiographic Province to the relatively flat Atlantic Coastal Plain Province. In the northeastern United States, the boundary between these two provinces is commonly termed the “Fall Line” that trends northeast-southwest (NE-SW) and lies approximately 5 miles northwest of the Facility.

The Piedmont Province consists of a series of NE-SW trending uplands composed of rounded hills and plains cut by relatively narrow valleys. The altitude of the region ranges from 40 to 700 ft AMSL, with local relief not greater than 200 ft. The slope of the whole region is gradually to the southeast. The Piedmont Province is underlain by crystalline rocks of Pre-Cambrian and Cambrian age (Kimball, 1976).

The Atlantic Coastal Plain Province is a low-lying, gently rolling plain. At the Facility, the slope is generally to the southeast toward the Delaware River. The Coastal Plain is composed of unconsolidated or poorly consolidated, flat-lying sediment strata consisting of clay, silt, sandy clay,

sand, and gravel of the Mesozoic and Cenozoic age. The beds thicken to the southeast and overlie some of the consolidated crystalline rocks that are at or near the surface in the Piedmont Province.

A review of the Trenton East and Trenton West, New Jersey USGS 7.5-minute series topographic quadrangle maps and Facility engineering plans, ground surface across the Site ranges from 11.5 to 20 feet AMSL. On the western side of the Site', the existing ground surface slopes gradually downward having elevations of less than 11.5 feet AMSL.

2.4 Geologic and Hydrogeologic Setting

According to the Soil Survey of Bucks and Philadelphia Counties, Pennsylvania: U.S. Department of Agriculture, Map 73 (Thompkins, Edward A., July 1975), the Facility is covered by Urban Land, 0 to 8 percent slopes. The Urban Land-Howell Complex is the second most predominant soil type at the Facility. Urban land is soil that has been modified by disturbance of the natural layers with addition of fill material to accommodate large industrial and housing installations. The existing surface of the Site is composed predominantly of fill (slag, brick, ash, silt, and gravel).

Based on data obtained from the Site borings and test pits advanced, the Site overburden is comprised of fill material overlying fine to coarse sand/gravel, silts, and clays. In general, the fill varied in thickness from 4.5 to 15 ft. Fill material generally included fines with some slag. Native soil encountered beneath the fill material appear to be indicative of the Trenton Gravel Series, generally consisting of fine to coarse gravel, sand, with some silt and minor amounts of clay. The upper-most water bearing unit occurs in the unconsolidated native material and is unconfined. The depth to water in the soil borings was encountered at depths ranging from 5 to 13.5 ft bgs.

Bedrock was not encountered in any of the borings during the Site characterization; however, the 1997 RCRA Facility Investigation Report noted that the Site is underlain by the Wissahickon Schist and bedrock generally is located at depths ranging from approximately 80 to 100 ft bgs.

3. Site Characterization

The following presents a summary of the methodology and procedures followed during the Site characterization. All investigation activities were performed in accordance with standard industry practice and guidelines described in the Land Recycling Program Technical Guidance manual (June 8, 2002) and following proper health and safety protocols required by Occupational Safety and Health Administration (OSHA) Regulations 1910.120.

Prior to the start of the investigation, utilities were cleared through the Pennsylvania One Call system and USS personnel.

To evaluate historical soil concentrations (September 1998), additional soil and surface water sampling was conducted in June 2014. The soil borings were advanced in the subsurface using direct-push technology (i.e., Geoprobe®). The soil boring locations are presented on Figure 3.1. The soil borings were advanced to a depth equivalent to the top of the upper-most water bearing unit. Soil samples were collected continuously in 4-ft long macrocores for each boring location. Soil was classified in general accordance with the Unified Soil Classification System (USCS). The macrocores were opened and then screened using a RAE Systems MiniRae 2000 Photoionization Detector (PID) for possible presence of VOCs. The PID was calibrated daily prior to use.

Twenty-eight soil samples from 14 boreholes (14 surficial [0-2 ft bgs] and 14 sub-surface soil samples [greater than 2 ft bgs]) and 3 surface water samples were collected between June 24, 2014 and June 26, 2014 from the 32-acre area.

Samples were submitted to TestAmerica for chemical analysis. Quality control samples were collected during sampling (field blank, field duplicate, and trip blank samples). All samples were collected in containers provided by the laboratory and placed in coolers on ice, then transported to the laboratory following standard chain of custody procedures. Soil and surface water samples were analyzed for TAL VOCs, TAL SVOCs, PP metals, and PCBs.

Following sample collection and screening, the soil borings were backfilled. Soil sample locations were surveyed in advance of the sampling events. Appendix A presents the stratigraphic logs for the soil borings along with the results of the PID screening.

All samples were collected and transported following standard chain-of-custody procedures.

4. Data Evaluation

4.1 Soil Sample Results

All analytical results were below the Medium-Specific Concentrations (MSC) for surficial samples (0 to 2 ft bgs) (Table 4.1) and subsurface samples (2 to 15 ft bgs) for non-residential direct-contact values (Table 4.2). In addition all soil samples were below the MSCs for the soil to groundwater numerical values (Table 4.3) for non-residential, non-use aquifers. Tables 4.1 to 4.4 present the analytical results for soil and sediment samples collected from the historical locations and the recent soil boring.

All soil samples were also below the USEPA-PA Defaults Nonresidential Volatilization to Indoor Air numerical values (Table 4.4).

Appendix B presents the data validation conducted on the June 2014 soil sample's analytical reports.

4.2 Surface Water Sample Results

All analytical results were below the Chapter 93.8c, Table 5, Water Quality Criteria for Toxic Substances (Fish and Aquatic Life Criteria and Human Health criteria). Table 4.5 presents the analytical results for surface water samples collected during the June 2014 investigation.

5. Site Conceptual Model

The Facility is located on a broad alluvial plain of the Delaware River. The Facility elevation is approximately 10 to 20 ft AMSL. The alluvial plain lies on the inside bend of a major change in the river channel direction from southeast to southwest.

The Site encompasses approximately 32 acres. Based on data obtained from Site borings and test pits advanced, the Facility overburden is comprised of fill material overlying fine to coarse sand/gravel, silts and clays. In general, the fill varied in thickness from 4.5 to 15 ft. Fill material generally included fines and some slag. Native soil encountered beneath the fill material appear to

be indicative of the Trenton Gravel Series, generally consisting of fine to coarse gravel, sand, with some silt and minor amounts of clay. The upper-most water bearing unit occurs in the unconsolidated native material and is unconfined. The depth to water in the soil borings was encountered at depths ranging from 5 to 13.5 ft bgs.

The Site is part of an industrial park and only non-residential uses of the Property are permitted for the future. There are currently no buildings on the Site. A non-use aquifer determination was approved by PADEP in April 1999, and eliminates the groundwater exposure pathway. Also, in an April 11, 2011 letter, PADEP provided a release of environmental liability for COCs in Facility-wide groundwater. Currently, there are no uses of groundwater for potable or non-potable purposes between the up gradient boundary of the Facility and the Delaware River. Furthermore, the use of Facility groundwater is restricted through the implementation of an Environmental Covenant and all present and future use of groundwater from any source on the Property shall be prohibited, except for purposes of monitoring groundwater quality, as necessary. Furthermore, by Environmental Covenant, the uses of the Property will be restricted to non-residential purposes and there is no completed pathway to on-Site groundwater due to existing restrictions.

6. Exposure Pathway and Receptor Evaluation

The Site is currently zoned for non-residential use and will be restricted through use of an Environmental Covenant. The immediate and planned future use is industrial (materials processing and manufacturing). The direct-contact MSCs used were the non-residential criteria. The soil to groundwater pathway MSCs used was based on the non-use aquifer criteria, because the Site has obtained a non-use aquifer designation from PADEP.

6.1 Soil

The soil concentrations at the Site reported concentrations of COCs below the applicable MSCs for direct-contact in a non-residential use scenario (for both surface and subsurface soil). Therefore, there is no exposure pathway or receptors to COCs in soil.

The soil concentrations at the Site reported concentrations of COCs below the applicable MSCs soil-to-groundwater criteria for non-use aquifers. Therefore, there is no exposure pathway from soil-to-groundwater, and there is a non-use aquifer determination for the Property and Facility.

6.2 Ecological Evaluation

The surface soil (top 2 feet) samples at the Site reported concentrations of chemicals that were, with the exception of a one slight exceedance of arsenic, below Act 2 Ecological Evaluation Criteria. At the same time, some VOCs, SVOCs, PCBs, and metals were detected in the surface soil, some of which are potentially due to Site-releases. Following Act 2 guidance, many of the organics, primarily PAHs and PCBs, and several metals (chromium, copper, and nickel) were identified as constituents of potential ecological concern (CPECs) on the Site, even though none was detected above the Act 2 screening levels[1]. Since CPECs are present in surface soils, the Site could not be

[1] According to guidance, CPECs are those chemicals that are both elevated by site releases and also found in Act 2 generic list of potential CPECs. The first criterion was assessed by comparing surface soil concentration to background values. Background values for all organics, including PAHs and PCBs, were assumed to be zero, so these were identified as CPECs. However, only the three metals

eliminated from further ecological evaluations under 250.311 (b). A more detailed evaluation of potential ecological effects was undertaken.

CRA ecologists Daniel W. Smith and Scott E. Bush conducted a site visit on September 25, 2014 to examine and evaluate existing site habitats and existing site conditions. Based on this visit and available sampling data, an Ecological Health Assessment (EHA) was completed following Act 2 guidance. This EHA is described in more detail in Appendix F, but the following describes the on-Site habitat and the conclusions of the EHA.

Existing Site Ecological Features

The Site is approximately 32 acres and is relatively flat. The majority of Site topography ranges in elevation from approximately 15 feet to 20 feet AMSL. Several topographic depressions occur in the western portion of the Site, and these are associated with a small elongated pond and adjacent wetlands. The uplands on the Site (totaling approximately 27.5 acres) are previously disturbed industrial areas of varying levels of plant-community succession on variable fill soil. The majority of the surface material is steel slag of varying texture, with very little to no true soil. These slag covered areas are vegetated with a sparse, depauperate plant community, which is dominated by weedy species that are often typical of disturbed industrial areas and tolerant of these poor growing conditions. These species include eastern cottonwood (*Populus deltoides*), box elder (*Acer negundo*), black locust (*Robinia pseudoacacia*), staghorn sumac (*Rhus typhina*), mugwort (*Artemisia vulgaris*), spotted knapweed (*Centaurea maculosa*), and yellow sweet clover (*Melilotus officinalis*). In turn, the sparse, weedy vegetation is poor habitat for terrestrial animal species.

CRA ecologists observed no evidence that Site-related compounds are causing toxicity to sparse flora or fauna that occur over most of the Site. Therefore, the sparse vegetation and depauperate plant community are due to the poor growing conditions of the surface material, mostly slag with little to no soil, not stresses associated with chemicals related to Site releases.

Four wetland areas occur on the Site and are identified as Areas A, B, C, and D on the Site Plan in Appendix C. Each wetland/open water is discussed below.

Area A is a 4.29 acre palustrine unconsolidated bottom (PUB) openwater with palustrine emergent (PEM1) littoral fringes located along the western Site boundary. The openwater portions of Area A range from approximately one foot deep to a maximum of approximately 4 feet deep. The emergent littoral fringes are dominated by black willow (*Salix nigra*) saplings, poison ivy (*Toxicodendron radicans*), common reed (*Phragmites australis*), and marsh rosemallow (*Hibiscus moscheutos*). The soil/sediment from 0 to 12 inches was observed to be black (10YR 2/1) muck. Area A drains north through a 72-inch diameter reinforced concrete pipe to a ditch that flows north along Steel Road South. Area A provides some habitat for aquatic and semi aquatic species; fish were noted.

Area B is a 0.04 acre palustrine forested (PFO) wetland located in an isolated sparsely vegetated topographic depression west of Area A. Area B is dominated by spice bush (*Lindera benzoin*). The soil was observed to be dark gray (10YR 4/1) with brown (7.5YR 4/6) concentrations. Blackened leaves were present and the soil was saturated at a depth of 12 inches.

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identified above were found to be elevated above background, and identified as CPECs. See Appendix F for more detailed discussion.

Area C is a small area of open water within a drainage ditch along Steel Road South that totals 0.018 acre. The ditch flows through a variety of industrial sites, between two railroad spurs, and ultimately drains to Biles Creek northeast of the Site.

Area D is a 0.41 acre palustrine emergent (PEM) wetland located north of the Ashland Rail easement along the northern property boundary. Area D is has been historically disturbed by industrial activities and is flat and the soils are compacted. Area D is dominated by common reed. The soil from 0 to 14 inches was observed to be dark grayish brown (10YR 4/2) with brown (7.5YR 5/4) concentrations. The soil was saturated at or near the ground surface at the time of the field investigation.

None of the wetlands on the Site exhibited stress related to the presence of toxic compounds at the Site. While invasive species (common reed) are commonly present in the wetlands on the Site, these species are also prevalent in other wetlands, unaffected by toxic chemicals, throughout Falls Township.

As part of the ecological screening process, an assessment of the Site was conducted to determine if any of the sensitive receptors listed at PA Chapter 250.311 (a) were present on the Site. A Pennsylvania Natural Diversity Inventory (PNDI) database search (Appendix D) indicates no potential conflicts with any Federally-listed threatened or endangered species as designated by the United States Fish and Wildlife Service (USFWS) under the Endangered Species Act (16 U.S.C.A. § § 1531-5544).

The PNDI lists five potential conflicts with State-listed reptile and amphibian species under the jurisdiction of the Pennsylvania Fish and Boat Commission (PFBC) including the eastern redbelly turtle (*Pseudemys rubriventris*) and several frog and toad species. All of these species are water/wetland dependent. A herpetological habitat assessment and turtle nesting survey was completed for the species of concern by Aqua-Terra Environmental LTD and the results submitted to PFBC in a report dated October 31, 2013. In a correspondence dated January 7, 2014, PFBC concluded that the core potential habitat will not be disturbed by the proposed project, and as long as the project scope does not change and best management practices are employed, no adverse impacts to the species are anticipated. Correspondence with the PFBC is provided in Appendix D. Please note that the railroad ties in one of the photographs in Appendix D, have since been removed.

Wetlands A and C on the Site could potentially support the eastern redbelly turtle, southern leopard frog, and northern cricket frog, all species of concern in Pennsylvania. However, PFBC has reviewed and approved the re-development of the Site and determined that the proposed buffers will be protective of these species and their habitats. Wetlands B and D do not provide habitats suitable for the species of concern.

The PNDI also lists one plant species of concern, wild ipecac (*Euphorbia ipecacuanhae*), under the jurisdiction of the Pennsylvania Department of Conservation and Natural Resources (PADCNR). This species is primarily associated with sandy or gravelly soil in undisturbed coastal plain habitats which are absent on the Site. PADCNR correspondence indicating no project impact is also provided in Appendix D.

Weight of Evidence Analysis of Potential Ecological Effects

The EHA concluded that exposure pathways between ecological receptors and CPECs in surface material/soil are likely incomplete. Most all of the terrestrial habitat is poorly vegetated and covered in slag with little to no soil. Direct exposure pathways to ecological receptors are precluded because of the mostly impermeable nature of the surface material and the dearth of habitat. Indirect exposure pathways, via migration of soil-associated CPECs, to nearby habitats, are also likely incomplete. Overland flow from the slag area to the wetlands will be minimal given the flat topography and porous nature of the slag. The groundwater underlying the slag fill area flows away from the on-Site wetlands, precluding significant indirect exposure to biota in the wetlands and pond areas. This assessment of functionally incomplete exposure pathways is corroborated by samples of the surface water and sediment in the on-Site wetland/open water, which directly measure potential exposure to ecological receptors. These sample results demonstrate that soil-related CPEC concentrations in these habitats are below levels that would cause ecological effects. See discussion below and in Appendix F.

Exposure pathways between ecological receptors and CPECs in surface water and surface sediments are complete. However, no CPEC or other detected compound in surface water exceeded a water quality criterion or surrogate value. Equally important, detection limits for PCBs and PAHs were sufficiently low to determine that these CPECs were below ESVs. Thus, exposures to surface water receptors are ecologically insignificant. Similarly, no CPEC or other compound detected in sediments of Wetlands A and C significantly exceeded reliable ESVs. In addition, this screening of sediment concentrations did not consider Site-specific factors that would further reduce potential toxicity. Notably, the Site sediments are likely rich in organic carbon and low in dissolved oxygen, conditions which render chemicals less bioavailable and less toxic (USEPA 2003, 2005, 2008). The weight of evidence, therefore, indicates no significant potential for impacts to ecological receptors in Wetlands A and C. Wetlands B and D do not provide habitats suitable for species of concern, are not exceptional value wetlands, and do not support Federally-listed, threatened or endangered species. Consequently, no further assessment of ecological risks is recommended.

6.3 Vapor Intrusion Evaluation

The soil concentrations at the Site reported concentrations of COCs below the applicable USEPA-PA Defaults Nonresidential Volatilization to Indoor Air numerical values. Therefore, there is no exposure pathway or receptors to COCs as a result of indoor air.

7. Selection of Remediation Standards

The requirement to implement remedial investigation activities is outlined in Chapter 250, and provides specific procedures to demonstrate attainment of a SHS, SSS, or Background Standard. Obtaining an environmental release from liability will require that the Site be remediated to a selected cleanup standard using one, or a combination, of three available standards: SHS, SSS, or Background Standard.

The standards as defined in Chapter 250 of The Land Recycling and Environmental Remediation Standards Act are as follows:

- Statewide Health Standard
- Site-Specific Standard
- Background Standard
- A combination of standards

Statewide Health Standard (SHS) - A standard adopted by the Environmental Quality Board which achieves a uniform Statewide health-based level so that any substantial present or probable future risk to human health and the environment is eliminated.

Site-Specific Standard (SSS) - A standard developed that meets the human health and environmental protection goals. The development of the SSS shall be based on a property-specific risk assessment (if required), or through pathway elimination.

Background Standard - The background standard shall be established using analysis of samples of regulated substances present at the property but not related to any release at the property.

Combination of Standards - A person may use a combination of the remediation standards to implement a property remediation plan and may propose to use the SSS standard whether or not efforts have been made to attain the background or SHS.

8. Demonstration of Attainment

USS has demonstrated attainment of a SHS for on-Property surficial and subsurface soil. This standard was demonstrated for attainment purposes based upon the following conditions:

- The Site has been utilized for industrial purposes since 1952, and there are no foreseeable changes for the use of the Property
- The random surficial and subsurface soil sampling program has demonstrated attainment of the SHS for soil
- An Environmental Covenant will be executed for the Property restricting residential use
- No current or future pathways to surficial or subsurface soil with unacceptable risk have been identified
- Therefore, USS is requesting a release from environmental liability for COCs in soil

The Site is industrial in nature. Under current and future Site uses, complete exposure pathways between surface material/soils to ecological receptors are functionally incomplete and also ecologically insignificant. Although exposure pathways are complete in surface water, concentrations of Site-related chemicals in surface water are below levels that could cause toxicity. Similarly, exposure pathways between potentially Site-related metals in sediments and ecological receptors are complete. Also as with surface water, concentrations of CPECs and other compounds in sediments were judged to be below levels that pose unacceptable ecological risk, especially when Site-specific constraints on bioavailability are considered. Therefore, additional ecological evaluation of this Site is not warranted.

9. Post-Remediation Care Plan

In accordance with the Uniform Environmental Covenants Act (UECA), an Environmental Covenant has been drafted for the Property. Upon approval, the Environmental Covenant will be executed and recorded for the Property.

With execution of the Environmental Covenant, the Property is subject to the activity and use limitations, which the Owner/Holder and each subsequent owner of the Property shall abide by to ensure future use of the Property is limited to Non-residential use.

USS or the owner will be responsible for making any necessary provisions to ensure the safety of worker, and prevent further impacts to the environment.

Upon approval of this Final Report, the Environmental Covenant will be executed and recorded. No further post-remediation care beyond the aforementioned will be implemented.

10. Conclusions

The Site evaluated in this report is part of the larger industrial KIPC Facility and the Site included operations that supported the historical industrial facility. An environmental covenant will be executed and recorded for the Property to ensure that the use of the Site remains non-residential. A Non-Use Aquifer determination approved in April 1999 ensures that the soil to groundwater pathway is eliminated, and that groundwater under the Property is not used. Based on current Site conditions, the results for the Site characterization and previous assessments, evaluation of potential receptors and exposure pathways, USS has demonstrated attainment with the SHS for Site COCs for soil in accordance with the requirements in the Pennsylvania Code, Title 25, Chapter 250 (Act 2). Therefore, USS requests a release of environmental liability for the Site soil COCs in attainment with the SHS. No further post-remediation care plan beyond the execution of the Environmental Covenant, and as addressed in Section 9.0, is currently proposed based on the Site conditions and use of the Property.

11. References

- BCM, 1994. Description of Current Conditions, U.S. Steel Fairless Works.
- BCM, 1997. Phase I RCRA Facility Investigation Final Report.
- Greenman et al., 1961.
- PADEP, 2002. Final Draft of the Land Recycling Program Technical Guidance Manual.
- Thompkins, 1975. Soil Survey of Bucks and Philadelphia Counties, Pennsylvania: U.S. Department of Agriculture.
- USEPA, 2003. Procedures for the derivation of equilibrium partitioning sediment benchmarks (ESBs) for the protection of benthic organisms: PAH Mixtures. EPA-600-R-02-013.
- USEPA, 2005. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver and Zinc). EPA/600/R-02/011.

- USEPA, 2008. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Compendium of Tier 2 Values for Nonionic Organics. EPA 600 R 02 016. Office of Research and Development, Washington, DC 20460.

12. Act 2 Administrative Requirements

12.1 Notice of Intent to Remediate and Notice of Report

The Notice of Intent to Remediate (NIR) and Notice of Final Report was submitted to the PADEP on August 4, 2015. A copy of the NIR and the Final Report notice for the Site is presented in Appendix E together with a copy of the municipal notification letter to the Falls Township concerning submission of the NIR and this Final Report to PADEP. A notice was published in the Bucks County Courier Times regarding submission of the NIR and the Final Report to PADEP. Proof of publication and receipt of the municipal notification letter by the Falls Township is presented in Appendix E.

12.2 Transmittal Sheet for Plan/Report Submission

The Transmittal Sheet for Plan/Report Submission is attached to the front of this report with a check for $250.

12.3 Final Report Summary

The Final Report Summary is presented in Appendix E.

13. Signatures

GHD has prepared this report on behalf of USS to justify a request for an Act 2 Release of Liability under the SHSs for soils at the 32-Acre Parcel at the KIPC Facility in Fairless Hills, Bucks County, Pennsylvania.

An Environmental Release of Liability in accordance with Chapter 250 is hereby requested on behalf of USS by:

8/31/15
Date

Michael H. Leon
Authorized Representative for Owner

Michael H. Leon

Name (print or type)

Senior Environmental Engineer

Title (print or type)

Sept 8, 2015
Date

Consultant

Ian K. Richardson

Name (print or type)

Project Manager

Title (print or type)

9/8/15
Date

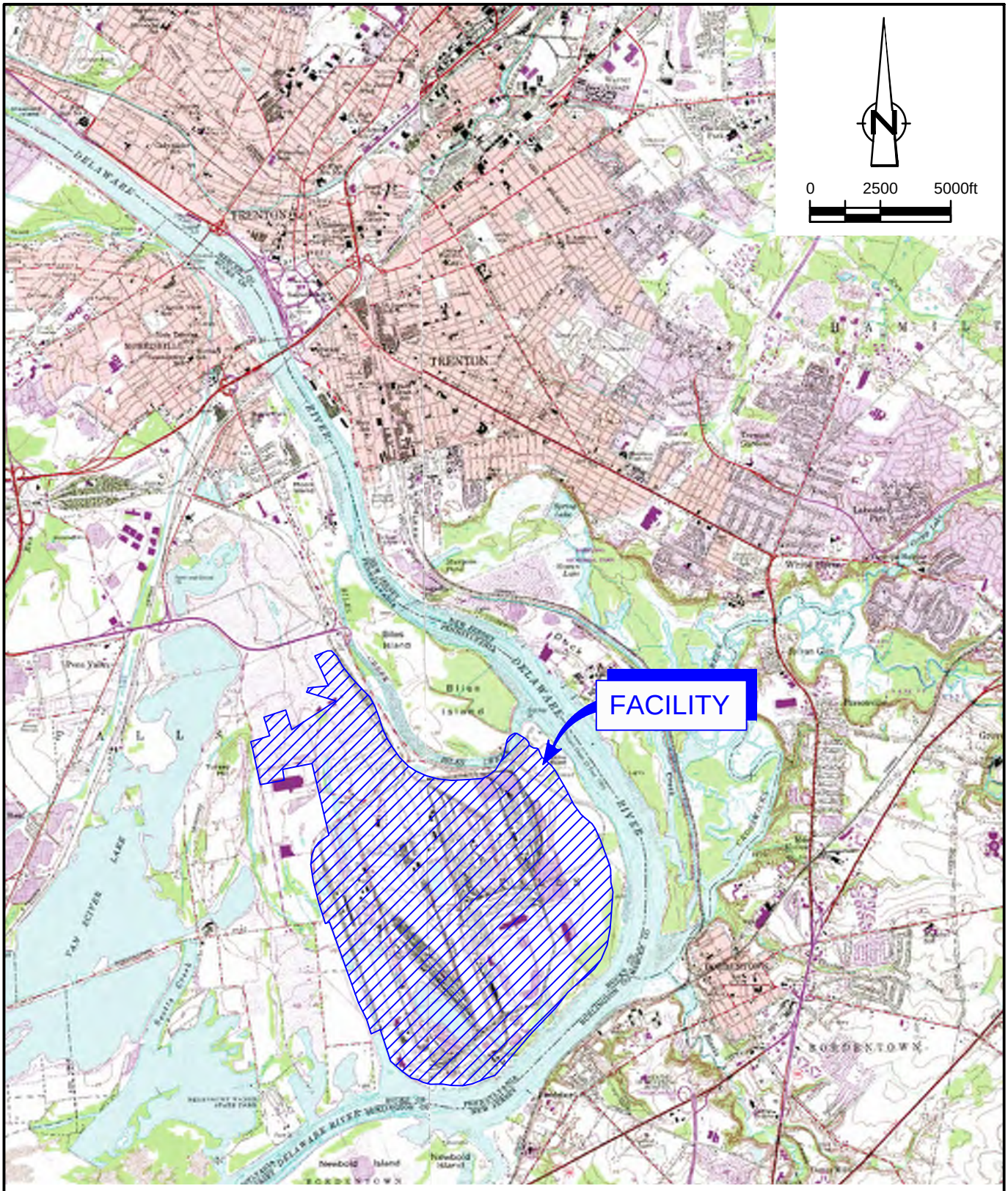
By affixing my seal to this document, I am certifying that the information is true and correct. I further certify that I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information.

John A. Garges

Name (print or type)

Project Geologist

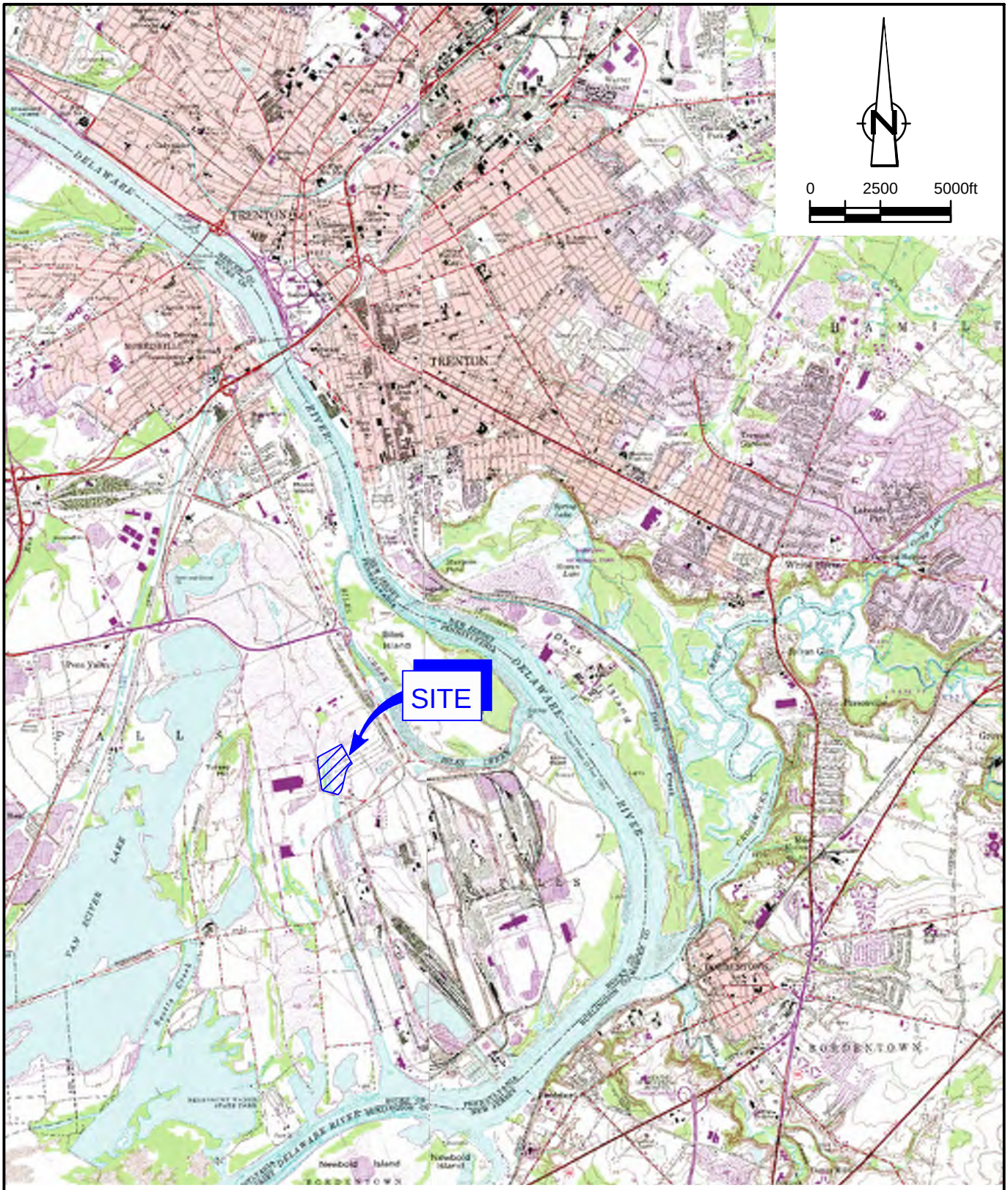
Title (print or type)



SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA PHOTOREVISED 1981.

figure 1.1

FACILITY LOCATION
KEYSTONE INDUSTRIAL PORT COMPLEX
US STEEL
Fairless Hills, PA



SOURCE: USGS QUAD MAP; TRENTON EAST, NJ-PA AND TRENTON WEST, NJ-PA PHOTOREVISED 1981.

figure 1.2

SITE LOCATION - 32-ACRE PARCEL
KEYSTONE INDUSTRIAL PORT COMPLEX
US STEEL
Fairless Hills, PA

Nº	Revision	Date	Initial

PROJECT NORTH
TRUE NORTH

0 50 100ft

LEGEND

- 32-ACRE PARCEL
- BORROW PIT AREA
- HISTORIC SOIL SAMPLE LOCATION (1998)
- GROUNDWATER SAMPLE LOCATION
- SOIL BORING LOCATION (2014)
- SURFACE WATER SAMPLE (2014)
- HISTORIC SEDIMENT SAMPLE (1998)

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

INVESTIGATION LOCATIONS 32-ACRE PARCEL

KEYSTONE INDUSTRIAL PORT COMPLEX

US STEEL
FAIRLESS HILLS, PA

GHD

Source Reference:
SHOWALTER AND ASSOCIATES, FILE 90413 recd September 4, 2013 AND 7022REIS.PRO (dated March 30, 2012); USS STEEL DRAWING, CSCTS.DWG; LANGAN, FIGURE 3 COMPLETED SAMPLE LOCATION PLAN, AUGUST 1, 2014. AERIAL PHOTO DATED 2010 07 03 FROM NAIP.

Project Manager:	Reviewed By:	Date: OCTOBER 2014	
Scale: 1:100	Project Nº: 83101-09	Report Nº: 006	Drawing Nº: figure 3.1

83101-09(006)GN-WA003 SEP 3, 2015

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-5_1.5-2_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (0-2 feet bgs) (1)**					**(Duplicate)**	
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	10000	0.00040 U	R	0.00037 U	0.00042 U	0.00037 U	R
1,1,2,2-Tetrachloroethane	mg/kg	38	0.00059 U	R	0.00055 U	0.00062 U	0.00054 U	R
1,1,2-Trichloroethane	mg/kg	140	0.00068 U	R	0.00064 U	0.00072 U	0.00063 U	R
1,1-Dichloroethane	mg/kg	1400	0.00047 U	R	0.00044 U	0.00050 U	0.00043 U	R
1,1-Dichloroethene	mg/kg	10000	0.00070 U	R	0.00065 U	0.00074 U	0.00064 U	R
1,2,4-Trichlorobenzene	mg/kg	10000	0.00073 U	R	0.00068 U	0.00076 U	0.00066 U	R
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.37	0.00062 U	R	0.00057 U	0.00065 U	0.00056 U	R
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.00071 U	R	0.00066 U	0.00075 U	0.00065 U	R
1,2-Dichlorobenzene	mg/kg	10000	0.00066 U	R	0.00061 U	0.00069 U	0.00060 U	R
1,2-Dichloroethane	mg/kg	86	0.00050 U	R	0.00047 U	0.00053 U	0.00046 U	R
1,2-Dichloroethene (total)	mg/kg		0.0011 U	R	0.00098 U	0.0011 U	0.00096 U	R
1,2-Dichloropropane	mg/kg	220	0.00045 U	R	0.00042 U	0.00047 U	0.00041 U	R
1,3-Dichlorobenzene	mg/kg	8400	0.00054 U	R	0.00050 U	0.00057 U	0.00049 U	R
1,4-Dichlorobenzene	mg/kg	200	0.00052 U	R	0.00049 U	0.00055 U	0.00048 U	R
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	0.00073 U	R	0.00068 U	0.00076 U	0.00066 U	R
2-Hexanone	mg/kg	400	0.00057 U	R	0.00053 U	0.00060 U	0.00052 U	R
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00054 U	R	0.00050 U	0.00057 U	0.00049 U	R
Acetone	mg/kg	10000	0.011 U	R	0.0038 U	0.0043 U	0.0038 U	R
Benzene	mg/kg	290	0.00056 U	R	0.00052 U	0.00059 U	0.00051 U	R
Bromodichloromethane	mg/kg	60	0.00046 U	R	0.00043 U	0.00049 U	0.00042 U	R
Bromoform	mg/kg	2000	0.00036 U	R	0.00034 U	0.00038 U	0.00033 U	R
Bromomethane (Methyl bromide)	mg/kg	400	0.00061 U	R	0.00057 U	0.00064 U	0.00056 U	R
Carbon disulfide	mg/kg	10000	0.00042 U	R	0.0011 J	0.00044 U	0.00039 U	R
Carbon tetrachloride	mg/kg	150	0.00037 U	R	0.00034 U	0.00039 U	0.00034 U	R
Chlorobenzene	mg/kg	4000	0.00062 U	R	0.00058 U	0.00066 U	0.00057 U	R
Chloroethane	mg/kg	10000	0.0013 U	R	0.0012 U	0.0013 U	0.0012 U	R
Chloroform (Trichloromethane)	mg/kg	97	0.00048 U	R	0.00045 U	0.00051 U	0.00044 U	R
Chloromethane (Methyl chloride)	mg/kg	1200	0.00070 U	R	0.00065 U	0.00074 U	0.00064 U	R
cis-1,2-Dichloroethene	mg/kg	10000	0.00058 U	R	0.00054 U	0.00061 U	0.00053 U	R
cis-1,3-Dichloropropene	mg/kg		0.00056 U	R	0.00052 U	0.00059 U	0.00051 U	R
Cyclohexane	mg/kg	10000	0.00031 U	R	0.00028 U	0.00032 U	0.00028 U	R
Dibromochloromethane	mg/kg	82	0.00058 U	R	0.00054 U	0.00062 U	0.00053 U	R
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00055 U	R	0.00051 U	0.00058 U	0.00050 U	R
Ethylbenzene	mg/kg	10000	0.00053 U	R	0.00049 U	0.00056 U	0.00048 U	R
Isopropyl benzene	mg/kg	10000	0.00056 U	R	0.00052 U	0.00059 U	0.00051 U	R

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-5_1.5-2_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (0-2 feet bgs) (1)**					**(Duplicate)**	
m&p-Xylenes	mg/kg		0.0012 U	R	0.0011 U	0.0013 U	0.0011 U	R
Methyl acetate	mg/kg	10000	0.00074 U	R	0.00069 U	0.00078 U	0.00068 U	R
Methyl cyclohexane	mg/kg		0.00060 U	R	0.00056 U	0.00063 U	0.00055 U	R
Methyl tert butyl ether (MTBE)	mg/kg	3200	0.00062 U	R	0.00057 U	0.00065 U	0.00056 U	R
Methylene chloride	mg/kg	4700	0.0041 J	0.0032 J	0.0037 J	0.0032 U	0.0030 U	0.0020 J
o-Xylene	mg/kg		0.00064 U	R	0.00060 U	0.00068 U	0.00059 U	R
Styrene	mg/kg	10000	0.00058 U	R	0.00054 U	0.00061 U	0.00053 U	R
Tetrachloroethene	mg/kg	1500	0.00056 U	R	0.00052 U	0.00059 U	0.00051 U	R
Toluene	mg/kg	10000	0.00060 U	R	0.00056 U	0.00063 U	0.00055 U	R
trans-1,2-Dichloroethene	mg/kg	4800	0.00049 U	R	0.00046 U	0.00052 U	0.00045 U	R
trans-1,3-Dichloropropene	mg/kg		0.00049 U	R	0.00046 U	0.00052 U	0.00045 U	R
Trichloroethene	mg/kg	1300	0.00054 U	R	0.00050 U	0.00057 U	0.00050 U	R
Trichlorofluoromethane (CFC-11)	mg/kg	10000	0.00076 U	R	0.00070 U	0.00080 U	0.00069 U	R
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.00088 U	R	0.00082 U	0.00093 U	0.00080 U	R
Vinyl chloride	mg/kg	110	0.00039 U	R	0.00036 U	0.00041 U	0.00035 U	R
Xylenes (total)	mg/kg	8000	0.0018 U	R	0.0017 U	0.0019 U	0.0017 U	R
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	220	0.0038 U	R	0.0036 U	0.00081 U	0.00079 U	R
2,4,5-Trichlorophenol	mg/kg	190000	0.019 U	R	0.018 U	0.0040 U	0.0039 U	R
2,4,6-Trichlorophenol	mg/kg	2800	0.027 U	R	0.025 U	0.0056 U	0.0055 U	R
2,4-Dichlorophenol	mg/kg	8400	0.0036 U	R	0.0034 U	0.00076 U	0.00074 U	R
2,4-Dimethylphenol	mg/kg	10000	0.028 U	R	0.026 U	0.0059 U	0.0057 U	R
2,4-Dinitrophenol	mg/kg	5600	R	R	0.20 U	0.045 U	0.044 U	R
2,4-Dinitrotoluene	mg/kg	260	0.014 U	R	0.014 U	0.0030 U	0.0030 U	R
2,6-Dinitrotoluene	mg/kg	2800	0.018 U	R	0.017 U	0.0039 U	0.0038 U	R
2-Chloronaphthalene	mg/kg	190000	0.0037 U	R	0.0035 U	0.00079 U	0.00077 U	R
2-Chlorophenol	mg/kg	10000	0.015 U	R	0.014 U	0.0031 U	0.0030 U	R
2-Methylnaphthalene	mg/kg	11000	0.056	0.0014 J	0.0047 J	0.0013 J	0.0017 J	R
2-Methylphenol	mg/kg	140000	0.012 U	R	0.012 U	0.0026 U	0.0026 U	R
2-Nitroaniline	mg/kg	8400	0.079 U	R	0.075 U	0.017 U	0.016 U	R
2-Nitrophenol	mg/kg	22000	0.020 U	R	0.019 U	0.0042 U	0.0041 U	R
3,3'-Dichlorobenzidine	mg/kg	180	0.019 UJ	R	0.018 U	0.0040 U	0.0039 U	R
3-Nitroaniline	mg/kg	840	0.073 U	R	0.069 U	0.016 U	0.015 U	R
4,6-Dinitro-2-methylphenol	mg/kg	280	0.071 UJ	R	0.068 U	0.015 U	0.015 U	R
4-Bromophenyl phenyl ether	mg/kg		0.015 U	R	0.015 U	0.0033 U	0.0032 U	R
4-Chloro-3-methylphenol	mg/kg	14000	0.016 U	R	0.016 U	0.0035 U	0.0034 U	R

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-5_1.5-2_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
		MSC Non-Residential Direct-Contact Criteria					**(Duplicate)**	
Parameters	**Units**	**(0-2 feet bgs) (1)**						
4-Chloroaniline	mg/kg	400	0.014 U	R	0.013 U	0.0030 U	0.0029 U	R
4-Chlorophenyl phenyl ether	mg/kg		0.020 U	R	0.019 U	0.0042 U	0.0041 U	R
4-Methylphenol	mg/kg	14000	0.017 U	R	0.016 U	0.0037 U	0.0036 U	R
4-Nitroaniline	mg/kg	4000	0.072 U	R	0.068 U	0.015 U	0.015 U	R
4-Nitrophenol	mg/kg	22000	0.065 U	R	0.061 U	0.014 U	0.013 U	R
Acenaphthene	mg/kg	170000	0.17	0.00076 J	0.015 J	0.00072 U	0.00071 U	R
Acenaphthylene	mg/kg	170000	0.026 J	0.0069 J	0.12	0.0033 J	0.0024 J	R
Acetophenone	mg/kg	10000	0.015 U	R	0.014 U	0.012 J	0.0096 J	R
Anthracene	mg/kg	190000	0.10	0.0088 J	0.15	0.0024 J	0.0020 J	R
Atrazine	mg/kg	340	0.017 U	R	0.016 U	0.0037 U	0.0036 U	R
Benzaldehyde	mg/kg		R	R	R	R	R	R
Benzo(a)anthracene	mg/kg	110	0.49	0.028 J	0.44	0.012	0.011	R
Benzo(a)pyrene	mg/kg	11	1.0	0.037 J	0.48	0.016	0.015	0.0022 J
Benzo(b)fluoranthene	mg/kg	110	1.1 J	0.070 J	0.91	0.021	0.021	0.0034 J
Benzo(g,h,i)perylene	mg/kg	170000	0.92	0.039 J	0.35	0.012	0.010	R
Benzo(k)fluoranthene	mg/kg	1100	0.32	0.026 J	0.35	0.0081	0.0067 J	R
Biphenyl (1,1-Biphenyl)	mg/kg	140000	0.018 J	R	0.015 U	0.0034 U	0.0033 U	R
bis(2-Chloroethoxy)methane	mg/kg	8400	0.012 U	R	0.011 U	0.0025 U	0.0024 U	R
bis(2-Chloroethyl)ether	mg/kg	6.7	0.0048 U	R	0.0045 U	0.0010 U	0.00099 U	R
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	5700	0.029 U	R	0.027 U	0.0087 J	0.0059 U	0.024 J
Butyl benzylphthalate (BBP)	mg/kg	10000	0.031 J	R	0.023 U	0.0085 J	0.0058 J	0.0088 J
Caprolactam	mg/kg		0.13 U	R	0.13 U	0.028 U	0.028 U	R
Carbazole	mg/kg	4000	0.036	0.0016 J	0.017 J	0.0011 J	0.00068 U	R
Chrysene	mg/kg	11000	0.52	0.045 J	0.63	0.018	0.016	R
Dibenz(a,h)anthracene	mg/kg	11	0.20	0.0098 J	0.088	0.0027 J	0.00082 U	R
Dibenzofuran	mg/kg	2800	0.055 J	R	0.017 U	0.0037 U	0.0036 U	R
Diethyl phthalate	mg/kg	10000	0.019 U	R	0.018 U	0.0041 U	0.0040 U	R
Dimethyl phthalate	mg/kg		0.019 U	R	0.018 U	0.0041 U	0.0040 U	R
Di-n-butylphthalate (DBP)	mg/kg	10000	0.022 U	R	0.021 U	0.0047 U	0.0046 U	0.0054 J
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.019 U	R	0.018 U	0.0040 U	0.0039 U	R
Fluoranthene	mg/kg	110000	0.56	0.029 J	0.54	0.023	0.021	0.0038 J
Fluorene	mg/kg	110000	0.040	R	0.012 J	0.00099 U	0.00097 U	R
Hexachlorobenzene	mg/kg	50	0.0038 U	R	0.0036 U	0.00080 U	0.00078 U	0.095 J
Hexachlorobutadiene	mg/kg	1000	0.0040 U	R	0.0038 U	0.00084 U	0.00082 U	R
Hexachlorocyclopentadiene	mg/kg	10000	0.019 U	R	0.018 U	0.0041 U	0.0040 U	R
Hexachloroethane	mg/kg	550	0.013 U	R	0.012 U	0.0027 U	0.0026 U	R

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Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-5_1.5-2_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
		MSC Non-Residential Direct-Contact Criteria					**(Duplicate)**	
Parameters	**Units**	**(0-2 feet bgs) (1)**						
Indeno(1,2,3-cd)pyrene	mg/kg	110	0.76	0.032 J	0.33	0.0090	0.0089	R
Isophorone	mg/kg	10000	0.013 U	R	0.013 U	0.0028 U	0.0028 U	R
Naphthalene	mg/kg	56000	0.080	0.0028 J	0.0069 J	0.00065 U	0.00063 U	R
Nitrobenzene	mg/kg	5600	0.015 U	R	0.014 U	0.0031 U	0.0031 U	R
N-Nitrosodi-n-propylamine	mg/kg	11	0.0042 U	R	0.0040 U	0.00088 U	0.00086 U	R
N-Nitrosodiphenylamine	mg/kg	16000	0.016 U	R	0.016 U	0.0035 U	0.0034 U	R
Pentachlorophenol	mg/kg	660	R	R	0.015 U	0.0034 U	0.0033 U	R
Phenanthrene	mg/kg	190000	0.28	0.011 J	0.064	0.014	0.011	0.0031 J
Phenol	mg/kg	190000	0.0042 U	R	0.0040 U	0.00089 U	0.00087 U	R
Pyrene	mg/kg	84000	0.59	0.032 J	0.68	0.030	0.027	0.0024 J
Metals								
Antimony	mg/kg	1100	0.36 J	0.023 UJ	0.025 UJ	0.20	0.17 J	0.29 J
Arsenic	mg/kg	53	4.7	2.5	3.0	11	8.3	2.5
Beryllium	mg/kg	5600	0.30 J	0.56 J	2.2	0.54	0.54	2.5
Cadmium	mg/kg	1400	0.23 J	0.096 J	0.11 J	0.13	0.12	0.056 J
Chromium	mg/kg		130	1400	1200	58 J	14 J	1400
Copper	mg/kg	100000	78 J	38 J	30 J	29	31	34 J
Lead	mg/kg	1000	40	6.6	14	30	22	8.0
Mercury	mg/kg	450	0.080	0.011 U	0.011 U	0.072	0.030 J	0.012 U
Nickel	mg/kg	56000	32 J	97 J	14 J	12	13	13
Selenium	mg/kg	14000	0.51 U	0.45 U	1.1 J	0.43 J	0.34 J	1.1 J
Silver	mg/kg	14000	0.040 U	0.035 U	0.037 U	0.18	0.019 J	0.021 U
Thallium	mg/kg	200	0.075 J	0.018 U	0.019 U	0.094 J	0.098 J	0.058 J
Zinc	mg/kg	190000	120	38	64	63	45	56 J
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg	200	0.00013 U	0.00013 U	0.00013 U	0.00014 U	0.00014 U	0.00013 U
Aroclor-1221 (PCB-1221)	mg/kg	40	0.00017 U	0.00017 U	0.00016 U	0.00018 U	0.00017 U	0.00017 U
Aroclor-1232 (PCB-1232)	mg/kg	40	0.00015 U	0.00015 U	0.00015 U	0.00016 U	0.00016 U	0.00015 U
Aroclor-1242 (PCB-1242)	mg/kg	40	0.00015 U	0.00014 U	0.00014 U	0.00015 U	0.00015 U	0.00015 U
Aroclor-1248 (PCB-1248)	mg/kg	40	0.27	0.031	0.000080 U	0.000088 U	0.000086 U	0.000085 U
Aroclor-1254 (PCB-1254)	mg/kg	40	0.24	0.025	0.011	0.00013 U	0.00013 U	0.0016
Aroclor-1260 (PCB-1260)	mg/kg	40	0.00013 U	0.00013 U	0.00012 U	0.00013 U	0.0017	0.00013 U

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-5_1.5-2_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
		MSC Non-Residential Direct-Contact Criteria					**(Duplicate)**	
Parameters	**Units**	**(0-2 feet bgs) (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		6.6	5.9	1.7	11	9.9	8.2
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Surficial Soil (0-2 feet).
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_1.5-2_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-9_0.5-1_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-11_1.5-2-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (0-2 feet bgs) (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	10000	R	0.00040 U	0.00039 U	0.00037 U	0.00039 U	0.00037 U
1,1,2,2-Tetrachloroethane	mg/kg	38	R	0.00059 U	0.00058 U	0.00055 U	0.00057 U	0.00055 U
1,1,2-Trichloroethane	mg/kg	140	R	0.00069 U	0.00067 U	0.00063 U	0.00066 U	0.00064 U
1,1-Dichloroethane	mg/kg	1400	R	0.00048 U	0.00047 U	0.00044 U	0.00046 U	0.00044 U
1,1-Dichloroethene	mg/kg	10000	R	0.00070 U	0.00069 U	0.00065 U	0.00067 U	0.00065 U
1,2,4-Trichlorobenzene	mg/kg	10000	R	0.00073 U	0.00071 U	0.00067 U	0.00070 U	0.00068 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.37	R	0.00062 U	0.00061 U	0.00057 U	0.00059 U	0.00057 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	R	0.00071 U	0.00070 U	0.00066 U	0.00068 U	0.00066 U
1,2-Dichlorobenzene	mg/kg	10000	R	0.00066 U	0.00065 U	0.00061 U	0.00063 U	0.00061 U
1,2-Dichloroethane	mg/kg	86	R	0.00051 U	0.00050 U	0.00047 U	0.00049 U	0.00047 U
1,2-Dichloroethene (total)	mg/kg		R	0.0011 U	0.0010 U	0.00098 U	0.0010 U	0.00098 U
1,2-Dichloropropane	mg/kg	220	R	0.00045 U	0.00044 U	0.00041 U	0.00043 U	0.00042 U
1,3-Dichlorobenzene	mg/kg	8400	R	0.00054 U	0.00053 U	0.00050 U	0.00052 U	0.00050 U
1,4-Dichlorobenzene	mg/kg	200	R	0.00053 U	0.00052 U	0.00049 U	0.00050 U	0.00049 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	R	0.00073 U	0.00071 U	0.00067 U	0.00070 U	0.00068 U
2-Hexanone	mg/kg	400	R	0.00057 U	0.00056 U	0.00053 U	0.00055 U	0.00053 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	R	0.00054 U	0.00053 U	0.00050 U	0.00052 U	0.00050 U
Acetone	mg/kg	10000	R	0.0049 J	0.0040 U	0.0038 U	0.0040 U	0.0038 U
Benzene	mg/kg	290	R	0.00056 U	0.00055 U	0.00051 U	0.00054 U	0.00052 U
Bromodichloromethane	mg/kg	60	R	0.00046 U	0.00045 U	0.00043 U	0.00044 U	0.00043 U
Bromoform	mg/kg	2000	R	0.00037 U	0.00036 U	0.00034 U	0.00035 U	0.00034 U
Bromomethane (Methyl bromide)	mg/kg	400	R	0.00061 U	0.00060 U	0.00056 U	0.00059 U	0.00057 U
Carbon disulfide	mg/kg	10000	R	0.00042 U	0.00041 U	0.00039 U	0.00041 U	0.00039 U
Carbon tetrachloride	mg/kg	150	R	0.00037 U	0.00036 U	0.00034 U	0.00035 U	0.00034 U
Chlorobenzene	mg/kg	4000	R	0.00063 U	0.00061 U	0.00058 U	0.00060 U	0.00058 U
Chloroethane	mg/kg	10000	R	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0012 U
Chloroform (Trichloromethane)	mg/kg	97	R	0.00048 U	0.00047 U	0.00045 U	0.00046 U	0.00045 U
Chloromethane (Methyl chloride)	mg/kg	1200	R	0.00071 U	0.00069 U	0.00065 U	0.00068 U	0.00065 U
cis-1,2-Dichloroethene	mg/kg	10000	R	0.00058 U	0.00057 U	0.00054 U	0.00056 U	0.00054 U
cis-1,3-Dichloropropene	mg/kg		R	0.00056 U	0.00055 U	0.00052 U	0.00054 U	0.00052 U
Cyclohexane	mg/kg	10000	R	0.00031 U	0.00030 U	0.00028 U	0.00029 U	0.00028 U
Dibromochloromethane	mg/kg	82	R	0.00059 U	0.00057 U	0.00054 U	0.00056 U	0.00054 U
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	R	0.00055 U	0.00054 U	0.00051 U	0.00053 U	0.00051 U
Ethylbenzene	mg/kg	10000	R	0.00053 U	0.00052 U	0.00049 U	0.00051 U	0.00049 U
Isopropyl benzene	mg/kg	10000	R	0.00056 U	0.00055 U	0.00052 U	0.00054 U	0.00052 U

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Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_1.5-2_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-9_0.5-1_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-11_1.5-2-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (0-2 feet bgs) (1)**						
m&p-Xylenes	mg/kg		R	0.0012 U	0.0012 U	0.0011 U	0.0012 U	0.0011 U
Methyl acetate	mg/kg	10000	R	0.00075 U	0.00073 U	0.00069 U	0.00071 U	0.00069 U
Methyl cyclohexane	mg/kg		R	0.00060 U	0.00059 U	0.00055 U	0.00057 U	0.00056 U
Methyl tert butyl ether (MTBE)	mg/kg	3200	R	0.00062 U	0.00061 U	0.00057 U	0.00059 U	0.00057 U
Methylene chloride	mg/kg	4700	0.0032 J	0.0019 J	0.0022 U	0.0039 J	0.0017 J	0.0020 U
o-Xylene	mg/kg		R	0.00065 U	0.00063 U	0.00059 U	0.00062 U	0.00060 U
Styrene	mg/kg	10000	R	0.00058 U	0.00057 U	0.00054 U	0.00056 U	0.00054 U
Tetrachloroethene	mg/kg	1500	R	0.00056 U	0.00055 U	0.00052 U	0.00054 U	0.00052 U
Toluene	mg/kg	10000	R	0.00060 U	0.00059 U	0.00056 U	0.00058 U	0.00056 U
trans-1,2-Dichloroethene	mg/kg	4800	R	0.00049 U	0.00048 U	0.00045 U	0.00047 U	0.00046 U
trans-1,3-Dichloropropene	mg/kg		R	0.00049 U	0.00048 U	0.00046 U	0.00047 U	0.00046 U
Trichloroethene	mg/kg	1300	R	0.00054 U	0.00053 U	0.00050 U	0.00052 U	0.00050 U
Trichlorofluoromethane (CFC-11)	mg/kg	10000	R	0.00076 U	0.00074 U	0.00070 U	0.00073 U	0.00070 U
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	R	0.00088 U	0.00086 U	0.00081 U	0.00085 U	0.00082 U
Vinyl chloride	mg/kg	110	R	0.00039 U	0.00038 U	0.00036 U	0.00037 U	0.00036 U
Xylenes (total)	mg/kg	8000	R	0.0019 U	0.0018 U	0.0017 U	0.0018 U	0.0017 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	220	R	0.0038 U	0.0041 U	0.0038 U	R	0.00075 UJ
2,4,5-Trichlorophenol	mg/kg	190000	R	0.019 U	0.020 U	0.019 U	R	0.0037 UJ
2,4,6-Trichlorophenol	mg/kg	2800	R	0.026 U	0.029 U	0.027 U	R	0.0052 UJ
2,4-Dichlorophenol	mg/kg	8400	R	0.0035 U	0.0038 U	0.0036 U	R	0.00070 UJ
2,4-Dimethylphenol	mg/kg	10000	R	0.027 U	0.030 U	0.028 U	R	0.0055 UJ
2,4-Dinitrophenol	mg/kg	5600	R	0.21 U	0.23 U	R	R	0.042 UJ
2,4-Dinitrotoluene	mg/kg	260	R	0.014 U	0.015 U	0.014 U	R	0.0028 UJ
2,6-Dinitrotoluene	mg/kg	2800	R	0.018 U	0.020 U	0.018 U	R	0.0036 UJ
2-Chloronaphthalene	mg/kg	190000	R	0.0037 U	0.0040 U	0.0037 U	R	0.00073 UJ
2-Chlorophenol	mg/kg	10000	R	0.014 U	0.016 U	0.014 U	R	0.0029 UJ
2-Methylnaphthalene	mg/kg	11000	0.0019 J	0.014 J	0.018 J	0.0032 U	0.0021 J	0.0012 J
2-Methylphenol	mg/kg	140000	R	0.012 U	0.013 U	0.012 U	R	0.0024 UJ
2-Nitroaniline	mg/kg	8400	R	0.079 U	0.086 U	0.079 U	R	0.016 UJ
2-Nitrophenol	mg/kg	22000	R	0.019 U	0.021 U	0.020 U	R	0.0038 UJ
3,3'-Dichlorobenzidine	mg/kg	180	R	0.019 U	0.020 U	0.019 UJ	R	0.0037 UJ
3-Nitroaniline	mg/kg	840	R	0.072 U	0.079 U	0.073 U	R	0.014 UJ
4,6-Dinitro-2-methylphenol	mg/kg	280	R	0.070 U	0.077 U	0.071 U	R	0.014 UJ
4-Bromophenyl phenyl ether	mg/kg		R	0.015 U	0.017 U	0.015 U	R	0.0030 UJ
4-Chloro-3-methylphenol	mg/kg	14000	R	0.016 U	0.018 U	0.016 U	R	0.0032 UJ

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_1.5-2_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-9_0.5-1_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-11_1.5-2-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (0-2 feet bgs) (1)**						
4-Chloroaniline	mg/kg	400	R	0.014 U	0.015 U	0.014 U	R	0.0028 UJ
4-Chlorophenyl phenyl ether	mg/kg		R	0.019 U	0.021 U	0.020 U	R	0.0039 UJ
4-Methylphenol	mg/kg	14000	R	0.017 U	0.019 U	0.017 U	R	0.0034 UJ
4-Nitroaniline	mg/kg	4000	R	0.071 U	0.078 U	0.072 U	R	0.014 UJ
4-Nitrophenol	mg/kg	22000	R	0.064 U	0.070 U	0.065 U	R	0.013 UJ
Acenaphthene	mg/kg	170000	0.0020 J	0.0065 J	0.0057 J	0.0034 U	R	0.00067 UJ
Acenaphthylene	mg/kg	170000	R	0.095	0.011 J	0.0041 U	R	0.0021 J
Acetophenone	mg/kg	10000	R	0.014 U	0.016 U	0.015 U	0.0029 J	0.0077 J
Anthracene	mg/kg	190000	0.0011 J	0.054	0.022 J	0.0036 J	0.00072 J	0.0024 J
Atrazine	mg/kg	340	R	0.017 U	0.019 U	0.017 U	R	0.011 J
Benzaldehyde	mg/kg		R	R	R	R	R	0.029 J
Benzo(a)anthracene	mg/kg	110	0.017 J	0.23	0.069	0.014 J	0.0065 J	0.011 J
Benzo(a)pyrene	mg/kg	11	0.021 J	0.24	0.084	0.018 J	0.0076 J	0.011 J
Benzo(b)fluoranthene	mg/kg	110	0.030 J	0.28	0.13	0.031 J	0.013 J	0.014 J
Benzo(g,h,i)perylene	mg/kg	170000	0.020 J	0.21	0.061	0.017 J	0.012 J	0.0094 J
Benzo(k)fluoranthene	mg/kg	1100	0.015 J	0.11	0.042	0.010 J	0.0051 J	0.0068 J
Biphenyl (1,1-Biphenyl)	mg/kg	140000	R	0.016 U	0.017 U	0.016 U	R	0.0031 UJ
bis(2-Chloroethoxy)methane	mg/kg	8400	R	0.012 U	0.013 U	0.012 U	R	0.0023 UJ
bis(2-Chloroethyl)ether	mg/kg	6.7	R	0.0047 U	0.0051 U	0.0048 U	R	0.00094 UJ
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	5700	R	0.029 J	0.031 U	0.029 U	0.020 J	0.016 J
Butyl benzylphthalate (BBP)	mg/kg	10000	R	0.024 U	0.026 U	0.024 U	0.012 J	0.026 J
Caprolactam	mg/kg		R	0.13 U	0.14 U	R	R	0.026 UJ
Carbazole	mg/kg	4000	R	0.020 J	0.0035 U	0.0033 U	R	0.00064 UJ
Chrysene	mg/kg	11000	0.039 J	0.24	0.097	0.016 J	0.012 J	0.014 J
Dibenz(a,h)anthracene	mg/kg	11	0.0060 J	0.056	0.022 J	0.0039 U	R	0.0025 J
Dibenzofuran	mg/kg	2800	R	0.024 J	0.019 U	0.017 U	R	0.0034 UJ
Diethyl phthalate	mg/kg	10000	R	0.019 U	0.021 U	0.019 U	R	0.0038 UJ
Dimethyl phthalate	mg/kg		R	0.019 U	0.021 U	0.019 U	R	0.0038 UJ
Di-n-butylphthalate (DBP)	mg/kg	10000	R	0.022 U	0.024 U	0.022 U	0.0056 J	0.0050 J
Di-n-octyl phthalate (DnOP)	mg/kg	10000	R	0.018 U	0.020 U	0.019 U	R	0.0037 UJ
Fluoranthene	mg/kg	110000	0.012 J	0.41	0.088	0.018 J	0.013 J	0.019 J
Fluorene	mg/kg	110000	R	0.019 J	0.0050 U	0.0047 U	R	0.00092 UJ
Hexachlorobenzene	mg/kg	50	R	0.0037 U	0.0041 U	0.0038 U	R	0.00074 UJ
Hexachlorobutadiene	mg/kg	1000	R	0.0039 U	0.0043 U	0.0040 U	R	0.00078 UJ
Hexachlorocyclopentadiene	mg/kg	10000	R	0.019 U	0.021 U	0.019 U	R	0.0038 UJ
Hexachloroethane	mg/kg	550	R	0.013 U	0.014 U	0.013 U	R	0.0025 UJ

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_1.5-2_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-9_0.5-1_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-11_1.5-2-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (0-2 feet bgs) (1)**						
Indeno(1,2,3-cd)pyrene	mg/kg	110	0.016 J	0.19	0.056	0.015 J	0.0078 J	0.0081 J
Isophorone	mg/kg	10000	R	0.013 U	0.014 U	0.013 U	R	0.0026 UJ
Naphthalene	mg/kg	56000	R	0.055	0.025 J	0.0031 U	0.0020 J	0.0028 J
Nitrobenzene	mg/kg	5600	R	0.015 U	0.016 U	0.015 U	R	0.0029 UJ
N-Nitrosodi-n-propylamine	mg/kg	11	R	0.0041 U	0.0045 U	0.0042 U	R	0.00082 UJ
N-Nitrosodiphenylamine	mg/kg	16000	R	0.016 U	0.018 U	0.016 U	R	0.0032 UJ
Pentachlorophenol	mg/kg	660	R	0.016 U	0.017 U	0.016 U	R	0.0031 UJ
Phenanthrene	mg/kg	190000	0.0092 J	0.19	0.061	0.0089 J	0.0074 J	0.0098 J
Phenol	mg/kg	190000	R	0.0041 U	0.0045 U	0.0042 U	R	0.00082 UJ
Pyrene	mg/kg	84000	0.016 J	0.25	0.097	0.020 J	0.010 J	0.00071 UJ
Metals								
Antimony	mg/kg	1100	0.025 UJ	0.18 J	0.30 J	0.12 J	0.17 J	0.28 J
Arsenic	mg/kg	53	2.3	5.8	3.9	5.3	2.7	3.3
Beryllium	mg/kg	5600	0.61 J	0.62	0.54	0.39	0.71	0.49 J
Cadmium	mg/kg	1400	0.067 U	0.17	0.30	0.10	0.11 J	0.56 J
Chromium	mg/kg		2400	87	350	42	2400	1700
Copper	mg/kg	100000	13 J	14 J	9.6 J	13	33 J	69 J
Lead	mg/kg	1000	4.5	17	41	14	23	20
Mercury	mg/kg	450	0.011 U	0.011 U	0.029 J	0.012 J	0.010 U	0.011 U
Nickel	mg/kg	56000	20 J	13	8.7 J	13	29	24 J
Selenium	mg/kg	14000	0.48 U	0.65 J	0.25 J	0.21 J	0.37 J	0.74 J
Silver	mg/kg	14000	0.037 U	0.018 J	0.026 J	0.0037 U	0.020 U	0.040 U
Thallium	mg/kg	200	0.019 U	0.055	0.085 J	0.053 J	0.015 J	0.020 U
Zinc	mg/kg	190000	25	54 J	90	39	58 J	190
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg	200	0.00013 U	0.0026 U	0.00014 U	0.00066 U	0.00013 U	0.00013 U
Aroclor-1221 (PCB-1221)	mg/kg	40	0.00017 U	0.0033 U	0.00018 U	0.00085 U	0.00017 U	0.00017 U
Aroclor-1232 (PCB-1232)	mg/kg	40	0.00015 U	0.0030 U	0.00016 U	0.00076 U	0.00015 U	0.00015 U
Aroclor-1242 (PCB-1242)	mg/kg	40	0.00014 U	0.0029 U	0.00016 U	0.00073 U	0.00014 U	0.00014 U
Aroclor-1248 (PCB-1248)	mg/kg	40	0.0013	0.0017 U	0.016	0.00042 U	0.030	0.000082 U
Aroclor-1254 (PCB-1254)	mg/kg	40	0.00012 U	1.2	0.0080	0.074	0.00012 U	0.012
Aroclor-1260 (PCB-1260)	mg/kg	40	0.0025	1.2	0.00014 U	0.00063 U	0.00012 U	0.00012 U

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_1.5-2_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-9_0.5-1_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-11_1.5-2-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0.5-1) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (0-2 feet bgs) (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		4.4	5.5	13	6.4	3.9	5.0
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Surficial Soil (0-2 feet).
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**
Sample ID:			**ELC-SB-12_1.5-2_062614**	**DUP-001_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-14_1.5-2_062414**	**SED-1**	**SED-2**	**SED-3**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/23/1998**	**9/23/1998**	**9/23/1998**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**
		MSC Non-Residential Direct-Contact Criteria		**(Duplicate)**					
Parameters	**Units**	**(0-2 feet bgs) (1)**							
Volatile Organic Compounds									
1,1,1-Trichloroethane	mg/kg	10000	0.00038 U	0.00038 U	R	0.00050 UJ	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	38	0.00056 U	0.00056 U	R	0.00073 UJ	-	-	-
1,1,2-Trichloroethane	mg/kg	140	0.00065 U	0.00065 U	R	0.00085 UJ	-	-	-
1,1-Dichloroethane	mg/kg	1400	0.00045 U	0.00045 U	R	0.00059 UJ	-	-	-
1,1-Dichloroethene	mg/kg	10000	0.00066 U	0.00066 U	R	0.00087 UJ	-	-	-
1,2,4-Trichlorobenzene	mg/kg	10000	0.00069 U	0.00069 U	R	0.00090 UJ	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.37	0.00058 U	0.00058 U	R	0.00076 UJ	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.00067 U	0.00067 U	R	0.00088 UJ	-	-	-
1,2-Dichlorobenzene	mg/kg	10000	0.00062 U	0.00062 U	R	0.00081 UJ	-	-	-
1,2-Dichloroethane	mg/kg	86	0.00048 U	0.00048 U	R	0.00063 UJ	-	-	-
1,2-Dichloroethene (total)	mg/kg		0.0010 U	0.0010 U	R	0.0013 UJ	-	-	-
1,2-Dichloropropane	mg/kg	220	0.00042 U	0.00042 U	R	0.00055 UJ	-	-	-
1,3-Dichlorobenzene	mg/kg	8400	0.00051 U	0.00051 U	R	0.00067 UJ	-	-	-
1,4-Dichlorobenzene	mg/kg	200	0.00050 U	0.00050 U	R	0.00065 UJ	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	0.00069 U	0.00069 U	R	0.00090 UJ	-	-	-
2-Hexanone	mg/kg	400	0.00054 U	0.00054 U	R	0.00071 UJ	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00051 U	0.00051 U	R	0.00067 UJ	-	-	-
Acetone	mg/kg	10000	0.0039 U	0.0039 U	R	0.0051 UJ	-	-	-
Benzene	mg/kg	290	0.00053 U	0.00052 U	R	0.00069 UJ	-	-	-
Bromodichloromethane	mg/kg	60	0.00044 U	0.00044 U	R	0.00057 UJ	-	-	-
Bromoform	mg/kg	2000	0.00035 U	0.00034 U	R	0.00045 UJ	-	-	-
Bromomethane (Methyl bromide)	mg/kg	400	0.00058 U	0.00057 U	R	0.00075 UJ	-	-	-
Carbon disulfide	mg/kg	10000	0.00040 U	0.00040 U	R	0.00084 J	-	-	-
Carbon tetrachloride	mg/kg	150	0.00035 U	0.00035 U	R	0.00046 UJ	-	-	-
Chlorobenzene	mg/kg	4000	0.00059 U	0.00059 U	R	0.00077 UJ	-	-	-
Chloroethane	mg/kg	10000	0.0012 U	0.0012 U	R	0.0016 UJ	-	-	-
Chloroform (Trichloromethane)	mg/kg	97	0.00046 U	0.00045 U	R	0.00060 UJ	-	-	-
Chloromethane (Methyl chloride)	mg/kg	1200	0.00067 U	0.00066 U	R	0.00087 UJ	-	-	-
cis-1,2-Dichloroethene	mg/kg	10000	0.00055 U	0.00055 U	R	0.00072 UJ	-	-	-
cis-1,3-Dichloropropene	mg/kg		0.00053 U	0.00053 U	R	0.00069 UJ	-	-	-
Cyclohexane	mg/kg	10000	0.00029 U	0.00029 U	R	0.00038 UJ	-	-	-
Dibromochloromethane	mg/kg	82	0.00055 U	0.00055 U	R	0.00072 UJ	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00052 U	0.00052 U	R	0.00068 UJ	-	-	-
Ethylbenzene	mg/kg	10000	0.00050 U	0.00050 U	R	0.00066 UJ	0.005 U	0.005 U	0.005 U
Isopropyl benzene	mg/kg	10000	0.00053 U	0.00053 U	R	0.00069 UJ	-	-	-

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**
Sample ID:			**ELC-SB-12_1.5-2_062614**	**DUP-001_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-14_1.5-2_062414**	**SED-1**	**SED-2**	**SED-3**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/23/1998**	**9/23/1998**	**9/23/1998**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**
		MSC Non-Residential		**(Duplicate)**					
		Direct-Contact Criteria							
Parameters	**Units**	**(0-2 feet bgs)**							
		(1)							
m&p-Xylenes	mg/kg		0.0011 U	0.0011 U	R	0.0015 UJ	-	-	-
Methyl acetate	mg/kg	10000	0.00070 U	0.00070 U	R	0.00092 UJ	-	-	-
Methyl cyclohexane	mg/kg		0.00057 U	0.00056 U	R	0.00074 UJ	-	-	-
Methyl tert butyl ether (MTBE)	mg/kg	3200	0.00058 U	0.00058 U	R	0.00076 UJ	-	-	-
Methylene chloride	mg/kg	4700	0.0017 U	0.0029 U	0.0015 UJ	0.0022 UJ	0.0023 JB	0.0013 JB	0.0006 JB
o-Xylene	mg/kg		0.00061 U	0.00061 U	R	0.00080 UJ	-	-	-
Styrene	mg/kg	10000	0.00055 U	0.00055 U	R	0.00072 UJ	-	-	-
Tetrachloroethene	mg/kg	1500	0.00053 U	0.00053 U	R	0.00069 UJ	-	-	-
Toluene	mg/kg	10000	0.00057 U	0.00057 U	R	0.00075 UJ	0.00056 J	0.005 U	0.0006 J
trans-1,2-Dichloroethene	mg/kg	4800	0.00047 U	0.00046 U	R	0.00061 UJ	-	-	-
trans-1,3-Dichloropropene	mg/kg		0.00047 U	0.00046 U	R	0.00061 UJ	-	-	-
Trichloroethene	mg/kg	1300	0.00051 U	0.00051 U	R	0.00067 UJ	0.005 U	0.005 U	0.005 U
Trichlorofluoromethane (CFC-11)	mg/kg	10000	0.00072 U	0.00071 U	R	0.00094 UJ	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.00083 U	0.00083 U	R	0.0011 UJ	-	-	-
Vinyl chloride	mg/kg	110	0.00037 U	0.00037 U	R	0.00048 UJ	-	-	-
Xylenes (total)	mg/kg	8000	0.0018 U	0.0017 U	R	0.0023 UJ	-	-	-
Semi-volatile Organic Compounds									
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	220	0.0037 U	0.00074 U	R	0.00076 U	-	-	-
2,4,5-Trichlorophenol	mg/kg	190000	0.018 U	0.0036 U	R	0.0038 U	-	-	-
2,4,6-Trichlorophenol	mg/kg	2800	0.026 U	0.0051 U	R	0.0053 U	-	-	-
2,4-Dichlorophenol	mg/kg	8400	0.0034 U	0.00068 U	R	0.00071 U	-	-	-
2,4-Dimethylphenol	mg/kg	10000	0.027 U	0.0053 U	R	0.0055 U	-	-	-
2,4-Dinitrophenol	mg/kg	5600	0.20 U	0.041 U	R	0.042 U	-	-	-
2,4-Dinitrotoluene	mg/kg	260	0.014 U	0.0028 U	R	0.0028 U	-	-	-
2,6-Dinitrotoluene	mg/kg	2800	0.018 U	0.0035 U	R	0.0036 U	-	-	-
2-Chloronaphthalene	mg/kg	190000	0.0036 U	0.00071 U	R	0.00074 U	-	-	-
2-Chlorophenol	mg/kg	10000	0.014 U	0.0028 U	R	0.0029 U	-	-	-
2-Methylnaphthalene	mg/kg	11000	0.013 J	0.016	0.00094 J	0.0013 J	-	-	-
2-Methylphenol	mg/kg	140000	0.012 U	0.0024 U	R	0.0025 U	-	-	-
2-Nitroaniline	mg/kg	8400	0.076 U	0.015 U	R	0.016 U	-	-	-
2-Nitrophenol	mg/kg	22000	0.019 U	0.0038 U	R	0.0039 U	-	-	-
3,3'-Dichlorobenzidine	mg/kg	180	0.018 U	0.0036 U	R	0.0037 U	-	-	-
3-Nitroaniline	mg/kg	840	0.070 U	0.014 U	R	0.015 U	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	280	0.068 U	0.014 U	R	0.014 U	-	-	-
4-Bromophenyl phenyl ether	mg/kg		0.015 U	0.0030 U	R	0.0031 U	-	-	-
4-Chloro-3-methylphenol	mg/kg	14000	0.016 U	0.0031 U	R	0.0032 U	-	-	-

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**
Sample ID:			**ELC-SB-12_1.5-2_062614**	**DUP-001_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-14_1.5-2_062414**	**SED-1**	**SED-2**	**SED-3**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/23/1998**	**9/23/1998**	**9/23/1998**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**
		MSC Non-Residential Direct-Contact Criteria		**(Duplicate)**					
Parameters	**Units**	**(0-2 feet bgs) (1)**							
4-Chloroaniline	mg/kg	400	0.014 U	0.0027 U	R	0.0028 U	-	-	-
4-Chlorophenyl phenyl ether	mg/kg		0.019 U	0.0038 U	R	0.0039 U	-	-	-
4-Methylphenol	mg/kg	14000	0.017 U	0.0033 U	R	0.0035 U	-	-	-
4-Nitroaniline	mg/kg	4000	0.069 U	0.014 U	R	0.014 U	-	-	-
4-Nitrophenol	mg/kg	22000	0.062 U	0.012 U	R	0.013 U	-	-	-
Acenaphthene	mg/kg	170000	0.0033 U	0.00066 U	R	0.00068 J	0.33 U	0.33 U	0.33 U
Acenaphthylene	mg/kg	170000	0.012 J	0.0058 J	R	0.00081 U	0.33 U	0.33 U	0.33 U
Acetophenone	mg/kg	10000	0.023 J	0.023 J	R	0.0029 U	-	-	-
Anthracene	mg/kg	190000	0.013 J	0.0062 J	0.00088 J	0.0010 J	0.33 U	0.33 U	0.33 U
Atrazine	mg/kg	340	0.017 U	0.0033 U	R	0.0034 U	-	-	-
Benzaldehyde	mg/kg		R	0.0085 J	R	R	-	-	-
Benzo(a)anthracene	mg/kg	110	0.081	0.036	0.0049 J	0.0053 J	0.33 U	0.33 U	0.33 U
Benzo(a)pyrene	mg/kg	11	0.085	0.041	0.0043 J	0.0056 J	0.33 U	0.33 U	0.33 U
Benzo(b)fluoranthene	mg/kg	110	0.11	0.052	0.0083 J	0.0075	0.33 U	0.33 U	0.33 U
Benzo(g,h,i)perylene	mg/kg	170000	0.060	0.030	0.0065 J	0.0083	0.33 U	0.33 U	0.33 U
Benzo(k)fluoranthene	mg/kg	1100	0.048	0.023	0.0030 J	0.0056 J	0.33 U	0.33 U	0.33 U
Biphenyl (1,1-Biphenyl)	mg/kg	140000	0.015 U	0.0030 U	R	0.0031 U	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	8400	0.011 U	0.0022 U	R	0.0023 U	-	-	-
bis(2-Chloroethyl)ether	mg/kg	6.7	0.0046 U	0.00092 U	R	0.00095 U	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	5700	0.028 U	0.0055 U	0.017 J	0.011 J	0.33 U	0.33 U	0.33 U
Butyl benzylphthalate (BBP)	mg/kg	10000	0.023 U	0.0059 J	0.012 J	0.0090 J	-	-	-
Caprolactam	mg/kg		0.13 U	0.026 U	R	0.027 U	-	-	-
Carbazole	mg/kg	4000	0.0031 U	0.0015 J	R	0.0012 J	-	-	-
Chrysene	mg/kg	11000	0.077	0.039	0.0079 J	0.0065 J	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	mg/kg	11	0.0038 U	0.011	R	0.00079 U	0.33 U	0.33 U	0.33 U
Dibenzofuran	mg/kg	2800	0.017 U	0.0057 J	R	0.0035 U	-	-	-
Diethyl phthalate	mg/kg	10000	0.019 U	0.0037 U	R	0.0039 U	-	-	-
Dimethyl phthalate	mg/kg		0.019 U	0.0037 U	R	0.0038 U	-	-	-
Di-n-butylphthalate (DBP)	mg/kg	10000	0.021 U	0.0043 U	0.0049 J	0.0053 J	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.018 U	0.0036 U	R	0.0037 U	-	-	-
Fluoranthene	mg/kg	110000	0.080	0.038	0.0097 J	0.0069 J	0.33 U	0.33 U	0.33 U
Fluorene	mg/kg	110000	0.0045 U	0.0022 J	R	0.00093 U	0.33 U	0.33 U	0.33 U
Hexachlorobenzene	mg/kg	50	0.0036 U	0.00073 U	R	0.00075 U	-	-	-
Hexachlorobutadiene	mg/kg	1000	0.0038 U	0.00076 U	R	0.00079 U	-	-	-
Hexachlorocyclopentadiene	mg/kg	10000	0.018 U	0.0037 U	R	0.0038 U	-	-	-
Hexachloroethane	mg/kg	550	0.012 U	0.0025 U	R	0.0025 U	-	-	-

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**
Sample ID:			**ELC-SB-12_1.5-2_062614**	**DUP-001_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-14_1.5-2_062414**	**SED-1**	**SED-2**	**SED-3**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/23/1998**	**9/23/1998**	**9/23/1998**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**
		MSC Non-Residential Direct-Contact Criteria		**(Duplicate)**					
Parameters	**Units**	**(0-2 feet bgs) (1)**							
Indeno(1,2,3-cd)pyrene	mg/kg	110	0.045	0.027	0.0051 J	0.0062 J	0.33 U	0.33 U	0.33 U
Isophorone	mg/kg	10000	0.013 U	0.0026 U	R	0.0027 U	-	-	-
Naphthalene	mg/kg	56000	0.0067 J	0.0092	R	0.0016 J	0.33 U	0.33 U	0.33 U
Nitrobenzene	mg/kg	5600	0.014 U	0.0028 U	R	0.0029 U	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	11	0.0040 U	0.00080 U	R	0.00083 U	-	-	-
N-Nitrosodiphenylamine	mg/kg	16000	0.016 U	0.0032 U	R	0.0033 U	-	-	-
Pentachlorophenol	mg/kg	660	0.015 U	0.0031 U	R	0.0032 U	-	-	-
Phenanthrene	mg/kg	190000	0.018 J	0.020	0.0073 J	0.014	0.33 U	0.33 U	0.33 U
Phenol	mg/kg	190000	0.0040 U	0.00081 U	R	0.00083 U	-	-	-
Pyrene	mg/kg	84000	0.084	0.040	0.0087 J	0.0075	0.33 U	0.33 U	0.33 U
Metals									
Antimony	mg/kg	1100	0.027 J	0.014 J	0.17 J	0.21 J	0.5 U	0.78	0.76
Arsenic	mg/kg	53	5.0	5.5	2.2	2.8	0.91	1.6	2.3
Beryllium	mg/kg	5600	0.18	0.13	3.5	3.8	0.2 U	0.2 U	0.35
Cadmium	mg/kg	1400	0.038 J	0.078 J	0.092 J	0.16 J	0.2 U	0.45	0.99
Chromium	mg/kg		7.7	9.8	1200	1900	44	20	49
Copper	mg/kg	100000	2.1	1.9	17 J	84 J	19	64	93
Lead	mg/kg	1000	2.9	3.5	9.8	43	43	61	110
Mercury	mg/kg	450	0.011 U	0.011 U	0.011 U	0.011 U	0.1 U	0.20	0.1 U
Nickel	mg/kg	56000	1.6	1.7	7.1	41	5.6	4.9	11
Selenium	mg/kg	14000	0.13 J	0.083 J	3.2 J	1.3 J	0.2 U	0.9	2.2
Silver	mg/kg	14000	0.0038 U	0.0037 U	0.018 U	0.020 U	0.2 U	3.6	4.8
Thallium	mg/kg	200	0.017 J	0.019 J	0.035 J	0.012 J	-	-	-
Zinc	mg/kg	190000	7.1	9.1	57 J	580 J	120	170	330
PCBs									
Aroclor-1016 (PCB-1016)	mg/kg	200	0.00063 U	0.00013 U	0.00013 U	0.00013 U	-	-	-
Aroclor-1221 (PCB-1221)	mg/kg	40	0.00081 U	0.00016 U	0.00017 U	0.00017 U	-	-	-
Aroclor-1232 (PCB-1232)	mg/kg	40	0.00072 U	0.00015 U	0.00015 U	0.00015 U	-	-	-
Aroclor-1242 (PCB-1242)	mg/kg	40	0.00069 U	0.00014 U	0.00014 U	0.00014 U	-	-	-
Aroclor-1248 (PCB-1248)	mg/kg	40	0.00040 U	0.000081 U	0.000082 U	0.000083 U	-	-	-
Aroclor-1254 (PCB-1254)	mg/kg	40	0.00060 U	0.0029	0.00084 J	0.00013 U	-	-	-
Aroclor-1260 (PCB-1260)	mg/kg	40	0.00060 U	0.00012 U	0.00012 U	0.0012	-	-	-

Table 4.1

Screened Analytical Results
Surficial Soil Samples Vs Non-Residential Direct Contact Criteria (0-2)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**
Sample ID:			**ELC-SB-12_1.5-2_062614**	**DUP-001_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-14_1.5-2_062414**	**SED-1**	**SED-2**	**SED-3**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/23/1998**	**9/23/1998**	**9/23/1998**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**
		MSC Non-Residential Direct-Contact Criteria		**(Duplicate)**					
Parameters	**Units**	**(0-2 feet bgs) (1)**							
Petroleum Products									
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	280	110	310
General Chemistry									
Percent moisture	%		2.1	2.2	5.0	6.1	-	-	-
pH	s.u.		-	-	-	-	7.19	7.06	6.88

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Surficial Soil (0-2 feet).
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_10-10.5_062514**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_10-10.5_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(4.5-5) ft BGS**	**(5-5.5) ft BGS**	**(10-10.5) ft BGS**	**(7-7.5) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**					
Volatile Organic Compounds							
1,1,1-Trichloroethane	mg/kg	10000	0.00038 U	0.00033 UJ	0.00039 U	0.00038 U	0.00071 UJ
1,1,2,2-Tetrachloroethane	mg/kg	44	0.00056 U	0.00049 UJ	0.00057 U	0.00057 U	0.0010 UJ
1,1,2-Trichloroethane	mg/kg	160	0.00065 U	0.00057 UJ	0.00066 U	0.00066 U	0.0012 UJ
1,1-Dichloroethane	mg/kg	1600	0.00045 U	0.00039 UJ	0.00046 U	0.00045 U	0.00084 UJ
1,1-Dichloroethene	mg/kg	10000	0.00067 U	0.00058 UJ	0.00067 U	0.00067 U	0.0012 UJ
1,2,4-Trichlorobenzene	mg/kg	10000	0.00069 U	0.00060 UJ	0.00070 U	0.00070 U	0.0013 UJ
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.43	0.00059 U	0.00051 UJ	0.00060 U	0.00059 U	0.0011 UJ
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	4.3	0.00068 U	0.00059 UJ	0.00069 U	0.00068 U	0.0013 UJ
1,2-Dichlorobenzene	mg/kg	10000	0.00063 U	0.00055 UJ	0.00063 U	0.00063 U	0.0012 UJ
1,2-Dichloroethane	mg/kg	98	0.00048 U	0.00042 UJ	0.00049 U	0.00048 U	0.00089 UJ
1,2-Dichloroethene (total)	mg/kg		0.0010 U	0.00088 UJ	0.0010 U	0.0010 U	0.0019 UJ
1,2-Dichloropropane	mg/kg	260	0.00043 U	0.00037 UJ	0.00043 U	0.00043 U	0.00079 UJ
1,3-Dichlorobenzene	mg/kg	10000	0.00052 U	0.00045 UJ	0.00052 U	0.00052 U	0.00096 UJ
1,4-Dichlorobenzene	mg/kg	230	0.00050 U	0.00044 UJ	0.00051 U	0.00050 U	0.00093 UJ
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	0.00069 U	0.00060 UJ	0.00070 U	0.00070 U	0.0013 UJ
2-Hexanone	mg/kg	460	0.00054 U	0.00047 UJ	0.00055 U	0.00055 U	0.0010 UJ
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00051 U	0.00045 UJ	0.00052 U	0.00052 U	0.00095 UJ
Acetone	mg/kg	10000	0.0078 U	0.0034 UJ	0.0040 U	0.0062 U	0.0073 UJ
Benzene	mg/kg	330	0.00053 U	0.00046 UJ	0.00054 U	0.00053 U	0.00098 UJ
Bromodichloromethane	mg/kg	69	0.00044 U	0.00038 UJ	0.00045 U	0.00044 U	0.00082 UJ
Bromoform	mg/kg	2300	0.00035 U	0.00030 UJ	0.00035 U	0.00035 U	0.00064 UJ
Bromomethane (Methyl bromide)	mg/kg	460	0.00058 U	0.00051 UJ	0.00059 U	0.00058 U	0.0011 UJ
Carbon disulfide	mg/kg	10000	0.00040 U	0.00054 J	0.00041 U	0.00040 U	0.0012 J
Carbon tetrachloride	mg/kg	170	0.00035 U	0.00031 UJ	0.00036 U	0.00035 U	0.00065 UJ
Chlorobenzene	mg/kg	4600	0.00059 U	0.00052 UJ	0.00060 U	0.00060 U	0.0011 UJ
Chloroethane	mg/kg	10000	0.0012 U	0.0011 UJ	0.0012 U	0.0012 U	0.0023 UJ
Chloroform (Trichloromethane)	mg/kg	110	0.00046 U	0.00040 UJ	0.00047 U	0.00046 U	0.00085 UJ
Chloromethane (Methyl chloride)	mg/kg	1400	0.00067 U	0.00058 UJ	0.00068 U	0.00067 U	0.0012 UJ
cis-1,2-Dichloroethene	mg/kg	10000	0.00055 U	0.00048 UJ	0.00056 U	0.00056 U	0.0010 UJ
cis-1,3-Dichloropropene	mg/kg		0.00053 U	0.00046 UJ	0.00054 U	0.00054 U	0.00099 UJ
Cyclohexane	mg/kg	10000	0.00029 U	0.00025 UJ	0.00030 U	0.00029 U	0.00054 UJ
Dibromochloromethane	mg/kg	95	0.00056 U	0.00049 UJ	0.00056 U	0.00056 U	0.0010 UJ
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00052 U	0.00046 UJ	0.00053 U	0.00053 U	0.00097 UJ
Ethylbenzene	mg/kg	10000	0.00050 U	0.00044 UJ	0.00051 U	0.00051 U	0.00094 UJ
Isopropyl benzene	mg/kg	10000	0.00053 U	0.00047 UJ	0.00054 U	0.00054 U	0.00099 UJ

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_10-10.5_062514**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_10-10.5_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(4.5-5) ft BGS**	**(5-5.5) ft BGS**	**(10-10.5) ft BGS**	**(7-7.5) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**					
m&p-Xylenes	mg/kg		0.0012 U	0.0010 UJ	0.0012 U	0.0012 U	0.0021 UJ
Methyl acetate	mg/kg	10000	0.00071 U	0.00062 UJ	0.00072 U	0.00071 U	0.0013 UJ
Methyl cyclohexane	mg/kg		0.00057 U	0.00050 UJ	0.00058 U	0.00057 U	0.0011 UJ
Methyl tert butyl ether (MTBE)	mg/kg	3700	0.00059 U	0.00051 UJ	0.00059 U	0.00059 U	0.0011 UJ
Methylene chloride	mg/kg	5400	0.0034 J	0.0028 J	0.0038 J	0.0030 U	0.0040 J
o-Xylene	mg/kg		0.00061 U	0.00053 UJ	0.00062 U	0.00062 U	0.0011 UJ
Styrene	mg/kg	10000	0.00055 U	0.00048 UJ	0.00056 U	0.00056 U	0.0010 UJ
Tetrachloroethene	mg/kg	4400	0.00053 U	0.00047 UJ	0.00054 U	0.00054 U	0.00099 UJ
Toluene	mg/kg	10000	0.00057 U	0.00050 UJ	0.00058 U	0.00058 U	0.0011 UJ
trans-1,2-Dichloroethene	mg/kg	5500	0.00047 U	0.00041 UJ	0.00047 U	0.00047 U	0.00087 UJ
trans-1,3-Dichloropropene	mg/kg		0.00047 U	0.00041 UJ	0.00048 U	0.00047 U	0.00087 UJ
Trichloroethene	mg/kg	1500	0.00052 U	0.00045 UJ	0.00052 U	0.00052 U	0.00096 UJ
Trichlorofluoromethane (CFC-11)	mg/kg	10000	0.00072 U	0.00063 UJ	0.00073 U	0.00073 U	0.0013 UJ
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.00084 U	0.00073 UJ	0.00085 U	0.00084 U	0.0016 UJ
Vinyl chloride	mg/kg	580	0.00037 U	0.00032 UJ	0.00037 U	0.00037 U	0.00068 UJ
Xylenes (total)	mg/kg	9100	0.0018 U	0.0015 UJ	0.0018 U	0.0018 U	0.0033 UJ
Semi-volatile Organic Compounds							
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	250	0.00082 U	0.0038 U	0.00082 U	0.00083 U	0.0061 U
2,4,5-Trichlorophenol	mg/kg	190000	0.0041 U	0.019 U	0.0040 U	0.0041 U	0.030 U
2,4,6-Trichlorophenol	mg/kg	190000	0.0057 U	0.026 U	0.0057 U	0.0058 U	0.043 U
2,4-Dichlorophenol	mg/kg	190000	0.00077 U	0.0035 U	0.00076 U	0.00077 U	0.0057 U
2,4-Dimethylphenol	mg/kg	10000	0.0060 U	0.028 U	0.0059 U	0.0060 U	0.044 U
2,4-Dinitrophenol	mg/kg	190000	0.045 U	0.21 U	0.045 U	0.046 U	0.34 U
2,4-Dinitrotoluene	mg/kg	190000	0.0031 U	0.014 U	0.0030 U	0.0031 U	0.023 U
2,6-Dinitrotoluene	mg/kg	190000	0.0039 U	0.018 U	0.0039 U	0.0040 U	0.029 U
2-Chloronaphthalene	mg/kg	190000	0.00080 U	0.0037 U	0.00079 U	0.00080 U	0.0059 U
2-Chlorophenol	mg/kg	10000	0.0031 U	0.014 U	0.0031 U	0.0032 U	0.023 U
2-Methylnaphthalene	mg/kg	190000	0.00069 U	0.0032 U	0.00068 U	0.00090 J	0.033 J
2-Methylphenol	mg/kg	190000	0.0027 U	0.012 U	0.0026 U	0.0027 U	0.020 U
2-Nitroaniline	mg/kg	190000	0.017 U	0.079 U	0.017 U	0.017 U	0.13 U
2-Nitrophenol	mg/kg	190000	0.0042 U	0.020 U	0.0042 U	0.0042 U	0.031 U
3,3'-Dichlorobenzidine	mg/kg	190000	0.0040 U	0.019 U	0.0040 U	0.0041 U	0.030 U
3-Nitroaniline	mg/kg	190000	0.016 U	0.073 U	0.016 U	0.016 U	0.12 U
4,6-Dinitro-2-methylphenol	mg/kg	190000	0.015 U	0.071 U	0.015 U	0.015 U	0.11 U
4-Bromophenyl phenyl ether	mg/kg		0.0033 U	0.015 U	0.0033 U	0.0034 U	0.025 U

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_10-10.5_062514**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_10-10.5_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(4.5-5) ft BGS**	**(5-5.5) ft BGS**	**(10-10.5) ft BGS**	**(7-7.5) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**					
4-Chloro-3-methylphenol	mg/kg	190000	0.0035 U	0.016 U	0.0035 U	0.0035 U	0.026 U
4-Chloroaniline	mg/kg	190000	0.0031 U	0.014 U	0.0030 U	0.0031 U	0.023 U
4-Chlorophenyl phenyl ether	mg/kg		0.0042 U	0.020 U	0.0042 U	0.0043 U	0.032 U
4-Methylphenol	mg/kg	190000	0.0037 U	0.017 U	0.0037 U	0.0038 U	0.033 J
4-Nitroaniline	mg/kg	190000	0.015 U	0.072 U	0.015 U	0.016 U	0.12 U
4-Nitrophenol	mg/kg	190000	0.014 U	0.065 U	0.014 U	0.014 U	0.10 U
Acenaphthene	mg/kg	190000	0.00073 U	0.0046 J	0.00073 U	0.0012 J	0.0088 J
Acenaphthylene	mg/kg	190000	0.00087 U	0.0041 U	0.00086 U	0.0039 J	0.038 J
Acetophenone	mg/kg	10000	0.0031 U	0.015 U	0.0031 U	0.013 J	0.023 U
Anthracene	mg/kg	190000	0.00075 U	0.015 J	0.00074 U	0.0026 J	0.050 J
Atrazine	mg/kg	190000	0.0037 U	0.017 U	0.0037 U	0.0038 U	0.028 U
Benzaldehyde	mg/kg		R	R	R	R	0.21 J
Benzo(a)anthracene	mg/kg	190000	0.00096 U	0.067	0.00095 U	0.012	0.10
Benzo(a)pyrene	mg/kg	190000	0.00076 U	0.096	0.00076 U	0.015	0.11
Benzo(b)fluoranthene	mg/kg	190000	0.0012 U	0.13	0.0012 U	0.016	0.14
Benzo(g,h,i)perylene	mg/kg	190000	0.00076 U	0.091	0.00075 U	0.011	0.098
Benzo(k)fluoranthene	mg/kg	190000	0.0015 U	0.043	0.0015 U	0.012	0.054 J
Biphenyl (1,1-Biphenyl)	mg/kg	190000	0.0034 U	0.016 U	0.0034 U	0.0034 U	0.025 U
bis(2-Chloroethoxy)methane	mg/kg	10000	0.0025 U	0.012 U	0.0025 U	0.0025 U	0.019 U
bis(2-Chloroethyl)ether	mg/kg	7.7	0.0010 U	0.0047 U	0.0010 U	0.0010 U	0.0076 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	10000	0.0078 J	0.029 U	0.0061 U	0.0062 U	0.058 J
Butyl benzylphthalate (BBP)	mg/kg	10000	0.0077 J	0.024 U	0.0052 U	0.0053 U	0.039 U
Caprolactam	mg/kg		0.029 U	0.13 U	0.029 U	0.029 U	0.21 U
Carbazole	mg/kg	190000	0.00070 U	0.0033 U	0.00070 U	0.00071 U	0.011 J
Chrysene	mg/kg	190000	0.00091 U	0.075	0.00090 U	0.019	0.16
Dibenz(a,h)anthracene	mg/kg	190000	0.00085 U	0.025 J	0.00084 U	0.00086 U	0.025 J
Dibenzofuran	mg/kg	190000	0.0038 U	0.017 U	0.0037 U	0.0038 U	0.028 U
Diethyl phthalate	mg/kg	10000	0.0042 U	0.019 U	0.0041 U	0.0042 U	0.031 U
Dimethyl phthalate	mg/kg		0.0042 U	0.019 U	0.0041 U	0.0042 U	0.031 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.0048 U	0.022 U	0.0047 U	0.0048 U	0.036 U
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.0040 U	0.019 U	0.0040 U	0.0041 U	0.030 U
Fluoranthene	mg/kg	190000	0.00082 U	0.066	0.00081 U	0.025	0.22
Fluorene	mg/kg	190000	0.0010 U	0.0047 U	0.0010 U	0.0015 J	0.025 J
Hexachlorobenzene	mg/kg	190000	0.00081 U	0.0038 U	0.00080 U	0.00082 U	0.091
Hexachlorobutadiene	mg/kg	10000	0.00085 U	0.0040 U	0.00084 U	0.00086 U	0.0064 U
Hexachlorocyclopentadiene	mg/kg	10000	0.0041 U	0.019 U	0.0041 U	0.0042 U	0.031 U

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_10-10.5_062514**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_10-10.5_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(4.5-5) ft BGS**	**(5-5.5) ft BGS**	**(10-10.5) ft BGS**	**(7-7.5) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**					
Hexachloroethane	mg/kg	640	0.0027 U	0.013 U	0.0027 U	0.0028 U	0.020 U
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.00079 U	0.079	0.00078 U	0.0091	0.087
Isophorone	mg/kg	10000	0.0029 U	0.013 U	0.0028 U	0.0029 U	0.021 U
Naphthalene	mg/kg	190000	0.00066 U	0.0030 U	0.00065 U	0.00066 U	0.065
Nitrobenzene	mg/kg	10000	0.0032 U	0.015 U	0.0031 U	0.0032 U	0.024 U
N-Nitrosodi-n-propylamine	mg/kg	10000	0.00089 U	0.0041 U	0.00089 U	0.00090 U	0.0067 U
N-Nitrosodiphenylamine	mg/kg	190000	0.0035 U	0.016 U	0.0035 U	0.0036 U	0.026 U
Pentachlorophenol	mg/kg	190000	0.0034 U	0.016 U	0.0034 U	0.0034 U	0.025 U
Phenanthrene	mg/kg	190000	0.0012 U	0.031 J	0.0012 U	0.017	0.14
Phenol	mg/kg	190000	0.00090 U	0.0042 U	0.00089 U	0.00091 U	0.0067 U
Pyrene	mg/kg	190000	0.00077 U	0.074	0.00076 U	0.030	0.18
Metals							
Antimony	mg/kg	190000	0.14 J	0.024 UJ	0.10 J	0.23	1.2 J
Arsenic	mg/kg	190000	6.6	2.4	4.4	13	6.5
Beryllium	mg/kg	190000	0.42	0.40 J	0.32	0.52	1.9
Cadmium	mg/kg	190000	0.022 J	0.11 J	0.069 J	0.14	8.1
Chromium	mg/kg		12	2200	8.0	12	120
Copper	mg/kg	190000	9.1 J	28 J	9.2 J	46	180 J
Lead	mg/kg	190000	9.6	10	6.8	24	240
Mercury	mg/kg	190000	0.012 U	0.012 U	0.012 U	0.077	0.77
Nickel	mg/kg	190000	15 J	36 J	13 J	12	56
Selenium	mg/kg	190000	0.30 J	0.46 U	0.14 J	0.38 J	2.2 J
Silver	mg/kg	190000	0.0041 U	0.036 U	0.0039 U	0.011 J	1.5
Thallium	mg/kg	190000	0.075 J	0.018 U	0.039 J	0.092 J	0.29 J
Zinc	mg/kg	190000	35	54	32	49	1900 J
PCBs							
Aroclor-1016 (PCB-1016)	mg/kg	10000	0.00014 U	0.00013 U	0.00014 U	0.00014 U	0.00021 U
Aroclor-1221 (PCB-1221)	mg/kg	10000	0.00018 U	0.00017 U	0.00018 U	0.00018 U	0.00027 U
Aroclor-1232 (PCB-1232)	mg/kg	10000	0.00016 U	0.00015 U	0.00016 U	0.00017 U	0.00024 U
Aroclor-1242 (PCB-1242)	mg/kg	10000	0.00015 U	0.00014 U	0.00015 U	0.00016 U	0.00023 U
Aroclor-1248 (PCB-1248)	mg/kg	10000	0.000089 U	0.026	0.000089 U	0.000092 U	0.00014 U
Aroclor-1254 (PCB-1254)	mg/kg	10000	0.00013 U	0.00013 U	0.00013 U	0.00014 U	0.11
Aroclor-1260 (PCB-1260)	mg/kg	190000	0.00013 U	0.012	0.00013 U	0.0018	0.00020 U

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-4**	**ELC-SB-5**
Sample ID:			**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_10-10.5_062514**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_10-10.5_062414**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**
Sample Depth:			**(4.5-5) ft BGS**	**(5-5.5) ft BGS**	**(10-10.5) ft BGS**	**(7-7.5) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**					
Petroleum Products							
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-
General Chemistry							
Percent moisture	%		13	6.3	12	14	42
pH	s.u.		-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Subsurface Soil (2-15 feet).
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_5-5.5-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(6.5-7) ft BGS**	**(3-3.5) ft BGS**	**(5-5.5) ft BGS**	**(6-6.5) ft BGS**	**(5-5.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	10000	0.00046 U	0.00037 U	0.00035 U	0.00035 U	0.00036 UJ	0.00040 U
1,1,2,2-Tetrachloroethane	mg/kg	44	0.00068 U	0.00055 U	0.00052 U	0.00052 U	0.00054 UJ	0.00059 U
1,1,2-Trichloroethane	mg/kg	160	0.00079 U	0.00064 U	0.00061 U	0.00060 U	0.00062 UJ	0.00069 U
1,1-Dichloroethane	mg/kg	1600	0.00054 U	0.00044 U	0.00042 U	0.00042 U	0.00043 UJ	0.00048 U
1,1-Dichloroethene	mg/kg	10000	0.00080 U	0.00065 U	0.00062 U	0.00062 U	0.00063 UJ	0.00070 U
1,2,4-Trichlorobenzene	mg/kg	10000	0.00083 U	0.00068 U	0.00064 U	0.00064 U	0.00066 UJ	0.00073 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.43	0.00071 U	0.00057 U	0.00055 U	0.00054 U	0.00056 UJ	0.00062 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	4.3	0.00082 U	0.00066 U	0.00063 U	0.00063 U	0.00064 UJ	0.00071 U
1,2-Dichlorobenzene	mg/kg	10000	0.00075 U	0.00061 U	0.00058 U	0.00058 U	0.00060 UJ	0.00066 U
1,2-Dichloroethane	mg/kg	98	0.00058 U	0.00047 U	0.00045 U	0.00045 U	0.00046 UJ	0.00051 U
1,2-Dichloroethene (total)	mg/kg		0.0012 U	0.00098 U	0.013	0.00093 U	0.00096 UJ	0.0011 U
1,2-Dichloropropane	mg/kg	260	0.00051 U	0.00042 U	0.00040 U	0.00040 U	0.00041 UJ	0.00045 U
1,3-Dichlorobenzene	mg/kg	10000	0.00062 U	0.00050 U	0.00048 U	0.00048 U	0.00049 UJ	0.00054 U
1,4-Dichlorobenzene	mg/kg	230	0.00060 U	0.00049 U	0.00046 U	0.00046 U	0.00048 UJ	0.00053 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	0.00083 U	0.00067 U	0.00064 U	0.00064 U	0.00066 UJ	0.00073 U
2-Hexanone	mg/kg	460	0.00065 U	0.00053 U	0.00050 U	0.00050 U	0.00052 UJ	0.00057 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00062 U	0.00050 U	0.00048 U	0.00047 U	0.00049 UJ	0.00054 U
Acetone	mg/kg	10000	0.0047 U	0.0038 U	0.0036 U	0.0036 U	0.0037 UJ	0.0047 U
Benzene	mg/kg	330	0.00064 U	0.00052 U	0.00049 U	0.00049 U	0.00050 UJ	0.00056 U
Bromodichloromethane	mg/kg	69	0.00053 U	0.00043 U	0.00041 U	0.00041 U	0.00042 UJ	0.00046 U
Bromoform	mg/kg	2300	0.00042 U	0.00034 U	0.00032 U	0.00032 U	0.00033 UJ	0.00037 U
Bromomethane (Methyl bromide)	mg/kg	460	0.00070 U	0.00057 U	0.00054 U	0.00054 U	0.00055 UJ	0.00061 U
Carbon disulfide	mg/kg	10000	0.00048 U	0.00039 U	0.00065 J	0.00070 J	0.00038 J	0.00042 U
Carbon tetrachloride	mg/kg	170	0.00042 U	0.00034 U	0.00033 U	0.00032 U	0.00033 UJ	0.00037 U
Chlorobenzene	mg/kg	4600	0.00072 U	0.00058 U	0.00055 U	0.00055 U	0.00057 UJ	0.00063 U
Chloroethane	mg/kg	10000	0.0015 U	0.0012 U	0.0011 U	0.0011 U	0.0012 UJ	0.0013 U
Chloroform (Trichloromethane)	mg/kg	110	0.00055 U	0.00045 U	0.00043 U	0.00043 U	0.00044 UJ	0.00048 U
Chloromethane (Methyl chloride)	mg/kg	1400	0.00081 U	0.00065 U	0.00062 U	0.00062 U	0.00064 UJ	0.00070 U
cis-1,2-Dichloroethene	mg/kg	10000	0.00067 U	0.00054 U	0.013	0.00051 U	0.00052 UJ	0.00058 U
cis-1,3-Dichloropropene	mg/kg		0.00064 U	0.00052 U	0.00049 U	0.00049 U	0.00051 UJ	0.00056 U
Cyclohexane	mg/kg	10000	0.00035 U	0.00028 U	0.00027 U	0.00093 J	0.00028 UJ	0.00031 U
Dibromochloromethane	mg/kg	95	0.00067 U	0.00054 U	0.00052 U	0.00052 U	0.00053 UJ	0.00059 U
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00063 U	0.00051 U	0.00049 U	0.00048 U	0.00050 UJ	0.00055 U
Ethylbenzene	mg/kg	10000	0.00061 U	0.00049 U	0.00047 U	0.0026 J	0.00048 UJ	0.00053 U
Isopropyl benzene	mg/kg	10000	0.00064 U	0.00052 U	0.00050 U	0.0029 J	0.00051 UJ	0.00056 U

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_5-5.5-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(6.5-7) ft BGS**	**(3-3.5) ft BGS**	**(5-5.5) ft BGS**	**(6-6.5) ft BGS**	**(5-5.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**						
m&p-Xylenes	mg/kg		0.0014 U	0.0011 U	0.0011 U	0.0059 J	0.0011 UJ	0.0012 U
Methyl acetate	mg/kg	10000	0.00085 U	0.00069 U	0.00066 U	0.00066 U	0.00067 UJ	0.00075 U
Methyl cyclohexane	mg/kg		0.00069 U	0.00056 U	0.00053 U	0.0080	0.00054 UJ	0.00060 U
Methyl tert butyl ether (MTBE)	mg/kg	3700	0.00071 U	0.00057 U	0.00055 U	0.00054 U	0.00056 UJ	0.00062 U
Methylene chloride	mg/kg	5400	0.0017 U	0.0016 J	0.0029 U	0.0035 J	0.0018 UJ	0.0020 U
o-Xylene	mg/kg		0.00074 U	0.00060 U	0.00057 U	0.0082	0.00058 UJ	0.00064 U
Styrene	mg/kg	10000	0.00067 U	0.00054 U	0.00051 U	0.00051 U	0.00053 UJ	0.00058 U
Tetrachloroethene	mg/kg	4400	0.00064 U	0.00052 U	0.018	0.00050 U	0.00051 UJ	0.00056 U
Toluene	mg/kg	10000	0.00069 U	0.00056 U	0.00053 U	0.00053 U	0.00054 UJ	0.00060 U
trans-1,2-Dichloroethene	mg/kg	5500	0.00056 U	0.00046 U	0.00043 U	0.00043 U	0.00044 UJ	0.00049 U
trans-1,3-Dichloropropene	mg/kg		0.00057 U	0.00046 U	0.00044 U	0.00043 U	0.00045 UJ	0.00049 U
Trichloroethene	mg/kg	1500	0.00062 U	0.00050 U	0.0019 J	0.00048 U	0.00049 UJ	0.00054 U
Trichlorofluoromethane (CFC-11)	mg/kg	10000	0.00087 U	0.00070 U	0.00067 U	0.00067 U	0.00069 UJ	0.00076 U
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.0010 U	0.00082 U	0.00078 U	0.00078 U	0.00080 UJ	0.00088 U
Vinyl chloride	mg/kg	580	0.00044 U	0.00036 U	0.00034 U	0.00034 U	0.00035 UJ	0.00039 U
Xylenes (total)	mg/kg	9100	0.0021 U	0.0017 U	0.0016 U	0.014	0.0017 UJ	0.0019 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	250	0.00083 U	0.00081 U	0.0079 U	0.0040 U	0.00078 UJ	0.00086 U
2,4,5-Trichlorophenol	mg/kg	190000	0.0041 U	0.0040 U	0.039 U	0.020 U	0.0039 UJ	0.0042 U
2,4,6-Trichlorophenol	mg/kg	190000	0.0057 U	0.0056 U	0.055 U	0.028 U	0.0054 UJ	0.0060 U
2,4-Dichlorophenol	mg/kg	190000	0.00077 U	0.00075 U	0.0074 U	0.0037 U	0.00073 UJ	0.00080 U
2,4-Dimethylphenol	mg/kg	10000	0.0060 U	0.0059 U	0.057 U	0.029 U	0.0057 UJ	0.0062 U
2,4-Dinitrophenol	mg/kg	190000	0.046 U	0.045 U	0.44 U	0.22 U	0.043 UJ	0.047 U
2,4-Dinitrotoluene	mg/kg	190000	0.0031 U	0.0030 U	0.030 U	0.015 U	0.0029 UJ	0.0032 U
2,6-Dinitrotoluene	mg/kg	190000	0.0040 U	0.0039 U	0.038 U	0.019 U	0.0037 UJ	0.0041 U
2-Chloronaphthalene	mg/kg	190000	0.00080 U	0.00078 U	0.0077 U	0.0039 U	0.00075 UJ	0.00083 U
2-Chlorophenol	mg/kg	10000	0.0031 U	0.0031 U	0.030 U	0.015 U	0.0030 UJ	0.0032 U
2-Methylnaphthalene	mg/kg	190000	0.00069 U	0.00068 U	0.027 J	5.4	0.0025 J	0.00071 U
2-Methylphenol	mg/kg	190000	0.0027 U	0.0026 U	0.026 U	0.013 U	0.0025 UJ	0.0028 U
2-Nitroaniline	mg/kg	190000	0.017 U	0.017 U	0.16 U	0.083 U	0.016 UJ	0.018 U
2-Nitrophenol	mg/kg	190000	0.0042 U	0.0041 U	0.040 U	0.021 U	0.0040 UJ	0.0044 U
3,3'-Dichlorobenzidine	mg/kg	190000	0.0040 U	0.0040 U	0.039 U	0.020 U	0.0038 UJ	0.0042 U
3-Nitroaniline	mg/kg	190000	0.016 U	0.015 U	0.15 U	0.077 U	0.015 UJ	0.016 U
4,6-Dinitro-2-methylphenol	mg/kg	190000	0.015 U	0.015 U	0.15 U	0.075 U	0.015 UJ	0.016 U
4-Bromophenyl phenyl ether	mg/kg		0.0033 U	0.0033 U	0.032 U	0.016 U	0.0031 UJ	0.0035 U

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_5-5.5-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(6.5-7) ft BGS**	**(3-3.5) ft BGS**	**(5-5.5) ft BGS**	**(6-6.5) ft BGS**	**(5-5.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**						
4-Chloro-3-methylphenol	mg/kg	190000	0.0035 U	0.0035 U	0.034 U	0.017 U	0.0033 UJ	0.0037 U
4-Chloroaniline	mg/kg	190000	0.0031 U	0.0030 U	0.029 U	0.015 U	0.0029 UJ	0.0032 U
4-Chlorophenyl phenyl ether	mg/kg		0.0043 U	0.0042 U	0.041 U	0.021 U	0.0040 UJ	0.0044 U
4-Methylphenol	mg/kg	190000	0.0037 U	0.0037 U	0.036 U	0.018 U	0.0035 UJ	0.0039 U
4-Nitroaniline	mg/kg	190000	0.016 U	0.015 U	0.15 U	0.075 U	0.015 UJ	0.016 U
4-Nitrophenol	mg/kg	190000	0.014 U	0.014 U	0.13 U	0.068 U	0.013 UJ	0.014 U
Acenaphthene	mg/kg	190000	0.00074 U	0.00072 U	0.055 J	0.75	0.0073 J	0.00076 U
Acenaphthylene	mg/kg	190000	0.00088 U	0.00086 U	0.050 J	0.0043 U	0.0011 J	0.00091 U
Acetophenone	mg/kg	10000	0.0035 J	0.0031 U	0.030 U	1.0	0.0079 J	0.0033 U
Anthracene	mg/kg	190000	0.00075 U	0.00074 U	0.078	0.46	0.012 J	0.00078 U
Atrazine	mg/kg	190000	0.0037 U	0.0037 U	0.036 U	0.018 U	0.0035 UJ	0.0039 U
Benzaldehyde	mg/kg		R	0.028 J	R	R	0.0054 UJ	R
Benzo(a)anthracene	mg/kg	190000	0.00096 U	0.00094 U	0.34	0.058	0.055 J	0.0028 J
Benzo(a)pyrene	mg/kg	190000	0.00077 U	0.00075 U	0.39	0.056	0.095 J	0.00080 U
Benzo(b)fluoranthene	mg/kg	190000	0.0012 U	0.0012 U	0.49	0.081	0.097 J	0.0030 J
Benzo(g,h,i)perylene	mg/kg	190000	0.00076 U	0.00075 U	0.39	0.068	0.10 J	0.00079 U
Benzo(k)fluoranthene	mg/kg	190000	0.0015 U	0.0015 U	0.15	0.042	0.039 J	0.0016 U
Biphenyl (1,1-Biphenyl)	mg/kg	190000	0.0034 U	0.0034 U	0.033 U	0.59	0.0032 UJ	0.0035 U
bis(2-Chloroethoxy)methane	mg/kg	10000	0.0025 U	0.0025 U	0.024 U	0.012 U	0.0024 UJ	0.0026 U
bis(2-Chloroethyl)ether	mg/kg	7.7	0.0010 U	0.0010 U	0.0098 U	0.0050 U	0.00097 UJ	0.0011 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	10000	0.0062 U	0.018 J	0.059 U	0.10 J	0.0058 UJ	0.0066 J
Butyl benzylphthalate (BBP)	mg/kg	10000	0.0052 U	0.0081 J	0.050 U	0.025 U	0.0049 UJ	0.0065 J
Caprolactam	mg/kg		0.029 U	0.028 U	0.28 U	0.14 U	0.027 UJ	0.030 U
Carbazole	mg/kg	190000	0.00071 U	0.00069 U	0.027 J	0.0034 U	0.0059 J	0.00073 U
Chrysene	mg/kg	190000	0.00091 U	0.00090 U	0.45	0.074	0.060 J	0.0025 J
Dibenz(a,h)anthracene	mg/kg	190000	0.00085 U	0.00084 U	0.070 J	0.0041 U	0.021 J	0.00088 U
Dibenzofuran	mg/kg	190000	0.0038 U	0.0037 U	0.036 U	0.018 U	0.0036 UJ	0.0039 U
Diethyl phthalate	mg/kg	10000	0.0042 U	0.0041 U	0.040 U	0.020 U	0.0039 UJ	0.0043 U
Dimethyl phthalate	mg/kg		0.0042 U	0.0041 U	0.040 U	0.020 U	0.0039 UJ	0.0043 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.0048 U	0.0067 J	0.046 U	0.023 U	0.0045 UJ	0.0050 U
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.0040 U	0.0040 U	0.039 U	0.020 U	0.0038 UJ	0.0042 U
Fluoranthene	mg/kg	190000	0.00082 U	0.0017 J	0.55	0.16	0.091 J	0.0032 J
Fluorene	mg/kg	190000	0.0010 U	0.00099 U	0.045 J	0.95	0.0039 J	0.0010 U
Hexachlorobenzene	mg/kg	190000	0.00082 U	0.046	0.0078 U	0.0040 U	0.00077 UJ	0.00085 U
Hexachlorobutadiene	mg/kg	10000	0.00086 U	0.00084 U	0.0082 U	0.0042 U	0.00081 UJ	0.00089 U
Hexachlorocyclopentadiene	mg/kg	10000	0.0041 U	0.0041 U	0.040 U	0.020 U	0.0039 UJ	0.0043 U

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_5-5.5-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(6.5-7) ft BGS**	**(3-3.5) ft BGS**	**(5-5.5) ft BGS**	**(6-6.5) ft BGS**	**(5-5.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**						
Hexachloroethane	mg/kg	640	0.0028 U	0.0027 U	0.026 U	0.013 U	0.0026 UJ	0.0029 U
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.00079 U	0.00077 U	0.26	0.040	0.083 J	0.00082 U
Isophorone	mg/kg	10000	0.0029 U	0.0028 U	0.028 U	0.014 U	0.0027 UJ	0.0030 U
Naphthalene	mg/kg	190000	0.00066 U	0.00065 U	0.054 J	0.42	0.0033 J	0.00069 U
Nitrobenzene	mg/kg	10000	0.0032 U	0.0031 U	0.031 U	0.015 U	0.0030 UJ	0.0033 U
N-Nitrosodi-n-propylamine	mg/kg	10000	0.00090 U	0.00088 U	0.0086 U	0.0044 U	0.00085 UJ	0.00093 U
N-Nitrosodiphenylamine	mg/kg	190000	0.0035 U	0.0035 U	0.034 U	0.017 U	0.0033 UJ	0.0037 U
Pentachlorophenol	mg/kg	190000	0.0034 U	0.0034 U	0.033 U	0.017 U	0.0032 UJ	0.0036 U
Phenanthrene	mg/kg	190000	0.0012 U	0.0012 U	0.30	1.7	0.042 J	0.0019 J
Phenol	mg/kg	190000	0.00090 U	0.0063 J	0.0087 U	0.0044 U	0.00085 UJ	0.00094 U
Pyrene	mg/kg	190000	0.00077 U	0.0011 J	0.56	0.22	0.064 J	0.0031 J
Metals								
Antimony	mg/kg	190000	0.13 J	0.12 J	20 J	8.3	0.15 J	0.25 J
Arsenic	mg/kg	190000	4.7	5.6	6.3	11	2.1	5.0
Beryllium	mg/kg	190000	0.31	0.33	2.2	0.39	0.82	0.43
Cadmium	mg/kg	190000	0.095 J	0.040 J	0.55 J	3.4	0.12 J	0.040 J
Chromium	mg/kg		8.6	8.6	580	34	1600	22
Copper	mg/kg	190000	10 J	9.3 J	3200 J	110	26 J	9.4 J
Lead	mg/kg	190000	7.3	7.8	500	170	23	9.3
Mercury	mg/kg	190000	0.012 U	0.012 U	0.014 J	0.16	0.011 U	0.012 U
Nickel	mg/kg	190000	14 J	14	36 J	34	24	15 J
Selenium	mg/kg	190000	0.15 J	0.18 J	1.9 J	0.45 J	0.48 J	0.32 J
Silver	mg/kg	190000	0.0041 U	0.0065 J	0.98	0.30	0.021 U	0.0042 U
Thallium	mg/kg	190000	0.046 J	0.041 J	0.052 J	0.076 J	0.012 J	0.081 J
Zinc	mg/kg	190000	31	33 J	160	310	64 J	43
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg	10000	0.00014 U	0.00014 U	0.0014 U	0.00069 U	0.00013 U	0.00015 U
Aroclor-1221 (PCB-1221)	mg/kg	10000	0.00018 U	0.00018 U	0.0017 U	0.00089 U	0.00017 U	0.00019 U
Aroclor-1232 (PCB-1232)	mg/kg	10000	0.00016 U	0.00016 U	0.0016 U	0.00080 U	0.00015 U	0.00017 U
Aroclor-1242 (PCB-1242)	mg/kg	10000	0.00015 U	0.00015 U	0.0015 U	0.00076 U	0.00015 U	0.00016 U
Aroclor-1248 (PCB-1248)	mg/kg	10000	0.00039 J	0.000088 U	0.00086 U	0.00044 U	0.0061	0.000095 U
Aroclor-1254 (PCB-1254)	mg/kg	10000	0.00014 U	0.0019	0.34	0.10 J	0.00013 U	0.0021
Aroclor-1260 (PCB-1260)	mg/kg	190000	0.00027 J	0.00013 U	0.0013 U	0.071 J	0.00013 U	0.00014 U

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-11**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_5-5.5-062514**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/25/2014**	**6/26/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(6.5-7) ft BGS**	**(3-3.5) ft BGS**	**(5-5.5) ft BGS**	**(6-6.5) ft BGS**	**(5-5.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		13	12	9.1	10	8.3	17
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Subsurface Soil (2-15 feet).
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-TP-1**
Sample ID:			**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_4.5-5_062414**	**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**TP-1 7'-7-6"**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/22/1998**
Sample Depth:			**(5-5.5) ft BGS**	**(4.5-5) ft BGS**	**(4.5-5) ft BGS**	**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(7-7.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**								
Volatile Organic Compounds										
1,1,1-Trichloroethane	mg/kg	10000	0.00040 U	0.00046 UJ	0.00048 U	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	44	0.00059 U	0.00068 UJ	0.00071 U	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	160	0.00069 U	0.00078 UJ	0.00082 U	-	-	-	-	-
1,1-Dichloroethane	mg/kg	1600	0.00048 U	0.00054 UJ	0.00057 U	-	-	-	-	-
1,1-Dichloroethene	mg/kg	10000	0.00070 U	0.00080 UJ	0.00084 U	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	10000	0.00073 U	0.00083 UJ	0.00087 U	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.43	0.00062 U	0.00071 UJ	0.00074 U	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	4.3	0.00071 U	0.00081 UJ	0.00085 U	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	10000	0.00066 U	0.00075 UJ	0.00079 U	-	-	-	-	-
1,2-Dichloroethane	mg/kg	98	0.00051 U	0.00058 UJ	0.00061 U	-	-	-	-	-
1,2-Dichloroethene (total)	mg/kg		0.0011 U	0.0012 UJ	0.0013 U	-	-	-	-	-
1,2-Dichloropropane	mg/kg	260	0.00045 U	0.00051 UJ	0.00054 U	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	10000	0.00054 U	0.00062 UJ	0.00065 U	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	230	0.00053 U	0.00060 UJ	0.00063 U	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	0.00073 U	0.00083 UJ	0.00087 U	-	-	-	-	-
2-Hexanone	mg/kg	460	0.00057 U	0.00065 UJ	0.00068 U	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00054 U	0.00061 UJ	0.00064 U	-	-	-	-	-
Acetone	mg/kg	10000	0.0041 U	0.0047 UJ	0.0049 U	-	-	-	-	-
Benzene	mg/kg	330	0.00056 U	0.00064 UJ	0.00067 U	-	-	-	-	-
Bromodichloromethane	mg/kg	69	0.00046 U	0.00053 UJ	0.00055 U	-	-	-	-	-
Bromoform	mg/kg	2300	0.00037 U	0.00042 UJ	0.00044 U	-	-	-	-	-
Bromomethane (Methyl bromide)	mg/kg	460	0.00061 U	0.00070 UJ	0.00073 U	-	-	-	-	-
Carbon disulfide	mg/kg	10000	0.00042 U	0.00060 J	0.00051 U	-	-	-	-	-
Carbon tetrachloride	mg/kg	170	0.00037 U	0.00042 UJ	0.00044 U	-	-	-	-	-
Chlorobenzene	mg/kg	4600	0.00063 U	0.00071 UJ	0.00075 U	-	-	-	-	-
Chloroethane	mg/kg	10000	0.0013 U	0.0015 UJ	0.0015 U	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	110	0.00048 U	0.00055 UJ	0.00058 U	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	1400	0.00070 U	0.00080 UJ	0.00084 U	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	10000	0.00058 U	0.00066 UJ	0.00069 U	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg		0.00056 U	0.00064 UJ	0.00067 U	-	-	-	-	-
Cyclohexane	mg/kg	10000	0.00031 U	0.00035 UJ	0.00037 U	-	-	-	-	-
Dibromochloromethane	mg/kg	95	0.00059 U	0.00067 UJ	0.00070 U	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00055 U	0.00063 UJ	0.00066 U	-	-	-	-	-
Ethylbenzene	mg/kg	10000	0.00053 U	0.00061 UJ	0.00063 U	0.005 U	0.23 J	0.0031 J	0.005 U	0.005 U
Isopropyl benzene	mg/kg	10000	0.00056 U	0.00064 UJ	0.00067 U	-	-	-	-	-

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-TP-1**
Sample ID:			**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_4.5-5_062414**	**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**TP-1 7'-7-6"**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/22/1998**
Sample Depth:			**(5-5.5) ft BGS**	**(4.5-5) ft BGS**	**(4.5-5) ft BGS**	**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(7-7.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**								
m&p-Xylenes	mg/kg		0.0012 U	0.0014 UJ	0.0015 U	-	-	-	-	-
Methyl acetate	mg/kg	10000	0.00074 U	0.00085 UJ	0.00089 U	-	-	-	-	-
Methyl cyclohexane	mg/kg		0.00060 U	0.00068 UJ	0.00072 U	-	-	-	-	-
Methyl tert butyl ether (MTBE)	mg/kg	3700	0.00062 U	0.00070 UJ	0.00074 U	-	-	-	-	-
Methylene chloride	mg/kg	5400	0.0028 U	0.0020 UJ	0.0023 UJ	0.0035 JB	0.92	0.0031 JB	0.0036 JB	0.0013 JB
o-Xylene	mg/kg		0.00064 U	0.00073 UJ	0.00077 U	-	-	-	-	-
Styrene	mg/kg	10000	0.00058 U	0.00066 UJ	0.00070 U	-	-	-	-	-
Tetrachloroethene	mg/kg	4400	0.00056 U	0.00064 UJ	0.00067 U	-	-	-	-	-
Toluene	mg/kg	10000	0.00060 U	0.00069 UJ	0.00072 U	0.0013 JB	0.13 J	0.0027 J	0.005 U	0.00091 J
trans-1,2-Dichloroethene	mg/kg	5500	0.00049 U	0.00056 UJ	0.00059 U	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg		0.00049 U	0.00056 UJ	0.00059 U	-	-	-	-	-
Trichloroethene	mg/kg	1500	0.00054 U	0.00062 UJ	0.00065 U	0.00079 JB	0.00079 J	0.005 U	0.005 U	0.005 U
Trichlorofluoromethane (CFC-11)	mg/kg	10000	0.00076 U	0.00087 UJ	0.00091 U	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.00088 U	0.0010 UJ	0.0011 U	-	-	-	-	-
Vinyl chloride	mg/kg	580	0.00039 U	0.00044 UJ	0.00046 U	-	-	-	-	-
Xylenes (total)	mg/kg	9100	0.0019 U	0.0021 UJ	0.0022 U	-	-	-	-	-
Semi-volatile Organic Compounds										
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	250	0.00085 U	0.00083 U	0.00080 U	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	190000	0.0042 U	0.0041 U	0.0040 U	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	190000	0.0059 U	0.0058 U	0.0056 U	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	190000	0.00079 U	0.00077 U	0.00075 U	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	10000	0.0062 U	0.0060 U	0.0058 U	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	190000	0.047 U	0.046 U	0.044 U	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	190000	0.0032 U	0.0031 U	0.0030 U	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	190000	0.0041 U	0.0040 U	0.0038 U	-	-	-	-	-
2-Chloronaphthalene	mg/kg	190000	0.00082 U	0.00080 U	0.00078 U	-	-	-	-	-
2-Chlorophenol	mg/kg	10000	0.0032 U	0.0031 U	0.0030 U	-	-	-	-	-
2-Methylnaphthalene	mg/kg	190000	0.00071 U	0.0027 J	0.00067 U	-	-	-	-	-
2-Methylphenol	mg/kg	190000	0.0028 U	0.0027 U	0.0026 U	-	-	-	-	-
2-Nitroaniline	mg/kg	190000	0.018 U	0.017 U	0.017 U	-	-	-	-	-
2-Nitrophenol	mg/kg	190000	0.0043 U	0.0042 U	0.0041 U	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	190000	0.0042 U	0.0041 U	0.0039 U	-	-	-	-	-
3-Nitroaniline	mg/kg	190000	0.016 U	0.016 U	0.015 U	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	190000	0.016 U	0.015 U	0.015 U	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/kg		0.0034 U	0.0033 U	0.0032 U	-	-	-	-	-

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-TP-1**
Sample ID:			**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_4.5-5_062414**	**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**TP-1 7'-7-6"**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/22/1998**
Sample Depth:			**(5-5.5) ft BGS**	**(4.5-5) ft BGS**	**(4.5-5) ft BGS**	**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(7-7.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**								
4-Chloro-3-methylphenol	mg/kg	190000	0.0036 U	0.0035 U	0.0034 U	-	-	-	-	-
4-Chloroaniline	mg/kg	190000	0.0032 U	0.0031 U	0.0030 U	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg		0.0044 U	0.0043 U	0.0041 U	-	-	-	-	-
4-Methylphenol	mg/kg	190000	0.0039 U	0.0038 U	0.0036 U	-	-	-	-	-
4-Nitroaniline	mg/kg	190000	0.016 U	0.016 U	0.015 U	-	-	-	-	-
4-Nitrophenol	mg/kg	190000	0.014 U	0.014 U	0.014 U	-	-	-	-	-
Acenaphthene	mg/kg	190000	0.00076 U	0.00074 U	0.0015 J	0.33 U	200	2.9	0.33 U	0.33 U
Acenaphthylene	mg/kg	190000	0.00090 U	0.00088 U	0.00085 U	0.33 U	29	0.71	0.33 U	0.33 U
Acetophenone	mg/kg	10000	0.017 J	0.0032 U	0.0031 U	-	-	-	-	-
Anthracene	mg/kg	190000	0.00077 U	0.0017 J	0.0013 J	0.33 U	200	3.4	0.33 U	0.33 U
Atrazine	mg/kg	190000	0.0038 U	0.0037 U	0.0036 U	-	-	-	-	-
Benzaldehyde	mg/kg		R	0.029 J	R	-	-	-	-	-
Benzo(a)anthracene	mg/kg	190000	0.00099 U	0.0042 J	0.0071 J	0.33 U	89	1.7	0.33 U	0.33 U
Benzo(a)pyrene	mg/kg	190000	0.00079 U	0.0043 J	0.012	0.33 U	37	1.1	0.33 U	0.33 U
Benzo(b)fluoranthene	mg/kg	190000	0.0012 U	0.0054 J	0.014	0.33 U	32	1.2	0.33 U	0.33 U
Benzo(g,h,i)perylene	mg/kg	190000	0.00078 U	0.0043 J	0.017	0.33 U	15	0.54	0.33 U	0.33 U
Benzo(k)fluoranthene	mg/kg	190000	0.0016 U	0.0035 J	0.0068 J	0.33 U	38	1.2	0.33 U	0.33 U
Biphenyl (1,1-Biphenyl)	mg/kg	190000	0.0035 U	0.0034 U	0.0033 U	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	10000	0.0026 U	0.0025 U	0.0024 U	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	7.7	0.0011 U	0.0010 U	0.0010 U	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	10000	0.0069 J	0.017 J	2.3	0.42	3.2 J	0.48	0.35	0.33 U
Butyl benzylphthalate (BBP)	mg/kg	10000	0.0076 J	0.010 J	0.0070 J	-	-	-	-	-
Caprolactam	mg/kg		0.030 U	0.029 U	0.028 U	-	-	-	-	-
Carbazole	mg/kg	190000	0.00073 U	0.00071 U	0.00069 U	-	-	-	-	-
Chrysene	mg/kg	190000	0.00094 U	0.0068 J	0.0098	0.33 U	81	1.9	0.33 U	0.33 U
Dibenz(a,h)anthracene	mg/kg	190000	0.00088 U	0.00086 U	0.0050 J	0.33 U	8.2	0.24 J	0.33 U	0.33 U
Dibenzofuran	mg/kg	190000	0.0039 U	0.0038 U	0.0037 U	-	-	-	-	-
Diethyl phthalate	mg/kg	10000	0.0043 U	0.0042 U	0.0041 U	-	-	-	-	-
Dimethyl phthalate	mg/kg		0.0043 U	0.0042 U	0.0041 U	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg	10000	0.0049 U	0.0063 J	0.0055 J	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.0042 U	0.0041 U	0.0039 U	-	-	-	-	-
Fluoranthene	mg/kg	190000	0.00084 U	0.0099	0.0090	0.33 U	440	7.9	0.33 U	0.33 U
Fluorene	mg/kg	190000	0.0010 U	0.0010 U	0.00098 U	0.33 U	280	4.5	0.33 U	0.33 U
Hexachlorobenzene	mg/kg	190000	0.00084 U	0.00082 U	0.00079 U	-	-	-	-	-
Hexachlorobutadiene	mg/kg	10000	0.00088 U	0.00086 U	0.00083 U	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	10000	0.0043 U	0.0041 U	0.0040 U	-	-	-	-	-

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-TP-1**
Sample ID:			**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_4.5-5_062414**	**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**TP-1 7'-7-6"**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/22/1998**
Sample Depth:			**(5-5.5) ft BGS**	**(4.5-5) ft BGS**	**(4.5-5) ft BGS**	**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(7-7.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**								
Hexachloroethane	mg/kg	640	0.0028 U	0.0028 U	0.0027 U	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.00081 U	0.0038 J	0.014	0.33 U	16	0.56	0.33 U	0.33 U
Isophorone	mg/kg	10000	0.0030 U	0.0029 U	0.0028 U	-	-	-	-	-
Naphthalene	mg/kg	190000	0.00068 U	0.0029 J	0.00064 U	0.33 U	280	4	0.33 U	0.33 U
Nitrobenzene	mg/kg	10000	0.0033 U	0.0032 U	0.0031 U	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	10000	0.00093 U	0.00090 U	0.00087 U	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg	190000	0.0037 U	0.0036 U	0.0034 U	-	-	-	-	-
Pentachlorophenol	mg/kg	190000	0.0035 U	0.0034 U	0.0033 U	-	-	-	-	-
Phenanthrene	mg/kg	190000	0.0013 U	0.0072 J	0.0035 J	0.33 U	830	13	0.33 U	0.33 U
Phenol	mg/kg	190000	0.00093 U	0.00091 U	0.00088 U	-	-	-	-	-
Pyrene	mg/kg	190000	0.00080 U	0.0059 J	0.0078	0.33 U	270	5.4	0.33 U	0.33 U
Metals										
Antimony	mg/kg	190000	0.12 J	0.21 J	0.23 J	0.64	0.64	0.54	0.89	2.5
Arsenic	mg/kg	190000	5.9	3.8	2.9	3.5	0.2 U	1.1	2.3	0.2 U
Beryllium	mg/kg	190000	0.49	0.61	0.43	0.25	0.2 U	0.26	0.26	0.2 U
Cadmium	mg/kg	190000	0.045 J	1.1	0.093	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	mg/kg		12	1000	170	7.6	560	160	16	860
Copper	mg/kg	190000	9.3	31 J	17 J	9.2	7.2	24	8.2	18
Lead	mg/kg	190000	9.9	29	17	10	73	45	8	59
Mercury	mg/kg	190000	0.015 J	0.021 J	0.014 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	mg/kg	190000	14	11	12	10	110	31	8.6	8.4
Selenium	mg/kg	190000	0.34 J	0.76 J	0.32 J	0.2 U	0.2 U	0.39	0.2 U	0.2 U
Silver	mg/kg	190000	0.0045 U	0.11 J	0.020 J	0.2 U	0.3	0.2 U	0.2 U	0.88
Thallium	mg/kg	190000	0.093 J	0.060 J	0.035 J	-	-	-	-	-
Zinc	mg/kg	190000	39	240 J	50 J	32	19	270	34	54
PCBs										
Aroclor-1016 (PCB-1016)	mg/kg	10000	0.00015 U	0.00014 U	0.00069 U	-	-	-	-	-
Aroclor-1221 (PCB-1221)	mg/kg	10000	0.00019 U	0.00018 U	0.00089 U	-	-	-	-	-
Aroclor-1232 (PCB-1232)	mg/kg	10000	0.00017 U	0.00017 U	0.00079 U	-	-	-	-	-
Aroclor-1242 (PCB-1242)	mg/kg	10000	0.00016 U	0.00016 U	0.00076 U	-	-	-	-	-
Aroclor-1248 (PCB-1248)	mg/kg	10000	0.000093 U	0.000091 U	0.00044 U	-	-	-	-	-
Aroclor-1254 (PCB-1254)	mg/kg	10000	0.00014 U	0.0091	0.25	-	-	-	-	-
Aroclor-1260 (PCB-1260)	mg/kg	190000	0.00014 U	0.00014 U	0.16	-	-	-	-	-

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-14**	**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-TP-1**
Sample ID:			**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_4.5-5_062414**	**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**TP-1 7'-7-6"**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/22/1998**
Sample Depth:			**(5-5.5) ft BGS**	**(4.5-5) ft BGS**	**(4.5-5) ft BGS**	**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(7-7.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**								
Petroleum Products										
Total Petroleum Hydrocarbons	mg/kg		-	-	-	49	-	61	38 J	590
General Chemistry										
Percent moisture	%		16	14	10	-	-	-	-	-
pH	s.u.		-	-	-	8.48	9.98	9.36	8.44	11.24

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Subsurface Soil (2-15 feet).
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-10**	**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-10 3-3'9"**	**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(3-3.75) ft BGS**	**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**									
Volatile Organic Compounds											
1,1,1-Trichloroethane	mg/kg	10000	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	44	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	160	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	1600	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	10000	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.43	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	4.3	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	98	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	mg/kg		-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	260	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	230	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	10000	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	460	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Acetone	mg/kg	10000	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	330	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	69	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	2300	-	-	-	-	-	-	-	-	-
Bromomethane (Methyl bromide)	mg/kg	460	-	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	10000	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	170	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	4600	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	10000	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	110	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	1400	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	10000	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-	-
Cyclohexane	mg/kg	10000	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	95	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	10000	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Isopropyl benzene	mg/kg	10000	-	-	-	-	-	-	-	-	-

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-10**	**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-10 3-3'9"**	**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(3-3.75) ft BGS**	**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**									
m&p-Xylenes	mg/kg		-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	10000	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	mg/kg		-	-	-	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	mg/kg	3700	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	5400	0.0018 JB	0.0019 JB	0.0012 JB	0.0014 JB	0.0015 JB	0.0011 JB	0.0017 JB	0.0011 JB	0.0013 JB
o-Xylene	mg/kg		-	-	-	-	-	-	-	-	-
Styrene	mg/kg	10000	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	4400	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	10000	0.00056 JB	0.00075 JB	0.00055 JB	0.00062 JB	0.0006 JB	0.00059 JB	0.00051 JB	0.00051 JB	0.00052 JB
trans-1,2-Dichloroethene	mg/kg	5500	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	1500	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Trichlorofluoromethane (CFC-11)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	580	-	-	-	-	-	-	-	-	-
Xylenes (total)	mg/kg	9100	-	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds											
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	250	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	10000	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	190000	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	190000	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	190000	-	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/kg	10000	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg	190000	-	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
2-Nitroaniline	mg/kg	190000	-	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	190000	-	-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg	190000	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-	-

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-10**	**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-10 3-3'9"**	**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(3-3.75) ft BGS**	**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**									
4-Chloro-3-methylphenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
4-Chloroaniline	mg/kg	190000	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-	-
4-Methylphenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	190000	-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acenaphthylene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acetophenone	mg/kg	10000	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Atrazine	mg/kg	190000	-	-	-	-	-	-	-	-	-
Benzaldehyde	mg/kg		-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(a)pyrene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(b)fluoranthene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(g,h,i)perylene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(k)fluoranthene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Biphenyl (1,1-Biphenyl)	mg/kg	190000	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	10000	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	7.7	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	10000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Butyl benzylphthalate (BBP)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Caprolactam	mg/kg		-	-	-	-	-	-	-	-	-
Carbazole	mg/kg	190000	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenzofuran	mg/kg	190000	-	-	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg	10000	-	-	-	-	-	-	-	-	-
Dimethyl phthalate	mg/kg		-	-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Fluorene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Hexachlorobenzene	mg/kg	190000	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	10000	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	10000	-	-	-	-	-	-	-	-	-

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-10**	**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-10 3-3'9"**	**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(3-3.75) ft BGS**	**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**									
Hexachloroethane	mg/kg	640	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Isophorone	mg/kg	10000	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Nitrobenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	10000	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg	190000	-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Phenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Metals											
Antimony	mg/kg	190000	0.5 U	0.5 U	0.88	0.96	0.5 U	1.2	0.75	0.52	1.2
Arsenic	mg/kg	190000	11	1.1	3.5	6.7	7.2	4.8	4.2	3.6	0.5
Beryllium	mg/kg	190000	0.44	0.2 U	0.29	0.46	0.48	0.29	0.25	0.26	0.46
Cadmium	mg/kg	190000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	mg/kg		9.7	550	7.6	22	6.1	20	8.1	6.8	51
Copper	mg/kg	190000	25	15	9.6	9.2	8	11	8.8	7.8	12
Lead	mg/kg	190000	20	15	8.8	15	15	20	8.3	8.1	17
Mercury	mg/kg	190000	0.1 U	0.1 U	0.1 U	0.1 U	0.11	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	mg/kg	190000	11	6.8	12	11	11	14	11	12	11
Selenium	mg/kg	190000	0.2 U	0.2 U	0.98	0.2 U	0.67	0.2 U	0.2 U	0.2 U	0.2 U
Silver	mg/kg	190000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Thallium	mg/kg	190000	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	190000	50	55	52	50	41	63	47	45	51
PCBs											
Aroclor-1016 (PCB-1016)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	mg/kg	190000	-	-	-	-	-	-	-	-	-

Table 4.2

Screened Analytical Results
Subsurface Soil Samples Vs Non-Residential Direct Contact Criteria (2-15)
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-10**	**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-10 3-3'9"**	**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(3-3.75) ft BGS**	**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Direct-Contact Criteria (2-15 feet bgs) (1)**									
Petroleum Products											
Total Petroleum Hydrocarbons	mg/kg		55	32 J	32 J	49	32 JB	49	49	44	32 J
General Chemistry											
Percent moisture	%		-	-	-	-	-	-	-	-	-
pH	s.u.		8.39	9.06	6.11	7.2	7.13	7.73	8.43	7.57	7.66

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Subsurface Soil (2-15 feet).
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	72	0.00040 U	0.00038 U	R	0.00033 UJ	0.00037 U	0.00039 U
1,1,2,2-Tetrachloroethane	mg/kg	13	0.00059 U	0.00056 U	R	0.00049 UJ	0.00055 U	0.00057 U
1,1,2-Trichloroethane	mg/kg	1.5	0.00068 U	0.00065 U	R	0.00057 UJ	0.00064 U	0.00066 U
1,1-Dichloroethane	mg/kg	39	0.00047 U	0.00045 U	R	0.00039 UJ	0.00044 U	0.00046 U
1,1-Dichloroethene	mg/kg	1.9	0.00070 U	0.00067 U	R	0.00058 UJ	0.00065 U	0.00067 U
1,2,4-Trichlorobenzene	mg/kg	10000	0.00073 U	0.00069 U	R	0.00060 UJ	0.00068 U	0.00070 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.92	0.00062 U	0.00059 U	R	0.00051 UJ	0.00057 U	0.00060 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.12	0.00071 U	0.00068 U	R	0.00059 UJ	0.00066 U	0.00069 U
1,2-Dichlorobenzene	mg/kg	5900	0.00066 U	0.00063 U	R	0.00055 UJ	0.00061 U	0.00063 U
1,2-Dichloroethane	mg/kg	1	0.00050 U	0.00048 U	R	0.00042 UJ	0.00047 U	0.00049 U
1,2-Dichloroethene (total)	mg/kg		0.0011 U	0.0010 U	R	0.00088 UJ	0.00098 U	0.0010 U
1,2-Dichloropropane	mg/kg	1.1	0.00045 U	0.00043 U	R	0.00037 UJ	0.00042 U	0.00043 U
1,3-Dichlorobenzene	mg/kg	6100	0.00054 U	0.00052 U	R	0.00045 UJ	0.00050 U	0.00052 U
1,4-Dichlorobenzene	mg/kg	1000	0.00052 U	0.00050 U	R	0.00044 UJ	0.00049 U	0.00051 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	7600	0.00073 U	0.00069 U	R	0.00060 UJ	0.00068 U	0.00070 U
2-Hexanone	mg/kg	1.1	0.00057 U	0.00054 U	R	0.00047 UJ	0.00053 U	0.00055 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00054 U	0.00051 U	R	0.00045 UJ	0.00050 U	0.00052 U
Acetone	mg/kg	10000	0.011 U	0.0078 U	R	0.0034 UJ	0.0038 U	0.0040 U
Benzene	mg/kg	13	0.00056 U	0.00053 U	R	0.00046 UJ	0.00052 U	0.00054 U
Bromodichloromethane	mg/kg	2.7	0.00046 U	0.00044 U	R	0.00038 UJ	0.00043 U	0.00045 U
Bromoform	mg/kg	350	0.00036 U	0.00035 U	R	0.00030 UJ	0.00034 U	0.00035 U
Bromomethane (Methyl bromide)	mg/kg	54	0.00061 U	0.00058 U	R	0.00051 UJ	0.00057 U	0.00059 U
Carbon disulfide	mg/kg	530	0.00042 U	0.00040 U	R	0.00054 J	0.0011 J	0.00041 U
Carbon tetrachloride	mg/kg	2.6	0.00037 U	0.00035 U	R	0.00031 UJ	0.00034 U	0.00036 U
Chlorobenzene	mg/kg	610	0.00062 U	0.00059 U	R	0.00052 UJ	0.00058 U	0.00060 U
Chloroethane	mg/kg	1900	0.0013 U	0.0012 U	R	0.0011 UJ	0.0012 U	0.0012 U
Chloroform (Trichloromethane)	mg/kg	20	0.00048 U	0.00046 U	R	0.00040 UJ	0.00045 U	0.00047 U
Chloromethane (Methyl chloride)	mg/kg	38	0.00070 U	0.00067 U	R	0.00058 UJ	0.00065 U	0.00068 U
cis-1,2-Dichloroethene	mg/kg	16	0.00058 U	0.00055 U	R	0.00048 UJ	0.00054 U	0.00056 U
cis-1,3-Dichloropropene	mg/kg		0.00056 U	0.00053 U	R	0.00046 UJ	0.00052 U	0.00054 U
Cyclohexane	mg/kg	6900	0.00031 U	0.00029 U	R	0.00025 UJ	0.00028 U	0.00030 U
Dibromochloromethane	mg/kg	250	0.00058 U	0.00056 U	R	0.00049 UJ	0.00054 U	0.00056 U
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00055 U	0.00052 U	R	0.00046 UJ	0.00051 U	0.00053 U
Ethylbenzene	mg/kg	4600	0.00053 U	0.00050 U	R	0.00044 UJ	0.00049 U	0.00051 U
Isopropyl benzene	mg/kg	10000	0.00056 U	0.00053 U	R	0.00047 UJ	0.00052 U	0.00054 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
m&p-Xylenes	mg/kg		0.0012 U	0.0012 U	R	0.0010 UJ	0.0011 U	0.0012 U
Methyl acetate	mg/kg	1900	0.00074 U	0.00071 U	R	0.00062 UJ	0.00069 U	0.00072 U
Methyl cyclohexane	mg/kg		0.00060 U	0.00057 U	R	0.00050 UJ	0.00056 U	0.00058 U
Methyl tert butyl ether (MTBE)	mg/kg	2.8	0.00062 U	0.00059 U	R	0.00051 UJ	0.00057 U	0.00059 U
Methylene chloride	mg/kg	7.6	0.0041 J	0.0034 J	0.0032 J	0.0028 J	0.0037 J	0.0038 J
o-Xylene	mg/kg		0.00064 U	0.00061 U	R	0.00053 UJ	0.00060 U	0.00062 U
Styrene	mg/kg	2400	0.00058 U	0.00055 U	R	0.00048 UJ	0.00054 U	0.00056 U
Tetrachloroethene	mg/kg	4.3	0.00056 U	0.00053 U	R	0.00047 UJ	0.00052 U	0.00054 U
Toluene	mg/kg	4400	0.00060 U	0.00057 U	R	0.00050 UJ	0.00056 U	0.00058 U
trans-1,2-Dichloroethene	mg/kg	23	0.00049 U	0.00047 U	R	0.00041 UJ	0.00046 U	0.00047 U
trans-1,3-Dichloropropene	mg/kg		0.00049 U	0.00047 U	R	0.00041 UJ	0.00046 U	0.00048 U
Trichloroethene	mg/kg	1.7	0.00054 U	0.00052 U	R	0.00045 UJ	0.00050 U	0.00052 U
Trichlorofluoromethane (CFC-11)	mg/kg	8700	0.00076 U	0.00072 U	R	0.00063 UJ	0.00070 U	0.00073 U
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.00088 U	0.00084 U	R	0.00073 UJ	0.00082 U	0.00085 U
Vinyl chloride	mg/kg	0.27	0.00039 U	0.00037 U	R	0.00032 UJ	0.00036 U	0.00037 U
Xylenes (total)	mg/kg	10000	0.0018 U	0.0018 U	R	0.0015 UJ	0.0017 U	0.0018 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	800	0.0038 U	0.00082 U	R	0.0038 U	0.0036 U	0.00082 U
2,4,5-Trichlorophenol	mg/kg	190000	0.019 U	0.0041 U	R	0.019 U	0.018 U	0.0040 U
2,4,6-Trichlorophenol	mg/kg	29000	0.027 U	0.0057 U	R	0.026 U	0.025 U	0.0057 U
2,4-Dichlorophenol	mg/kg	1000	0.0036 U	0.00077 U	R	0.0035 U	0.0034 U	0.00076 U
2,4-Dimethylphenol	mg/kg	10000	0.028 U	0.0060 U	R	0.028 U	0.026 U	0.0059 U
2,4-Dinitrophenol	mg/kg	2300	R	0.045 U	R	0.21 U	0.20 U	0.045 U
2,4-Dinitrotoluene	mg/kg	200	0.014 U	0.0031 U	R	0.014 U	0.014 U	0.0030 U
2,6-Dinitrotoluene	mg/kg	3000	0.018 U	0.0039 U	R	0.018 U	0.017 U	0.0039 U
2-Chloronaphthalene	mg/kg	18000	0.0037 U	0.00080 U	R	0.0037 U	0.0035 U	0.00079 U
2-Chlorophenol	mg/kg	4.4	0.015 U	0.0031 U	R	0.014 U	0.014 U	0.0031 U
2-Methylnaphthalene	mg/kg	1600	0.056	0.00069 U	0.0014 J	0.0032 U	0.0047 J	0.00068 U
2-Methylphenol	mg/kg	8500	0.012 U	0.0027 U	R	0.012 U	0.012 U	0.0026 U
2-Nitroaniline	mg/kg	5.5	0.079 U	0.017 U	R	0.079 U	0.075 U	0.017 U
2-Nitrophenol	mg/kg	17000	0.020 U	0.0042 U	R	0.020 U	0.019 U	0.0042 U
3,3'-Dichlorobenzidine	mg/kg	17000	0.019 UJ	0.0040 U	R	0.019 U	0.018 U	0.0040 U
3-Nitroaniline	mg/kg	0.48	0.073 U	0.016 U	R	0.073 U	0.069 U	0.016 U
4,6-Dinitro-2-methylphenol	mg/kg	750	0.071 UJ	0.015 U	R	0.071 U	0.068 U	0.015 U
4-Bromophenyl phenyl ether	mg/kg		0.015 U	0.0033 U	R	0.015 U	0.015 U	0.0033 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
4-Chloro-3-methylphenol	mg/kg	110	0.016 U	0.0035 U	R	0.016 U	0.016 U	0.0035 U
4-Chloroaniline	mg/kg	1.6	0.014 U	0.0031 U	R	0.014 U	0.013 U	0.0030 U
4-Chlorophenyl phenyl ether	mg/kg		0.020 U	0.0042 U	R	0.020 U	0.019 U	0.0042 U
4-Methylphenol	mg/kg	12000	0.017 U	0.0037 U	R	0.017 U	0.016 U	0.0037 U
4-Nitroaniline	mg/kg	1.9	0.072 U	0.015 U	R	0.072 U	0.068 U	0.015 U
4-Nitrophenol	mg/kg	4100	0.065 U	0.014 U	R	0.065 U	0.061 U	0.014 U
Acenaphthene	mg/kg	4700	0.17	0.00073 U	0.00076 J	0.0046 J	0.015 J	0.00073 U
Acenaphthylene	mg/kg	18000	0.026 J	0.00087 U	0.0069 J	0.0041 U	0.12	0.00086 U
Acetophenone	mg/kg	540	0.015 U	0.0031 U	R	0.015 U	0.014 U	0.0031 U
Anthracene	mg/kg	350	0.10	0.00075 U	0.0088 J	0.015 J	0.15	0.00074 U
Atrazine	mg/kg	0.13	0.017 U	0.0037 U	R	0.017 U	0.016 U	0.0037 U
Benzaldehyde	mg/kg		R	R	R	R	R	R
Benzo(a)anthracene	mg/kg	960	0.49	0.00096 U	0.028 J	0.067	0.44	0.00095 U
Benzo(a)pyrene	mg/kg	860	1.0	0.00076 U	0.037 J	0.096	0.48	0.00076 U
Benzo(b)fluoranthene	mg/kg	170	1.1 J	0.0012 U	0.070 J	0.13	0.91	0.0012 U
Benzo(g,h,i)perylene	mg/kg	180	0.92	0.00076 U	0.039 J	0.091	0.35	0.00075 U
Benzo(k)fluoranthene	mg/kg	610	0.32	0.0015 U	0.026 J	0.043	0.35	0.0015 U
Biphenyl (1,1-Biphenyl)	mg/kg	3100	0.018 J	0.0034 U	R	0.016 U	0.015 U	0.0034 U
bis(2-Chloroethoxy)methane	mg/kg	8.2	0.012 U	0.0025 U	R	0.012 U	0.011 U	0.0025 U
bis(2-Chloroethyl)ether	mg/kg	2.3	0.0048 U	0.0010 U	R	0.0047 U	0.0045 U	0.0010 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6300	0.029 U	0.0078 J	R	0.029 U	0.027 U	0.0061 U
Butyl benzylphthalate (BBP)	mg/kg	10000	0.031 J	0.0077 J	R	0.024 U	0.023 U	0.0052 U
Caprolactam	mg/kg		0.13 U	0.029 U	R	0.13 U	0.13 U	0.029 U
Carbazole	mg/kg	760	0.036	0.00070 U	0.0016 J	0.0033 U	0.017 J	0.00070 U
Chrysene	mg/kg	230	0.52	0.00091 U	0.045 J	0.075	0.63	0.00090 U
Dibenz(a,h)anthracene	mg/kg	270	0.20	0.00085 U	0.0098 J	0.025 J	0.088	0.00084 U
Dibenzofuran	mg/kg	12000	0.055 J	0.0038 U	R	0.017 U	0.017 U	0.0037 U
Diethyl phthalate	mg/kg	10000	0.019 U	0.0042 U	R	0.019 U	0.018 U	0.0041 U
Dimethyl phthalate	mg/kg		0.019 U	0.0042 U	R	0.019 U	0.018 U	0.0041 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.022 U	0.0048 U	R	0.022 U	0.021 U	0.0047 U
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.019 U	0.0040 U	R	0.019 U	0.018 U	0.0040 U
Fluoranthene	mg/kg	3200	0.56	0.00082 U	0.029 J	0.066	0.54	0.00081 U
Fluorene	mg/kg	3800	0.040	0.0010 U	R	0.0047 U	0.012 J	0.0010 U
Hexachlorobenzene	mg/kg	5.8	0.0038 U	0.00081 U	R	0.0038 U	0.0036 U	0.00080 U
Hexachlorobutadiene	mg/kg	3400	0.0040 U	0.00085 U	R	0.0040 U	0.0038 U	0.00084 U
Hexachlorocyclopentadiene	mg/kg	3300	0.019 U	0.0041 U	R	0.019 U	0.018 U	0.0041 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Hexachloroethane	mg/kg	56	0.013 U	0.0027 U	R	0.013 U	0.012 U	0.0027 U
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.76	0.00079 U	0.032 J	0.079	0.33	0.00078 U
Isophorone	mg/kg	1900	0.013 U	0.0029 U	R	0.013 U	0.013 U	0.0028 U
Naphthalene	mg/kg	7500	0.080	0.00066 U	0.0028 J	0.0030 U	0.0069 J	0.00065 U
Nitrobenzene	mg/kg	8700	0.015 U	0.0032 U	R	0.015 U	0.014 U	0.0031 U
N-Nitrosodi-n-propylamine	mg/kg	5.1	0.0042 U	0.00089 U	R	0.0041 U	0.0040 U	0.00089 U
N-Nitrosodiphenylamine	mg/kg	5500	0.016 U	0.0035 U	R	0.016 U	0.016 U	0.0035 U
Pentachlorophenol	mg/kg	5000	R	0.0034 U	R	0.016 U	0.015 U	0.0034 U
Phenanthrene	mg/kg	10000	0.28	0.0012 U	0.011 J	0.031 J	0.064	0.0012 U
Phenol	mg/kg	3300	0.0042 U	0.00090 U	R	0.0042 U	0.0040 U	0.00089 U
Pyrene	mg/kg	2200	0.59	0.00077 U	0.032 J	0.074	0.68	0.00076 U
Metals								
Antimony	mg/kg	27000	0.36 J	0.14 J	0.023 UJ	0.024 UJ	0.025 UJ	0.10 J
Arsenic	mg/kg	29000	4.7	6.6	2.5	2.4	3.0	4.4
Beryllium	mg/kg	190000	0.30 J	0.42	0.56 J	0.40 J	2.2	0.32
Cadmium	mg/kg	38000	0.23 J	0.022 J	0.096 J	0.11 J	0.11 J	0.069 J
Chromium	mg/kg		130	12	1400	2200	1200	8.0
Copper	mg/kg	190000	78 J	9.1 J	38 J	28 J	30 J	9.2 J
Lead	mg/kg	190000	40	9.6	6.6	10	14	6.8
Mercury	mg/kg	10000	0.080	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U
Nickel	mg/kg	190000	32 J	15 J	97 J	36 J	14 J	13 J
Selenium	mg/kg	26000	0.51 U	0.30 J	0.45 U	0.46 U	1.1 J	0.14 J
Silver	mg/kg	84000	0.040 U	0.0041 U	0.035 U	0.036 U	0.037 U	0.0039 U
Thallium	mg/kg	14000	0.075 J	0.075 J	0.018 U	0.018 U	0.019 U	0.039 J
Zinc	mg/kg	190000	120	35	38	54	64	32
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg	200	0.00013 U	0.00014 U	0.00013 U	0.00013 U	0.00013 U	0.00014 U
Aroclor-1221 (PCB-1221)	mg/kg	0.63	0.00017 U	0.00018 U	0.00017 U	0.00017 U	0.00016 U	0.00018 U
Aroclor-1232 (PCB-1232)	mg/kg	0.5	0.00015 U	0.00016 U	0.00015 U	0.00015 U	0.00015 U	0.00016 U
Aroclor-1242 (PCB-1242)	mg/kg	16	0.00015 U	0.00015 U	0.00014 U	0.00014 U	0.00014 U	0.00015 U
Aroclor-1248 (PCB-1248)	mg/kg	62	0.27	0.000089 U	0.031	0.026	0.000080 U	0.000089 U
Aroclor-1254 (PCB-1254)	mg/kg	260	0.24	0.00013 U	0.025	0.00013 U	0.011	0.00013 U
Aroclor-1260 (PCB-1260)	mg/kg	590	0.00013 U	0.00013 U	0.00013 U	0.012	0.00012 U	0.00013 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		6.6	13	5.9	6.3	1.7	12
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Soil-to-Groundwater, non-use aquifer.
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
		MSC Non-Residential		**(Duplicate)**				
		Soil-to-Groundwater						
Parameters	**Units**	**Nonuse Aquifer**						
		(1)						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	72	0.00042 U	0.00037 U	0.00038 U	R	0.00071 UJ	R
1,1,2,2-Tetrachloroethane	mg/kg	13	0.00062 U	0.00054 U	0.00057 U	R	0.0010 UJ	R
1,1,2-Trichloroethane	mg/kg	1.5	0.00072 U	0.00063 U	0.00066 U	R	0.0012 UJ	R
1,1-Dichloroethane	mg/kg	39	0.00050 U	0.00043 U	0.00045 U	R	0.00084 UJ	R
1,1-Dichloroethene	mg/kg	1.9	0.00074 U	0.00064 U	0.00067 U	R	0.0012 UJ	R
1,2,4-Trichlorobenzene	mg/kg	10000	0.00076 U	0.00066 U	0.00070 U	R	0.0013 UJ	R
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.92	0.00065 U	0.00056 U	0.00059 U	R	0.0011 UJ	R
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.12	0.00075 U	0.00065 U	0.00068 U	R	0.0013 UJ	R
1,2-Dichlorobenzene	mg/kg	5900	0.00069 U	0.00060 U	0.00063 U	R	0.0012 UJ	R
1,2-Dichloroethane	mg/kg	1	0.00053 U	0.00046 U	0.00048 U	R	0.00089 UJ	R
1,2-Dichloroethene (total)	mg/kg		0.0011 U	0.00096 U	0.0010 U	R	0.0019 UJ	R
1,2-Dichloropropane	mg/kg	1.1	0.00047 U	0.00041 U	0.00043 U	R	0.00079 UJ	R
1,3-Dichlorobenzene	mg/kg	6100	0.00057 U	0.00049 U	0.00052 U	R	0.00096 UJ	R
1,4-Dichlorobenzene	mg/kg	1000	0.00055 U	0.00048 U	0.00050 U	R	0.00093 UJ	R
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	7600	0.00076 U	0.00066 U	0.00070 U	R	0.0013 UJ	R
2-Hexanone	mg/kg	1.1	0.00060 U	0.00052 U	0.00055 U	R	0.0010 UJ	R
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00057 U	0.00049 U	0.00052 U	R	0.00095 UJ	R
Acetone	mg/kg	10000	0.0043 U	0.0038 U	0.0062 U	R	0.0073 UJ	R
Benzene	mg/kg	13	0.00059 U	0.00051 U	0.00053 U	R	0.00098 UJ	R
Bromodichloromethane	mg/kg	2.7	0.00049 U	0.00042 U	0.00044 U	R	0.00082 UJ	R
Bromoform	mg/kg	350	0.00038 U	0.00033 U	0.00035 U	R	0.00064 UJ	R
Bromomethane (Methyl bromide)	mg/kg	54	0.00064 U	0.00056 U	0.00058 U	R	0.0011 UJ	R
Carbon disulfide	mg/kg	530	0.00044 U	0.00039 U	0.00040 U	R	0.0012 J	R
Carbon tetrachloride	mg/kg	2.6	0.00039 U	0.00034 U	0.00035 U	R	0.00065 UJ	R
Chlorobenzene	mg/kg	610	0.00066 U	0.00057 U	0.00060 U	R	0.0011 UJ	R
Chloroethane	mg/kg	1900	0.0013 U	0.0012 U	0.0012 U	R	0.0023 UJ	R
Chloroform (Trichloromethane)	mg/kg	20	0.00051 U	0.00044 U	0.00046 U	R	0.00085 UJ	R
Chloromethane (Methyl chloride)	mg/kg	38	0.00074 U	0.00064 U	0.00067 U	R	0.0012 UJ	R
cis-1,2-Dichloroethene	mg/kg	16	0.00061 U	0.00053 U	0.00056 U	R	0.0010 UJ	R
cis-1,3-Dichloropropene	mg/kg		0.00059 U	0.00051 U	0.00054 U	R	0.00099 UJ	R
Cyclohexane	mg/kg	6900	0.00032 U	0.00028 U	0.00029 U	R	0.00054 UJ	R
Dibromochloromethane	mg/kg	250	0.00062 U	0.00053 U	0.00056 U	R	0.0010 UJ	R
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00058 U	0.00050 U	0.00053 U	R	0.00097 UJ	R
Ethylbenzene	mg/kg	4600	0.00056 U	0.00048 U	0.00051 U	R	0.00094 UJ	R
Isopropyl benzene	mg/kg	10000	0.00059 U	0.00051 U	0.00054 U	R	0.00099 UJ	R

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
		MSC Non-Residential		**(Duplicate)**				
		Soil-to-Groundwater						
Parameters	**Units**	**Nonuse Aquifer**						
		(1)						
m&p-Xylenes	mg/kg		0.0013 U	0.0011 U	0.0012 U	R	0.0021 UJ	R
Methyl acetate	mg/kg	1900	0.00078 U	0.00068 U	0.00071 U	R	0.0013 UJ	R
Methyl cyclohexane	mg/kg		0.00063 U	0.00055 U	0.00057 U	R	0.0011 UJ	R
Methyl tert butyl ether (MTBE)	mg/kg	2.8	0.00065 U	0.00056 U	0.00059 U	R	0.0011 UJ	R
Methylene chloride	mg/kg	7.6	0.0032 U	0.0030 U	0.0030 U	0.0020 J	0.0040 J	0.0032 J
o-Xylene	mg/kg		0.00068 U	0.00059 U	0.00062 U	R	0.0011 UJ	R
Styrene	mg/kg	2400	0.00061 U	0.00053 U	0.00056 U	R	0.0010 UJ	R
Tetrachloroethene	mg/kg	4.3	0.00059 U	0.00051 U	0.00054 U	R	0.00099 UJ	R
Toluene	mg/kg	4400	0.00063 U	0.00055 U	0.00058 U	R	0.0011 UJ	R
trans-1,2-Dichloroethene	mg/kg	23	0.00052 U	0.00045 U	0.00047 U	R	0.00087 UJ	R
trans-1,3-Dichloropropene	mg/kg		0.00052 U	0.00045 U	0.00047 U	R	0.00087 UJ	R
Trichloroethene	mg/kg	1.7	0.00057 U	0.00050 U	0.00052 U	R	0.00096 UJ	R
Trichlorofluoromethane (CFC-11)	mg/kg	8700	0.00080 U	0.00069 U	0.00073 U	R	0.0013 UJ	R
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.00093 U	0.00080 U	0.00084 U	R	0.0016 UJ	R
Vinyl chloride	mg/kg	0.27	0.00041 U	0.00035 U	0.00037 U	R	0.00068 UJ	R
Xylenes (total)	mg/kg	10000	0.0019 U	0.0017 U	0.0018 U	R	0.0033 UJ	R
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	800	0.00081 U	0.00079 U	0.00083 U	R	0.0061 U	R
2,4,5-Trichlorophenol	mg/kg	190000	0.0040 U	0.0039 U	0.0041 U	R	0.030 U	R
2,4,6-Trichlorophenol	mg/kg	29000	0.0056 U	0.0055 U	0.0058 U	R	0.043 U	R
2,4-Dichlorophenol	mg/kg	1000	0.00076 U	0.00074 U	0.00077 U	R	0.0057 U	R
2,4-Dimethylphenol	mg/kg	10000	0.0059 U	0.0057 U	0.0060 U	R	0.044 U	R
2,4-Dinitrophenol	mg/kg	2300	0.045 U	0.044 U	0.046 U	R	0.34 U	R
2,4-Dinitrotoluene	mg/kg	200	0.0030 U	0.0030 U	0.0031 U	R	0.023 U	R
2,6-Dinitrotoluene	mg/kg	3000	0.0039 U	0.0038 U	0.0040 U	R	0.029 U	R
2-Chloronaphthalene	mg/kg	18000	0.00079 U	0.00077 U	0.00080 U	R	0.0059 U	R
2-Chlorophenol	mg/kg	4.4	0.0031 U	0.0030 U	0.0032 U	R	0.023 U	R
2-Methylnaphthalene	mg/kg	1600	0.0013 J	0.0017 J	0.00090 J	R	0.033 J	0.0019 J
2-Methylphenol	mg/kg	8500	0.0026 U	0.0026 U	0.0027 U	R	0.020 U	R
2-Nitroaniline	mg/kg	5.5	0.017 U	0.016 U	0.017 U	R	0.13 U	R
2-Nitrophenol	mg/kg	17000	0.0042 U	0.0041 U	0.0042 U	R	0.031 U	R
3,3'-Dichlorobenzidine	mg/kg	17000	0.0040 U	0.0039 U	0.0041 U	R	0.030 U	R
3-Nitroaniline	mg/kg	0.48	0.016 U	0.015 U	0.016 U	R	0.12 U	R
4,6-Dinitro-2-methylphenol	mg/kg	750	0.015 U	0.015 U	0.015 U	R	0.11 U	R
4-Bromophenyl phenyl ether	mg/kg		0.0033 U	0.0032 U	0.0034 U	R	0.025 U	R

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
		MSC Non-Residential		**(Duplicate)**				
		Soil-to-Groundwater						
Parameters	**Units**	**Nonuse Aquifer**						
		(1)						
4-Chloro-3-methylphenol	mg/kg	110	0.0035 U	0.0034 U	0.0035 U	R	0.026 U	R
4-Chloroaniline	mg/kg	1.6	0.0030 U	0.0029 U	0.0031 U	R	0.023 U	R
4-Chlorophenyl phenyl ether	mg/kg		0.0042 U	0.0041 U	0.0043 U	R	0.032 U	R
4-Methylphenol	mg/kg	12000	0.0037 U	0.0036 U	0.0038 U	R	0.033 J	R
4-Nitroaniline	mg/kg	1.9	0.015 U	0.015 U	0.016 U	R	0.12 U	R
4-Nitrophenol	mg/kg	4100	0.014 U	0.013 U	0.014 U	R	0.10 U	R
Acenaphthene	mg/kg	4700	0.00072 U	0.00071 U	0.0012 J	R	0.0088 J	0.0020 J
Acenaphthylene	mg/kg	18000	0.0033 J	0.0024 J	0.0039 J	R	0.038 J	R
Acetophenone	mg/kg	540	0.012 J	0.0096 J	0.013 J	R	0.023 U	R
Anthracene	mg/kg	350	0.0024 J	0.0020 J	0.0026 J	R	0.050 J	0.0011 J
Atrazine	mg/kg	0.13	0.0037 U	0.0036 U	0.0038 U	R	0.028 U	R
Benzaldehyde	mg/kg		R	R	R	R	0.21 J	R
Benzo(a)anthracene	mg/kg	960	0.012	0.011	0.012	R	0.10	0.017 J
Benzo(a)pyrene	mg/kg	860	0.016	0.015	0.015	0.0022 J	0.11	0.021 J
Benzo(b)fluoranthene	mg/kg	170	0.021	0.021	0.016	0.0034 J	0.14	0.030 J
Benzo(g,h,i)perylene	mg/kg	180	0.012	0.010	0.011	R	0.098	0.020 J
Benzo(k)fluoranthene	mg/kg	610	0.0081	0.0067 J	0.012	R	0.054 J	0.015 J
Biphenyl (1,1-Biphenyl)	mg/kg	3100	0.0034 U	0.0033 U	0.0034 U	R	0.025 U	R
bis(2-Chloroethoxy)methane	mg/kg	8.2	0.0025 U	0.0024 U	0.0025 U	R	0.019 U	R
bis(2-Chloroethyl)ether	mg/kg	2.3	0.0010 U	0.00099 U	0.0010 U	R	0.0076 U	R
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6300	0.0087 J	0.0059 U	0.0062 U	0.024 J	0.058 J	R
Butyl benzylphthalate (BBP)	mg/kg	10000	0.0085 J	0.0058 J	0.0053 U	0.0088 J	0.039 U	R
Caprolactam	mg/kg		0.028 U	0.028 U	0.029 U	R	0.21 U	R
Carbazole	mg/kg	760	0.0011 J	0.00068 U	0.00071 U	R	0.011 J	R
Chrysene	mg/kg	230	0.018	0.016	0.019	R	0.16	0.039 J
Dibenz(a,h)anthracene	mg/kg	270	0.0027 J	0.00082 U	0.00086 U	R	0.025 J	0.0060 J
Dibenzofuran	mg/kg	12000	0.0037 U	0.0036 U	0.0038 U	R	0.028 U	R
Diethyl phthalate	mg/kg	10000	0.0041 U	0.0040 U	0.0042 U	R	0.031 U	R
Dimethyl phthalate	mg/kg		0.0041 U	0.0040 U	0.0042 U	R	0.031 U	R
Di-n-butylphthalate (DBP)	mg/kg	10000	0.0047 U	0.0046 U	0.0048 U	0.0054 J	0.036 U	R
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.0040 U	0.0039 U	0.0041 U	R	0.030 U	R
Fluoranthene	mg/kg	3200	0.023	0.021	0.025	0.0038 J	0.22	0.012 J
Fluorene	mg/kg	3800	0.00099 U	0.00097 U	0.0015 J	R	0.025 J	R
Hexachlorobenzene	mg/kg	5.8	0.00080 U	0.00078 U	0.00082 U	0.095 J	0.091	R
Hexachlorobutadiene	mg/kg	3400	0.00084 U	0.00082 U	0.00086 U	R	0.0064 U	R
Hexachlorocyclopentadiene	mg/kg	3300	0.0041 U	0.0040 U	0.0042 U	R	0.031 U	R

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS (Duplicate)**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Hexachloroethane	mg/kg	56	0.0027 U	0.0026 U	0.0028 U	R	0.020 U	R
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.0090	0.0089	0.0091	R	0.087	0.016 J
Isophorone	mg/kg	1900	0.0028 U	0.0028 U	0.0029 U	R	0.021 U	R
Naphthalene	mg/kg	7500	0.00065 U	0.00063 U	0.00066 U	R	0.065	R
Nitrobenzene	mg/kg	8700	0.0031 U	0.0031 U	0.0032 U	R	0.024 U	R
N-Nitrosodi-n-propylamine	mg/kg	5.1	0.00088 U	0.00086 U	0.00090 U	R	0.0067 U	R
N-Nitrosodiphenylamine	mg/kg	5500	0.0035 U	0.0034 U	0.0036 U	R	0.026 U	R
Pentachlorophenol	mg/kg	5000	0.0034 U	0.0033 U	0.0034 U	R	0.025 U	R
Phenanthrene	mg/kg	10000	0.014	0.011	0.017	0.0031 J	0.14	0.0092 J
Phenol	mg/kg	3300	0.00089 U	0.00087 U	0.00091 U	R	0.0067 U	R
Pyrene	mg/kg	2200	0.030	0.027	0.030	0.0024 J	0.18	0.016 J
Metals								
Antimony	mg/kg	27000	0.20	0.17 J	0.23	0.29 J	1.2 J	0.025 UJ
Arsenic	mg/kg	29000	11	8.3	13	2.5	6.5	2.3
Beryllium	mg/kg	190000	0.54	0.54	0.52	2.5	1.9	0.61 J
Cadmium	mg/kg	38000	0.13	0.12	0.14	0.056 J	8.1	0.067 U
Chromium	mg/kg		58 J	14 J	12	1400	120	2400
Copper	mg/kg	190000	29	31	46	34 J	180 J	13 J
Lead	mg/kg	190000	30	22	24	8.0	240	4.5
Mercury	mg/kg	10000	0.072	0.030 J	0.077	0.012 U	0.77	0.011 U
Nickel	mg/kg	190000	12	13	12	13	56	20 J
Selenium	mg/kg	26000	0.43 J	0.34 J	0.38 J	1.1 J	2.2 J	0.48 U
Silver	mg/kg	84000	0.18	0.019 J	0.011 J	0.021 U	1.5	0.037 U
Thallium	mg/kg	14000	0.094 J	0.098 J	0.092 J	0.058 J	0.29 J	0.019 U
Zinc	mg/kg	190000	63	45	49	56 J	1900 J	25
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg	200	0.00014 U	0.00014 U	0.00014 U	0.00013 U	0.00021 U	0.00013 U
Aroclor-1221 (PCB-1221)	mg/kg	0.63	0.00018 U	0.00017 U	0.00018 U	0.00017 U	0.00027 U	0.00017 U
Aroclor-1232 (PCB-1232)	mg/kg	0.5	0.00016 U	0.00016 U	0.00017 U	0.00015 U	0.00024 U	0.00015 U
Aroclor-1242 (PCB-1242)	mg/kg	16	0.00015 U	0.00015 U	0.00016 U	0.00015 U	0.00023 U	0.00014 U
Aroclor-1248 (PCB-1248)	mg/kg	62	0.000088 U	0.000086 U	0.000092 U	0.000085 U	0.00014 U	0.0013
Aroclor-1254 (PCB-1254)	mg/kg	260	0.00013 U	0.00013 U	0.00014 U	0.0016	0.11	0.00012 U
Aroclor-1260 (PCB-1260)	mg/kg	590	0.00013 U	0.0017	0.0018	0.00013 U	0.00020 U	0.0025

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
				(Duplicate)				
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		11	9.9	14	8.2	42	4.4
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Soil-to-Groundwater, non-use aquifer.
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	72	0.00046 U	0.00040 U	0.00037 U	0.00039 U	0.00035 U	0.00037 U
1,1,2,2-Tetrachloroethane	mg/kg	13	0.00068 U	0.00059 U	0.00055 U	0.00058 U	0.00052 U	0.00055 U
1,1,2-Trichloroethane	mg/kg	1.5	0.00079 U	0.00069 U	0.00064 U	0.00067 U	0.00061 U	0.00063 U
1,1-Dichloroethane	mg/kg	39	0.00054 U	0.00048 U	0.00044 U	0.00047 U	0.00042 U	0.00044 U
1,1-Dichloroethene	mg/kg	1.9	0.00080 U	0.00070 U	0.00065 U	0.00069 U	0.00062 U	0.00065 U
1,2,4-Trichlorobenzene	mg/kg	10000	0.00083 U	0.00073 U	0.00068 U	0.00071 U	0.00064 U	0.00067 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.92	0.00071 U	0.00062 U	0.00057 U	0.00061 U	0.00055 U	0.00057 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.12	0.00082 U	0.00071 U	0.00066 U	0.00070 U	0.00063 U	0.00066 U
1,2-Dichlorobenzene	mg/kg	5900	0.00075 U	0.00066 U	0.00061 U	0.00065 U	0.00058 U	0.00061 U
1,2-Dichloroethane	mg/kg	1	0.00058 U	0.00051 U	0.00047 U	0.00050 U	0.00045 U	0.00047 U
1,2-Dichloroethene (total)	mg/kg		0.0012 U	0.0011 U	0.00098 U	0.0010 U	0.013	0.00098 U
1,2-Dichloropropane	mg/kg	1.1	0.00051 U	0.00045 U	0.00042 U	0.00044 U	0.00040 U	0.00041 U
1,3-Dichlorobenzene	mg/kg	6100	0.00062 U	0.00054 U	0.00050 U	0.00053 U	0.00048 U	0.00050 U
1,4-Dichlorobenzene	mg/kg	1000	0.00060 U	0.00053 U	0.00049 U	0.00052 U	0.00046 U	0.00049 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	7600	0.00083 U	0.00073 U	0.00067 U	0.00071 U	0.00064 U	0.00067 U
2-Hexanone	mg/kg	1.1	0.00065 U	0.00057 U	0.00053 U	0.00056 U	0.00050 U	0.00053 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00062 U	0.00054 U	0.00050 U	0.00053 U	0.00048 U	0.00050 U
Acetone	mg/kg	10000	0.0047 U	0.0049 J	0.0038 U	0.0040 U	0.0036 U	0.0038 U
Benzene	mg/kg	13	0.00064 U	0.00056 U	0.00052 U	0.00055 U	0.00049 U	0.00051 U
Bromodichloromethane	mg/kg	2.7	0.00053 U	0.00046 U	0.00043 U	0.00045 U	0.00041 U	0.00043 U
Bromoform	mg/kg	350	0.00042 U	0.00037 U	0.00034 U	0.00036 U	0.00032 U	0.00034 U
Bromomethane (Methyl bromide)	mg/kg	54	0.00070 U	0.00061 U	0.00057 U	0.00060 U	0.00054 U	0.00056 U
Carbon disulfide	mg/kg	530	0.00048 U	0.00042 U	0.00039 U	0.00041 U	0.00065 J	0.00039 U
Carbon tetrachloride	mg/kg	2.6	0.00042 U	0.00037 U	0.00034 U	0.00036 U	0.00033 U	0.00034 U
Chlorobenzene	mg/kg	610	0.00072 U	0.00063 U	0.00058 U	0.00061 U	0.00055 U	0.00058 U
Chloroethane	mg/kg	1900	0.0015 U	0.0013 U	0.0012 U	0.0013 U	0.0011 U	0.0012 U
Chloroform (Trichloromethane)	mg/kg	20	0.00055 U	0.00048 U	0.00045 U	0.00047 U	0.00043 U	0.00045 U
Chloromethane (Methyl chloride)	mg/kg	38	0.00081 U	0.00071 U	0.00065 U	0.00069 U	0.00062 U	0.00065 U
cis-1,2-Dichloroethene	mg/kg	16	0.00067 U	0.00058 U	0.00054 U	0.00057 U	0.013	0.00054 U
cis-1,3-Dichloropropene	mg/kg		0.00064 U	0.00056 U	0.00052 U	0.00055 U	0.00049 U	0.00052 U
Cyclohexane	mg/kg	6900	0.00035 U	0.00031 U	0.00028 U	0.00030 U	0.00027 U	0.00028 U
Dibromochloromethane	mg/kg	250	0.00067 U	0.00059 U	0.00054 U	0.00057 U	0.00052 U	0.00054 U
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00063 U	0.00055 U	0.00051 U	0.00054 U	0.00049 U	0.00051 U
Ethylbenzene	mg/kg	4600	0.00061 U	0.00053 U	0.00049 U	0.00052 U	0.00047 U	0.00049 U
Isopropyl benzene	mg/kg	10000	0.00064 U	0.00056 U	0.00052 U	0.00055 U	0.00050 U	0.00052 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
m&p-Xylenes	mg/kg		0.0014 U	0.0012 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U
Methyl acetate	mg/kg	1900	0.00085 U	0.00075 U	0.00069 U	0.00073 U	0.00066 U	0.00069 U
Methyl cyclohexane	mg/kg		0.00069 U	0.00060 U	0.00056 U	0.00059 U	0.00053 U	0.00055 U
Methyl tert butyl ether (MTBE)	mg/kg	2.8	0.00071 U	0.00062 U	0.00057 U	0.00061 U	0.00055 U	0.00057 U
Methylene chloride	mg/kg	7.6	0.0017 U	0.0019 J	0.0016 J	0.0022 U	0.0029 U	0.0039 J
o-Xylene	mg/kg		0.00074 U	0.00065 U	0.00060 U	0.00063 U	0.00057 U	0.00059 U
Styrene	mg/kg	2400	0.00067 U	0.00058 U	0.00054 U	0.00057 U	0.00051 U	0.00054 U
Tetrachloroethene	mg/kg	4.3	0.00064 U	0.00056 U	0.00052 U	0.00055 U	0.018	0.00052 U
Toluene	mg/kg	4400	0.00069 U	0.00060 U	0.00056 U	0.00059 U	0.00053 U	0.00056 U
trans-1,2-Dichloroethene	mg/kg	23	0.00056 U	0.00049 U	0.00046 U	0.00048 U	0.00043 U	0.00045 U
trans-1,3-Dichloropropene	mg/kg		0.00057 U	0.00049 U	0.00046 U	0.00048 U	0.00044 U	0.00046 U
Trichloroethene	mg/kg	1.7	0.00062 U	0.00054 U	0.00050 U	0.00053 U	0.0019 J	0.00050 U
Trichlorofluoromethane (CFC-11)	mg/kg	8700	0.00087 U	0.00076 U	0.00070 U	0.00074 U	0.00067 U	0.00070 U
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.0010 U	0.00088 U	0.00082 U	0.00086 U	0.00078 U	0.00081 U
Vinyl chloride	mg/kg	0.27	0.00044 U	0.00039 U	0.00036 U	0.00038 U	0.00034 U	0.00036 U
Xylenes (total)	mg/kg	10000	0.0021 U	0.0019 U	0.0017 U	0.0018 U	0.0016 U	0.0017 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	800	0.00083 U	0.0038 U	0.00081 U	0.0041 U	0.0079 U	0.0038 U
2,4,5-Trichlorophenol	mg/kg	190000	0.0041 U	0.019 U	0.0040 U	0.020 U	0.039 U	0.019 U
2,4,6-Trichlorophenol	mg/kg	29000	0.0057 U	0.026 U	0.0056 U	0.029 U	0.055 U	0.027 U
2,4-Dichlorophenol	mg/kg	1000	0.00077 U	0.0035 U	0.00075 U	0.0038 U	0.0074 U	0.0036 U
2,4-Dimethylphenol	mg/kg	10000	0.0060 U	0.027 U	0.0059 U	0.030 U	0.057 U	0.028 U
2,4-Dinitrophenol	mg/kg	2300	0.046 U	0.21 U	0.045 U	0.23 U	0.44 U	R
2,4-Dinitrotoluene	mg/kg	200	0.0031 U	0.014 U	0.0030 U	0.015 U	0.030 U	0.014 U
2,6-Dinitrotoluene	mg/kg	3000	0.0040 U	0.018 U	0.0039 U	0.020 U	0.038 U	0.018 U
2-Chloronaphthalene	mg/kg	18000	0.00080 U	0.0037 U	0.00078 U	0.0040 U	0.0077 U	0.0037 U
2-Chlorophenol	mg/kg	4.4	0.0031 U	0.014 U	0.0031 U	0.016 U	0.030 U	0.014 U
2-Methylnaphthalene	mg/kg	1600	0.00069 U	0.014 J	0.00068 U	0.018 J	0.027 J	0.0032 U
2-Methylphenol	mg/kg	8500	0.0027 U	0.012 U	0.0026 U	0.013 U	0.026 U	0.012 U
2-Nitroaniline	mg/kg	5.5	0.017 U	0.079 U	0.017 U	0.086 U	0.16 U	0.079 U
2-Nitrophenol	mg/kg	17000	0.0042 U	0.019 U	0.0041 U	0.021 U	0.040 U	0.020 U
3,3'-Dichlorobenzidine	mg/kg	17000	0.0040 U	0.019 U	0.0040 U	0.020 U	0.039 U	0.019 UJ
3-Nitroaniline	mg/kg	0.48	0.016 U	0.072 U	0.015 U	0.079 U	0.15 U	0.073 U
4,6-Dinitro-2-methylphenol	mg/kg	750	0.015 U	0.070 U	0.015 U	0.077 U	0.15 U	0.071 U
4-Bromophenyl phenyl ether	mg/kg		0.0033 U	0.015 U	0.0033 U	0.017 U	0.032 U	0.015 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
4-Chloro-3-methylphenol	mg/kg	110	0.0035 U	0.016 U	0.0035 U	0.018 U	0.034 U	0.016 U
4-Chloroaniline	mg/kg	1.6	0.0031 U	0.014 U	0.0030 U	0.015 U	0.029 U	0.014 U
4-Chlorophenyl phenyl ether	mg/kg		0.0043 U	0.019 U	0.0042 U	0.021 U	0.041 U	0.020 U
4-Methylphenol	mg/kg	12000	0.0037 U	0.017 U	0.0037 U	0.019 U	0.036 U	0.017 U
4-Nitroaniline	mg/kg	1.9	0.016 U	0.071 U	0.015 U	0.078 U	0.15 U	0.072 U
4-Nitrophenol	mg/kg	4100	0.014 U	0.064 U	0.014 U	0.070 U	0.13 U	0.065 U
Acenaphthene	mg/kg	4700	0.00074 U	0.0065 J	0.00072 U	0.0057 J	0.055 J	0.0034 U
Acenaphthylene	mg/kg	18000	0.00088 U	0.095	0.00086 U	0.011 J	0.050 J	0.0041 U
Acetophenone	mg/kg	540	0.0035 J	0.014 U	0.0031 U	0.016 U	0.030 U	0.015 U
Anthracene	mg/kg	350	0.00075 U	0.054	0.00074 U	0.022 J	0.078	0.0036 J
Atrazine	mg/kg	0.13	0.0037 U	0.017 U	0.0037 U	0.019 U	0.036 U	0.017 U
Benzaldehyde	mg/kg		R	R	0.028 J	R	R	R
Benzo(a)anthracene	mg/kg	960	0.00096 U	0.23	0.00094 U	0.069	0.34	0.014 J
Benzo(a)pyrene	mg/kg	860	0.00077 U	0.24	0.00075 U	0.084	0.39	0.018 J
Benzo(b)fluoranthene	mg/kg	170	0.0012 U	0.28	0.0012 U	0.13	0.49	0.031 J
Benzo(g,h,i)perylene	mg/kg	180	0.00076 U	0.21	0.00075 U	0.061	0.39	0.017 J
Benzo(k)fluoranthene	mg/kg	610	0.0015 U	0.11	0.0015 U	0.042	0.15	0.010 J
Biphenyl (1,1-Biphenyl)	mg/kg	3100	0.0034 U	0.016 U	0.0034 U	0.017 U	0.033 U	0.016 U
bis(2-Chloroethoxy)methane	mg/kg	8.2	0.0025 U	0.012 U	0.0025 U	0.013 U	0.024 U	0.012 U
bis(2-Chloroethyl)ether	mg/kg	2.3	0.0010 U	0.0047 U	0.0010 U	0.0051 U	0.0098 U	0.0048 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6300	0.0062 U	0.029 J	0.018 J	0.031 U	0.059 U	0.029 U
Butyl benzylphthalate (BBP)	mg/kg	10000	0.0052 U	0.024 U	0.0081 J	0.026 U	0.050 U	0.024 U
Caprolactam	mg/kg		0.029 U	0.13 U	0.028 U	0.14 U	0.28 U	R
Carbazole	mg/kg	760	0.00071 U	0.020 J	0.00069 U	0.0035 U	0.027 J	0.0033 U
Chrysene	mg/kg	230	0.00091 U	0.24	0.00090 U	0.097	0.45	0.016 J
Dibenz(a,h)anthracene	mg/kg	270	0.00085 U	0.056	0.00084 U	0.022 J	0.070 J	0.0039 U
Dibenzofuran	mg/kg	12000	0.0038 U	0.024 J	0.0037 U	0.019 U	0.036 U	0.017 U
Diethyl phthalate	mg/kg	10000	0.0042 U	0.019 U	0.0041 U	0.021 U	0.040 U	0.019 U
Dimethyl phthalate	mg/kg		0.0042 U	0.019 U	0.0041 U	0.021 U	0.040 U	0.019 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.0048 U	0.022 U	0.0067 J	0.024 U	0.046 U	0.022 U
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.0040 U	0.018 U	0.0040 U	0.020 U	0.039 U	0.019 U
Fluoranthene	mg/kg	3200	0.00082 U	0.41	0.0017 J	0.088	0.55	0.018 J
Fluorene	mg/kg	3800	0.0010 U	0.019 J	0.00099 U	0.0050 U	0.045 J	0.0047 U
Hexachlorobenzene	mg/kg	5.8	0.00082 U	0.0037 U	0.046	0.0041 U	0.0078 U	0.0038 U
Hexachlorobutadiene	mg/kg	3400	0.00086 U	0.0039 U	0.00084 U	0.0043 U	0.0082 U	0.0040 U
Hexachlorocyclopentadiene	mg/kg	3300	0.0041 U	0.019 U	0.0041 U	0.021 U	0.040 U	0.019 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Hexachloroethane	mg/kg	56	0.0028 U	0.013 U	0.0027 U	0.014 U	0.026 U	0.013 U
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.00079 U	0.19	0.00077 U	0.056	0.26	0.015 J
Isophorone	mg/kg	1900	0.0029 U	0.013 U	0.0028 U	0.014 U	0.028 U	0.013 U
Naphthalene	mg/kg	7500	0.00066 U	0.055	0.00065 U	0.025 J	0.054 J	0.0031 U
Nitrobenzene	mg/kg	8700	0.0032 U	0.015 U	0.0031 U	0.016 U	0.031 U	0.015 U
N-Nitrosodi-n-propylamine	mg/kg	5.1	0.00090 U	0.0041 U	0.00088 U	0.0045 U	0.0086 U	0.0042 U
N-Nitrosodiphenylamine	mg/kg	5500	0.0035 U	0.016 U	0.0035 U	0.018 U	0.034 U	0.016 U
Pentachlorophenol	mg/kg	5000	0.0034 U	0.016 U	0.0034 U	0.017 U	0.033 U	0.016 U
Phenanthrene	mg/kg	10000	0.0012 U	0.19	0.0012 U	0.061	0.30	0.0089 J
Phenol	mg/kg	3300	0.00090 U	0.0041 U	0.0063 J	0.0045 U	0.0087 U	0.0042 U
Pyrene	mg/kg	2200	0.00077 U	0.25	0.0011 J	0.097	0.56	0.020 J
Metals								
Antimony	mg/kg	27000	0.13 J	0.18 J	0.12 J	0.30 J	20 J	0.12 J
Arsenic	mg/kg	29000	4.7	5.8	5.6	3.9	6.3	5.3
Beryllium	mg/kg	190000	0.31	0.62	0.33	0.54	2.2	0.39
Cadmium	mg/kg	38000	0.095 J	0.17	0.040 J	0.30	0.55 J	0.10
Chromium	mg/kg		8.6	87	8.6	350	580	42
Copper	mg/kg	190000	10 J	14 J	9.3 J	9.6 J	3200 J	13
Lead	mg/kg	190000	7.3	17	7.8	41	500	14
Mercury	mg/kg	10000	0.012 U	0.011 U	0.012 U	0.029 J	0.014 J	0.012 J
Nickel	mg/kg	190000	14 J	13	14	8.7 J	36 J	13
Selenium	mg/kg	26000	0.15 J	0.65 J	0.18 J	0.25 J	1.9 J	0.21 J
Silver	mg/kg	84000	0.0041 U	0.018 J	0.0065 J	0.026 J	0.98	0.0037 U
Thallium	mg/kg	14000	0.046 J	0.055	0.041 J	0.085 J	0.052 J	0.053 J
Zinc	mg/kg	190000	31	54 J	33 J	90	160	39
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg	200	0.00014 U	0.0026 U	0.00014 U	0.00014 U	0.0014 U	0.00066 U
Aroclor-1221 (PCB-1221)	mg/kg	0.63	0.00018 U	0.0033 U	0.00018 U	0.00018 U	0.0017 U	0.00085 U
Aroclor-1232 (PCB-1232)	mg/kg	0.5	0.00016 U	0.0030 U	0.00016 U	0.00016 U	0.0016 U	0.00076 U
Aroclor-1242 (PCB-1242)	mg/kg	16	0.00015 U	0.0029 U	0.00015 U	0.00016 U	0.0015 U	0.00073 U
Aroclor-1248 (PCB-1248)	mg/kg	62	0.00039 J	0.0017 U	0.000088 U	0.016	0.00086 U	0.00042 U
Aroclor-1254 (PCB-1254)	mg/kg	260	0.00014 U	1.2	0.0019	0.0080	0.34	0.074
Aroclor-1260 (PCB-1260)	mg/kg	590	0.00027 J	1.2	0.00013 U	0.00014 U	0.0013 U	0.00063 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		13	5.5	12	13	9.1	6.4
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Soil-to-Groundwater, non-use aquifer.
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	72	0.00035 U	0.00039 U	0.00036 UJ	0.00037 U	0.00040 U	0.00038 U
1,1,2,2-Tetrachloroethane	mg/kg	13	0.00052 U	0.00057 U	0.00054 UJ	0.00055 U	0.00059 U	0.00056 U
1,1,2-Trichloroethane	mg/kg	1.5	0.00060 U	0.00066 U	0.00062 UJ	0.00064 U	0.00069 U	0.00065 U
1,1-Dichloroethane	mg/kg	39	0.00042 U	0.00046 U	0.00043 UJ	0.00044 U	0.00048 U	0.00045 U
1,1-Dichloroethene	mg/kg	1.9	0.00062 U	0.00067 U	0.00063 UJ	0.00065 U	0.00070 U	0.00066 U
1,2,4-Trichlorobenzene	mg/kg	10000	0.00064 U	0.00070 U	0.00066 UJ	0.00068 U	0.00073 U	0.00069 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.92	0.00054 U	0.00059 U	0.00056 UJ	0.00057 U	0.00062 U	0.00058 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.12	0.00063 U	0.00068 U	0.00064 UJ	0.00066 U	0.00071 U	0.00067 U
1,2-Dichlorobenzene	mg/kg	5900	0.00058 U	0.00063 U	0.00060 UJ	0.00061 U	0.00066 U	0.00062 U
1,2-Dichloroethane	mg/kg	1	0.00045 U	0.00049 U	0.00046 UJ	0.00047 U	0.00051 U	0.00048 U
1,2-Dichloroethene (total)	mg/kg		0.00093 U	0.0010 U	0.00096 UJ	0.00098 U	0.0011 U	0.0010 U
1,2-Dichloropropane	mg/kg	1.1	0.00040 U	0.00043 U	0.00041 UJ	0.00042 U	0.00045 U	0.00042 U
1,3-Dichlorobenzene	mg/kg	6100	0.00048 U	0.00052 U	0.00049 UJ	0.00050 U	0.00054 U	0.00051 U
1,4-Dichlorobenzene	mg/kg	1000	0.00046 U	0.00050 U	0.00048 UJ	0.00049 U	0.00053 U	0.00050 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	7600	0.00064 U	0.00070 U	0.00066 UJ	0.00068 U	0.00073 U	0.00069 U
2-Hexanone	mg/kg	1.1	0.00050 U	0.00055 U	0.00052 UJ	0.00053 U	0.00057 U	0.00054 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00047 U	0.00052 U	0.00049 UJ	0.00050 U	0.00054 U	0.00051 U
Acetone	mg/kg	10000	0.0036 U	0.0040 U	0.0037 UJ	0.0038 U	0.0047 U	0.0039 U
Benzene	mg/kg	13	0.00049 U	0.00054 U	0.00050 UJ	0.00052 U	0.00056 U	0.00053 U
Bromodichloromethane	mg/kg	2.7	0.00041 U	0.00044 U	0.00042 UJ	0.00043 U	0.00046 U	0.00044 U
Bromoform	mg/kg	350	0.00032 U	0.00035 U	0.00033 UJ	0.00034 U	0.00037 U	0.00035 U
Bromomethane (Methyl bromide)	mg/kg	54	0.00054 U	0.00059 U	0.00055 UJ	0.00057 U	0.00061 U	0.00058 U
Carbon disulfide	mg/kg	530	0.00070 J	0.00041 U	0.00038 J	0.00039 U	0.00042 U	0.00040 U
Carbon tetrachloride	mg/kg	2.6	0.00032 U	0.00035 U	0.00033 UJ	0.00034 U	0.00037 U	0.00035 U
Chlorobenzene	mg/kg	610	0.00055 U	0.00060 U	0.00057 UJ	0.00058 U	0.00063 U	0.00059 U
Chloroethane	mg/kg	1900	0.0011 U	0.0012 U	0.0012 UJ	0.0012 U	0.0013 U	0.0012 U
Chloroform (Trichloromethane)	mg/kg	20	0.00043 U	0.00046 U	0.00044 UJ	0.00045 U	0.00048 U	0.00046 U
Chloromethane (Methyl chloride)	mg/kg	38	0.00062 U	0.00068 U	0.00064 UJ	0.00065 U	0.00070 U	0.00067 U
cis-1,2-Dichloroethene	mg/kg	16	0.00051 U	0.00056 U	0.00052 UJ	0.00054 U	0.00058 U	0.00055 U
cis-1,3-Dichloropropene	mg/kg		0.00049 U	0.00054 U	0.00051 UJ	0.00052 U	0.00056 U	0.00053 U
Cyclohexane	mg/kg	6900	0.00093 J	0.00029 U	0.00028 UJ	0.00028 U	0.00031 U	0.00029 U
Dibromochloromethane	mg/kg	250	0.00052 U	0.00056 U	0.00053 UJ	0.00054 U	0.00059 U	0.00055 U
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00048 U	0.00053 U	0.00050 UJ	0.00051 U	0.00055 U	0.00052 U
Ethylbenzene	mg/kg	4600	0.0026 J	0.00051 U	0.00048 UJ	0.00049 U	0.00053 U	0.00050 U
Isopropyl benzene	mg/kg	10000	0.0029 J	0.00054 U	0.00051 UJ	0.00052 U	0.00056 U	0.00053 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
m&p-Xylenes	mg/kg		0.0059 J	0.0012 U	0.0011 UJ	0.0011 U	0.0012 U	0.0011 U
Methyl acetate	mg/kg	1900	0.00066 U	0.00071 U	0.00067 UJ	0.00069 U	0.00075 U	0.00070 U
Methyl cyclohexane	mg/kg		0.0080	0.00057 U	0.00054 UJ	0.00056 U	0.00060 U	0.00057 U
Methyl tert butyl ether (MTBE)	mg/kg	2.8	0.00054 U	0.00059 U	0.00056 UJ	0.00057 U	0.00062 U	0.00058 U
Methylene chloride	mg/kg	7.6	0.0035 J	0.0017 J	0.0018 UJ	0.0020 U	0.0020 U	0.0017 U
o-Xylene	mg/kg		0.0082	0.00062 U	0.00058 UJ	0.00060 U	0.00064 U	0.00061 U
Styrene	mg/kg	2400	0.00051 U	0.00056 U	0.00053 UJ	0.00054 U	0.00058 U	0.00055 U
Tetrachloroethene	mg/kg	4.3	0.00050 U	0.00054 U	0.00051 UJ	0.00052 U	0.00056 U	0.00053 U
Toluene	mg/kg	4400	0.00053 U	0.00058 U	0.00054 UJ	0.00056 U	0.00060 U	0.00057 U
trans-1,2-Dichloroethene	mg/kg	23	0.00043 U	0.00047 U	0.00044 UJ	0.00046 U	0.00049 U	0.00047 U
trans-1,3-Dichloropropene	mg/kg		0.00043 U	0.00047 U	0.00045 UJ	0.00046 U	0.00049 U	0.00047 U
Trichloroethene	mg/kg	1.7	0.00048 U	0.00052 U	0.00049 UJ	0.00050 U	0.00054 U	0.00051 U
Trichlorofluoromethane (CFC-11)	mg/kg	8700	0.00067 U	0.00073 U	0.00069 UJ	0.00070 U	0.00076 U	0.00072 U
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.00078 U	0.00085 U	0.00080 UJ	0.00082 U	0.00088 U	0.00083 U
Vinyl chloride	mg/kg	0.27	0.00034 U	0.00037 U	0.00035 UJ	0.00036 U	0.00039 U	0.00037 U
Xylenes (total)	mg/kg	10000	0.014	0.0018 U	0.0017 UJ	0.0017 U	0.0019 U	0.0018 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	800	0.0040 U	R	0.00078 UJ	0.00075 UJ	0.00086 U	0.0037 U
2,4,5-Trichlorophenol	mg/kg	190000	0.020 U	R	0.0039 UJ	0.0037 UJ	0.0042 U	0.018 U
2,4,6-Trichlorophenol	mg/kg	29000	0.028 U	R	0.0054 UJ	0.0052 UJ	0.0060 U	0.026 U
2,4-Dichlorophenol	mg/kg	1000	0.0037 U	R	0.00073 UJ	0.00070 UJ	0.00080 U	0.0034 U
2,4-Dimethylphenol	mg/kg	10000	0.029 U	R	0.0057 UJ	0.0055 UJ	0.0062 U	0.027 U
2,4-Dinitrophenol	mg/kg	2300	0.22 U	R	0.043 UJ	0.042 UJ	0.047 U	0.20 U
2,4-Dinitrotoluene	mg/kg	200	0.015 U	R	0.0029 UJ	0.0028 UJ	0.0032 U	0.014 U
2,6-Dinitrotoluene	mg/kg	3000	0.019 U	R	0.0037 UJ	0.0036 UJ	0.0041 U	0.018 U
2-Chloronaphthalene	mg/kg	18000	0.0039 U	R	0.00075 UJ	0.00073 UJ	0.00083 U	0.0036 U
2-Chlorophenol	mg/kg	4.4	0.015 U	R	0.0030 UJ	0.0029 UJ	0.0032 U	0.014 U
2-Methylnaphthalene	mg/kg	1600	5.4	0.0021 J	0.0025 J	0.0012 J	0.00071 U	0.013 J
2-Methylphenol	mg/kg	8500	0.013 U	R	0.0025 UJ	0.0024 UJ	0.0028 U	0.012 U
2-Nitroaniline	mg/kg	5.5	0.083 U	R	0.016 UJ	0.016 UJ	0.018 U	0.076 U
2-Nitrophenol	mg/kg	17000	0.021 U	R	0.0040 UJ	0.0038 UJ	0.0044 U	0.019 U
3,3'-Dichlorobenzidine	mg/kg	17000	0.020 U	R	0.0038 UJ	0.0037 UJ	0.0042 U	0.018 U
3-Nitroaniline	mg/kg	0.48	0.077 U	R	0.015 UJ	0.014 UJ	0.016 U	0.070 U
4,6-Dinitro-2-methylphenol	mg/kg	750	0.075 U	R	0.015 UJ	0.014 UJ	0.016 U	0.068 U
4-Bromophenyl phenyl ether	mg/kg		0.016 U	R	0.0031 UJ	0.0030 UJ	0.0035 U	0.015 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
4-Chloro-3-methylphenol	mg/kg	110	0.017 U	R	0.0033 UJ	0.0032 UJ	0.0037 U	0.016 U
4-Chloroaniline	mg/kg	1.6	0.015 U	R	0.0029 UJ	0.0028 UJ	0.0032 U	0.014 U
4-Chlorophenyl phenyl ether	mg/kg		0.021 U	R	0.0040 UJ	0.0039 UJ	0.0044 U	0.019 U
4-Methylphenol	mg/kg	12000	0.018 U	R	0.0035 UJ	0.0034 UJ	0.0039 U	0.017 U
4-Nitroaniline	mg/kg	1.9	0.075 U	R	0.015 UJ	0.014 UJ	0.016 U	0.069 U
4-Nitrophenol	mg/kg	4100	0.068 U	R	0.013 UJ	0.013 UJ	0.014 U	0.062 U
Acenaphthene	mg/kg	4700	0.75	R	0.0073 J	0.00067 UJ	0.00076 U	0.0033 U
Acenaphthylene	mg/kg	18000	0.0043 U	R	0.0011 J	0.0021 J	0.00091 U	0.012 J
Acetophenone	mg/kg	540	1.0	0.0029 J	0.0079 J	0.0077 J	0.0033 U	0.023 J
Anthracene	mg/kg	350	0.46	0.00072 J	0.012 J	0.0024 J	0.00078 U	0.013 J
Atrazine	mg/kg	0.13	0.018 U	R	0.0035 UJ	0.011 J	0.0039 U	0.017 U
Benzaldehyde	mg/kg		R	R	0.0054 UJ	0.029 J	R	R
Benzo(a)anthracene	mg/kg	960	0.058	0.0065 J	0.055 J	0.011 J	0.0028 J	0.081
Benzo(a)pyrene	mg/kg	860	0.056	0.0076 J	0.095 J	0.011 J	0.00080 U	0.085
Benzo(b)fluoranthene	mg/kg	170	0.081	0.013 J	0.097 J	0.014 J	0.0030 J	0.11
Benzo(g,h,i)perylene	mg/kg	180	0.068	0.012 J	0.10 J	0.0094 J	0.00079 U	0.060
Benzo(k)fluoranthene	mg/kg	610	0.042	0.0051 J	0.039 J	0.0068 J	0.0016 U	0.048
Biphenyl (1,1-Biphenyl)	mg/kg	3100	0.59	R	0.0032 UJ	0.0031 UJ	0.0035 U	0.015 U
bis(2-Chloroethoxy)methane	mg/kg	8.2	0.012 U	R	0.0024 UJ	0.0023 UJ	0.0026 U	0.011 U
bis(2-Chloroethyl)ether	mg/kg	2.3	0.0050 U	R	0.00097 UJ	0.00094 UJ	0.0011 U	0.0046 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6300	0.10 J	0.020 J	0.0058 UJ	0.016 J	0.0066 J	0.028 U
Butyl benzylphthalate (BBP)	mg/kg	10000	0.025 U	0.012 J	0.0049 UJ	0.026 J	0.0065 J	0.023 U
Caprolactam	mg/kg		0.14 U	R	0.027 UJ	0.026 UJ	0.030 U	0.13 U
Carbazole	mg/kg	760	0.0034 U	R	0.0059 J	0.00064 UJ	0.00073 U	0.0031 U
Chrysene	mg/kg	230	0.074	0.012 J	0.060 J	0.014 J	0.0025 J	0.077
Dibenz(a,h)anthracene	mg/kg	270	0.0041 U	R	0.021 J	0.0025 J	0.00088 U	0.0038 U
Dibenzofuran	mg/kg	12000	0.018 U	R	0.0036 UJ	0.0034 UJ	0.0039 U	0.017 U
Diethyl phthalate	mg/kg	10000	0.020 U	R	0.0039 UJ	0.0038 UJ	0.0043 U	0.019 U
Dimethyl phthalate	mg/kg		0.020 U	R	0.0039 UJ	0.0038 UJ	0.0043 U	0.019 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.023 U	0.0056 J	0.0045 UJ	0.0050 J	0.0050 U	0.021 U
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.020 U	R	0.0038 UJ	0.0037 UJ	0.0042 U	0.018 U
Fluoranthene	mg/kg	3200	0.16	0.013 J	0.091 J	0.019 J	0.0032 J	0.080
Fluorene	mg/kg	3800	0.95	R	0.0039 J	0.00092 UJ	0.0010 U	0.0045 U
Hexachlorobenzene	mg/kg	5.8	0.0040 U	R	0.00077 UJ	0.00074 UJ	0.00085 U	0.0036 U
Hexachlorobutadiene	mg/kg	3400	0.0042 U	R	0.00081 UJ	0.00078 UJ	0.00089 U	0.0038 U
Hexachlorocyclopentadiene	mg/kg	3300	0.020 U	R	0.0039 UJ	0.0038 UJ	0.0043 U	0.018 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Hexachloroethane	mg/kg	56	0.013 U	R	0.0026 UJ	0.0025 UJ	0.0029 U	0.012 U
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.040	0.0078 J	0.083 J	0.0081 J	0.00082 U	0.045
Isophorone	mg/kg	1900	0.014 U	R	0.0027 UJ	0.0026 UJ	0.0030 U	0.013 U
Naphthalene	mg/kg	7500	0.42	0.0020 J	0.0033 J	0.0028 J	0.00069 U	0.0067 J
Nitrobenzene	mg/kg	8700	0.015 U	R	0.0030 UJ	0.0029 UJ	0.0033 U	0.014 U
N-Nitrosodi-n-propylamine	mg/kg	5.1	0.0044 U	R	0.00085 UJ	0.00082 UJ	0.00093 U	0.0040 U
N-Nitrosodiphenylamine	mg/kg	5500	0.017 U	R	0.0033 UJ	0.0032 UJ	0.0037 U	0.016 U
Pentachlorophenol	mg/kg	5000	0.017 U	R	0.0032 UJ	0.0031 UJ	0.0036 U	0.015 U
Phenanthrene	mg/kg	10000	1.7	0.0074 J	0.042 J	0.0098 J	0.0019 J	0.018 J
Phenol	mg/kg	3300	0.0044 U	R	0.00085 UJ	0.00082 UJ	0.00094 U	0.0040 U
Pyrene	mg/kg	2200	0.22	0.010 J	0.064 J	0.00071 UJ	0.0031 J	0.084
Metals								
Antimony	mg/kg	27000	8.3	0.17 J	0.15 J	0.28 J	0.25 J	0.027 J
Arsenic	mg/kg	29000	11	2.7	2.1	3.3	5.0	5.0
Beryllium	mg/kg	190000	0.39	0.71	0.82	0.49 J	0.43	0.18
Cadmium	mg/kg	38000	3.4	0.11 J	0.12 J	0.56 J	0.040 J	0.038 J
Chromium	mg/kg		34	2400	1600	1700	22	7.7
Copper	mg/kg	190000	110	33 J	26 J	69 J	9.4 J	2.1
Lead	mg/kg	190000	170	23	23	20	9.3	2.9
Mercury	mg/kg	10000	0.16	0.010 U	0.011 U	0.011 U	0.012 U	0.011 U
Nickel	mg/kg	190000	34	29	24	24 J	15 J	1.6
Selenium	mg/kg	26000	0.45 J	0.37 J	0.48 J	0.74 J	0.32 J	0.13 J
Silver	mg/kg	84000	0.30	0.020 U	0.021 U	0.040 U	0.0042 U	0.0038 U
Thallium	mg/kg	14000	0.076 J	0.015 J	0.012 J	0.020 U	0.081 J	0.017 J
Zinc	mg/kg	190000	310	58 J	64 J	190	43	7.1
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg	200	0.00069 U	0.00013 U	0.00013 U	0.00013 U	0.00015 U	0.00063 U
Aroclor-1221 (PCB-1221)	mg/kg	0.63	0.00089 U	0.00017 U	0.00017 U	0.00017 U	0.00019 U	0.00081 U
Aroclor-1232 (PCB-1232)	mg/kg	0.5	0.00080 U	0.00015 U	0.00015 U	0.00015 U	0.00017 U	0.00072 U
Aroclor-1242 (PCB-1242)	mg/kg	16	0.00076 U	0.00014 U	0.00015 U	0.00014 U	0.00016 U	0.00069 U
Aroclor-1248 (PCB-1248)	mg/kg	62	0.00044 U	0.030	0.0061	0.000082 U	0.000095 U	0.00040 U
Aroclor-1254 (PCB-1254)	mg/kg	260	0.10 J	0.00012 U	0.00013 U	0.012	0.0021	0.00060 U
Aroclor-1260 (PCB-1260)	mg/kg	590	0.071 J	0.00012 U	0.00013 U	0.00012 U	0.00014 U	0.00060 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		10	3.9	8.3	5.0	17	2.1
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Soil-to-Groundwater, non-use aquifer.
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
\- Not analyzed

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**	**(Duplicate)**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	72	0.00038 U	0.00040 U	R	0.00046 UJ	0.00050 UJ	0.00048 U
1,1,2,2-Tetrachloroethane	mg/kg	13	0.00056 U	0.00059 U	R	0.00068 UJ	0.00073 UJ	0.00071 U
1,1,2-Trichloroethane	mg/kg	1.5	0.00065 U	0.00069 U	R	0.00078 UJ	0.00085 UJ	0.00082 U
1,1-Dichloroethane	mg/kg	39	0.00045 U	0.00048 U	R	0.00054 UJ	0.00059 UJ	0.00057 U
1,1-Dichloroethene	mg/kg	1.9	0.00066 U	0.00070 U	R	0.00080 UJ	0.00087 UJ	0.00084 U
1,2,4-Trichlorobenzene	mg/kg	10000	0.00069 U	0.00073 U	R	0.00083 UJ	0.00090 UJ	0.00087 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.92	0.00058 U	0.00062 U	R	0.00071 UJ	0.00076 UJ	0.00074 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.12	0.00067 U	0.00071 U	R	0.00081 UJ	0.00088 UJ	0.00085 U
1,2-Dichlorobenzene	mg/kg	5900	0.00062 U	0.00066 U	R	0.00075 UJ	0.00081 UJ	0.00079 U
1,2-Dichloroethane	mg/kg	1	0.00048 U	0.00051 U	R	0.00058 UJ	0.00063 UJ	0.00061 U
1,2-Dichloroethene (total)	mg/kg		0.0010 U	0.0011 U	R	0.0012 UJ	0.0013 UJ	0.0013 U
1,2-Dichloropropane	mg/kg	1.1	0.00042 U	0.00045 U	R	0.00051 UJ	0.00055 UJ	0.00054 U
1,3-Dichlorobenzene	mg/kg	6100	0.00051 U	0.00054 U	R	0.00062 UJ	0.00067 UJ	0.00065 U
1,4-Dichlorobenzene	mg/kg	1000	0.00050 U	0.00053 U	R	0.00060 UJ	0.00065 UJ	0.00063 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	7600	0.00069 U	0.00073 U	R	0.00083 UJ	0.00090 UJ	0.00087 U
2-Hexanone	mg/kg	1.1	0.00054 U	0.00057 U	R	0.00065 UJ	0.00071 UJ	0.00068 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	0.00051 U	0.00054 U	R	0.00061 UJ	0.00067 UJ	0.00064 U
Acetone	mg/kg	10000	0.0039 U	0.0041 U	R	0.0047 UJ	0.0051 UJ	0.0049 U
Benzene	mg/kg	13	0.00052 U	0.00056 U	R	0.00064 UJ	0.00069 UJ	0.00067 U
Bromodichloromethane	mg/kg	2.7	0.00044 U	0.00046 U	R	0.00053 UJ	0.00057 UJ	0.00055 U
Bromoform	mg/kg	350	0.00034 U	0.00037 U	R	0.00042 UJ	0.00045 UJ	0.00044 U
Bromomethane (Methyl bromide)	mg/kg	54	0.00057 U	0.00061 U	R	0.00070 UJ	0.00075 UJ	0.00073 U
Carbon disulfide	mg/kg	530	0.00040 U	0.00042 U	R	0.00060 J	0.00084 J	0.00051 U
Carbon tetrachloride	mg/kg	2.6	0.00035 U	0.00037 U	R	0.00042 UJ	0.00046 UJ	0.00044 U
Chlorobenzene	mg/kg	610	0.00059 U	0.00063 U	R	0.00071 UJ	0.00077 UJ	0.00075 U
Chloroethane	mg/kg	1900	0.0012 U	0.0013 U	R	0.0015 UJ	0.0016 UJ	0.0015 U
Chloroform (Trichloromethane)	mg/kg	20	0.00045 U	0.00048 U	R	0.00055 UJ	0.00060 UJ	0.00058 U
Chloromethane (Methyl chloride)	mg/kg	38	0.00066 U	0.00070 U	R	0.00080 UJ	0.00087 UJ	0.00084 U
cis-1,2-Dichloroethene	mg/kg	16	0.00055 U	0.00058 U	R	0.00066 UJ	0.00072 UJ	0.00069 U
cis-1,3-Dichloropropene	mg/kg		0.00053 U	0.00056 U	R	0.00064 UJ	0.00069 UJ	0.00067 U
Cyclohexane	mg/kg	6900	0.00029 U	0.00031 U	R	0.00035 UJ	0.00038 UJ	0.00037 U
Dibromochloromethane	mg/kg	250	0.00055 U	0.00059 U	R	0.00067 UJ	0.00072 UJ	0.00070 U
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	0.00052 U	0.00055 U	R	0.00063 UJ	0.00068 UJ	0.00066 U
Ethylbenzene	mg/kg	4600	0.00050 U	0.00053 U	R	0.00061 UJ	0.00066 UJ	0.00063 U
Isopropyl benzene	mg/kg	10000	0.00053 U	0.00056 U	R	0.00064 UJ	0.00069 UJ	0.00067 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**	**(Duplicate)**					
m&p-Xylenes	mg/kg		0.0011 U	0.0012 U	R	0.0014 UJ	0.0015 UJ	0.0015 U
Methyl acetate	mg/kg	1900	0.00070 U	0.00074 U	R	0.00085 UJ	0.00092 UJ	0.00089 U
Methyl cyclohexane	mg/kg		0.00056 U	0.00060 U	R	0.00068 UJ	0.00074 UJ	0.00072 U
Methyl tert butyl ether (MTBE)	mg/kg	2.8	0.00058 U	0.00062 U	R	0.00070 UJ	0.00076 UJ	0.00074 U
Methylene chloride	mg/kg	7.6	0.0029 U	0.0028 U	0.0015 UJ	0.0020 UJ	0.0022 UJ	0.0023 UJ
o-Xylene	mg/kg		0.00061 U	0.00064 U	R	0.00073 UJ	0.00080 UJ	0.00077 U
Styrene	mg/kg	2400	0.00055 U	0.00058 U	R	0.00066 UJ	0.00072 UJ	0.00070 U
Tetrachloroethene	mg/kg	4.3	0.00053 U	0.00056 U	R	0.00064 UJ	0.00069 UJ	0.00067 U
Toluene	mg/kg	4400	0.00057 U	0.00060 U	R	0.00069 UJ	0.00075 UJ	0.00072 U
trans-1,2-Dichloroethene	mg/kg	23	0.00046 U	0.00049 U	R	0.00056 UJ	0.00061 UJ	0.00059 U
trans-1,3-Dichloropropene	mg/kg		0.00046 U	0.00049 U	R	0.00056 UJ	0.00061 UJ	0.00059 U
Trichloroethene	mg/kg	1.7	0.00051 U	0.00054 U	R	0.00062 UJ	0.00067 UJ	0.00065 U
Trichlorofluoromethane (CFC-11)	mg/kg	8700	0.00071 U	0.00076 U	R	0.00087 UJ	0.00094 UJ	0.00091 U
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	0.00083 U	0.00088 U	R	0.0010 UJ	0.0011 UJ	0.0011 U
Vinyl chloride	mg/kg	0.27	0.00037 U	0.00039 U	R	0.00044 UJ	0.00048 UJ	0.00046 U
Xylenes (total)	mg/kg	10000	0.0017 U	0.0019 U	R	0.0021 UJ	0.0023 UJ	0.0022 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	800	0.00074 U	0.00085 U	R	0.00083 U	0.00076 U	0.00080 U
2,4,5-Trichlorophenol	mg/kg	190000	0.0036 U	0.0042 U	R	0.0041 U	0.0038 U	0.0040 U
2,4,6-Trichlorophenol	mg/kg	29000	0.0051 U	0.0059 U	R	0.0058 U	0.0053 U	0.0056 U
2,4-Dichlorophenol	mg/kg	1000	0.00068 U	0.00079 U	R	0.00077 U	0.00071 U	0.00075 U
2,4-Dimethylphenol	mg/kg	10000	0.0053 U	0.0062 U	R	0.0060 U	0.0055 U	0.0058 U
2,4-Dinitrophenol	mg/kg	2300	0.041 U	0.047 U	R	0.046 U	0.042 U	0.044 U
2,4-Dinitrotoluene	mg/kg	200	0.0028 U	0.0032 U	R	0.0031 U	0.0028 U	0.0030 U
2,6-Dinitrotoluene	mg/kg	3000	0.0035 U	0.0041 U	R	0.0040 U	0.0036 U	0.0038 U
2-Chloronaphthalene	mg/kg	18000	0.00071 U	0.00082 U	R	0.00080 U	0.00074 U	0.00078 U
2-Chlorophenol	mg/kg	4.4	0.0028 U	0.0032 U	R	0.0031 U	0.0029 U	0.0030 U
2-Methylnaphthalene	mg/kg	1600	0.016	0.00071 U	0.00094 J	0.0027 J	0.0013 J	0.00067 U
2-Methylphenol	mg/kg	8500	0.0024 U	0.0028 U	R	0.0027 U	0.0025 U	0.0026 U
2-Nitroaniline	mg/kg	5.5	0.015 U	0.018 U	R	0.017 U	0.016 U	0.017 U
2-Nitrophenol	mg/kg	17000	0.0038 U	0.0043 U	R	0.0042 U	0.0039 U	0.0041 U
3,3'-Dichlorobenzidine	mg/kg	17000	0.0036 U	0.0042 U	R	0.0041 U	0.0037 U	0.0039 U
3-Nitroaniline	mg/kg	0.48	0.014 U	0.016 U	R	0.016 U	0.015 U	0.015 U
4,6-Dinitro-2-methylphenol	mg/kg	750	0.014 U	0.016 U	R	0.015 U	0.014 U	0.015 U
4-Bromophenyl phenyl ether	mg/kg		0.0030 U	0.0034 U	R	0.0033 U	0.0031 U	0.0032 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**	**(Duplicate)**					
4-Chloro-3-methylphenol	mg/kg	110	0.0031 U	0.0036 U	R	0.0035 U	0.0032 U	0.0034 U
4-Chloroaniline	mg/kg	1.6	0.0027 U	0.0032 U	R	0.0031 U	0.0028 U	0.0030 U
4-Chlorophenyl phenyl ether	mg/kg		0.0038 U	0.0044 U	R	0.0043 U	0.0039 U	0.0041 U
4-Methylphenol	mg/kg	12000	0.0033 U	0.0039 U	R	0.0038 U	0.0035 U	0.0036 U
4-Nitroaniline	mg/kg	1.9	0.014 U	0.016 U	R	0.016 U	0.014 U	0.015 U
4-Nitrophenol	mg/kg	4100	0.012 U	0.014 U	R	0.014 U	0.013 U	0.014 U
Acenaphthene	mg/kg	4700	0.00066 U	0.00076 U	R	0.00074 U	0.00068 J	0.0015 J
Acenaphthylene	mg/kg	18000	0.0058 J	0.00090 U	R	0.00088 U	0.00081 U	0.00085 U
Acetophenone	mg/kg	540	0.023 J	0.017 J	R	0.0032 U	0.0029 U	0.0031 U
Anthracene	mg/kg	350	0.0062 J	0.00077 U	0.00088 J	0.0017 J	0.0010 J	0.0013 J
Atrazine	mg/kg	0.13	0.0033 U	0.0038 U	R	0.0037 U	0.0034 U	0.0036 U
Benzaldehyde	mg/kg		0.0085 J	R	R	0.029 J	R	R
Benzo(a)anthracene	mg/kg	960	0.036	0.00099 U	0.0049 J	0.0042 J	0.0053 J	0.0071 J
Benzo(a)pyrene	mg/kg	860	0.041	0.00079 U	0.0043 J	0.0043 J	0.0056 J	0.012
Benzo(b)fluoranthene	mg/kg	170	0.052	0.0012 U	0.0083 J	0.0054 J	0.0075	0.014
Benzo(g,h,i)perylene	mg/kg	180	0.030	0.00078 U	0.0065 J	0.0043 J	0.0083	0.017
Benzo(k)fluoranthene	mg/kg	610	0.023	0.0016 U	0.0030 J	0.0035 J	0.0056 J	0.0068 J
Biphenyl (1,1-Biphenyl)	mg/kg	3100	0.0030 U	0.0035 U	R	0.0034 U	0.0031 U	0.0033 U
bis(2-Chloroethoxy)methane	mg/kg	8.2	0.0022 U	0.0026 U	R	0.0025 U	0.0023 U	0.0024 U
bis(2-Chloroethyl)ether	mg/kg	2.3	0.00092 U	0.0011 U	R	0.0010 U	0.00095 U	0.0010 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6300	0.0055 U	0.0069 J	0.017 J	0.017 J	0.011 J	2.3
Butyl benzylphthalate (BBP)	mg/kg	10000	0.0059 J	0.0076 J	0.012 J	0.010 J	0.0090 J	0.0070 J
Caprolactam	mg/kg		0.026 U	0.030 U	R	0.029 U	0.027 U	0.028 U
Carbazole	mg/kg	760	0.0015 J	0.00073 U	R	0.00071 U	0.0012 J	0.00069 U
Chrysene	mg/kg	230	0.039	0.00094 U	0.0079 J	0.0068 J	0.0065 J	0.0098
Dibenz(a,h)anthracene	mg/kg	270	0.011	0.00088 U	R	0.00086 U	0.00079 U	0.0050 J
Dibenzofuran	mg/kg	12000	0.0057 J	0.0039 U	R	0.0038 U	0.0035 U	0.0037 U
Diethyl phthalate	mg/kg	10000	0.0037 U	0.0043 U	R	0.0042 U	0.0039 U	0.0041 U
Dimethyl phthalate	mg/kg		0.0037 U	0.0043 U	R	0.0042 U	0.0038 U	0.0041 U
Di-n-butylphthalate (DBP)	mg/kg	10000	0.0043 U	0.0049 U	0.0049 J	0.0063 J	0.0053 J	0.0055 J
Di-n-octyl phthalate (DnOP)	mg/kg	10000	0.0036 U	0.0042 U	R	0.0041 U	0.0037 U	0.0039 U
Fluoranthene	mg/kg	3200	0.038	0.00084 U	0.0097 J	0.0099	0.0069 J	0.0090
Fluorene	mg/kg	3800	0.0022 J	0.0010 U	R	0.0010 U	0.00093 U	0.00098 U
Hexachlorobenzene	mg/kg	5.8	0.00073 U	0.00084 U	R	0.00082 U	0.00075 U	0.00079 U
Hexachlorobutadiene	mg/kg	3400	0.00076 U	0.00088 U	R	0.00086 U	0.00079 U	0.00083 U
Hexachlorocyclopentadiene	mg/kg	3300	0.0037 U	0.0043 U	R	0.0041 U	0.0038 U	0.0040 U

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**	**(Duplicate)**					
Hexachloroethane	mg/kg	56	0.0025 U	0.0028 U	R	0.0028 U	0.0025 U	0.0027 U
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.027	0.00081 U	0.0051 J	0.0038 J	0.0062 J	0.014
Isophorone	mg/kg	1900	0.0026 U	0.0030 U	R	0.0029 U	0.0027 U	0.0028 U
Naphthalene	mg/kg	7500	0.0092	0.00068 U	R	0.0029 J	0.0016 J	0.00064 U
Nitrobenzene	mg/kg	8700	0.0028 U	0.0033 U	R	0.0032 U	0.0029 U	0.0031 U
N-Nitrosodi-n-propylamine	mg/kg	5.1	0.00080 U	0.00093 U	R	0.00090 U	0.00083 U	0.00087 U
N-Nitrosodiphenylamine	mg/kg	5500	0.0032 U	0.0037 U	R	0.0036 U	0.0033 U	0.0034 U
Pentachlorophenol	mg/kg	5000	0.0031 U	0.0035 U	R	0.0034 U	0.0032 U	0.0033 U
Phenanthrene	mg/kg	10000	0.020	0.0013 U	0.0073 J	0.0072 J	0.014	0.0035 J
Phenol	mg/kg	3300	0.00081 U	0.00093 U	R	0.00091 U	0.00083 U	0.00088 U
Pyrene	mg/kg	2200	0.040	0.00080 U	0.0087 J	0.0059 J	0.0075	0.0078
Metals								
Antimony	mg/kg	27000	0.014 J	0.12 J	0.17 J	0.21 J	0.21 J	0.23 J
Arsenic	mg/kg	29000	5.5	5.9	2.2	3.8	2.8	2.9
Beryllium	mg/kg	190000	0.13	0.49	3.5	0.61	3.8	0.43
Cadmium	mg/kg	38000	0.078 J	0.045 J	0.092 J	1.1	0.16 J	0.093
Chromium	mg/kg		9.8	12	1200	1000	1900	170
Copper	mg/kg	190000	1.9	9.3	17 J	31 J	84 J	17 J
Lead	mg/kg	190000	3.5	9.9	9.8	29	43	17
Mercury	mg/kg	10000	0.011 U	0.015 J	0.011 U	0.021 J	0.011 U	0.014 J
Nickel	mg/kg	190000	1.7	14	7.1	11	41	12
Selenium	mg/kg	26000	0.083 J	0.34 J	3.2 J	0.76 J	1.3 J	0.32 J
Silver	mg/kg	84000	0.0037 U	0.0045 U	0.018 U	0.11 J	0.020 U	0.020 J
Thallium	mg/kg	14000	0.019 J	0.093 J	0.035 J	0.060 J	0.012 J	0.035 J
Zinc	mg/kg	190000	9.1	39	57 J	240 J	580 J	50 J
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg	200	0.00013 U	0.00015 U	0.00013 U	0.00014 U	0.00013 U	0.00069 U
Aroclor-1221 (PCB-1221)	mg/kg	0.63	0.00016 U	0.00019 U	0.00017 U	0.00018 U	0.00017 U	0.00089 U
Aroclor-1232 (PCB-1232)	mg/kg	0.5	0.00015 U	0.00017 U	0.00015 U	0.00017 U	0.00015 U	0.00079 U
Aroclor-1242 (PCB-1242)	mg/kg	16	0.00014 U	0.00016 U	0.00014 U	0.00016 U	0.00014 U	0.00076 U
Aroclor-1248 (PCB-1248)	mg/kg	62	0.000081 U	0.000093 U	0.000082 U	0.000091 U	0.000083 U	0.00044 U
Aroclor-1254 (PCB-1254)	mg/kg	260	0.0029	0.00014 U	0.00084 J	0.0091	0.00013 U	0.25
Aroclor-1260 (PCB-1260)	mg/kg	590	0.00012 U	0.00014 U	0.00012 U	0.00014 U	0.0012	0.16

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
			(Duplicate)					
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		2.2	16	5.0	14	6.1	10
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Soil-to-Groundwater, non-use aquifer.
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**									
Volatile Organic Compounds											
1,1,1-Trichloroethane	mg/kg	72	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	13	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	1.5	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	39	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	1.9	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	10000	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.92	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.12	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	5900	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	1	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	mg/kg		-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	1.1	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	6100	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	1000	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	7600	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	1.1	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Acetone	mg/kg	10000	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	13	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	2.7	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	350	-	-	-	-	-	-	-	-	-
Bromomethane (Methyl bromide)	mg/kg	54	-	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	530	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	2.6	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	610	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	1900	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	20	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	38	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	16	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-	-
Cyclohexane	mg/kg	6900	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	250	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	4600	0.005 U	0.23 J	0.0031 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Isopropyl benzene	mg/kg	10000	-	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**									
m&p-Xylenes	mg/kg		-	-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	1900	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	mg/kg		-	-	-	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	mg/kg	2.8	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	7.6	0.0035 JB	0.92	0.0031 JB	0.0036 JB	0.0023 JB	0.0013 JB	0.0006 JB	0.0013 JB	0.0018 JB
o-Xylene	mg/kg		-	-	-	-	-	-	-	-	-
Styrene	mg/kg	2400	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	4.3	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	4400	0.0013 JB	0.13 J	0.0027 J	0.005 U	0.00056 J	0.005 U	0.0006 J	0.00091 J	0.00056 JB
trans-1,2-Dichloroethene	mg/kg	23	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	1.7	0.00079 JB	0.00079 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Trichlorofluoromethane (CFC-11)	mg/kg	8700	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	0.27	-	-	-	-	-	-	-	-	-
Xylenes (total)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds											
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	800	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	190000	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	29000	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	1000	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	10000	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	2300	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	200	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	3000	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	18000	-	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/kg	4.4	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg	1600	-	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	8500	-	-	-	-	-	-	-	-	-
2-Nitroaniline	mg/kg	5.5	-	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg	17000	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	17000	-	-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg	0.48	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	750	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**									
4-Chloro-3-methylphenol	mg/kg	110	-	-	-	-	-	-	-	-	-
4-Chloroaniline	mg/kg	1.6	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-	-
4-Methylphenol	mg/kg	12000	-	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	1.9	-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	4100	-	-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	4700	0.33 U	200	2.9	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acenaphthylene	mg/kg	18000	0.33 U	29	0.71	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acetophenone	mg/kg	540	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	350	0.33 U	200	3.4	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Atrazine	mg/kg	0.13	-	-	-	-	-	-	-	-	-
Benzaldehyde	mg/kg		-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	960	0.33 U	89	1.7	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(a)pyrene	mg/kg	860	0.33 U	37	1.1	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(b)fluoranthene	mg/kg	170	0.33 U	32	1.2	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(g,h,i)perylene	mg/kg	180	0.33 U	15	0.54	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(k)fluoranthene	mg/kg	610	0.33 U	38	1.2	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Biphenyl (1,1-Biphenyl)	mg/kg	3100	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	8.2	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	2.3	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6300	0.42	3.2 J	0.48	0.35	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Butyl benzylphthalate (BBP)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Caprolactam	mg/kg		-	-	-	-	-	-	-	-	-
Carbazole	mg/kg	760	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	230	0.33 U	81	1.9	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	mg/kg	270	0.33 U	8.2	0.24 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenzofuran	mg/kg	12000	-	-	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg	10000	-	-	-	-	-	-	-	-	-
Dimethyl phthalate	mg/kg		-	-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	10000	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	3200	0.33 U	440	7.9	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Fluorene	mg/kg	3800	0.33 U	280	4.5	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Hexachlorobenzene	mg/kg	5.8	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	3400	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	3300	-	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**									
Hexachloroethane	mg/kg	56	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.33 U	16	0.56	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Isophorone	mg/kg	1900	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	7500	0.33 U	280	4	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Nitrobenzene	mg/kg	8700	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	5.1	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg	5500	-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	5000	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	10000	0.33 U	830	13	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Phenol	mg/kg	3300	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg	2200	0.33 U	270	5.4	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Metals											
Antimony	mg/kg	27000	0.64	0.64	0.54	0.89	0.5 U	0.78	0.76	2.5	0.5 U
Arsenic	mg/kg	29000	3.5	0.2 U	1.1	2.3	0.91	1.6	2.3	0.2 U	11
Beryllium	mg/kg	190000	0.25	0.2 U	0.26	0.26	0.2 U	0.2 U	0.35	0.2 U	0.44
Cadmium	mg/kg	38000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.45	0.99	0.2 U	0.2 U
Chromium	mg/kg		7.6	560	160	16	44	20	49	860	9.7
Copper	mg/kg	190000	9.2	7.2	24	8.2	19	64	93	18	25
Lead	mg/kg	190000	10	73	45	8	43	61	110	59	20
Mercury	mg/kg	10000	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.20	0.1 U	0.1 U	0.1 U
Nickel	mg/kg	190000	10	110	31	8.6	5.6	4.9	11	8.4	11
Selenium	mg/kg	26000	0.2 U	0.2 U	0.39	0.2 U	0.2 U	0.9	2.2	0.2 U	0.2 U
Silver	mg/kg	84000	0.2 U	0.3	0.2 U	0.2 U	0.2 U	3.6	4.8	0.88	0.2 U
Thallium	mg/kg	14000	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	190000	32	19	270	34	120	170	330	54	50
PCBs											
Aroclor-1016 (PCB-1016)	mg/kg	200	-	-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	mg/kg	0.63	-	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	mg/kg	0.5	-	-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	mg/kg	16	-	-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	mg/kg	62	-	-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	mg/kg	260	-	-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	mg/kg	590	-	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**									
Petroleum Products											
Total Petroleum Hydrocarbons	mg/kg		49	-	61	38 J	280	110	310	590	55
General Chemistry											
Percent moisture	%		-	-	-	-	-	-	-	-	-
pH	s.u.		8.48	9.98	9.36	8.44	7.19	7.06	6.88	11.24	8.39

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Soil-to-Groundwater, non-use aquifer.
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**								
Volatile Organic Compounds										
1,1,1-Trichloroethane	mg/kg	72	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	13	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	1.5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	39	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	1.9	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	10000	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.92	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.12	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	5900	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	1	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	mg/kg		-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	1.1	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	6100	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	1000	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	7600	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	1.1	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	10000	-	-	-	-	-	-	-	-
Acetone	mg/kg	10000	-	-	-	-	-	-	-	-
Benzene	mg/kg	13	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	2.7	-	-	-	-	-	-	-	-
Bromoform	mg/kg	350	-	-	-	-	-	-	-	-
Bromomethane (Methyl bromide)	mg/kg	54	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	530	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	2.6	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	610	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	1900	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	20	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	38	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	16	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-
Cyclohexane	mg/kg	6900	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	250	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	10000	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	4600	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Isopropyl benzene	mg/kg	10000	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**								
m&p-Xylenes	mg/kg		-	-	-	-	-	-	-	-
Methyl acetate	mg/kg	1900	-	-	-	-	-	-	-	-
Methyl cyclohexane	mg/kg		-	-	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	mg/kg	2.8	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	7.6	0.0019 JB	0.0012 JB	0.0014 JB	0.0015 JB	0.0011 JB	0.0017 JB	0.0011 JB	0.0013 JB
o-Xylene	mg/kg		-	-	-	-	-	-	-	-
Styrene	mg/kg	2400	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	4.3	-	-	-	-	-	-	-	-
Toluene	mg/kg	4400	0.00075 JB	0.00055 JB	0.00062 JB	0.0006 JB	0.00059 JB	0.00051 JB	0.00051 JB	0.00052 JB
trans-1,2-Dichloroethene	mg/kg	23	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	1.7	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Trichlorofluoromethane (CFC-11)	mg/kg	8700	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	10000	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	0.27	-	-	-	-	-	-	-	-
Xylenes (total)	mg/kg	10000	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds										
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	800	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	190000	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	29000	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	1000	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	10000	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	2300	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	200	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	3000	-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	18000	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/kg	4.4	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg	1600	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	8500	-	-	-	-	-	-	-	-
2-Nitroaniline	mg/kg	5.5	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg	17000	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	17000	-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg	0.48	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	750	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**								
4-Chloro-3-methylphenol	mg/kg	110	-	-	-	-	-	-	-	-
4-Chloroaniline	mg/kg	1.6	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-
4-Methylphenol	mg/kg	12000	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	1.9	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	4100	-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	4700	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acenaphthylene	mg/kg	18000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acetophenone	mg/kg	540	-	-	-	-	-	-	-	-
Anthracene	mg/kg	350	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Atrazine	mg/kg	0.13	-	-	-	-	-	-	-	-
Benzaldehyde	mg/kg		-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	960	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(a)pyrene	mg/kg	860	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(b)fluoranthene	mg/kg	170	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(g,h,i)perylene	mg/kg	180	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(k)fluoranthene	mg/kg	610	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Biphenyl (1,1-Biphenyl)	mg/kg	3100	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	8.2	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	2.3	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	6300	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Butyl benzylphthalate (BBP)	mg/kg	10000	-	-	-	-	-	-	-	-
Caprolactam	mg/kg		-	-	-	-	-	-	-	-
Carbazole	mg/kg	760	-	-	-	-	-	-	-	-
Chrysene	mg/kg	230	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	mg/kg	270	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenzofuran	mg/kg	12000	-	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg	10000	-	-	-	-	-	-	-	-
Dimethyl phthalate	mg/kg		-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg	10000	-	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	10000	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	3200	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Fluorene	mg/kg	3800	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Hexachlorobenzene	mg/kg	5.8	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	3400	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	3300	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**								
Hexachloroethane	mg/kg	56	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	190000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Isophorone	mg/kg	1900	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	7500	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Nitrobenzene	mg/kg	8700	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	5.1	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg	5500	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	5000	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	10000	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Phenol	mg/kg	3300	-	-	-	-	-	-	-	-
Pyrene	mg/kg	2200	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Metals										
Antimony	mg/kg	27000	0.5 U	0.88	0.96	0.5 U	1.2	0.75	0.52	1.2
Arsenic	mg/kg	29000	1.1	3.5	6.7	7.2	4.8	4.2	3.6	0.5
Beryllium	mg/kg	190000	0.2 U	0.29	0.46	0.48	0.29	0.25	0.26	0.46
Cadmium	mg/kg	38000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	mg/kg		550	7.6	22	6.1	20	8.1	6.8	51
Copper	mg/kg	190000	15	9.6	9.2	8	11	8.8	7.8	12
Lead	mg/kg	190000	15	8.8	15	15	20	8.3	8.1	17
Mercury	mg/kg	10000	0.1 U	0.1 U	0.1 U	0.11	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	mg/kg	190000	6.8	12	11	11	14	11	12	11
Selenium	mg/kg	26000	0.2 U	0.98	0.2 U	0.67	0.2 U	0.2 U	0.2 U	0.2 U
Silver	mg/kg	84000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Thallium	mg/kg	14000	-	-	-	-	-	-	-	-
Zinc	mg/kg	190000	55	52	50	41	63	47	45	51
PCBs										
Aroclor-1016 (PCB-1016)	mg/kg	200	-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	mg/kg	0.63	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	mg/kg	0.5	-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	mg/kg	16	-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	mg/kg	62	-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	mg/kg	260	-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	mg/kg	590	-	-	-	-	-	-	-	-

Table 4.3

Screened Analytical Results
All Soil Samples Vs Non-Residential Non-Use Aquifer Impact to Groundwater Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**MSC Non-Residential Soil-to-Groundwater Nonuse Aquifer (1)**								
Petroleum Products										
Total Petroleum Hydrocarbons	mg/kg		32 J	32 J	49	32 JB	49	49	44	32 J
General Chemistry										
Percent moisture	%		-	-	-	-	-	-	-	-
pH	s.u.		9.06	6.11	7.2	7.13	7.73	8.43	7.57	7.66

Notes:

(1) PA Chapter 250, Appendix A, Tables 3 to 4, Medium Specific Concentrations (MSC) for organic and inorganic regulated substances in soil, Direct-contact Numerical values, Non-Residential, Soil-to-Groundwater, non-use aquifer.
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	170	0.00040 U	0.00038 U	R	0.00033 UJ	0.00037 U	0.00039 U
1,1,2,2-Tetrachloroethane	mg/kg	2	0.00059 U	0.00056 U	R	0.00049 UJ	0.00055 U	0.00057 U
1,1,2-Trichloroethane	mg/kg	2.4	0.00068 U	0.00065 U	R	0.00057 UJ	0.00064 U	0.00066 U
1,1-Dichloroethane	mg/kg	2.7	0.00047 U	0.00045 U	R	0.00039 UJ	0.00044 U	0.00046 U
1,1-Dichloroethene	mg/kg	7.6	0.00070 U	0.00067 U	R	0.00058 UJ	0.00065 U	0.00067 U
1,2,4-Trichlorobenzene	mg/kg	NOC	0.00073 U	0.00069 U	R	0.00060 UJ	0.00068 U	0.00070 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	3.2	0.00062 U	0.00059 U	R	0.00051 UJ	0.00057 U	0.00060 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.29	0.00071 U	0.00068 U	R	0.00059 UJ	0.00066 U	0.00069 U
1,2-Dichlorobenzene	mg/kg	150	0.00066 U	0.00063 U	R	0.00055 UJ	0.00061 U	0.00063 U
1,2-Dichloroethane	mg/kg	0.83	0.00050 U	0.00048 U	R	0.00042 UJ	0.00047 U	0.00049 U
1,2-Dichloroethene (total)	mg/kg		0.0011 U	0.0010 U	R	0.00088 UJ	0.00098 U	0.0010 U
1,2-Dichloropropane	mg/kg	0.88	0.00045 U	0.00043 U	R	0.00037 UJ	0.00042 U	0.00043 U
1,3-Dichlorobenzene	mg/kg	NA	0.00054 U	0.00052 U	R	0.00045 UJ	0.00050 U	0.00052 U
1,4-Dichlorobenzene	mg/kg	13	0.00052 U	0.00050 U	R	0.00044 UJ	0.00049 U	0.00051 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	14000	0.00073 U	0.00069 U	R	0.00060 UJ	0.00068 U	0.00070 U
2-Hexanone	mg/kg		0.00057 U	0.00054 U	R	0.00047 UJ	0.00053 U	0.00055 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	120	0.00054 U	0.00051 U	R	0.00045 UJ	0.00050 U	0.00052 U
Acetone	mg/kg	110000	0.011 U	0.0078 U	R	0.0034 UJ	0.0038 U	0.0040 U
Benzene	mg/kg	0.63	0.00056 U	0.00053 U	R	0.00046 UJ	0.00052 U	0.00054 U
Bromodichloromethane	mg/kg	0.85	0.00046 U	0.00044 U	R	0.00038 UJ	0.00043 U	0.00045 U
Bromoform	mg/kg	160	0.00036 U	0.00035 U	R	0.00030 UJ	0.00034 U	0.00035 U
Bromomethane (Methyl bromide)	mg/kg	1.3	0.00061 U	0.00058 U	R	0.00051 UJ	0.00057 U	0.00059 U
Carbon disulfide	mg/kg	66	0.00042 U	0.00040 U	R	0.00054 J	0.0011 J	0.00041 U
Carbon tetrachloride	mg/kg	0.12	0.00037 U	0.00035 U	R	0.00031 UJ	0.00034 U	0.00036 U
Chlorobenzene	mg/kg	13	0.00062 U	0.00059 U	R	0.00052 UJ	0.00058 U	0.00060 U
Chloroethane	mg/kg	1.8	0.0013 U	0.0012 U	R	0.0011 UJ	0.0012 U	0.0012 U
Chloroform (Trichloromethane)	mg/kg	0.074	0.00048 U	0.00046 U	R	0.00040 UJ	0.00045 U	0.00047 U
Chloromethane (Methyl chloride)	mg/kg	0.64	0.00070 U	0.00067 U	R	0.00058 UJ	0.00065 U	0.00068 U
cis-1,2-Dichloroethene	mg/kg	7.6	0.00058 U	0.00055 U	R	0.00048 UJ	0.00054 U	0.00056 U
cis-1,3-Dichloropropene	mg/kg		0.00056 U	0.00053 U	R	0.00046 UJ	0.00052 U	0.00054 U
Cyclohexane	mg/kg		0.00031 U	0.00029 U	R	0.00025 UJ	0.00028 U	0.00030 U
Dibromochloromethane	mg/kg	2.2	0.00058 U	0.00056 U	R	0.00049 UJ	0.00054 U	0.00056 U
Dichlorodifluoromethane (CFC-12)	mg/kg	2.6	0.00055 U	0.00052 U	R	0.00046 UJ	0.00051 U	0.00053 U
Ethylbenzene	mg/kg	9.5	0.00053 U	0.00050 U	R	0.00044 UJ	0.00049 U	0.00051 U
Isopropyl benzene	mg/kg	360	0.00056 U	0.00053 U	R	0.00047 UJ	0.00052 U	0.00054 U
m&p-Xylenes	mg/kg		0.0012 U	0.0012 U	R	0.0010 UJ	0.0011 U	0.0012 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Methyl acetate	mg/kg	19000	0.00074 U	0.00071 U	R	0.00062 UJ	0.00069 U	0.00072 U
Methyl cyclohexane	mg/kg		0.00060 U	0.00057 U	R	0.00050 UJ	0.00056 U	0.00058 U
Methyl tert butyl ether (MTBE)	mg/kg	86	0.00062 U	0.00059 U	R	0.00051 UJ	0.00057 U	0.00059 U
Methylene chloride	mg/kg	14	0.0041 J	0.0034 J	0.0032 J	0.0028 J	0.0037 J	0.0038 J
o-Xylene	mg/kg		0.00064 U	0.00061 U	R	0.00053 UJ	0.00060 U	0.00062 U
Styrene	mg/kg	720	0.00058 U	0.00055 U	R	0.00048 UJ	0.00054 U	0.00056 U
Tetrachloroethene	mg/kg	10	0.00056 U	0.00053 U	R	0.00047 UJ	0.00052 U	0.00054 U
Toluene	mg/kg	110	0.00060 U	0.00057 U	R	0.00050 UJ	0.00056 U	0.00058 U
trans-1,2-Dichloroethene	mg/kg	6.4	0.00049 U	0.00047 U	R	0.00041 UJ	0.00046 U	0.00047 U
trans-1,3-Dichloropropene	mg/kg		0.00049 U	0.00047 U	R	0.00041 UJ	0.00046 U	0.00048 U
Trichloroethene	mg/kg	2.2	0.00054 U	0.00052 U	R	0.00045 UJ	0.00050 U	0.00052 U
Trichlorofluoromethane (CFC-11)	mg/kg	13	0.00076 U	0.00072 U	R	0.00063 UJ	0.00070 U	0.00073 U
Trifluorotrichloroethane (Freon 113)	mg/kg	670	0.00088 U	0.00084 U	R	0.00073 UJ	0.00082 U	0.00085 U
Vinyl chloride	mg/kg	0.061	0.00039 U	0.00037 U	R	0.00032 UJ	0.00036 U	0.00037 U
Xylenes (total)	mg/kg	77	0.0018 U	0.0018 U	R	0.0015 UJ	0.0017 U	0.0018 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	28	0.0038 U	0.00082 U	R	0.0038 U	0.0036 U	0.00082 U
2,4,5-Trichlorophenol	mg/kg		0.019 U	0.0041 U	R	0.019 U	0.018 U	0.0040 U
2,4,6-Trichlorophenol	mg/kg		0.027 U	0.0057 U	R	0.026 U	0.025 U	0.0057 U
2,4-Dichlorophenol	mg/kg		0.0036 U	0.00077 U	R	0.0035 U	0.0034 U	0.00076 U
2,4-Dimethylphenol	mg/kg		0.028 U	0.0060 U	R	0.028 U	0.026 U	0.0059 U
2,4-Dinitrophenol	mg/kg		R	0.045 U	R	0.21 U	0.20 U	0.045 U
2,4-Dinitrotoluene	mg/kg		0.014 U	0.0031 U	R	0.014 U	0.014 U	0.0030 U
2,6-Dinitrotoluene	mg/kg		0.018 U	0.0039 U	R	0.018 U	0.017 U	0.0039 U
2-Chloronaphthalene	mg/kg	NOC	0.0037 U	0.00080 U	R	0.0037 U	0.0035 U	0.00079 U
2-Chlorophenol	mg/kg	270	0.015 U	0.0031 U	R	0.014 U	0.014 U	0.0031 U
2-Methylnaphthalene	mg/kg	NOC	0.056	0.00069 U	0.0014 J	0.0032 U	0.0047 J	0.00068 U
2-Methylphenol	mg/kg	NOC	0.012 U	0.0027 U	R	0.012 U	0.012 U	0.0026 U
2-Nitroaniline	mg/kg		0.079 U	0.017 U	R	0.079 U	0.075 U	0.017 U
2-Nitrophenol	mg/kg	NOC	0.020 U	0.0042 U	R	0.020 U	0.019 U	0.0042 U
3,3'-Dichlorobenzidine	mg/kg		0.019 UJ	0.0040 U	R	0.019 U	0.018 U	0.0040 U
3-Nitroaniline	mg/kg		0.073 U	0.016 U	R	0.073 U	0.069 U	0.016 U
4,6-Dinitro-2-methylphenol	mg/kg		0.071 UJ	0.015 U	R	0.071 U	0.068 U	0.015 U
4-Bromophenyl phenyl ether	mg/kg		0.015 U	0.0033 U	R	0.015 U	0.015 U	0.0033 U
4-Chloro-3-methylphenol	mg/kg		0.016 U	0.0035 U	R	0.016 U	0.016 U	0.0035 U
4-Chloroaniline	mg/kg		0.014 U	0.0031 U	R	0.014 U	0.013 U	0.0030 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
4-Chlorophenyl phenyl ether	mg/kg		0.020 U	0.0042 U	R	0.020 U	0.019 U	0.0042 U
4-Methylphenol	mg/kg		0.017 U	0.0037 U	R	0.017 U	0.016 U	0.0037 U
4-Nitroaniline	mg/kg		0.072 U	0.015 U	R	0.072 U	0.068 U	0.015 U
4-Nitrophenol	mg/kg		0.065 U	0.014 U	R	0.065 U	0.061 U	0.014 U
Acenaphthene	mg/kg	NOC	0.17	0.00073 U	0.00076 J	0.0046 J	0.015 J	0.00073 U
Acenaphthylene	mg/kg	NOC	0.026 J	0.00087 U	0.0069 J	0.0041 U	0.12	0.00086 U
Acetophenone	mg/kg	NOC	0.015 U	0.0031 U	R	0.015 U	0.014 U	0.0031 U
Anthracene	mg/kg	NOC	0.10	0.00075 U	0.0088 J	0.015 J	0.15	0.00074 U
Atrazine	mg/kg		0.017 U	0.0037 U	R	0.017 U	0.016 U	0.0037 U
Benzaldehyde	mg/kg		R	R	R	R	R	R
Benzo(a)anthracene	mg/kg		0.49	0.00096 U	0.028 J	0.067	0.44	0.00095 U
Benzo(a)pyrene	mg/kg		1.0	0.00076 U	0.037 J	0.096	0.48	0.00076 U
Benzo(b)fluoranthene	mg/kg		1.1 J	0.0012 U	0.070 J	0.13	0.91	0.0012 U
Benzo(g,h,i)perylene	mg/kg		0.92	0.00076 U	0.039 J	0.091	0.35	0.00075 U
Benzo(k)fluoranthene	mg/kg		0.32	0.0015 U	0.026 J	0.043	0.35	0.0015 U
Biphenyl (1,1-Biphenyl)	mg/kg	NOC	0.018 J	0.0034 U	R	0.016 U	0.015 U	0.0034 U
bis(2-Chloroethoxy)methane	mg/kg		0.012 U	0.0025 U	R	0.012 U	0.011 U	0.0025 U
bis(2-Chloroethyl)ether	mg/kg	7.1	0.0048 U	0.0010 U	R	0.0047 U	0.0045 U	0.0010 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg		0.029 U	0.0078 J	R	0.029 U	0.027 U	0.0061 U
Butyl benzylphthalate (BBP)	mg/kg		0.031 J	0.0077 J	R	0.024 U	0.023 U	0.0052 U
Caprolactam	mg/kg		0.13 U	0.029 U	R	0.13 U	0.13 U	0.029 U
Carbazole	mg/kg		0.036	0.00070 U	0.0016 J	0.0033 U	0.017 J	0.00070 U
Chrysene	mg/kg		0.52	0.00091 U	0.045 J	0.075	0.63	0.00090 U
Dibenz(a,h)anthracene	mg/kg		0.20	0.00085 U	0.0098 J	0.025 J	0.088	0.00084 U
Dibenzofuran	mg/kg		0.055 J	0.0038 U	R	0.017 U	0.017 U	0.0037 U
Diethyl phthalate	mg/kg		0.019 U	0.0042 U	R	0.019 U	0.018 U	0.0041 U
Dimethyl phthalate	mg/kg		0.019 U	0.0042 U	R	0.019 U	0.018 U	0.0041 U
Di-n-butylphthalate (DBP)	mg/kg		0.022 U	0.0048 U	R	0.022 U	0.021 U	0.0047 U
Di-n-octyl phthalate (DnOP)	mg/kg		0.019 U	0.0040 U	R	0.019 U	0.018 U	0.0040 U
Fluoranthene	mg/kg		0.56	0.00082 U	0.029 J	0.066	0.54	0.00081 U
Fluorene	mg/kg	NOC	0.040	0.0010 U	R	0.0047 U	0.012 J	0.0010 U
Hexachlorobenzene	mg/kg		0.0038 U	0.00081 U	R	0.0038 U	0.0036 U	0.00080 U
Hexachlorobutadiene	mg/kg		0.0040 U	0.00085 U	R	0.0040 U	0.0038 U	0.00084 U
Hexachlorocyclopentadiene	mg/kg		0.019 U	0.0041 U	R	0.019 U	0.018 U	0.0041 U
Hexachloroethane	mg/kg		0.013 U	0.0027 U	R	0.013 U	0.012 U	0.0027 U
Indeno(1,2,3-cd)pyrene	mg/kg		0.76	0.00079 U	0.032 J	0.079	0.33	0.00078 U
Isophorone	mg/kg		0.013 U	0.0029 U	R	0.013 U	0.013 U	0.0028 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Naphthalene	mg/kg	NOC	0.080	0.00066 U	0.0028 J	0.0030 U	0.0069 J	0.00065 U
Nitrobenzene	mg/kg	190	0.015 U	0.0032 U	R	0.015 U	0.014 U	0.0031 U
N-Nitrosodi-n-propylamine	mg/kg		0.0042 U	0.00089 U	R	0.0041 U	0.0040 U	0.00089 U
N-Nitrosodiphenylamine	mg/kg		0.016 U	0.0035 U	R	0.016 U	0.016 U	0.0035 U
Pentachlorophenol	mg/kg		R	0.0034 U	R	0.016 U	0.015 U	0.0034 U
Phenanthrene	mg/kg	NOC	0.28	0.0012 U	0.011 J	0.031 J	0.064	0.0012 U
Phenol	mg/kg	NOC	0.0042 U	0.00090 U	R	0.0042 U	0.0040 U	0.00089 U
Pyrene	mg/kg		0.59	0.00077 U	0.032 J	0.074	0.68	0.00076 U
Metals								
Antimony	mg/kg		0.36 J	0.14 J	0.023 UJ	0.024 UJ	0.025 UJ	0.10 J
Arsenic	mg/kg		4.7	6.6	2.5	2.4	3.0	4.4
Beryllium	mg/kg		0.30 J	0.42	0.56 J	0.40 J	2.2	0.32
Cadmium	mg/kg		0.23 J	0.022 J	0.096 J	0.11 J	0.11 J	0.069 J
Chromium	mg/kg		130	12	1400	2200	1200	8.0
Copper	mg/kg		78 J	9.1 J	38 J	28 J	30 J	9.2 J
Lead	mg/kg		40	9.6	6.6	10	14	6.8
Mercury	mg/kg		0.080	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U
Nickel	mg/kg		32 J	15 J	97 J	36 J	14 J	13 J
Selenium	mg/kg		0.51 U	0.30 J	0.45 U	0.46 U	1.1 J	0.14 J
Silver	mg/kg		0.040 U	0.0041 U	0.035 U	0.036 U	0.037 U	0.0039 U
Thallium	mg/kg		0.075 J	0.075 J	0.018 U	0.018 U	0.019 U	0.039 J
Zinc	mg/kg		120	35	38	54	64	32
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg		0.00013 U	0.00014 U	0.00013 U	0.00013 U	0.00013 U	0.00014 U
Aroclor-1221 (PCB-1221)	mg/kg	NA	0.00017 U	0.00018 U	0.00017 U	0.00017 U	0.00016 U	0.00018 U
Aroclor-1232 (PCB-1232)	mg/kg		0.00015 U	0.00016 U	0.00015 U	0.00015 U	0.00015 U	0.00016 U
Aroclor-1242 (PCB-1242)	mg/kg		0.00015 U	0.00015 U	0.00014 U	0.00014 U	0.00014 U	0.00015 U
Aroclor-1248 (PCB-1248)	mg/kg		0.27	0.000089 U	0.031	0.026	0.000080 U	0.000089 U
Aroclor-1254 (PCB-1254)	mg/kg		0.24	0.00013 U	0.025	0.00013 U	0.011	0.00013 U
Aroclor-1260 (PCB-1260)	mg/kg		0.00013 U	0.00013 U	0.00013 U	0.012	0.00012 U	0.00013 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-1**	**ELC-SB-1**	**ELC-SB-2**	**ELC-SB-2**	**ELC-SB-3**	**ELC-SB-3**
Sample ID:			**ELC-SB-1_1.5-2-062514**	**ELC-SB-1_4.5-5-062514**	**ELC-SB-2_1.5-2-062514**	**ELC-SB-2_5-5.5-062514**	**ELC-SB-3_1.5-2-062514**	**ELC-SB-3_10-10.5_062514**
Sample Date:			**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		6.6	13	5.9	6.3	1.7	12
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Land Recycling Program Technical Guidance Manual - Section IV.A.4, Table 5, USEPA-PA Defaults Nonresidential Volatilization to Indoor Air Screen
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
				(Duplicate)				
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	170	0.00042 U	0.00037 U	0.00038 U	R	0.00071 UJ	R
1,1,2,2-Tetrachloroethane	mg/kg	2	0.00062 U	0.00054 U	0.00057 U	R	0.0010 UJ	R
1,1,2-Trichloroethane	mg/kg	2.4	0.00072 U	0.00063 U	0.00066 U	R	0.0012 UJ	R
1,1-Dichloroethane	mg/kg	2.7	0.00050 U	0.00043 U	0.00045 U	R	0.00084 UJ	R
1,1-Dichloroethene	mg/kg	7.6	0.00074 U	0.00064 U	0.00067 U	R	0.0012 UJ	R
1,2,4-Trichlorobenzene	mg/kg	NOC	0.00076 U	0.00066 U	0.00070 U	R	0.0013 UJ	R
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	3.2	0.00065 U	0.00056 U	0.00059 U	R	0.0011 UJ	R
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.29	0.00075 U	0.00065 U	0.00068 U	R	0.0013 UJ	R
1,2-Dichlorobenzene	mg/kg	150	0.00069 U	0.00060 U	0.00063 U	R	0.0012 UJ	R
1,2-Dichloroethane	mg/kg	0.83	0.00053 U	0.00046 U	0.00048 U	R	0.00089 UJ	R
1,2-Dichloroethene (total)	mg/kg		0.0011 U	0.00096 U	0.0010 U	R	0.0019 UJ	R
1,2-Dichloropropane	mg/kg	0.88	0.00047 U	0.00041 U	0.00043 U	R	0.00079 UJ	R
1,3-Dichlorobenzene	mg/kg	NA	0.00057 U	0.00049 U	0.00052 U	R	0.00096 UJ	R
1,4-Dichlorobenzene	mg/kg	13	0.00055 U	0.00048 U	0.00050 U	R	0.00093 UJ	R
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	14000	0.00076 U	0.00066 U	0.00070 U	R	0.0013 UJ	R
2-Hexanone	mg/kg		0.00060 U	0.00052 U	0.00055 U	R	0.0010 UJ	R
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	120	0.00057 U	0.00049 U	0.00052 U	R	0.00095 UJ	R
Acetone	mg/kg	110000	0.0043 U	0.0038 U	0.0062 U	R	0.0073 UJ	R
Benzene	mg/kg	0.63	0.00059 U	0.00051 U	0.00053 U	R	0.00098 UJ	R
Bromodichloromethane	mg/kg	0.85	0.00049 U	0.00042 U	0.00044 U	R	0.00082 UJ	R
Bromoform	mg/kg	160	0.00038 U	0.00033 U	0.00035 U	R	0.00064 UJ	R
Bromomethane (Methyl bromide)	mg/kg	1.3	0.00064 U	0.00056 U	0.00058 U	R	0.0011 UJ	R
Carbon disulfide	mg/kg	66	0.00044 U	0.00039 U	0.00040 U	R	0.0012 J	R
Carbon tetrachloride	mg/kg	0.12	0.00039 U	0.00034 U	0.00035 U	R	0.00065 UJ	R
Chlorobenzene	mg/kg	13	0.00066 U	0.00057 U	0.00060 U	R	0.0011 UJ	R
Chloroethane	mg/kg	1.8	0.0013 U	0.0012 U	0.0012 U	R	0.0023 UJ	R
Chloroform (Trichloromethane)	mg/kg	0.074	0.00051 U	0.00044 U	0.00046 U	R	0.00085 UJ	R
Chloromethane (Methyl chloride)	mg/kg	0.64	0.00074 U	0.00064 U	0.00067 U	R	0.0012 UJ	R
cis-1,2-Dichloroethene	mg/kg	7.6	0.00061 U	0.00053 U	0.00056 U	R	0.0010 UJ	R
cis-1,3-Dichloropropene	mg/kg		0.00059 U	0.00051 U	0.00054 U	R	0.00099 UJ	R
Cyclohexane	mg/kg		0.00032 U	0.00028 U	0.00029 U	R	0.00054 UJ	R
Dibromochloromethane	mg/kg	2.2	0.00062 U	0.00053 U	0.00056 U	R	0.0010 UJ	R
Dichlorodifluoromethane (CFC-12)	mg/kg	2.6	0.00058 U	0.00050 U	0.00053 U	R	0.00097 UJ	R
Ethylbenzene	mg/kg	9.5	0.00056 U	0.00048 U	0.00051 U	R	0.00094 UJ	R
Isopropyl benzene	mg/kg	360	0.00059 U	0.00051 U	0.00054 U	R	0.00099 UJ	R
m&p-Xylenes	mg/kg		0.0013 U	0.0011 U	0.0012 U	R	0.0021 UJ	R

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
				(Duplicate)				
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Methyl acetate	mg/kg	19000	0.00078 U	0.00068 U	0.00071 U	R	0.0013 UJ	R
Methyl cyclohexane	mg/kg		0.00063 U	0.00055 U	0.00057 U	R	0.0011 UJ	R
Methyl tert butyl ether (MTBE)	mg/kg	86	0.00065 U	0.00056 U	0.00059 U	R	0.0011 UJ	R
Methylene chloride	mg/kg	14	0.0032 U	0.0030 U	0.0030 U	0.0020 J	0.0040 J	0.0032 J
o-Xylene	mg/kg		0.00068 U	0.00059 U	0.00062 U	R	0.0011 UJ	R
Styrene	mg/kg	720	0.00061 U	0.00053 U	0.00056 U	R	0.0010 UJ	R
Tetrachloroethene	mg/kg	10	0.00059 U	0.00051 U	0.00054 U	R	0.00099 UJ	R
Toluene	mg/kg	110	0.00063 U	0.00055 U	0.00058 U	R	0.0011 UJ	R
trans-1,2-Dichloroethene	mg/kg	6.4	0.00052 U	0.00045 U	0.00047 U	R	0.00087 UJ	R
trans-1,3-Dichloropropene	mg/kg		0.00052 U	0.00045 U	0.00047 U	R	0.00087 UJ	R
Trichloroethene	mg/kg	2.2	0.00057 U	0.00050 U	0.00052 U	R	0.00096 UJ	R
Trichlorofluoromethane (CFC-11)	mg/kg	13	0.00080 U	0.00069 U	0.00073 U	R	0.0013 UJ	R
Trifluorotrichloroethane (Freon 113)	mg/kg	670	0.00093 U	0.00080 U	0.00084 U	R	0.0016 UJ	R
Vinyl chloride	mg/kg	0.061	0.00041 U	0.00035 U	0.00037 U	R	0.00068 UJ	R
Xylenes (total)	mg/kg	77	0.0019 U	0.0017 U	0.0018 U	R	0.0033 UJ	R
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	28	0.00081 U	0.00079 U	0.00083 U	R	0.0061 U	R
2,4,5-Trichlorophenol	mg/kg		0.0040 U	0.0039 U	0.0041 U	R	0.030 U	R
2,4,6-Trichlorophenol	mg/kg		0.0056 U	0.0055 U	0.0058 U	R	0.043 U	R
2,4-Dichlorophenol	mg/kg		0.00076 U	0.00074 U	0.00077 U	R	0.0057 U	R
2,4-Dimethylphenol	mg/kg		0.0059 U	0.0057 U	0.0060 U	R	0.044 U	R
2,4-Dinitrophenol	mg/kg		0.045 U	0.044 U	0.046 U	R	0.34 U	R
2,4-Dinitrotoluene	mg/kg		0.0030 U	0.0030 U	0.0031 U	R	0.023 U	R
2,6-Dinitrotoluene	mg/kg		0.0039 U	0.0038 U	0.0040 U	R	0.029 U	R
2-Chloronaphthalene	mg/kg	NOC	0.00079 U	0.00077 U	0.00080 U	R	0.0059 U	R
2-Chlorophenol	mg/kg	270	0.0031 U	0.0030 U	0.0032 U	R	0.023 U	R
2-Methylnaphthalene	mg/kg	NOC	0.0013 J	0.0017 J	0.00090 J	R	0.033 J	0.0019 J
2-Methylphenol	mg/kg	NOC	0.0026 U	0.0026 U	0.0027 U	R	0.020 U	R
2-Nitroaniline	mg/kg		0.017 U	0.016 U	0.017 U	R	0.13 U	R
2-Nitrophenol	mg/kg	NOC	0.0042 U	0.0041 U	0.0042 U	R	0.031 U	R
3,3'-Dichlorobenzidine	mg/kg		0.0040 U	0.0039 U	0.0041 U	R	0.030 U	R
3-Nitroaniline	mg/kg		0.016 U	0.015 U	0.016 U	R	0.12 U	R
4,6-Dinitro-2-methylphenol	mg/kg		0.015 U	0.015 U	0.015 U	R	0.11 U	R
4-Bromophenyl phenyl ether	mg/kg		0.0033 U	0.0032 U	0.0034 U	R	0.025 U	R
4-Chloro-3-methylphenol	mg/kg		0.0035 U	0.0034 U	0.0035 U	R	0.026 U	R
4-Chloroaniline	mg/kg		0.0030 U	0.0029 U	0.0031 U	R	0.023 U	R

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
				(Duplicate)				
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
4-Chlorophenyl phenyl ether	mg/kg		0.0042 U	0.0041 U	0.0043 U	R	0.032 U	R
4-Methylphenol	mg/kg		0.0037 U	0.0036 U	0.0038 U	R	0.033 J	R
4-Nitroaniline	mg/kg		0.015 U	0.015 U	0.016 U	R	0.12 U	R
4-Nitrophenol	mg/kg		0.014 U	0.013 U	0.014 U	R	0.10 U	R
Acenaphthene	mg/kg	NOC	0.00072 U	0.00071 U	0.0012 J	R	0.0088 J	0.0020 J
Acenaphthylene	mg/kg	NOC	0.0033 J	0.0024 J	0.0039 J	R	0.038 J	R
Acetophenone	mg/kg	NOC	0.012 J	0.0096 J	0.013 J	R	0.023 U	R
Anthracene	mg/kg	NOC	0.0024 J	0.0020 J	0.0026 J	R	0.050 J	0.0011 J
Atrazine	mg/kg		0.0037 U	0.0036 U	0.0038 U	R	0.028 U	R
Benzaldehyde	mg/kg		R	R	R	R	0.21 J	R
Benzo(a)anthracene	mg/kg		0.012	0.011	0.012	R	0.10	0.017 J
Benzo(a)pyrene	mg/kg		0.016	0.015	0.015	0.0022 J	0.11	0.021 J
Benzo(b)fluoranthene	mg/kg		0.021	0.021	0.016	0.0034 J	0.14	0.030 J
Benzo(g,h,i)perylene	mg/kg		0.012	0.010	0.011	R	0.098	0.020 J
Benzo(k)fluoranthene	mg/kg		0.0081	0.0067 J	0.012	R	0.054 J	0.015 J
Biphenyl (1,1-Biphenyl)	mg/kg	NOC	0.0034 U	0.0033 U	0.0034 U	R	0.025 U	R
bis(2-Chloroethoxy)methane	mg/kg		0.0025 U	0.0024 U	0.0025 U	R	0.019 U	R
bis(2-Chloroethyl)ether	mg/kg	7.1	0.0010 U	0.00099 U	0.0010 U	R	0.0076 U	R
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg		0.0087 J	0.0059 U	0.0062 U	0.024 J	0.058 J	R
Butyl benzylphthalate (BBP)	mg/kg		0.0085 J	0.0058 J	0.0053 U	0.0088 J	0.039 U	R
Caprolactam	mg/kg		0.028 U	0.028 U	0.029 U	R	0.21 U	R
Carbazole	mg/kg		0.0011 J	0.00068 U	0.00071 U	R	0.011 J	R
Chrysene	mg/kg		0.018	0.016	0.019	R	0.16	0.039 J
Dibenz(a,h)anthracene	mg/kg		0.0027 J	0.00082 U	0.00086 U	R	0.025 J	0.0060 J
Dibenzofuran	mg/kg		0.0037 U	0.0036 U	0.0038 U	R	0.028 U	R
Diethyl phthalate	mg/kg		0.0041 U	0.0040 U	0.0042 U	R	0.031 U	R
Dimethyl phthalate	mg/kg		0.0041 U	0.0040 U	0.0042 U	R	0.031 U	R
Di-n-butylphthalate (DBP)	mg/kg		0.0047 U	0.0046 U	0.0048 U	0.0054 J	0.036 U	R
Di-n-octyl phthalate (DnOP)	mg/kg		0.0040 U	0.0039 U	0.0041 U	R	0.030 U	R
Fluoranthene	mg/kg		0.023	0.021	0.025	0.0038 J	0.22	0.012 J
Fluorene	mg/kg	NOC	0.00099 U	0.00097 U	0.0015 J	R	0.025 J	R
Hexachlorobenzene	mg/kg		0.00080 U	0.00078 U	0.00082 U	0.095 J	0.091	R
Hexachlorobutadiene	mg/kg		0.00084 U	0.00082 U	0.00086 U	R	0.0064 U	R
Hexachlorocyclopentadiene	mg/kg		0.0041 U	0.0040 U	0.0042 U	R	0.031 U	R
Hexachloroethane	mg/kg		0.0027 U	0.0026 U	0.0028 U	R	0.020 U	R
Indeno(1,2,3-cd)pyrene	mg/kg		0.0090	0.0089	0.0091	R	0.087	0.016 J
Isophorone	mg/kg		0.0028 U	0.0028 U	0.0029 U	R	0.021 U	R

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
				(Duplicate)				
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Naphthalene	mg/kg	NOC	0.00065 U	0.00063 U	0.00066 U	R	0.065	R
Nitrobenzene	mg/kg	190	0.0031 U	0.0031 U	0.0032 U	R	0.024 U	R
N-Nitrosodi-n-propylamine	mg/kg		0.00088 U	0.00086 U	0.00090 U	R	0.0067 U	R
N-Nitrosodiphenylamine	mg/kg		0.0035 U	0.0034 U	0.0036 U	R	0.026 U	R
Pentachlorophenol	mg/kg		0.0034 U	0.0033 U	0.0034 U	R	0.025 U	R
Phenanthrene	mg/kg	NOC	0.014	0.011	0.017	0.0031 J	0.14	0.0092 J
Phenol	mg/kg	NOC	0.00089 U	0.00087 U	0.00091 U	R	0.0067 U	R
Pyrene	mg/kg		0.030	0.027	0.030	0.0024 J	0.18	0.016 J
Metals								
Antimony	mg/kg		0.20	0.17 J	0.23	0.29 J	1.2 J	0.025 UJ
Arsenic	mg/kg		11	8.3	13	2.5	6.5	2.3
Beryllium	mg/kg		0.54	0.54	0.52	2.5	1.9	0.61 J
Cadmium	mg/kg		0.13	0.12	0.14	0.056 J	8.1	0.067 U
Chromium	mg/kg		58 J	14 J	12	1400	120	2400
Copper	mg/kg		29	31	46	34 J	180 J	13 J
Lead	mg/kg		30	22	24	8.0	240	4.5
Mercury	mg/kg		0.072	0.030 J	0.077	0.012 U	0.77	0.011 U
Nickel	mg/kg		12	13	12	13	56	20 J
Selenium	mg/kg		0.43 J	0.34 J	0.38 J	1.1 J	2.2 J	0.48 U
Silver	mg/kg		0.18	0.019 J	0.011 J	0.021 U	1.5	0.037 U
Thallium	mg/kg		0.094 J	0.098 J	0.092 J	0.058 J	0.29 J	0.019 U
Zinc	mg/kg		63	45	49	56 J	1900 J	25
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg		0.00014 U	0.00014 U	0.00014 U	0.00013 U	0.00021 U	0.00013 U
Aroclor-1221 (PCB-1221)	mg/kg	NA	0.00018 U	0.00017 U	0.00018 U	0.00017 U	0.00027 U	0.00017 U
Aroclor-1232 (PCB-1232)	mg/kg		0.00016 U	0.00016 U	0.00017 U	0.00015 U	0.00024 U	0.00015 U
Aroclor-1242 (PCB-1242)	mg/kg		0.00015 U	0.00015 U	0.00016 U	0.00015 U	0.00023 U	0.00014 U
Aroclor-1248 (PCB-1248)	mg/kg		0.000088 U	0.000086 U	0.000092 U	0.000085 U	0.00014 U	0.0013
Aroclor-1254 (PCB-1254)	mg/kg		0.00013 U	0.00013 U	0.00014 U	0.0016	0.11	0.00012 U
Aroclor-1260 (PCB-1260)	mg/kg		0.00013 U	0.0017	0.0018	0.00013 U	0.00020 U	0.0025

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-4**	**ELC-SB-5**	**ELC-SB-5**	**ELC-SB-6**
Sample ID:			**ELC-SB-4_1.5-2_062614**	**DUP-002_062614**	**ELC-SB-4_7-7.5_062614**	**ELC-SB-5_1.5-2_062414**	**ELC-SB-5_10-10.5_062414**	**ELC-SB-6_1.5-2_062514**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(1.5-2) ft BGS**	**(7-7.5) ft BGS**	**(1.5-2) ft BGS**	**(10-10.5) ft BGS**	**(1.5-2) ft BGS**
				(Duplicate)				
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		11	9.9	14	8.2	42	4.4
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Land Recycling Program Technical Guidance Manual - Section IV.A.4, Table 5, USEPA Defaults Nonresidential Volatilization to Indoor Air Screen
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	170	0.00046 U	0.00040 U	0.00037 U	0.00039 U	0.00035 U	0.00037 U
1,1,2,2-Tetrachloroethane	mg/kg	2	0.00068 U	0.00059 U	0.00055 U	0.00058 U	0.00052 U	0.00055 U
1,1,2-Trichloroethane	mg/kg	2.4	0.00079 U	0.00069 U	0.00064 U	0.00067 U	0.00061 U	0.00063 U
1,1-Dichloroethane	mg/kg	2.7	0.00054 U	0.00048 U	0.00044 U	0.00047 U	0.00042 U	0.00044 U
1,1-Dichloroethene	mg/kg	7.6	0.00080 U	0.00070 U	0.00065 U	0.00069 U	0.00062 U	0.00065 U
1,2,4-Trichlorobenzene	mg/kg	NOC	0.00083 U	0.00073 U	0.00068 U	0.00071 U	0.00064 U	0.00067 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	3.2	0.00071 U	0.00062 U	0.00057 U	0.00061 U	0.00055 U	0.00057 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.29	0.00082 U	0.00071 U	0.00066 U	0.00070 U	0.00063 U	0.00066 U
1,2-Dichlorobenzene	mg/kg	150	0.00075 U	0.00066 U	0.00061 U	0.00065 U	0.00058 U	0.00061 U
1,2-Dichloroethane	mg/kg	0.83	0.00058 U	0.00051 U	0.00047 U	0.00050 U	0.00045 U	0.00047 U
1,2-Dichloroethene (total)	mg/kg		0.0012 U	0.0011 U	0.00098 U	0.0010 U	0.013	0.00098 U
1,2-Dichloropropane	mg/kg	0.88	0.00051 U	0.00045 U	0.00042 U	0.00044 U	0.00040 U	0.00041 U
1,3-Dichlorobenzene	mg/kg	NA	0.00062 U	0.00054 U	0.00050 U	0.00053 U	0.00048 U	0.00050 U
1,4-Dichlorobenzene	mg/kg	13	0.00060 U	0.00053 U	0.00049 U	0.00052 U	0.00046 U	0.00049 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	14000	0.00083 U	0.00073 U	0.00067 U	0.00071 U	0.00064 U	0.00067 U
2-Hexanone	mg/kg		0.00065 U	0.00057 U	0.00053 U	0.00056 U	0.00050 U	0.00053 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	120	0.00062 U	0.00054 U	0.00050 U	0.00053 U	0.00048 U	0.00050 U
Acetone	mg/kg	110000	0.0047 U	0.0049 J	0.0038 U	0.0040 U	0.0036 U	0.0038 U
Benzene	mg/kg	0.63	0.00064 U	0.00056 U	0.00052 U	0.00055 U	0.00049 U	0.00051 U
Bromodichloromethane	mg/kg	0.85	0.00053 U	0.00046 U	0.00043 U	0.00045 U	0.00041 U	0.00043 U
Bromoform	mg/kg	160	0.00042 U	0.00037 U	0.00034 U	0.00036 U	0.00032 U	0.00034 U
Bromomethane (Methyl bromide)	mg/kg	1.3	0.00070 U	0.00061 U	0.00057 U	0.00060 U	0.00054 U	0.00056 U
Carbon disulfide	mg/kg	66	0.00048 U	0.00042 U	0.00039 U	0.00041 U	0.00065 J	0.00039 U
Carbon tetrachloride	mg/kg	0.12	0.00042 U	0.00037 U	0.00034 U	0.00036 U	0.00033 U	0.00034 U
Chlorobenzene	mg/kg	13	0.00072 U	0.00063 U	0.00058 U	0.00061 U	0.00055 U	0.00058 U
Chloroethane	mg/kg	1.8	0.0015 U	0.0013 U	0.0012 U	0.0013 U	0.0011 U	0.0012 U
Chloroform (Trichloromethane)	mg/kg	0.074	0.00055 U	0.00048 U	0.00045 U	0.00047 U	0.00043 U	0.00045 U
Chloromethane (Methyl chloride)	mg/kg	0.64	0.00081 U	0.00071 U	0.00065 U	0.00069 U	0.00062 U	0.00065 U
cis-1,2-Dichloroethene	mg/kg	7.6	0.00067 U	0.00058 U	0.00054 U	0.00057 U	0.013	0.00054 U
cis-1,3-Dichloropropene	mg/kg		0.00064 U	0.00056 U	0.00052 U	0.00055 U	0.00049 U	0.00052 U
Cyclohexane	mg/kg		0.00035 U	0.00031 U	0.00028 U	0.00030 U	0.00027 U	0.00028 U
Dibromochloromethane	mg/kg	2.2	0.00067 U	0.00059 U	0.00054 U	0.00057 U	0.00052 U	0.00054 U
Dichlorodifluoromethane (CFC-12)	mg/kg	2.6	0.00063 U	0.00055 U	0.00051 U	0.00054 U	0.00049 U	0.00051 U
Ethylbenzene	mg/kg	9.5	0.00061 U	0.00053 U	0.00049 U	0.00052 U	0.00047 U	0.00049 U
Isopropyl benzene	mg/kg	360	0.00064 U	0.00056 U	0.00052 U	0.00055 U	0.00050 U	0.00052 U
m&p-Xylenes	mg/kg		0.0014 U	0.0012 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Methyl acetate	mg/kg	19000	0.00085 U	0.00075 U	0.00069 U	0.00073 U	0.00066 U	0.00069 U
Methyl cyclohexane	mg/kg		0.00069 U	0.00060 U	0.00056 U	0.00059 U	0.00053 U	0.00055 U
Methyl tert butyl ether (MTBE)	mg/kg	86	0.00071 U	0.00062 U	0.00057 U	0.00061 U	0.00055 U	0.00057 U
Methylene chloride	mg/kg	14	0.0017 U	0.0019 J	0.0016 J	0.0022 U	0.0029 U	0.0039 J
o-Xylene	mg/kg		0.00074 U	0.00065 U	0.00060 U	0.00063 U	0.00057 U	0.00059 U
Styrene	mg/kg	720	0.00067 U	0.00058 U	0.00054 U	0.00057 U	0.00051 U	0.00054 U
Tetrachloroethene	mg/kg	10	0.00064 U	0.00056 U	0.00052 U	0.00055 U	0.018	0.00052 U
Toluene	mg/kg	110	0.00069 U	0.00060 U	0.00056 U	0.00059 U	0.00053 U	0.00056 U
trans-1,2-Dichloroethene	mg/kg	6.4	0.00056 U	0.00049 U	0.00046 U	0.00048 U	0.00043 U	0.00045 U
trans-1,3-Dichloropropene	mg/kg		0.00057 U	0.00049 U	0.00046 U	0.00048 U	0.00044 U	0.00046 U
Trichloroethene	mg/kg	2.2	0.00062 U	0.00054 U	0.00050 U	0.00053 U	0.0019 J	0.00050 U
Trichlorofluoromethane (CFC-11)	mg/kg	13	0.00087 U	0.00076 U	0.00070 U	0.00074 U	0.00067 U	0.00070 U
Trifluorotrichloroethane (Freon 113)	mg/kg	670	0.0010 U	0.00088 U	0.00082 U	0.00086 U	0.00078 U	0.00081 U
Vinyl chloride	mg/kg	0.061	0.00044 U	0.00039 U	0.00036 U	0.00038 U	0.00034 U	0.00036 U
Xylenes (total)	mg/kg	77	0.0021 U	0.0019 U	0.0017 U	0.0018 U	0.0016 U	0.0017 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	28	0.00083 U	0.0038 U	0.00081 U	0.0041 U	0.0079 U	0.0038 U
2,4,5-Trichlorophenol	mg/kg		0.0041 U	0.019 U	0.0040 U	0.020 U	0.039 U	0.019 U
2,4,6-Trichlorophenol	mg/kg		0.0057 U	0.026 U	0.0056 U	0.029 U	0.055 U	0.027 U
2,4-Dichlorophenol	mg/kg		0.00077 U	0.0035 U	0.00075 U	0.0038 U	0.0074 U	0.0036 U
2,4-Dimethylphenol	mg/kg		0.0060 U	0.027 U	0.0059 U	0.030 U	0.057 U	0.028 U
2,4-Dinitrophenol	mg/kg		0.046 U	0.21 U	0.045 U	0.23 U	0.44 U	R
2,4-Dinitrotoluene	mg/kg		0.0031 U	0.014 U	0.0030 U	0.015 U	0.030 U	0.014 U
2,6-Dinitrotoluene	mg/kg		0.0040 U	0.018 U	0.0039 U	0.020 U	0.038 U	0.018 U
2-Chloronaphthalene	mg/kg	NOC	0.00080 U	0.0037 U	0.00078 U	0.0040 U	0.0077 U	0.0037 U
2-Chlorophenol	mg/kg	270	0.0031 U	0.014 U	0.0031 U	0.016 U	0.030 U	0.014 U
2-Methylnaphthalene	mg/kg	NOC	0.00069 U	0.014 J	0.00068 U	0.018 J	0.027 J	0.0032 U
2-Methylphenol	mg/kg	NOC	0.0027 U	0.012 U	0.0026 U	0.013 U	0.026 U	0.012 U
2-Nitroaniline	mg/kg		0.017 U	0.079 U	0.017 U	0.086 U	0.16 U	0.079 U
2-Nitrophenol	mg/kg	NOC	0.0042 U	0.019 U	0.0041 U	0.021 U	0.040 U	0.020 U
3,3'-Dichlorobenzidine	mg/kg		0.0040 U	0.019 U	0.0040 U	0.020 U	0.039 U	0.019 UJ
3-Nitroaniline	mg/kg		0.016 U	0.072 U	0.015 U	0.079 U	0.15 U	0.073 U
4,6-Dinitro-2-methylphenol	mg/kg		0.015 U	0.070 U	0.015 U	0.077 U	0.15 U	0.071 U
4-Bromophenyl phenyl ether	mg/kg		0.0033 U	0.015 U	0.0033 U	0.017 U	0.032 U	0.015 U
4-Chloro-3-methylphenol	mg/kg		0.0035 U	0.016 U	0.0035 U	0.018 U	0.034 U	0.016 U
4-Chloroaniline	mg/kg		0.0031 U	0.014 U	0.0030 U	0.015 U	0.029 U	0.014 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
4-Chlorophenyl phenyl ether	mg/kg		0.0043 U	0.019 U	0.0042 U	0.021 U	0.041 U	0.020 U
4-Methylphenol	mg/kg		0.0037 U	0.017 U	0.0037 U	0.019 U	0.036 U	0.017 U
4-Nitroaniline	mg/kg		0.016 U	0.071 U	0.015 U	0.078 U	0.15 U	0.072 U
4-Nitrophenol	mg/kg		0.014 U	0.064 U	0.014 U	0.070 U	0.13 U	0.065 U
Acenaphthene	mg/kg	NOC	0.00074 U	0.0065 J	0.00072 U	0.0057 J	0.055 J	0.0034 U
Acenaphthylene	mg/kg	NOC	0.00088 U	0.095	0.00086 U	0.011 J	0.050 J	0.0041 U
Acetophenone	mg/kg	NOC	0.0035 J	0.014 U	0.0031 U	0.016 U	0.030 U	0.015 U
Anthracene	mg/kg	NOC	0.00075 U	0.054	0.00074 U	0.022 J	0.078	0.0036 J
Atrazine	mg/kg		0.0037 U	0.017 U	0.0037 U	0.019 U	0.036 U	0.017 U
Benzaldehyde	mg/kg		R	R	0.028 J	R	R	R
Benzo(a)anthracene	mg/kg		0.00096 U	0.23	0.00094 U	0.069	0.34	0.014 J
Benzo(a)pyrene	mg/kg		0.00077 U	0.24	0.00075 U	0.084	0.39	0.018 J
Benzo(b)fluoranthene	mg/kg		0.0012 U	0.28	0.0012 U	0.13	0.49	0.031 J
Benzo(g,h,i)perylene	mg/kg		0.00076 U	0.21	0.00075 U	0.061	0.39	0.017 J
Benzo(k)fluoranthene	mg/kg		0.0015 U	0.11	0.0015 U	0.042	0.15	0.010 J
Biphenyl (1,1-Biphenyl)	mg/kg	NOC	0.0034 U	0.016 U	0.0034 U	0.017 U	0.033 U	0.016 U
bis(2-Chloroethoxy)methane	mg/kg		0.0025 U	0.012 U	0.0025 U	0.013 U	0.024 U	0.012 U
bis(2-Chloroethyl)ether	mg/kg	7.1	0.0010 U	0.0047 U	0.0010 U	0.0051 U	0.0098 U	0.0048 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg		0.0062 U	0.029 J	0.018 J	0.031 U	0.059 U	0.029 U
Butyl benzylphthalate (BBP)	mg/kg		0.0052 U	0.024 U	0.0081 J	0.026 U	0.050 U	0.024 U
Caprolactam	mg/kg		0.029 U	0.13 U	0.028 U	0.14 U	0.28 U	R
Carbazole	mg/kg		0.00071 U	0.020 J	0.00069 U	0.0035 U	0.027 J	0.0033 U
Chrysene	mg/kg		0.00091 U	0.24	0.00090 U	0.097	0.45	0.016 J
Dibenz(a,h)anthracene	mg/kg		0.00085 U	0.056	0.00084 U	0.022 J	0.070 J	0.0039 U
Dibenzofuran	mg/kg		0.0038 U	0.024 J	0.0037 U	0.019 U	0.036 U	0.017 U
Diethyl phthalate	mg/kg		0.0042 U	0.019 U	0.0041 U	0.021 U	0.040 U	0.019 U
Dimethyl phthalate	mg/kg		0.0042 U	0.019 U	0.0041 U	0.021 U	0.040 U	0.019 U
Di-n-butylphthalate (DBP)	mg/kg		0.0048 U	0.022 U	0.0067 J	0.024 U	0.046 U	0.022 U
Di-n-octyl phthalate (DnOP)	mg/kg		0.0040 U	0.018 U	0.0040 U	0.020 U	0.039 U	0.019 U
Fluoranthene	mg/kg		0.00082 U	0.41	0.0017 J	0.088	0.55	0.018 J
Fluorene	mg/kg	NOC	0.0010 U	0.019 J	0.00099 U	0.0050 U	0.045 J	0.0047 U
Hexachlorobenzene	mg/kg		0.00082 U	0.0037 U	0.046	0.0041 U	0.0078 U	0.0038 U
Hexachlorobutadiene	mg/kg		0.00086 U	0.0039 U	0.00084 U	0.0043 U	0.0082 U	0.0040 U
Hexachlorocyclopentadiene	mg/kg		0.0041 U	0.019 U	0.0041 U	0.021 U	0.040 U	0.019 U
Hexachloroethane	mg/kg		0.0028 U	0.013 U	0.0027 U	0.014 U	0.026 U	0.013 U
Indeno(1,2,3-cd)pyrene	mg/kg		0.00079 U	0.19	0.00077 U	0.056	0.26	0.015 J
Isophorone	mg/kg		0.0029 U	0.013 U	0.0028 U	0.014 U	0.028 U	0.013 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Naphthalene	mg/kg	NOC	0.00066 U	0.055	0.00065 U	0.025 J	0.054 J	0.0031 U
Nitrobenzene	mg/kg	190	0.0032 U	0.015 U	0.0031 U	0.016 U	0.031 U	0.015 U
N-Nitrosodi-n-propylamine	mg/kg		0.00090 U	0.0041 U	0.00088 U	0.0045 U	0.0086 U	0.0042 U
N-Nitrosodiphenylamine	mg/kg		0.0035 U	0.016 U	0.0035 U	0.018 U	0.034 U	0.016 U
Pentachlorophenol	mg/kg		0.0034 U	0.016 U	0.0034 U	0.017 U	0.033 U	0.016 U
Phenanthrene	mg/kg	NOC	0.0012 U	0.19	0.0012 U	0.061	0.30	0.0089 J
Phenol	mg/kg	NOC	0.00090 U	0.0041 U	0.0063 J	0.0045 U	0.0087 U	0.0042 U
Pyrene	mg/kg		0.00077 U	0.25	0.0011 J	0.097	0.56	0.020 J
Metals								
Antimony	mg/kg		0.13 J	0.18 J	0.12 J	0.30 J	20 J	0.12 J
Arsenic	mg/kg		4.7	5.8	5.6	3.9	6.3	5.3
Beryllium	mg/kg		0.31	0.62	0.33	0.54	2.2	0.39
Cadmium	mg/kg		0.095 J	0.17	0.040 J	0.30	0.55 J	0.10
Chromium	mg/kg		8.6	87	8.6	350	580	42
Copper	mg/kg		10 J	14 J	9.3 J	9.6 J	3200 J	13
Lead	mg/kg		7.3	17	7.8	41	500	14
Mercury	mg/kg		0.012 U	0.011 U	0.012 U	0.029 J	0.014 J	0.012 J
Nickel	mg/kg		14 J	13	14	8.7 J	36 J	13
Selenium	mg/kg		0.15 J	0.65 J	0.18 J	0.25 J	1.9 J	0.21 J
Silver	mg/kg		0.0041 U	0.018 J	0.0065 J	0.026 J	0.98	0.0037 U
Thallium	mg/kg		0.046 J	0.055	0.041 J	0.085 J	0.052 J	0.053 J
Zinc	mg/kg		31	54 J	33 J	90	160	39
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg		0.00014 U	0.0026 U	0.00014 U	0.00014 U	0.0014 U	0.00066 U
Aroclor-1221 (PCB-1221)	mg/kg	NA	0.00018 U	0.0033 U	0.00018 U	0.00018 U	0.0017 U	0.00085 U
Aroclor-1232 (PCB-1232)	mg/kg		0.00016 U	0.0030 U	0.00016 U	0.00016 U	0.0016 U	0.00076 U
Aroclor-1242 (PCB-1242)	mg/kg		0.00015 U	0.0029 U	0.00015 U	0.00016 U	0.0015 U	0.00073 U
Aroclor-1248 (PCB-1248)	mg/kg		0.00039 J	0.0017 U	0.000088 U	0.016	0.00086 U	0.00042 U
Aroclor-1254 (PCB-1254)	mg/kg		0.00014 U	1.2	0.0019	0.0080	0.34	0.074
Aroclor-1260 (PCB-1260)	mg/kg		0.00027 J	1.2	0.00013 U	0.00014 U	0.0013 U	0.00063 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-6**	**ELC-SB-7**	**ELC-SB-7**	**ELC-SB-8**	**ELC-SB-8**	**ELC-SB-9**
Sample ID:			**ELC-SB-6_10-10.5_062514**	**ELC-SB-7_1.5-2_062414**	**ELC-SB-7_6.5-7_062414**	**ELC-SB-8_1.5-2-062514**	**ELC-SB-8_3-3.5-062514**	**ELC-SB-9_0.5-1_062614**
Sample Date:			**6/25/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(10-10.5) ft BGS**	**(1.5-2) ft BGS**	**(6.5-7) ft BGS**	**(1.5-2) ft BGS**	**(3-3.5) ft BGS**	**(0.5-1) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		13	5.5	12	13	9.1	6.4
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Land Recycling Program Technical Guidance Manual - Section IV.A.4, Table 5, USEPA Defaults Nonresidential Volatilization to Indoor Air Screen
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	170	0.00035 U	0.00039 U	0.00036 UJ	0.00037 U	0.00040 U	0.00038 U
1,1,2,2-Tetrachloroethane	mg/kg	2	0.00052 U	0.00057 U	0.00054 UJ	0.00055 U	0.00059 U	0.00056 U
1,1,2-Trichloroethane	mg/kg	2.4	0.00060 U	0.00066 U	0.00062 UJ	0.00064 U	0.00069 U	0.00065 U
1,1-Dichloroethane	mg/kg	2.7	0.00042 U	0.00046 U	0.00043 UJ	0.00044 U	0.00048 U	0.00045 U
1,1-Dichloroethene	mg/kg	7.6	0.00062 U	0.00067 U	0.00063 UJ	0.00065 U	0.00070 U	0.00066 U
1,2,4-Trichlorobenzene	mg/kg	NOC	0.00064 U	0.00070 U	0.00066 UJ	0.00068 U	0.00073 U	0.00069 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	3.2	0.00054 U	0.00059 U	0.00056 UJ	0.00057 U	0.00062 U	0.00058 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.29	0.00063 U	0.00068 U	0.00064 UJ	0.00066 U	0.00071 U	0.00067 U
1,2-Dichlorobenzene	mg/kg	150	0.00058 U	0.00063 U	0.00060 UJ	0.00061 U	0.00066 U	0.00062 U
1,2-Dichloroethane	mg/kg	0.83	0.00045 U	0.00049 U	0.00046 UJ	0.00047 U	0.00051 U	0.00048 U
1,2-Dichloroethene (total)	mg/kg		0.00093 U	0.0010 U	0.00096 UJ	0.00098 U	0.0011 U	0.0010 U
1,2-Dichloropropane	mg/kg	0.88	0.00040 U	0.00043 U	0.00041 UJ	0.00042 U	0.00045 U	0.00042 U
1,3-Dichlorobenzene	mg/kg	NA	0.00048 U	0.00052 U	0.00049 UJ	0.00050 U	0.00054 U	0.00051 U
1,4-Dichlorobenzene	mg/kg	13	0.00046 U	0.00050 U	0.00048 UJ	0.00049 U	0.00053 U	0.00050 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	14000	0.00064 U	0.00070 U	0.00066 UJ	0.00068 U	0.00073 U	0.00069 U
2-Hexanone	mg/kg		0.00050 U	0.00055 U	0.00052 UJ	0.00053 U	0.00057 U	0.00054 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	120	0.00047 U	0.00052 U	0.00049 UJ	0.00050 U	0.00054 U	0.00051 U
Acetone	mg/kg	110000	0.0036 U	0.0040 U	0.0037 UJ	0.0038 U	0.0047 U	0.0039 U
Benzene	mg/kg	0.63	0.00049 U	0.00054 U	0.00050 UJ	0.00052 U	0.00056 U	0.00053 U
Bromodichloromethane	mg/kg	0.85	0.00041 U	0.00044 U	0.00042 UJ	0.00043 U	0.00046 U	0.00044 U
Bromoform	mg/kg	160	0.00032 U	0.00035 U	0.00033 UJ	0.00034 U	0.00037 U	0.00035 U
Bromomethane (Methyl bromide)	mg/kg	1.3	0.00054 U	0.00059 U	0.00055 UJ	0.00057 U	0.00061 U	0.00058 U
Carbon disulfide	mg/kg	66	0.00070 J	0.00041 U	0.00038 J	0.00039 U	0.00042 U	0.00040 U
Carbon tetrachloride	mg/kg	0.12	0.00032 U	0.00035 U	0.00033 UJ	0.00034 U	0.00037 U	0.00035 U
Chlorobenzene	mg/kg	13	0.00055 U	0.00060 U	0.00057 UJ	0.00058 U	0.00063 U	0.00059 U
Chloroethane	mg/kg	1.8	0.0011 U	0.0012 U	0.0012 UJ	0.0012 U	0.0013 U	0.0012 U
Chloroform (Trichloromethane)	mg/kg	0.074	0.00043 U	0.00046 U	0.00044 UJ	0.00045 U	0.00048 U	0.00046 U
Chloromethane (Methyl chloride)	mg/kg	0.64	0.00062 U	0.00068 U	0.00064 UJ	0.00065 U	0.00070 U	0.00067 U
cis-1,2-Dichloroethene	mg/kg	7.6	0.00051 U	0.00056 U	0.00052 UJ	0.00054 U	0.00058 U	0.00055 U
cis-1,3-Dichloropropene	mg/kg		0.00049 U	0.00054 U	0.00051 UJ	0.00052 U	0.00056 U	0.00053 U
Cyclohexane	mg/kg		0.00093 J	0.00029 U	0.00028 UJ	0.00028 U	0.00031 U	0.00029 U
Dibromochloromethane	mg/kg	2.2	0.00052 U	0.00056 U	0.00053 UJ	0.00054 U	0.00059 U	0.00055 U
Dichlorodifluoromethane (CFC-12)	mg/kg	2.6	0.00048 U	0.00053 U	0.00050 UJ	0.00051 U	0.00055 U	0.00052 U
Ethylbenzene	mg/kg	9.5	0.0026 J	0.00051 U	0.00048 UJ	0.00049 U	0.00053 U	0.00050 U
Isopropyl benzene	mg/kg	360	0.0029 J	0.00054 U	0.00051 UJ	0.00052 U	0.00056 U	0.00053 U
m&p-Xylenes	mg/kg		0.0059 J	0.0012 U	0.0011 UJ	0.0011 U	0.0012 U	0.0011 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Methyl acetate	mg/kg	19000	0.00066 U	0.00071 U	0.00067 UJ	0.00069 U	0.00075 U	0.00070 U
Methyl cyclohexane	mg/kg		0.0080	0.00057 U	0.00054 UJ	0.00056 U	0.00060 U	0.00057 U
Methyl tert butyl ether (MTBE)	mg/kg	86	0.00054 U	0.00059 U	0.00056 UJ	0.00057 U	0.00062 U	0.00058 U
Methylene chloride	mg/kg	14	0.0035 J	0.0017 J	0.0018 UJ	0.0020 U	0.0020 U	0.0017 U
o-Xylene	mg/kg		0.0082	0.00062 U	0.00058 UJ	0.00060 U	0.00064 U	0.00061 U
Styrene	mg/kg	720	0.00051 U	0.00056 U	0.00053 UJ	0.00054 U	0.00058 U	0.00055 U
Tetrachloroethene	mg/kg	10	0.00050 U	0.00054 U	0.00051 UJ	0.00052 U	0.00056 U	0.00053 U
Toluene	mg/kg	110	0.00053 U	0.00058 U	0.00054 UJ	0.00056 U	0.00060 U	0.00057 U
trans-1,2-Dichloroethene	mg/kg	6.4	0.00043 U	0.00047 U	0.00044 UJ	0.00046 U	0.00049 U	0.00047 U
trans-1,3-Dichloropropene	mg/kg		0.00043 U	0.00047 U	0.00045 UJ	0.00046 U	0.00049 U	0.00047 U
Trichloroethene	mg/kg	2.2	0.00048 U	0.00052 U	0.00049 UJ	0.00050 U	0.00054 U	0.00051 U
Trichlorofluoromethane (CFC-11)	mg/kg	13	0.00067 U	0.00073 U	0.00069 UJ	0.00070 U	0.00076 U	0.00072 U
Trifluorotrichloroethane (Freon 113)	mg/kg	670	0.00078 U	0.00085 U	0.00080 UJ	0.00082 U	0.00088 U	0.00083 U
Vinyl chloride	mg/kg	0.061	0.00034 U	0.00037 U	0.00035 UJ	0.00036 U	0.00039 U	0.00037 U
Xylenes (total)	mg/kg	77	0.014	0.0018 U	0.0017 UJ	0.0017 U	0.0019 U	0.0018 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	28	0.0040 U	R	0.00078 UJ	0.00075 UJ	0.00086 U	0.0037 U
2,4,5-Trichlorophenol	mg/kg		0.020 U	R	0.0039 UJ	0.0037 UJ	0.0042 U	0.018 U
2,4,6-Trichlorophenol	mg/kg		0.028 U	R	0.0054 UJ	0.0052 UJ	0.0060 U	0.026 U
2,4-Dichlorophenol	mg/kg		0.0037 U	R	0.00073 UJ	0.00070 UJ	0.00080 U	0.0034 U
2,4-Dimethylphenol	mg/kg		0.029 U	R	0.0057 UJ	0.0055 UJ	0.0062 U	0.027 U
2,4-Dinitrophenol	mg/kg		0.22 U	R	0.043 UJ	0.042 UJ	0.047 U	0.20 U
2,4-Dinitrotoluene	mg/kg		0.015 U	R	0.0029 UJ	0.0028 UJ	0.0032 U	0.014 U
2,6-Dinitrotoluene	mg/kg		0.019 U	R	0.0037 UJ	0.0036 UJ	0.0041 U	0.018 U
2-Chloronaphthalene	mg/kg	NOC	0.0039 U	R	0.00075 UJ	0.00073 UJ	0.00083 U	0.0036 U
2-Chlorophenol	mg/kg	270	0.015 U	R	0.0030 UJ	0.0029 UJ	0.0032 U	0.014 U
2-Methylnaphthalene	mg/kg	NOC	5.4	0.0021 J	0.0025 J	0.0012 J	0.00071 U	0.013 J
2-Methylphenol	mg/kg	NOC	0.013 U	R	0.0025 UJ	0.0024 UJ	0.0028 U	0.012 U
2-Nitroaniline	mg/kg		0.083 U	R	0.016 UJ	0.016 UJ	0.018 U	0.076 U
2-Nitrophenol	mg/kg	NOC	0.021 U	R	0.0040 UJ	0.0038 UJ	0.0044 U	0.019 U
3,3'-Dichlorobenzidine	mg/kg		0.020 U	R	0.0038 UJ	0.0037 UJ	0.0042 U	0.018 U
3-Nitroaniline	mg/kg		0.077 U	R	0.015 UJ	0.014 UJ	0.016 U	0.070 U
4,6-Dinitro-2-methylphenol	mg/kg		0.075 U	R	0.015 UJ	0.014 UJ	0.016 U	0.068 U
4-Bromophenyl phenyl ether	mg/kg		0.016 U	R	0.0031 UJ	0.0030 UJ	0.0035 U	0.015 U
4-Chloro-3-methylphenol	mg/kg		0.017 U	R	0.0033 UJ	0.0032 UJ	0.0037 U	0.016 U
4-Chloroaniline	mg/kg		0.015 U	R	0.0029 UJ	0.0028 UJ	0.0032 U	0.014 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
4-Chlorophenyl phenyl ether	mg/kg		0.021 U	R	0.0040 UJ	0.0039 UJ	0.0044 U	0.019 U
4-Methylphenol	mg/kg		0.018 U	R	0.0035 UJ	0.0034 UJ	0.0039 U	0.017 U
4-Nitroaniline	mg/kg		0.075 U	R	0.015 UJ	0.014 UJ	0.016 U	0.069 U
4-Nitrophenol	mg/kg		0.068 U	R	0.013 UJ	0.013 UJ	0.014 U	0.062 U
Acenaphthene	mg/kg	NOC	0.75	R	0.0073 J	0.00067 UJ	0.00076 U	0.0033 U
Acenaphthylene	mg/kg	NOC	0.0043 U	R	0.0011 J	0.0021 J	0.00091 U	0.012 J
Acetophenone	mg/kg	NOC	1.0	0.0029 J	0.0079 J	0.0077 J	0.0033 U	0.023 J
Anthracene	mg/kg	NOC	0.46	0.00072 J	0.012 J	0.0024 J	0.00078 U	0.013 J
Atrazine	mg/kg		0.018 U	R	0.0035 UJ	0.011 J	0.0039 U	0.017 U
Benzaldehyde	mg/kg		R	R	0.0054 UJ	0.029 J	R	R
Benzo(a)anthracene	mg/kg		0.058	0.0065 J	0.055 J	0.011 J	0.0028 J	0.081
Benzo(a)pyrene	mg/kg		0.056	0.0076 J	0.095 J	0.011 J	0.00080 U	0.085
Benzo(b)fluoranthene	mg/kg		0.081	0.013 J	0.097 J	0.014 J	0.0030 J	0.11
Benzo(g,h,i)perylene	mg/kg		0.068	0.012 J	0.10 J	0.0094 J	0.00079 U	0.060
Benzo(k)fluoranthene	mg/kg		0.042	0.0051 J	0.039 J	0.0068 J	0.0016 U	0.048
Biphenyl (1,1-Biphenyl)	mg/kg	NOC	0.59	R	0.0032 UJ	0.0031 UJ	0.0035 U	0.015 U
bis(2-Chloroethoxy)methane	mg/kg		0.012 U	R	0.0024 UJ	0.0023 UJ	0.0026 U	0.011 U
bis(2-Chloroethyl)ether	mg/kg	7.1	0.0050 U	R	0.00097 UJ	0.00094 UJ	0.0011 U	0.0046 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg		0.10 J	0.020 J	0.0058 UJ	0.016 J	0.0066 J	0.028 U
Butyl benzylphthalate (BBP)	mg/kg		0.025 U	0.012 J	0.0049 UJ	0.026 J	0.0065 J	0.023 U
Caprolactam	mg/kg		0.14 U	R	0.027 UJ	0.026 UJ	0.030 U	0.13 U
Carbazole	mg/kg		0.0034 U	R	0.0059 J	0.00064 UJ	0.00073 U	0.0031 U
Chrysene	mg/kg		0.074	0.012 J	0.060 J	0.014 J	0.0025 J	0.077
Dibenz(a,h)anthracene	mg/kg		0.0041 U	R	0.021 J	0.0025 J	0.00088 U	0.0038 U
Dibenzofuran	mg/kg		0.018 U	R	0.0036 UJ	0.0034 UJ	0.0039 U	0.017 U
Diethyl phthalate	mg/kg		0.020 U	R	0.0039 UJ	0.0038 UJ	0.0043 U	0.019 U
Dimethyl phthalate	mg/kg		0.020 U	R	0.0039 UJ	0.0038 UJ	0.0043 U	0.019 U
Di-n-butylphthalate (DBP)	mg/kg		0.023 U	0.0056 J	0.0045 UJ	0.0050 J	0.0050 U	0.021 U
Di-n-octyl phthalate (DnOP)	mg/kg		0.020 U	R	0.0038 UJ	0.0037 UJ	0.0042 U	0.018 U
Fluoranthene	mg/kg		0.16	0.013 J	0.091 J	0.019 J	0.0032 J	0.080
Fluorene	mg/kg	NOC	0.95	R	0.0039 J	0.00092 UJ	0.0010 U	0.0045 U
Hexachlorobenzene	mg/kg		0.0040 U	R	0.00077 UJ	0.00074 UJ	0.00085 U	0.0036 U
Hexachlorobutadiene	mg/kg		0.0042 U	R	0.00081 UJ	0.00078 UJ	0.00089 U	0.0038 U
Hexachlorocyclopentadiene	mg/kg		0.020 U	R	0.0039 UJ	0.0038 UJ	0.0043 U	0.018 U
Hexachloroethane	mg/kg		0.013 U	R	0.0026 UJ	0.0025 UJ	0.0029 U	0.012 U
Indeno(1,2,3-cd)pyrene	mg/kg		0.040	0.0078 J	0.083 J	0.0081 J	0.00082 U	0.045
Isophorone	mg/kg		0.014 U	R	0.0027 UJ	0.0026 UJ	0.0030 U	0.013 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Naphthalene	mg/kg	NOC	0.42	0.0020 J	0.0033 J	0.0028 J	0.00069 U	0.0067 J
Nitrobenzene	mg/kg	190	0.015 U	R	0.0030 UJ	0.0029 UJ	0.0033 U	0.014 U
N-Nitrosodi-n-propylamine	mg/kg		0.0044 U	R	0.00085 UJ	0.00082 UJ	0.00093 U	0.0040 U
N-Nitrosodiphenylamine	mg/kg		0.017 U	R	0.0033 UJ	0.0032 UJ	0.0037 U	0.016 U
Pentachlorophenol	mg/kg		0.017 U	R	0.0032 UJ	0.0031 UJ	0.0036 U	0.015 U
Phenanthrene	mg/kg	NOC	1.7	0.0074 J	0.042 J	0.0098 J	0.0019 J	0.018 J
Phenol	mg/kg	NOC	0.0044 U	R	0.00085 UJ	0.00082 UJ	0.00094 U	0.0040 U
Pyrene	mg/kg		0.22	0.010 J	0.064 J	0.00071 UJ	0.0031 J	0.084
Metals								
Antimony	mg/kg		8.3	0.17 J	0.15 J	0.28 J	0.25 J	0.027 J
Arsenic	mg/kg		11	2.7	2.1	3.3	5.0	5.0
Beryllium	mg/kg		0.39	0.71	0.82	0.49 J	0.43	0.18
Cadmium	mg/kg		3.4	0.11 J	0.12 J	0.56 J	0.040 J	0.038 J
Chromium	mg/kg		34	2400	1600	1700	22	7.7
Copper	mg/kg		110	33 J	26 J	69 J	9.4 J	2.1
Lead	mg/kg		170	23	23	20	9.3	2.9
Mercury	mg/kg		0.16	0.010 U	0.011 U	0.011 U	0.012 U	0.011 U
Nickel	mg/kg		34	29	24	24 J	15 J	1.6
Selenium	mg/kg		0.45 J	0.37 J	0.48 J	0.74 J	0.32 J	0.13 J
Silver	mg/kg		0.30	0.020 U	0.021 U	0.040 U	0.0042 U	0.0038 U
Thallium	mg/kg		0.076 J	0.015 J	0.012 J	0.020 U	0.081 J	0.017 J
Zinc	mg/kg		310	58 J	64 J	190	43	7.1
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg		0.00069 U	0.00013 U	0.00013 U	0.00013 U	0.00015 U	0.00063 U
Aroclor-1221 (PCB-1221)	mg/kg	NA	0.00089 U	0.00017 U	0.00017 U	0.00017 U	0.00019 U	0.00081 U
Aroclor-1232 (PCB-1232)	mg/kg		0.00080 U	0.00015 U	0.00015 U	0.00015 U	0.00017 U	0.00072 U
Aroclor-1242 (PCB-1242)	mg/kg		0.00076 U	0.00014 U	0.00015 U	0.00014 U	0.00016 U	0.00069 U
Aroclor-1248 (PCB-1248)	mg/kg		0.00044 U	0.030	0.0061	0.000082 U	0.000095 U	0.00040 U
Aroclor-1254 (PCB-1254)	mg/kg		0.10 J	0.00012 U	0.00013 U	0.012	0.0021	0.00060 U
Aroclor-1260 (PCB-1260)	mg/kg		0.071 J	0.00012 U	0.00013 U	0.00012 U	0.00014 U	0.00060 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-9**	**ELC-SB-10**	**ELC-SB-10**	**ELC-SB-11**	**ELC-SB-11**	**ELC-SB-12**
Sample ID:			**ELC-SB-9_5-5.5_062614**	**ELC-SB-10_1.5-2_062414**	**ELC-SB-10_6-6.5_062414**	**ELC-SB-11_1.5-2-062514**	**ELC-SB-11_5-5.5-062514**	**ELC-SB-12_1.5-2_062614**
Sample Date:			**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/25/2014**	**6/25/2014**	**6/26/2014**
Sample Depth:			**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(6-6.5) ft BGS**	**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		10	3.9	8.3	5.0	17	2.1
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Land Recycling Program Technical Guidance Manual - Section IV.A.4, Table 5, USEPA Defaults Nonresidential Volatilization to Indoor Air Screen
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**	**(Duplicate)**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	170	0.00038 U	0.00040 U	R	0.00046 UJ	0.00050 UJ	0.00048 U
1,1,2,2-Tetrachloroethane	mg/kg	2	0.00056 U	0.00059 U	R	0.00068 UJ	0.00073 UJ	0.00071 U
1,1,2-Trichloroethane	mg/kg	2.4	0.00065 U	0.00069 U	R	0.00078 UJ	0.00085 UJ	0.00082 U
1,1-Dichloroethane	mg/kg	2.7	0.00045 U	0.00048 U	R	0.00054 UJ	0.00059 UJ	0.00057 U
1,1-Dichloroethene	mg/kg	7.6	0.00066 U	0.00070 U	R	0.00080 UJ	0.00087 UJ	0.00084 U
1,2,4-Trichlorobenzene	mg/kg	NOC	0.00069 U	0.00073 U	R	0.00083 UJ	0.00090 UJ	0.00087 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	3.2	0.00058 U	0.00062 U	R	0.00071 UJ	0.00076 UJ	0.00074 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.29	0.00067 U	0.00071 U	R	0.00081 UJ	0.00088 UJ	0.00085 U
1,2-Dichlorobenzene	mg/kg	150	0.00062 U	0.00066 U	R	0.00075 UJ	0.00081 UJ	0.00079 U
1,2-Dichloroethane	mg/kg	0.83	0.00048 U	0.00051 U	R	0.00058 UJ	0.00063 UJ	0.00061 U
1,2-Dichloroethene (total)	mg/kg		0.0010 U	0.0011 U	R	0.0012 UJ	0.0013 UJ	0.0013 U
1,2-Dichloropropane	mg/kg	0.88	0.00042 U	0.00045 U	R	0.00051 UJ	0.00055 UJ	0.00054 U
1,3-Dichlorobenzene	mg/kg	NA	0.00051 U	0.00054 U	R	0.00062 UJ	0.00067 UJ	0.00065 U
1,4-Dichlorobenzene	mg/kg	13	0.00050 U	0.00053 U	R	0.00060 UJ	0.00065 UJ	0.00063 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	14000	0.00069 U	0.00073 U	R	0.00083 UJ	0.00090 UJ	0.00087 U
2-Hexanone	mg/kg		0.00054 U	0.00057 U	R	0.00065 UJ	0.00071 UJ	0.00068 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	120	0.00051 U	0.00054 U	R	0.00061 UJ	0.00067 UJ	0.00064 U
Acetone	mg/kg	110000	0.0039 U	0.0041 U	R	0.0047 UJ	0.0051 UJ	0.0049 U
Benzene	mg/kg	0.63	0.00052 U	0.00056 U	R	0.00064 UJ	0.00069 UJ	0.00067 U
Bromodichloromethane	mg/kg	0.85	0.00044 U	0.00046 U	R	0.00053 UJ	0.00057 UJ	0.00055 U
Bromoform	mg/kg	160	0.00034 U	0.00037 U	R	0.00042 UJ	0.00045 UJ	0.00044 U
Bromomethane (Methyl bromide)	mg/kg	1.3	0.00057 U	0.00061 U	R	0.00070 UJ	0.00075 UJ	0.00073 U
Carbon disulfide	mg/kg	66	0.00040 U	0.00042 U	R	0.00060 J	0.00084 J	0.00051 U
Carbon tetrachloride	mg/kg	0.12	0.00035 U	0.00037 U	R	0.00042 UJ	0.00046 UJ	0.00044 U
Chlorobenzene	mg/kg	13	0.00059 U	0.00063 U	R	0.00071 UJ	0.00077 UJ	0.00075 U
Chloroethane	mg/kg	1.8	0.0012 U	0.0013 U	R	0.0015 UJ	0.0016 UJ	0.0015 U
Chloroform (Trichloromethane)	mg/kg	0.074	0.00045 U	0.00048 U	R	0.00055 UJ	0.00060 UJ	0.00058 U
Chloromethane (Methyl chloride)	mg/kg	0.64	0.00066 U	0.00070 U	R	0.00080 UJ	0.00087 UJ	0.00084 U
cis-1,2-Dichloroethene	mg/kg	7.6	0.00055 U	0.00058 U	R	0.00066 UJ	0.00072 UJ	0.00069 U
cis-1,3-Dichloropropene	mg/kg		0.00053 U	0.00056 U	R	0.00064 UJ	0.00069 UJ	0.00067 U
Cyclohexane	mg/kg		0.00029 U	0.00031 U	R	0.00035 UJ	0.00038 UJ	0.00037 U
Dibromochloromethane	mg/kg	2.2	0.00055 U	0.00059 U	R	0.00067 UJ	0.00072 UJ	0.00070 U
Dichlorodifluoromethane (CFC-12)	mg/kg	2.6	0.00052 U	0.00055 U	R	0.00063 UJ	0.00068 UJ	0.00066 U
Ethylbenzene	mg/kg	9.5	0.00050 U	0.00053 U	R	0.00061 UJ	0.00066 UJ	0.00063 U
Isopropyl benzene	mg/kg	360	0.00053 U	0.00056 U	R	0.00064 UJ	0.00069 UJ	0.00067 U
m&p-Xylenes	mg/kg		0.0011 U	0.0012 U	R	0.0014 UJ	0.0015 UJ	0.0015 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**	**(Duplicate)**					
Methyl acetate	mg/kg	19000	0.00070 U	0.00074 U	R	0.00085 UJ	0.00092 UJ	0.00089 U
Methyl cyclohexane	mg/kg		0.00056 U	0.00060 U	R	0.00068 UJ	0.00074 UJ	0.00072 U
Methyl tert butyl ether (MTBE)	mg/kg	86	0.00058 U	0.00062 U	R	0.00070 UJ	0.00076 UJ	0.00074 U
Methylene chloride	mg/kg	14	0.0029 U	0.0028 U	0.0015 UJ	0.0020 UJ	0.0022 UJ	0.0023 UJ
o-Xylene	mg/kg		0.00061 U	0.00064 U	R	0.00073 UJ	0.00080 UJ	0.00077 U
Styrene	mg/kg	720	0.00055 U	0.00058 U	R	0.00066 UJ	0.00072 UJ	0.00070 U
Tetrachloroethene	mg/kg	10	0.00053 U	0.00056 U	R	0.00064 UJ	0.00069 UJ	0.00067 U
Toluene	mg/kg	110	0.00057 U	0.00060 U	R	0.00069 UJ	0.00075 UJ	0.00072 U
trans-1,2-Dichloroethene	mg/kg	6.4	0.00046 U	0.00049 U	R	0.00056 UJ	0.00061 UJ	0.00059 U
trans-1,3-Dichloropropene	mg/kg		0.00046 U	0.00049 U	R	0.00056 UJ	0.00061 UJ	0.00059 U
Trichloroethene	mg/kg	2.2	0.00051 U	0.00054 U	R	0.00062 UJ	0.00067 UJ	0.00065 U
Trichlorofluoromethane (CFC-11)	mg/kg	13	0.00071 U	0.00076 U	R	0.00087 UJ	0.00094 UJ	0.00091 U
Trifluorotrichloroethane (Freon 113)	mg/kg	670	0.00083 U	0.00088 U	R	0.0010 UJ	0.0011 UJ	0.0011 U
Vinyl chloride	mg/kg	0.061	0.00037 U	0.00039 U	R	0.00044 UJ	0.00048 UJ	0.00046 U
Xylenes (total)	mg/kg	77	0.0017 U	0.0019 U	R	0.0021 UJ	0.0023 UJ	0.0022 U
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	28	0.00074 U	0.00085 U	R	0.00083 U	0.00076 U	0.00080 U
2,4,5-Trichlorophenol	mg/kg		0.0036 U	0.0042 U	R	0.0041 U	0.0038 U	0.0040 U
2,4,6-Trichlorophenol	mg/kg		0.0051 U	0.0059 U	R	0.0058 U	0.0053 U	0.0056 U
2,4-Dichlorophenol	mg/kg		0.00068 U	0.00079 U	R	0.00077 U	0.00071 U	0.00075 U
2,4-Dimethylphenol	mg/kg		0.0053 U	0.0062 U	R	0.0060 U	0.0055 U	0.0058 U
2,4-Dinitrophenol	mg/kg		0.041 U	0.047 U	R	0.046 U	0.042 U	0.044 U
2,4-Dinitrotoluene	mg/kg		0.0028 U	0.0032 U	R	0.0031 U	0.0028 U	0.0030 U
2,6-Dinitrotoluene	mg/kg		0.0035 U	0.0041 U	R	0.0040 U	0.0036 U	0.0038 U
2-Chloronaphthalene	mg/kg	NOC	0.00071 U	0.00082 U	R	0.00080 U	0.00074 U	0.00078 U
2-Chlorophenol	mg/kg	270	0.0028 U	0.0032 U	R	0.0031 U	0.0029 U	0.0030 U
2-Methylnaphthalene	mg/kg	NOC	0.016	0.00071 U	0.00094 J	0.0027 J	0.0013 J	0.00067 U
2-Methylphenol	mg/kg	NOC	0.0024 U	0.0028 U	R	0.0027 U	0.0025 U	0.0026 U
2-Nitroaniline	mg/kg		0.015 U	0.018 U	R	0.017 U	0.016 U	0.017 U
2-Nitrophenol	mg/kg	NOC	0.0038 U	0.0043 U	R	0.0042 U	0.0039 U	0.0041 U
3,3'-Dichlorobenzidine	mg/kg		0.0036 U	0.0042 U	R	0.0041 U	0.0037 U	0.0039 U
3-Nitroaniline	mg/kg		0.014 U	0.016 U	R	0.016 U	0.015 U	0.015 U
4,6-Dinitro-2-methylphenol	mg/kg		0.014 U	0.016 U	R	0.015 U	0.014 U	0.015 U
4-Bromophenyl phenyl ether	mg/kg		0.0030 U	0.0034 U	R	0.0033 U	0.0031 U	0.0032 U
4-Chloro-3-methylphenol	mg/kg		0.0031 U	0.0036 U	R	0.0035 U	0.0032 U	0.0034 U
4-Chloroaniline	mg/kg		0.0027 U	0.0032 U	R	0.0031 U	0.0028 U	0.0030 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
			(Duplicate)					
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**						
4-Chlorophenyl phenyl ether	mg/kg		0.0038 U	0.0044 U	R	0.0043 U	0.0039 U	0.0041 U
4-Methylphenol	mg/kg		0.0033 U	0.0039 U	R	0.0038 U	0.0035 U	0.0036 U
4-Nitroaniline	mg/kg		0.014 U	0.016 U	R	0.016 U	0.014 U	0.015 U
4-Nitrophenol	mg/kg		0.012 U	0.014 U	R	0.014 U	0.013 U	0.014 U
Acenaphthene	mg/kg	NOC	0.00066 U	0.00076 U	R	0.00074 U	0.00068 J	0.0015 J
Acenaphthylene	mg/kg	NOC	0.0058 J	0.00090 U	R	0.00088 U	0.00081 U	0.00085 U
Acetophenone	mg/kg	NOC	0.023 J	0.017 J	R	0.0032 U	0.0029 U	0.0031 U
Anthracene	mg/kg	NOC	0.0062 J	0.00077 U	0.00088 J	0.0017 J	0.0010 J	0.0013 J
Atrazine	mg/kg		0.0033 U	0.0038 U	R	0.0037 U	0.0034 U	0.0036 U
Benzaldehyde	mg/kg		0.0085 J	R	R	0.029 J	R	R
Benzo(a)anthracene	mg/kg		0.036	0.00099 U	0.0049 J	0.0042 J	0.0053 J	0.0071 J
Benzo(a)pyrene	mg/kg		0.041	0.00079 U	0.0043 J	0.0043 J	0.0056 J	0.012
Benzo(b)fluoranthene	mg/kg		0.052	0.0012 U	0.0083 J	0.0054 J	0.0075	0.014
Benzo(g,h,i)perylene	mg/kg		0.030	0.00078 U	0.0065 J	0.0043 J	0.0083	0.017
Benzo(k)fluoranthene	mg/kg		0.023	0.0016 U	0.0030 J	0.0035 J	0.0056 J	0.0068 J
Biphenyl (1,1-Biphenyl)	mg/kg	NOC	0.0030 U	0.0035 U	R	0.0034 U	0.0031 U	0.0033 U
bis(2-Chloroethoxy)methane	mg/kg		0.0022 U	0.0026 U	R	0.0025 U	0.0023 U	0.0024 U
bis(2-Chloroethyl)ether	mg/kg	7.1	0.00092 U	0.0011 U	R	0.0010 U	0.00095 U	0.0010 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg		0.0055 U	0.0069 J	0.017 J	0.017 J	0.011 J	2.3
Butyl benzylphthalate (BBP)	mg/kg		0.0059 J	0.0076 J	0.012 J	0.010 J	0.0090 J	0.0070 J
Caprolactam	mg/kg		0.026 U	0.030 U	R	0.029 U	0.027 U	0.028 U
Carbazole	mg/kg		0.0015 J	0.00073 U	R	0.00071 U	0.0012 J	0.00069 U
Chrysene	mg/kg		0.039	0.00094 U	0.0079 J	0.0068 J	0.0065 J	0.0098
Dibenz(a,h)anthracene	mg/kg		0.011	0.00088 U	R	0.00086 U	0.00079 U	0.0050 J
Dibenzofuran	mg/kg		0.0057 J	0.0039 U	R	0.0038 U	0.0035 U	0.0037 U
Diethyl phthalate	mg/kg		0.0037 U	0.0043 U	R	0.0042 U	0.0039 U	0.0041 U
Dimethyl phthalate	mg/kg		0.0037 U	0.0043 U	R	0.0042 U	0.0038 U	0.0041 U
Di-n-butylphthalate (DBP)	mg/kg		0.0043 U	0.0049 U	0.0049 J	0.0063 J	0.0053 J	0.0055 J
Di-n-octyl phthalate (DnOP)	mg/kg		0.0036 U	0.0042 U	R	0.0041 U	0.0037 U	0.0039 U
Fluoranthene	mg/kg		0.038	0.00084 U	0.0097 J	0.0099	0.0069 J	0.0090
Fluorene	mg/kg	NOC	0.0022 J	0.0010 U	R	0.0010 U	0.00093 U	0.00098 U
Hexachlorobenzene	mg/kg		0.00073 U	0.00084 U	R	0.00082 U	0.00075 U	0.00079 U
Hexachlorobutadiene	mg/kg		0.00076 U	0.00088 U	R	0.00086 U	0.00079 U	0.00083 U
Hexachlorocyclopentadiene	mg/kg		0.0037 U	0.0043 U	R	0.0041 U	0.0038 U	0.0040 U
Hexachloroethane	mg/kg		0.0025 U	0.0028 U	R	0.0028 U	0.0025 U	0.0027 U
Indeno(1,2,3-cd)pyrene	mg/kg		0.027	0.00081 U	0.0051 J	0.0038 J	0.0062 J	0.014
Isophorone	mg/kg		0.0026 U	0.0030 U	R	0.0029 U	0.0027 U	0.0028 U

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**	**(Duplicate)**					
Naphthalene	mg/kg	NOC	0.0092	0.00068 U	R	0.0029 J	0.0016 J	0.00064 U
Nitrobenzene	mg/kg	190	0.0028 U	0.0033 U	R	0.0032 U	0.0029 U	0.0031 U
N-Nitrosodi-n-propylamine	mg/kg		0.00080 U	0.00093 U	R	0.00090 U	0.00083 U	0.00087 U
N-Nitrosodiphenylamine	mg/kg		0.0032 U	0.0037 U	R	0.0036 U	0.0033 U	0.0034 U
Pentachlorophenol	mg/kg		0.0031 U	0.0035 U	R	0.0034 U	0.0032 U	0.0033 U
Phenanthrene	mg/kg	NOC	0.020	0.0013 U	0.0073 J	0.0072 J	0.014	0.0035 J
Phenol	mg/kg	NOC	0.00081 U	0.00093 U	R	0.00091 U	0.00083 U	0.00088 U
Pyrene	mg/kg		0.040	0.00080 U	0.0087 J	0.0059 J	0.0075	0.0078
Metals								
Antimony	mg/kg		0.014 J	0.12 J	0.17 J	0.21 J	0.21 J	0.23 J
Arsenic	mg/kg		5.5	5.9	2.2	3.8	2.8	2.9
Beryllium	mg/kg		0.13	0.49	3.5	0.61	3.8	0.43
Cadmium	mg/kg		0.078 J	0.045 J	0.092 J	1.1	0.16 J	0.093
Chromium	mg/kg		9.8	12	1200	1000	1900	170
Copper	mg/kg		1.9	9.3	17 J	31 J	84 J	17 J
Lead	mg/kg		3.5	9.9	9.8	29	43	17
Mercury	mg/kg		0.011 U	0.015 J	0.011 U	0.021 J	0.011 U	0.014 J
Nickel	mg/kg		1.7	14	7.1	11	41	12
Selenium	mg/kg		0.083 J	0.34 J	3.2 J	0.76 J	1.3 J	0.32 J
Silver	mg/kg		0.0037 U	0.0045 U	0.018 U	0.11 J	0.020 U	0.020 J
Thallium	mg/kg		0.019 J	0.093 J	0.035 J	0.060 J	0.012 J	0.035 J
Zinc	mg/kg		9.1	39	57 J	240 J	580 J	50 J
PCBs								
Aroclor-1016 (PCB-1016)	mg/kg		0.00013 U	0.00015 U	0.00013 U	0.00014 U	0.00013 U	0.00069 U
Aroclor-1221 (PCB-1221)	mg/kg	NA	0.00016 U	0.00019 U	0.00017 U	0.00018 U	0.00017 U	0.00089 U
Aroclor-1232 (PCB-1232)	mg/kg		0.00015 U	0.00017 U	0.00015 U	0.00017 U	0.00015 U	0.00079 U
Aroclor-1242 (PCB-1242)	mg/kg		0.00014 U	0.00016 U	0.00014 U	0.00016 U	0.00014 U	0.00076 U
Aroclor-1248 (PCB-1248)	mg/kg		0.000081 U	0.000093 U	0.000082 U	0.000091 U	0.000083 U	0.00044 U
Aroclor-1254 (PCB-1254)	mg/kg		0.0029	0.00014 U	0.00084 J	0.0091	0.00013 U	0.25
Aroclor-1260 (PCB-1260)	mg/kg		0.00012 U	0.00014 U	0.00012 U	0.00014 U	0.0012	0.16

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**ELC-SB-12**	**ELC-SB-12**	**ELC-SB-13**	**ELC-SB-13**	**ELC-SB-14**	**ELC-SB-14**
Sample ID:			**DUP-001_062614**	**ELC-SB-12_5-5.5_062614**	**ELC-SB-13-1.5-2_062414**	**ELC-SB-13-4.5-5_062414**	**ELC-SB-14_1.5-2_062414**	**ELC-SB-14_4.5-5_062414**
Sample Date:			**6/26/2014**	**6/26/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**	**6/24/2014**
Sample Depth:			**(1.5-2) ft BGS**	**(5-5.5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**	**(1.5-2) ft BGS**	**(4.5-5) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**	**(Duplicate)**					
Petroleum Products								
Total Petroleum Hydrocarbons	mg/kg		-	-	-	-	-	-
General Chemistry								
Percent moisture	%		2.2	16	5.0	14	6.1	10
pH	s.u.		-	-	-	-	-	-

Notes:

(1) PA Land Recycling Program Technical Guidance Manual - Section IV.A.4, Table 5, USEPA Defaults Nonresidential Volatilization to Indoor Air Screen
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**									
Volatile Organic Compounds											
1,1,1-Trichloroethane	mg/kg	170	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	2	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	2.4	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	2.7	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	7.6	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	NOC	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	3.2	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.29	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	150	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	0.83	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	mg/kg		-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	0.88	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	NA	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	13	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	14000	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg		-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	120	-	-	-	-	-	-	-	-	-
Acetone	mg/kg	110000	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	0.63	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.85	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	160	-	-	-	-	-	-	-	-	-
Bromomethane (Methyl bromide)	mg/kg	1.3	-	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	66	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	0.12	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	13	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	1.8	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	0.074	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	0.64	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	7.6	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-	-
Cyclohexane	mg/kg		-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	2.2	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	2.6	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	9.5	0.005 U	0.23 J	0.0031 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Isopropyl benzene	mg/kg	360	-	-	-	-	-	-	-	-	-
m&p-Xylenes	mg/kg		-	-	-	-	-	-	-	-	-

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**									
Methyl acetate	mg/kg	19000	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	mg/kg		-	-	-	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	mg/kg	86	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	14	0.0035 JB	0.92	0.0031 JB	0.0036 JB	0.0023 JB	0.0013 JB	0.0006 JB	0.0013 JB	0.0018 JB
o-Xylene	mg/kg		-	-	-	-	-	-	-	-	-
Styrene	mg/kg	720	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	10	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	110	0.0013 JB	0.13 J	0.0027 J	0.005 U	0.00056 J	0.005 U	0.0006 J	0.00091 J	0.00056 JB
trans-1,2-Dichloroethene	mg/kg	6.4	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	2.2	0.00079 JB	0.00079 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Trichlorofluoromethane (CFC-11)	mg/kg	13	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	670	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	0.061	-	-	-	-	-	-	-	-	-
Xylenes (total)	mg/kg	77	-	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds											
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	28	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg		-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg		-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	NOC	-	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/kg	270	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg	NOC	-	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	NOC	-	-	-	-	-	-	-	-	-
2-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg	NOC	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg		-	-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg		-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg		-	-	-	-	-	-	-	-	-
4-Chloroaniline	mg/kg		-	-	-	-	-	-	-	-	-

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**									
4-Chlorophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-	-
4-Methylphenol	mg/kg		-	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg		-	-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	NOC	0.33 U	200	2.9	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acenaphthylene	mg/kg	NOC	0.33 U	29	0.71	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acetophenone	mg/kg	NOC	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	NOC	0.33 U	200	3.4	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Atrazine	mg/kg		-	-	-	-	-	-	-	-	-
Benzaldehyde	mg/kg		-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg		0.33 U	89	1.7	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(a)pyrene	mg/kg		0.33 U	37	1.1	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(b)fluoranthene	mg/kg		0.33 U	32	1.2	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(g,h,i)perylene	mg/kg		0.33 U	15	0.54	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(k)fluoranthene	mg/kg		0.33 U	38	1.2	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Biphenyl (1,1-Biphenyl)	mg/kg	NOC	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg		-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	7.1	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg		0.42	3.2 J	0.48	0.35	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Butyl benzylphthalate (BBP)	mg/kg		-	-	-	-	-	-	-	-	-
Caprolactam	mg/kg		-	-	-	-	-	-	-	-	-
Carbazole	mg/kg		-	-	-	-	-	-	-	-	-
Chrysene	mg/kg		0.33 U	81	1.9	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	mg/kg		0.33 U	8.2	0.24 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenzofuran	mg/kg		-	-	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg		-	-	-	-	-	-	-	-	-
Dimethyl phthalate	mg/kg		-	-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg		-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg		-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg		0.33 U	440	7.9	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Fluorene	mg/kg	NOC	0.33 U	280	4.5	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Hexachlorobenzene	mg/kg		-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg		-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg		-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg		-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg		0.33 U	16	0.56	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Isophorone	mg/kg		-	-	-	-	-	-	-	-	-

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**									
Naphthalene	mg/kg	NOC	0.33 U	280	4	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Nitrobenzene	mg/kg	190	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg		-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg		-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg		-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	NOC	0.33 U	830	13	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Phenol	mg/kg	NOC	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg		0.33 U	270	5.4	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Metals											
Antimony	mg/kg		0.64	0.64	0.54	0.89	0.5 U	0.78	0.76	2.5	0.5 U
Arsenic	mg/kg		3.5	0.2 U	1.1	2.3	0.91	1.6	2.3	0.2 U	11
Beryllium	mg/kg		0.25	0.2 U	0.26	0.26	0.2 U	0.2 U	0.35	0.2 U	0.44
Cadmium	mg/kg		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.45	0.99	0.2 U	0.2 U
Chromium	mg/kg		7.6	560	160	16	44	20	49	860	9.7
Copper	mg/kg		9.2	7.2	24	8.2	19	64	93	18	25
Lead	mg/kg		10	73	45	8	43	61	110	59	20
Mercury	mg/kg		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.20	0.1 U	0.1 U	0.1 U
Nickel	mg/kg		10	110	31	8.6	5.6	4.9	11	8.4	11
Selenium	mg/kg		0.2 U	0.2 U	0.39	0.2 U	0.2 U	0.9	2.2	0.2 U	0.2 U
Silver	mg/kg		0.2 U	0.3	0.2 U	0.2 U	0.2 U	3.6	4.8	0.88	0.2 U
Thallium	mg/kg		-	-	-	-	-	-	-	-	-
Zinc	mg/kg		32	19	270	34	120	170	330	54	50
PCBs											
Aroclor-1016 (PCB-1016)	mg/kg		-	-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	mg/kg	NA	-	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	mg/kg		-	-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	mg/kg		-	-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	mg/kg		-	-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	mg/kg		-	-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	mg/kg		-	-	-	-	-	-	-	-	-

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-MW-4**	**L1P3-MW-5**	**L1P3-MW-5**	**L1P3-MW-6**	**L1P3-SED-1**	**L1P3-SED-2**	**L1P3-SED-3**	**L1P3-TP-1**	**L1P3-TP-10**
Sample ID:			**MW-4 10-11'**	**MW-5 7.5-12'**	**MW-5 12-14'**	**MW-6 15-17'**	**SED-1**	**SED-2**	**SED-3**	**TP-1 7'-7-6"**	**TP-10 3-3'9"**
Sample Date:			**9/15/1998**	**9/15/1998**	**9/15/1998**	**9/16/1998**	**9/23/1998**	**9/23/1998**	**9/23/1998**	**9/22/1998**	**9/21/1998**
Sample Depth:			**(10-11) ft BGS**	**(7.5-12) ft BGS**	**(12-14) ft BGS**	**(15-17) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(0-2) ft BGS**	**(7-7.5) ft BGS**	**(3-3.75) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**									
Petroleum Products											
Total Petroleum Hydrocarbons	mg/kg		49	-	61	38 J	280	110	310	590	55
General Chemistry											
Percent moisture	%		-	-	-	-	-	-	-	-	-
pH	s.u.		8.48	9.98	9.36	8.44	7.19	7.06	6.88	11.24	8.39

Notes:

(1) PA Land Recycling Program Technical Guidance Manual - Section IV.A.4, Table 5, USEPA Defaults Nonresidential Volatilization to Indoor Air Screen
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**								
Volatile Organic Compounds										
1,1,1-Trichloroethane	mg/kg	170	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	2	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	2.4	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	2.7	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	7.6	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	NOC	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	3.2	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.29	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	150	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	0.83	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	mg/kg		-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	0.88	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	NA	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	13	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	14000	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg		-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	120	-	-	-	-	-	-	-	-
Acetone	mg/kg	110000	-	-	-	-	-	-	-	-
Benzene	mg/kg	0.63	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.85	-	-	-	-	-	-	-	-
Bromoform	mg/kg	160	-	-	-	-	-	-	-	-
Bromomethane (Methyl bromide)	mg/kg	1.3	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	66	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	0.12	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	13	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	1.8	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	0.074	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	0.64	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	7.6	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-
Cyclohexane	mg/kg		-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	2.2	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	2.6	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	9.5	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Isopropyl benzene	mg/kg	360	-	-	-	-	-	-	-	-
m&p-Xylenes	mg/kg		-	-	-	-	-	-	-	-

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**								
Methyl acetate	mg/kg	19000	-	-	-	-	-	-	-	-
Methyl cyclohexane	mg/kg		-	-	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	mg/kg	86	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	14	0.0019 JB	0.0012 JB	0.0014 JB	0.0015 JB	0.0011 JB	0.0017 JB	0.0011 JB	0.0013 JB
o-Xylene	mg/kg		-	-	-	-	-	-	-	-
Styrene	mg/kg	720	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	10	-	-	-	-	-	-	-	-
Toluene	mg/kg	110	0.00075 JB	0.00055 JB	0.00062 JB	0.0006 JB	0.00059 JB	0.00051 JB	0.00051 JB	0.00052 JB
trans-1,2-Dichloroethene	mg/kg	6.4	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg		-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	2.2	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Trichlorofluoromethane (CFC-11)	mg/kg	13	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	670	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	0.061	-	-	-	-	-	-	-	-
Xylenes (total)	mg/kg	77	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds										
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	28	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg		-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg		-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg		-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg		-	-	-	-	-	-	-	-
2,4-Dinitrophenol	mg/kg		-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg		-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg		-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	NOC	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/kg	270	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg	NOC	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	NOC	-	-	-	-	-	-	-	-
2-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg	NOC	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg		-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg		-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg		-	-	-	-	-	-	-	-
4-Chloroaniline	mg/kg		-	-	-	-	-	-	-	-

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**								
4-Chlorophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-
4-Methylphenol	mg/kg		-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg		-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	NOC	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acenaphthylene	mg/kg	NOC	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Acetophenone	mg/kg	NOC	-	-	-	-	-	-	-	-
Anthracene	mg/kg	NOC	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Atrazine	mg/kg		-	-	-	-	-	-	-	-
Benzaldehyde	mg/kg		-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(a)pyrene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(b)fluoranthene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(g,h,i)perylene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(k)fluoranthene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Biphenyl (1,1-Biphenyl)	mg/kg	NOC	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg		-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	7.1	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Butyl benzylphthalate (BBP)	mg/kg		-	-	-	-	-	-	-	-
Caprolactam	mg/kg		-	-	-	-	-	-	-	-
Carbazole	mg/kg		-	-	-	-	-	-	-	-
Chrysene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenzofuran	mg/kg		-	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg		-	-	-	-	-	-	-	-
Dimethyl phthalate	mg/kg		-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg		-	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg		-	-	-	-	-	-	-	-
Fluoranthene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Fluorene	mg/kg	NOC	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Hexachlorobenzene	mg/kg		-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg		-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg		-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg		-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Isophorone	mg/kg		-	-	-	-	-	-	-	-

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**								
Naphthalene	mg/kg	NOC	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Nitrobenzene	mg/kg	190	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg		-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg		-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg		-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	NOC	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Phenol	mg/kg	NOC	-	-	-	-	-	-	-	-
Pyrene	mg/kg		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Metals										
Antimony	mg/kg		0.5 U	0.88	0.96	0.5 U	1.2	0.75	0.52	1.2
Arsenic	mg/kg		1.1	3.5	6.7	7.2	4.8	4.2	3.6	0.5
Beryllium	mg/kg		0.2 U	0.29	0.46	0.48	0.29	0.25	0.26	0.46
Cadmium	mg/kg		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	mg/kg		550	7.6	22	6.1	20	8.1	6.8	51
Copper	mg/kg		15	9.6	9.2	8	11	8.8	7.8	12
Lead	mg/kg		15	8.8	15	15	20	8.3	8.1	17
Mercury	mg/kg		0.1 U	0.1 U	0.1 U	0.11	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	mg/kg		6.8	12	11	11	14	11	12	11
Selenium	mg/kg		0.2 U	0.98	0.2 U	0.67	0.2 U	0.2 U	0.2 U	0.2 U
Silver	mg/kg		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Thallium	mg/kg		-	-	-	-	-	-	-	-
Zinc	mg/kg		55	52	50	41	63	47	45	51
PCBs										
Aroclor-1016 (PCB-1016)	mg/kg		-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	mg/kg	NA	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	mg/kg		-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	mg/kg		-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	mg/kg		-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	mg/kg		-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	mg/kg		-	-	-	-	-	-	-	-

Table 4.4

Screened Analytical Results
All Soil Samples Vs Non-Residential Volatilization to Indoor Air Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, PA

Sample Location:			**L1P3-TP-2**	**L1P3-TP-3**	**L1P3-TP-4**	**L1P3-TP-5**	**L1P3-TP-6**	**L1P3-TP-7**	**L1P3-TP-8**	**L1P3-TP-9**
Sample ID:			**TP-2 6-9'**	**TP-3 5-6'**	**TP-4 5-6'6"**	**TP-5 5-6'**	**TP-6 3-4'**	**TP-7 9-10'**	**TP-8 9-10'**	**TP-9 5-6'**
Sample Date:			**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**	**9/21/1998**
Sample Depth:			**(6-9) ft BGS**	**(5-6) ft BGS**	**(5-6.5) ft BGS**	**(5-6) ft BGS**	**(3-4) ft BGS**	**(9-10) ft BGS**	**(9-10) ft BGS**	**(5-6) ft BGS**
Parameters	**Units**	**USEPA/PA Nonresidential Volatilization to Indoor Air Screen (1)**								
Petroleum Products										
Total Petroleum Hydrocarbons	mg/kg		32 J	32 J	49	32 JB	49	49	44	32 J
General Chemistry										
Percent moisture	%		-	-	-	-	-	-	-	-
pH	s.u.		9.06	6.11	7.2	7.13	7.73	8.43	7.57	7.66

Notes:

(1) PA Land Recycling Program Technical Guidance Manual - Section IV.A.4, Table 5, USEPA Defaults Nonresidential Volatilization to Indoor Air Screen
mg/kg milligrams per kilogram
J Estimated concentration.
R Rejected.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed

Table 4.5

Screened Analytical Results
Surface Water Samples Vs Surface Water Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, Pennsylvania

Sample Location:					**ELC-SW-1**	**ELC-SW-2**	**ELC-SW-3**	**ELC-SW-3**
Sample ID:					**ELC-SW-1_062614**	**ELC-SW-2_062614**	**ELC-SW-3_062614**	**DUP-003_062614**
Sample Date:					**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/26/2014**
		Fish and Aquatic Life Criteria						**(Duplicate)**
Parameters	**Units**	**Continuous**	**Maximum**	**Human Health**				
		a	**b**	**c**				
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/L	610	3000	N/A	0.29 U	0.29 U	0.29 U	0.29 U
1,1,2,2-Tetrachloroethane	µg/L	210	1000	0.17	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	µg/L	680	3400	0.59	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	µg/L			N/A	0.12 U	0.12 U	0.12 U	0.12 U
1,1-Dichloroethene	µg/L	1500	7500	33	0.3 U	0.3 U	0.3 U	0.3 U
1,2,4-Trichlorobenzene	µg/L	26	130	35	0.27 U	0.27 U	0.27 U	0.27 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L				0.14 U	0.14 U	0.14 U	0.14 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L				0.18 U	0.18 U	0.18 U	0.18 U
1,2-Dichlorobenzene	µg/L	160	820	420	0.15 U	0.15 U	0.15 U	0.15 U
1,2-Dichloroethane	µg/L	3100	15000	0.38	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethene (total)	µg/L				0.51 U	0.51 U	0.51 U	0.51 U
1,2-Dichloropropane	µg/L	2200	11000	N/A	0.095 U	0.095 U	0.095 U	0.095 U
1,3-Dichlorobenzene	µg/L	69	350	420	0.11 U	0.11 U	0.11 U	0.11 U
1,4-Dichlorobenzene	µg/L	150	730	420	0.21 U	0.21 U	0.21 U	0.21 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	32000	230000	21000	0.55 U	0.55 U	0.55 U	0.55 U
2-Hexanone	µg/L	4300	21000	N/A	0.16 U	0.16 U	0.16 U	0.16 U
4-Methyl-2-pentanone-	µg/L	5000	26000	N/A	0.53 U	0.53 U	0.53 U	0.53 U
(Methyl isobutyl ketone) (MIBK)								
Acetone	µg/L	86000	450000	3500	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	µg/L	130	640	1.2	0.11 U	0.11 U	0.11 U	0.11 U
Bromodichloromethane	µg/L			0.55	0.13 U	0.13 U	0.13 U	0.13 U
Bromoform	µg/L	370	1800	4.3	0.19 U	0.19 U	0.19 U	0.19 U
Bromomethane (Methyl bromide)	µg/L	110	550	47	0.31 U	0.31 U	0.31 U	0.31 U
Carbon disulfide	µg/L				0.21 U	0.21 U	0.21 U	0.21 U
Carbon tetrachloride	µg/L	560	2800	0.23	0.14 U	0.14 U	0.14 U	0.14 U
Chlorobenzene	µg/L	240	1200	130	0.14 U	0.14 U	0.14 U	0.14 U
Chloroethane	µg/L			N/A	0.21 U	0.21 U	0.21 U	0.21 U
Chloroform (Trichloromethane)	µg/L	390	1900	5.7	0.17 U	0.17 U	0.17 U	0.17 U
Chloromethane (Methyl chloride)	µg/L	5500	28000	N/A	0.28 U	0.28 U	0.28 U	0.28 U
cis-1,2-Dichloroethene	µg/L			12	0.24 U	0.24 U	0.24 U	0.24 U
cis-1,3-Dichloropropene	µg/L				0.19 U	0.19 U	0.19 U	0.19 U
Cyclohexane	µg/L				0.25 U	0.25 U	0.25 U	0.25 U
Dibromochloromethane	µg/L			0.4	0.14 U	0.14 U	0.14 U	0.14 U
Dichlorodifluoromethane (CFC-12)	µg/L				0.19 U	0.19 U	0.19 U	0.19 U
Ethylbenzene	µg/L	580	2900	530	0.23 U	0.23 U	0.23 U	0.23 U
Isopropyl benzene	µg/L				0.16 U	0.16 U	0.16 U	0.16 U
m&p-Xylenes	µg/L				0.41 U	0.41 U	0.41 U	0.41 U
Methyl acetate	µg/L				0.14 U	0.14 U	0.14 U	0.14 U
Methyl cyclohexane	µg/L				0.26 U	0.26 U	0.26 U	0.26 U
Methyl tert butyl ether (MTBE)	µg/L				0.18 U	0.18 U	0.18 U	0.18 U
Methylene chloride	µg/L	2400	12000	4.6	0.13 U	0.13 U	0.13 U	0.13 U
o-Xylene	µg/L				0.11 U	0.11 U	0.11 U	0.11 U
Styrene	µg/L				0.097 U	0.097 U	0.097 U	0.097 U
Tetrachloroethene	µg/L	140	700	0.69	0.15 U	0.15 U	0.15 U	0.15 U
Toluene	µg/L	330	1700	1300	0.15 U	0.15 U	0.15 U	0.15 U
trans-1,2-Dichloroethene	µg/L	1400	6800	140	0.17 U	0.17 U	0.17 U	0.17 U
trans-1,3-Dichloropropene	µg/L				0.15 U	0.15 U	0.15 U	0.15 U
Trichloroethene	µg/L	450	2300	2.5	0.14 U	0.14 U	0.14 U	0.14 U
Trichlorofluoromethane (CFC-11)	µg/L				0.2 U	0.2 U	0.2 U	0.2 U
Trifluorotrichloroethane (Freon 113)	µg/L				0.32 U	0.32 U	0.32 U	0.32 U
Vinyl chloride	µg/L			0.025	0.23 U	0.23 U	0.23 U	0.23 U
Xylenes (total)	µg/L	210	1100	70000	0.49 U	0.49 U	0.49 U	0.49 U

Table 4.5

Screened Analytical Results
Surface Water Samples Vs Surface Water Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, Pennsylvania

Sample Location:					**ELC-SW-1**	**ELC-SW-2**	**ELC-SW-3**	**ELC-SW-3**
Sample ID:					**ELC-SW-1_062614**	**ELC-SW-2_062614**	**ELC-SW-3_062614**	**DUP-003_062614**
Sample Date:					**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/26/2014**
		Fish and Aquatic Life Criteria						**(Duplicate)**
Parameters	**Units**	**Continuous**	**Maximum**	**Human Health**				
		a	**b**	**c**				
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane)-(bis(2-Chloroisopropyl) ether)	µg/L			1400	0.022 U	0.022 U	0.022 U	0.023 U
2,4,5-Trichlorophenol	µg/L				0.11 U	0.11 U	0.11 U	0.12 U
2,4,6-Trichlorophenol	µg/L	91	460	1.4	0.28 U	0.28 U	0.28 U	0.29 U
2,4-Dichlorophenol	µg/L	340	1700	77	0.062 U	0.062 U	0.062 U	0.065 U
2,4-Dimethylphenol	µg/L	130	660	380	0.16 U	0.16 U	0.16 U	0.16 U
2,4-Dinitrophenol	µg/L	130	660	69	2.3 U	2.3 U	2.3 U	2.4 U
2,4-Dinitrotoluene	µg/L	320	1600	0.05	0.2 U	0.2 U	0.2 U	0.21 U
2,6-Dinitrotoluene	µg/L	200	990	0.05	0.13 U	0.13 U	0.13 U	0.13 U
2-Chloronaphthalene	µg/L			1000	0.028 U	0.028 U	0.028 U	0.03 U
2-Chlorophenol	µg/L	110	560	81	0.21 U	0.21 U	0.21 U	0.22 U
2-Methylnaphthalene	µg/L				0.018 U	0.018 U	0.018 U	0.018 U
2-Methylphenol	µg/L				0.17 U	0.17 U	0.17 U	0.18 U
2-Nitroaniline	µg/L				0.62 U	0.62 U	0.62 U	0.65 U
2-Nitrophenol	µg/L	1600	8000	N/A	0.1 U	0.1 U	0.1 U	0.11 U
3,3'-Dichlorobenzidine	µg/L			0.021	0.14 U	0.14 U	0.14 U	0.14 U
3-Nitroaniline	µg/L				0.75 U	0.75 U	0.75 U	0.77 U
4,6-Dinitro-2-methylphenol	µg/L	16	80	13	1.4 U	1.4 U	1.4 U	1.5 U
4-Bromophenyl phenyl ether	µg/L	54	270	N/A	0.11 U	0.11 U	0.11 U	0.11 U
4-Chloro-3-methylphenol	µg/L	30	160	N/A	0.16 U	0.16 U	0.16 U	0.16 U
4-Chloroaniline	µg/L				0.27 U	0.27 U	0.27 U	0.28 U
4-Chlorophenyl phenyl ether	µg/L			N/A	0.074 U	0.074 U	0.074 U	0.077 U
4-Methylphenol	µg/L				0.19 U	0.19 U	0.19 U	0.2 U
4-Nitroaniline	µg/L				0.72 U	0.72 U	0.72 U	0.74 U
4-Nitrophenol	µg/L	470	2300	N/A	0.74 U	0.74 U	0.74 U	0.77 U
Acenaphthene	µg/L	17	83	670	0.027 U	0.027 U	0.027 U	0.028 U
Acenaphthylene	µg/L			N/A	0.02 U	0.02 U	0.02 U	0.021 U
Acetophenone	µg/L				0.1 U	0.1 U	0.1 U	0.11 U
Anthracene	µg/L			8300	0.018 U	0.018 U	0.018 U	0.018 U
Atrazine	µg/L				0.21 U	0.21 U	0.21 U	0.21 U
Benzaldehyde	µg/L				0.098 U	0.098 U	0.098 J	0.1 U
Benzo(a)anthracene	µg/L	0.1	0.5	0.0038	0.034 U	0.034 U	0.034 U	0.035 U
Benzo(a)pyrene	µg/L			0.0038	0.026 U	0.026 U	0.026 U	0.027 U
Benzo(b)fluoranthene	µg/L			0.0038	0.045 U	0.045 U	0.045 U	0.047 U
Benzo(g,h,i)perylene	µg/L			N/A	0.027 U	0.027 U	0.027 U	0.028 U
Benzo(k)fluoranthene	µg/L			0.0038	0.028 U	0.028 U	0.028 U	0.029 U
Biphenyl (1,1-Biphenyl)	µg/L				0.097 U	0.097 U	0.097 U	0.1 U
bis(2-Chloroethoxy)methane	µg/L			N/A	0.12 U	0.12 U	0.12 U	0.13 U
bis(2-Chloroethyl)ether	µg/L	6000	30000	0.03	0.029 U	0.029 U	0.029 U	0.03 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	910	4500	1.2	4 U	2.1 U	0.99 U	1.5 U
Butyl benzylphthalate (BBP)	µg/L	35	140	150	2.7	0.52 U	0.96 U	0.54 U
Caprolactam	µg/L				1.4 U	1.4 U	1.4 U	1.4 U
Carbazole	µg/L				0.025 U	0.025 U	0.025 U	0.026 U
Chrysene	µg/L			0.0038	0.029 U	0.029 U	0.029 U	0.03 U
Dibenz(a,h)anthracene	µg/L			0.0038	0.025 U	0.025 U	0.025 U	0.026 U
Dibenzofuran	µg/L				0.089 U	0.089 U	0.089 U	0.093 U
Diethyl phthalate	µg/L	800	4000	17000	0.27 U	0.27 U	0.27 U	0.29 U
Dimethyl phthalate	µg/L	500	2500	270000	0.17 U	0.17 U	0.17 U	0.18 U
Di-n-butylphthalate (DBP)	µg/L	21	110	2000	0.22 U	0.22 U	0.22 U	0.23 U
Di-n-octyl phthalate (DnOP)	µg/L			N/A	0.19 U	0.19 U	0.19 U	0.2 U

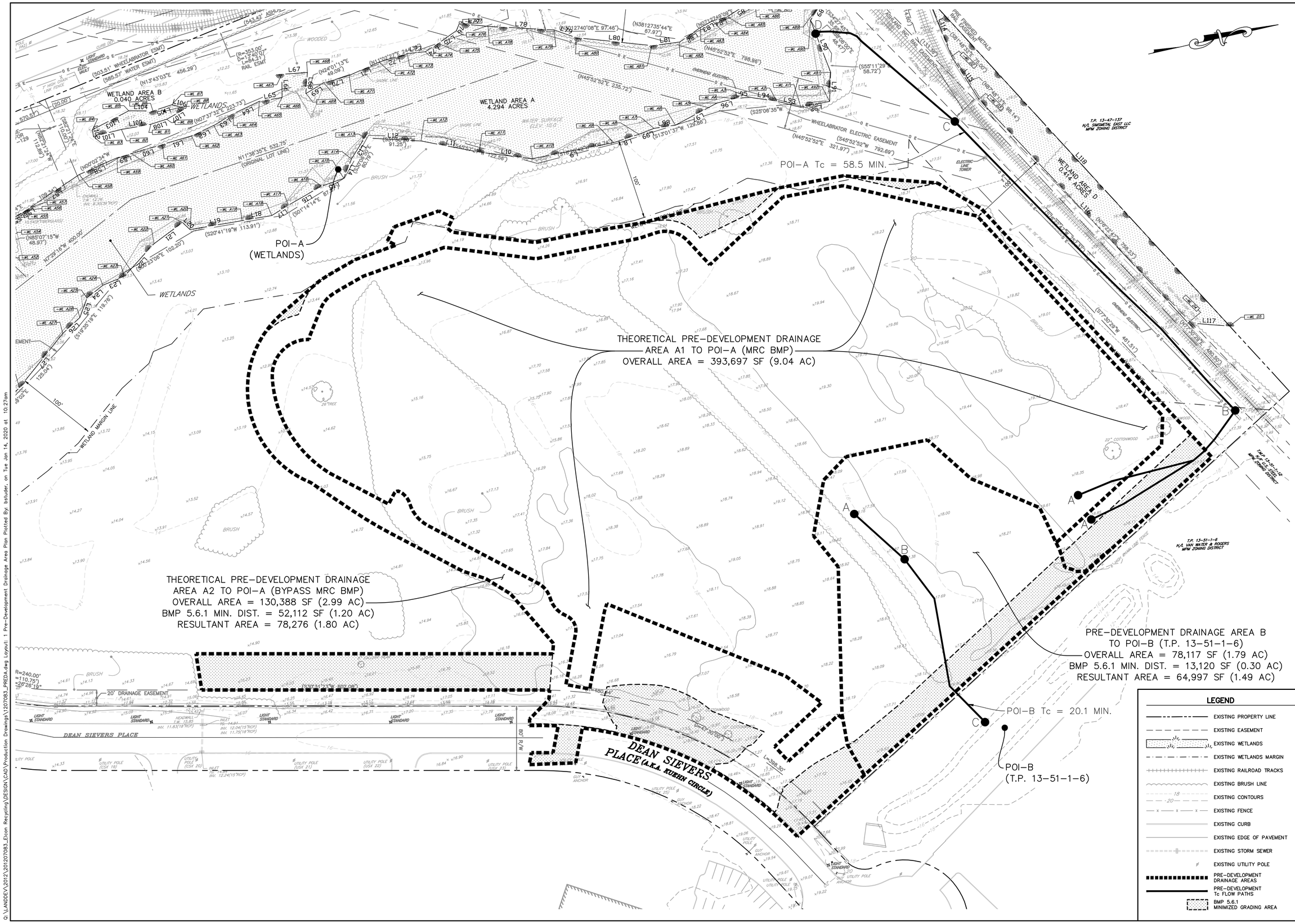
Table 4.5

Screened Analytical Results
Surface Water Samples Vs Surface Water Criteria
32-Acre Parcel
Keystone Industrial Port Complex, Us Steel
Fairless Hills, Pennsylvania

Sample Location:					**ELC-SW-1**	**ELC-SW-2**	**ELC-SW-3**	**ELC-SW-3**
Sample ID:					**ELC-SW-1_062614**	**ELC-SW-2_062614**	**ELC-SW-3_062614**	**DUP-003_062614**
Sample Date:					**6/26/2014**	**6/26/2014**	**6/26/2014**	**6/26/2014**
		Fish and Aquatic Life Criteria						**(Duplicate)**
Parameters	**Units**	**Continuous**	**Maximum**	**Human Health**				
		a	**b**	**c**				
Fluoranthene	µg/L	40	200	130	0.02 U	0.047 J	0.02 U	0.02 U
Fluorene	µg/L			1100	0.022 U	0.022 U	0.022 U	0.023 U
Hexachlorobenzene	µg/L			0.00028	0.056 U	0.056 U	0.056 U	0.059 U
Hexachlorobutadiene	µg/L	2	10	0.44	0.087 U	0.087 U	0.087 U	0.09 U
Hexachlorocyclopentadiene	µg/L	1	5	40	0.13 U	0.13 U	0.13 U	0.13 U
Hexachloroethane	µg/L	12	60	1.4	0.13 U	0.13 U	0.13 U	0.13 U
Indeno(1,2,3-cd)pyrene	µg/L			0.0038	0.04 U	0.04 U	0.04 U	0.042 U
Isophorone	µg/L	2100	10000	35	0.068 U	0.068 U	0.068 U	0.071 U
Naphthalene	µg/L	43	140	N/A	0.021 U	0.021 U	0.021 U	0.022 U
Nitrobenzene	µg/L	810	4000	17	0.14 U	0.14 U	0.14 U	0.14 U
N-Nitrosodi-n-propylamine	µg/L			0.005	0.046 U	0.046 U	0.046 U	0.048 U
N-Nitrosodiphenylamine	µg/L	59	300	3.3	0.11 U	0.11 U	0.11 U	0.12 U
Pentachlorophenol	µg/L	6.7	8.7	0.27	0.46 U	0.46 U	0.46 U	0.48 U
Phenanthrene	µg/L	1	5	N/A	0.038 U	0.038 U	0.038 U	0.04 U
Phenol	µg/L			10400	0.051 U	0.051 U	0.051 U	0.053 U
Pyrene	µg/L			830	0.021 U	0.021 U	0.021 U	0.022 U
Metals								
Antimony	µg/L	220	1100	5.6	0.94 J	1 J	0.59 U	0.59 U
Arsenic	µg/L	150	340	10	1.5 U	2 U	2.2 U	0.58 U
Beryllium	µg/L			N/A	0.037 U	0.089 U	0.037 U	0.037 U
Cadmium	µg/L	0.26	2.3		0.11 U	0.11 U	0.11 U	0.11 U
Chromium	µg/L				3.3 U	3.9 U	4.8 U	3.9 U
Copper	µg/L	10.3	16		1.2 U	1.5 U	3.1 U	2.1 U
Lead	µg/L	2.4	62		1	1.3	1.9	0.58 J
Mercury	µg/L	0.65	1.2		0.038 U	0.038 U	0.038 U	0.038 U
Nickel	µg/L	62	559		0.85 U	0.82 U	0.89 U	0.48 U
Selenium	µg/L	4.2			1.3 U	1.3 U	1.2 U	0.87 U
Silver	µg/L		3.9		0.047 J	0.087 J	0.12 U	0.052 J
Thallium	µg/L	13	65	0.24	0.015 U	0.17 U	0.08 U	0.039 U
Zinc	µg/L	138	137		4.2 U	6.5 U	16 U	4.6 U
PCBs								
Aroclor-1016 (PCB-1016)	µg/L				0.0025 U	0.0025 U	0.0025 U	0.0025 U
Aroclor-1221 (PCB-1221)	µg/L				0.0025 U	0.0025 U	0.0025 U	0.0025 U
Aroclor-1232 (PCB-1232)	µg/L				0.003 U	0.003 U	0.003 U	0.003 U
Aroclor-1242 (PCB-1242)	µg/L				0.0019 U	0.0019 U	0.0019 U	0.0019 U
Aroclor-1248 (PCB-1248)	µg/L				0.0023 U	0.0023 U	0.0023 U	0.0023 U
Aroclor-1254 (PCB-1254)	µg/L				0.0023 U	0.0023 U	0.0023 U	0.0023 U
Aroclor-1260 (PCB-1260)	µg/L				0.0014 U	0.0014 U	0.0014 U	0.0014 U
General Chemistry								
Hardness	µg/L				120000	120000	130000	120000

Notes:

(1) PA Chapter 93.8c, Table 5, Water Quality Criteria for Toxic Substances, developed using a pH of 7 and a hardness of 123.33 mg/L.
µg/L Micrograms/Litre.
J Estimated concentration.
U Not detected at the associated reporting limit.
UJ Not detected; associated reporting limit is estimated.
- Not analyzed.



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JOB NO.: 2012-07083
MUNICIPAL FILE NO.: N/A
TAX MAP PARCEL NO.: 13-51-1-5
SCALE: 50 0 50 IN / 100 FEET
DESIGNED BY: BMS
DRAWN BY: BMS
CHECKED BY: JJH

EQUITABLE OWNER:
ELCON RECYCLING SERVICES
1720 WALTON ROAD
BLUE BELL, PA 19422
(855) 463-6384

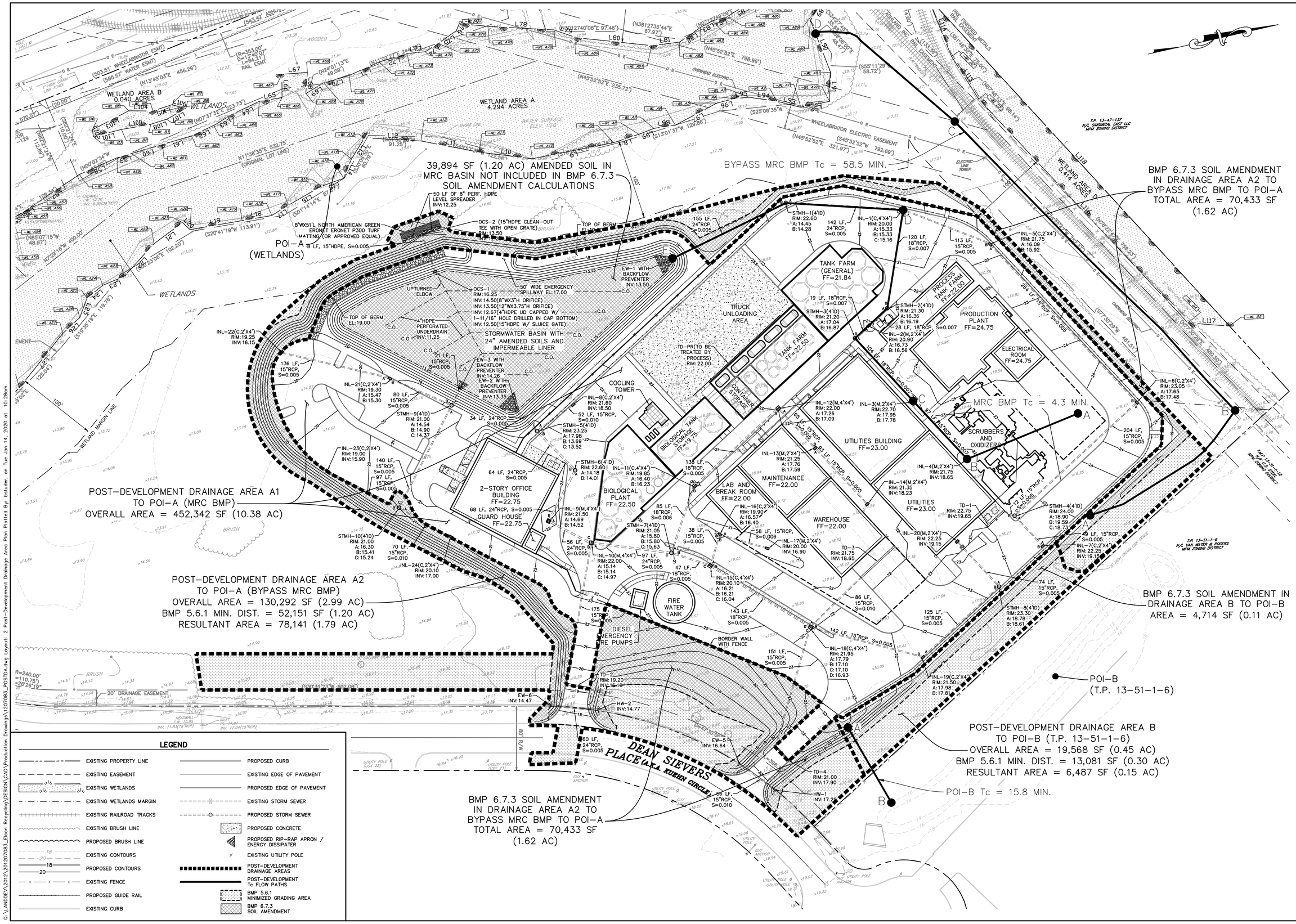
TOTAL AREA: 32.287 AC.
TOTAL LOTS: 1
DATE: 12/10/18
SCALE: 1"=50'

EXHIBITS
PRE-DEVELOPMENT DRAINAGE AREA PLAN
ELCON RECYCLING
FALLS TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

REV.	DESCRIPTION	DATE	BY
2	PA DEP RESUBMISSION	01/17/20	JJH
1	FALLS TOWNSHIP RESUBMISSION	04/18/19	JJH

SHEET NO.:
1 OF 2

Q:\LANDDEV\2012\201207083_Elcon Recycling\DESIGN\CAD\Production Drawings\1207083_PREDA.dwg Layout: 1 Pre-Development Drainage Area Plan Plotted By: bstuder, on Tue Jan 14, 2020 at 10:27am



LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING WETLANDS
- EXISTING WETLANDS MARGIN
- EXISTING RAILROAD TRACKS
- EXISTING BRUSH LINE
- PROPOSED BRUSH LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING FENCE
- PROPOSED GUIDE RAIL
- EXISTING CURB
- PROPOSED CURB
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PROPOSED CONCRETE
- PROPOSED RIP-RAP APRON / ENERGY DISSIPATER
- EXISTING UTILITY POLE
- POST-DEVELOPMENT DRAINAGE AREAS
- POST-DEVELOPMENT Tc FLOW PATHS
- BMP 5.6.1 MINIMIZED GRADING AREA
- BMP 6.7.3 SOIL AMENDMENT

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 • (215) 345-4330 • www.gilmore-assoc.com
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G&A

JOB NO.: 2012-07083	TAX MAP PARCEL NO.: 13-51-1-5
MUNICIPAL FILE NO.: N/A	
SCALE: 50 0 50 100 IN FEET	
DESIGNED BY: BMS	DRAWN BY: BMS
CHECKED BY: JJH	

EQUITABLE OWNER:
ELCON RECYCLING SERVICES
1720 WALTON ROAD
BLUE BELL, PA 19422
(585) 463-5364

TOTAL AREA: 32.297 AC.	TOTAL LOTS: 1
DATE: 12/10/18	SCALE: 1"=50'

EXHIBITS
POST-DEVELOPMENT DRAINAGE AREA PLAN
ELCON RECYCLING
FALLS TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

REV.	DESCRIPTION	DATE	BY
2	PA DEP RESUBMISSION	01/17/20	JJH
1	FALLS TOWNSHIP RESUBMISSION	04/18/19	JJH

SHEET NO.:
2 OF 2

Q:\LANDDEV\2012\201207083_Elcon Recycling\DESIGN\CAD\Production Drawings\1207083_POSTDA.dwg Layout: 2 Post-Development Drainage Area Plan Plotted By: bstuder, on Tue Jan 14, 2020 at 10:28am