RECORD OF DECISION

Lackawanna Incinerator Site
State Superfund Project
Lackawanna, Erie County
Site No. 915206
June 2017

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - RECORD OF DECISION

Lackawanna Incinerator Site
State Superfund Project
Lackawanna, Erie County
Site No. 915206
June 2017

Statement of Purpose and Basis

This document presents the remedy for the Lackawanna Incinerator Site site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Lackawanna Incinerator Site site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design
A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Cover System
A cover system will be required to allow for commercial use of the DPW Incinerator Area and the Smokes Creek Corridor. In the DPW Incinerator area, the cover will consist of existing structures, such as buildings, or a soil cover where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). In the Smokes Creek Corridor, the cover will consist of existing structures, such as asphalt pavement, or a soil cover where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where placement of a soil cover is required it will be a minimum of one foot of stone or soil placed over a demarcation layer. If soil is placed, the upper six inches of soil will be of sufficient quality to maintain a vegetative layer, i.e. topsoil. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d).

3. Excavation
The selected remedy entails the excavation and off-site disposal of the top one foot of soil atop the embankment to Smokes Creek and, at minimum, the top two feet of soil on the side slope (approximately 1,800 cubic yards).

4. Environmental Easement
Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan.

5. Site Management Plan
A Site Management Plan is required, which includes an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
Institutional Controls: The Environmental Easement discussed in Paragraph 4 above.
Engineering Controls: The DPW Incinerator Area and Smokes Creek Corridor cover as discussed in Paragraph 2 above.
This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land or groundwater use restrictions;
- provisions for the management and inspection of the identified engineering controls; and
- steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

June 9, 2017

Date

Robert W. Schick, P.E., Director
Division of Environmental Remediation

RECORD OF DECISION

Lackawanna Incinerator Site
Lackawanna, Erie County
Site No. 915206
June 2017

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

Lackawanna Public Library
Attn: Jennifer Johnston
560 Ridge Road
Lackawanna, NY 14218
Phone: 716-823-0630

NYSDEC Region 9 Office

Attn: Kristen Davidson
270 Michigan Avenue
Buffalo, NY 14203
Phone: (716)851-7220

A public meeting was also conducted. At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:
Currently the Lackawanna Incinerator Site consists of approximately 7.6 acres of city-owned land located at 2960 South Park Avenue and along the south embankment of the north branch of Smokes Creek in an urban area of the City of Lackawanna, Erie County, NY.

Site Features:
The site is comprised of two Areas of Concern, the DPW Incinerator Area and the Smokes Creek Corridor.

The DPW Incinerator Area's main structural features are two red-brick, multi-story buildings and associated chimneys that housed municipal solid waste incinerators. The southern incinerator building was constructed in 1927 and the northern incinerator building was constructed circa 1950. In the center of the site is a large ramp-like mound of fill (approximately 20 feet in elevation at its highest) that provides access to the northern incinerator's third floor. There is a primarily unpaved area on the southern portion of the property with a framed shed currently used to house equipment for the City DPW. The Smokes Creek Corridor comprises the northern portion of the site, where an asphalt paved recreational trail runs east to west along the top of the embankment to Smokes Creek.

The DPW Incinerator Area is enclosed and secured by varying heights of chain link fencing (4-

8') with access via a locking gate at the southwest corner of the area, adjacent to the DPW garage. The Smokes Creek Corridor portion of the site is not fenced and is accessible by the public.

To the north of the site lies the north branch of Smokes Creek; to the east is a grassy field that is part of the Baker Hall School property; and to the west is a sports athletic field and stadium with a 70+ space asphalt parking area along South Park Avenue that serves the athletic field.

A storm sewer system exists on-site with two (2) catch basins on the east and west of the northern incinerator building. Two reinforced concrete conduits (one 12-inch, one 24-inch) carry storm water flow from the site to Smokes Creek.

Current Zoning and Land Use:
The on-site DPW Incinerator Area is zoned as Property Class 662 - Police Fire. The primary use of the DPW Incinerator Area is for commercial purposes, such as materials staging and equipment/vehicle storage for the City Department of Public Works. The city-owned Smokes Creek Corridor is zoned as Property Class 330 - Vacant Commercial. The primary use of the Corridor is for commercial purposes, i.e. passive recreation activities which include walking, cycling and fishing. The Office of Sanitation is housed across Reddon St. to the south. The basement of the north incinerator is currently being used by the City animal control officer for the temporary caging of animals. The site is immediately surrounded by mixed-commercial-residential space. A few commercial parcels are immediately adjacent to the site with numerous single-family residential properties just beyond to the west and south. To the north is Smokes Creek (flows west to Lake Erie) and then the Holy Cross Cemetery. To the east is the Baker Hall School. Immediately to the west is a recreational athletic field and stadium, currently known as Lackawanna's Veterans Stadium (formerly known as the Ron Jaworski Stadium and the South Park Stadium).

Past Use of the Site:
Operations at the site began in 1927 with the first fire of the municipal incinerator (southern). The southern incinerator operated until about 1950 when the second incinerator (northern) went into operation. Operation of the northern incinerator ceased in 1980. During construction of the northern incinerator fill was placed as a ramp to allow dump truck traffic to access the third floor of the incinerator. Initially the ramp was constructed from a mix of soil and steel foundry slag and was over time widened to the east and west through the addition of street sweepings and discarded refractory brick from the incinerator chimneys during routine repair and maintenance activities. The date of construction of the recreational trail along Smokes Creek is unknown.

In 2005 the City conducted an environmental investigation of the site with field activities taking place in April, 2005. Results indicate the fill material in the ramp contain elevated lead and polycyclic aromatic hydrocarbons (PAHs). Sampling and analysis detected lead concentrations in fill material up to 23,600 ppm, however most of the samples contained levels of lead of around 1,000 ppm or less.

Site Geology and Hydrogeology:
Elevations of the Site range from approximately 585 feet to 615 feet above mean sea level

(AMSL) with the native soil/fill interface consistently around 591-593 AMSL. The local water table exists from 586-589 feet AMSL, 6 to 10 feet below ground surface (excluding the area of the fill ramp). Generally, shallow groundwater flows to the north, but is influenced locally by fill material onsite, flowing radially outward from the ramp and then due north to Smokes Creek.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the RI to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

City of Lackawanna

The PRPs for the site declined to implement a remedial program when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,

- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- surface water
- soil
- sediment
- indoor air
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

lead arsenic

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

IRM-Excavation to Residential SCOs/off-site disposal

An Interim Remedial Measure (IRM) was performed by DEC's Standby Engineer, EA Engineering and their subcontractors, between October, 2014 and May, 2015. The IRM entailed the excavation and off-site disposal of all impacted soils exceeding Residential Part 375 SCOs (approximately 7,900 cubic yards). Incinerator ash/dump material ranged from 2 to 4 feet with areas tailing to < 1 foot. Demarcation fabric was placed prior to backfill to identify the extent of excavation. The excavated area was backfilled with common fill and finished with 6 inches of topsoil and then grass seeded. Common fill material imported to the site was sampled and tested in accordance with DER-10 subdivision 5.4(e) and Table 5.4(e)10 to confirm attainment of the appropriate land use SCOs (Residential use). All topsoil imported to the site and placed met the requirements of DER-10 and NYSDOT 713-01 in accordance with Section 02480. A permanent fence was reinstalled along the northern and western property lines. The IRM is documented in a Construction Completion Report dated September, 2015.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

The Fish and Wildlife Resources Impact Analysis (FWRIA) for OU 01, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

Remedial Investigation (RI) field activities were conducted between October 2012 and February 2014. During the initial phase (Phase I) of the RI, laboratory analysis included the following analytical suites: TCL VOCs, TCL SVOCs, TAL metals, TCL pesticides, TCL PCBs, and total cyanide. During Phase I, TCL VOCs, TCL SVOCs, TCL pesticides, TCL PCBs, and total cyanide were not detected in samples, were detected in background samples in similar concentrations, or were identified in isolated samples, not indicative of an area of contamination. Based on a review of the analytical results for Phase I samples the analyte list was truncated. During the off-site delineation phases (Phases II–V) that followed, the analytical list was focused on site-related Contaminants of Concern (i.e., TAL metals).

On-Site (DPW Incinerator Area and Smokes Creek Corridor)

Based on RI sampling results, surface and subsurface soil results indicate that several inorganic constituents, primarily arsenic and lead, are present at concentrations that exceed 6 NYCRR Part 375 Unrestricted Use, Restricted Residential, and Commercial SCOs in the soil/fill material at the site. Specifically, lead was detected up to 6,820 parts per million (ppm) on the DPW Incinerator Area within the northern ramp and up to 8,210 ppm along the Smokes Creek Corridor. Arsenic was detected up to 28 ppm on the DPW Incinerator Area and up to 80 ppm along the Smokes Creek Corridor. In addition to sampling conducted during the RI, analysis of ash samples taken from the ground floor of the Southern Incinerator Building (2005 PSA) indicated lead concentrations up to 23,600 ppm. In addition to the metals; semi-volatile organic compounds (SVOC), volatile organic compounds (VOC) and pesticides were found above Unrestricted SCO's at various sample locations.

One detection of lead (30.5 parts per billion (ppb); November 2012) and one of arsenic (43.7 ppb; April 2013) exceeded Class GA standards and guidance values in groundwater samples collected from monitoring well MW-07 located along the downgradient On-site Area boundary, north of the ramp. All other inorganic constituents that exceeded Class GA SCGs in DPW Incinerator Area monitoring wells also were detected at similar or lesser concentrations in groundwater from the upgradient monitoring well, suggesting those constituents are unlikely to be related to on-site contaminated soil. The area is serviced by public drinking water from the Erie County Water Authority (ECWA).

A Fish and Wildlife Resources Impact Analysis (FWRIA) was conducted to identify existing and potential impacts from the site to fish and wildlife receptors. In general, based on screening results reviewed under the FWRIA, surface water serves as a potential exposure pathway to fish and wildlife near the site. However, the creek (surface water and sediment) does not appear to have been impacted by site-related contamination, based on the RI sampling results.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*.

The site is partially fenced and persons who enter the site could contact contaminants in the soil by walking on the soil, digging or otherwise disturbing the soil. People are not drinking contaminated groundwater because the area is served by a public water supply that obtains water from a source not affected by site contamination. People may come into contact with contaminants present on the creek banks while entering or exiting the creek during recreation activities.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the

contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's remedy is set forth at Exhibit D.

The selected remedy is referred to as the Cover System, Excavation, Offsite Disposal remedy.

The estimated present worth cost to implement the remedy is $1,307,000. The cost to construct the remedy is estimated to be $1,158,000 and the estimated average annual cost is $5,300.

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the

design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Cover System

A cover system will be required to allow for commercial use of the DPW Incinerator Area and the Smokes Creek Corridor. In the DPW Incinerator area, the cover will consist of existing structures, such as buildings, or a soil cover where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). In the Smokes Creek Corridor, the cover will consist of existing structures, such as asphalt pavement, or a soil cover where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where placement of a soil cover is required it will be a minimum of one foot of stone or soil placed over a demarcation layer. If soil is placed, the upper six inches of soil will be of sufficient quality to maintain a vegetative layer, i.e. topsoil. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d).

3. Excavation

The selected remedy entails the excavation and off-site disposal of the top one foot of soil atop the embankment to Smokes Creek and, at minimum, the top two feet of soil on the side slope (approximately 1,800 cubic yards).

4. Environmental Easement

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan.

5. Site Management Plan

A Site Management Plan is required, which includes an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 4 above.

Engineering Controls: The DPW Incinerator Area and Smokes Creek Corridor cover as discussed in Paragraph 2 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land or groundwater use restrictions;
- provisions for the management and inspection of the identified engineering controls; and
- steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Lackawanna Incinerator Site (Figures 1 and 2) Remedial Investigation for all environmental media that were evaluated within four Areas of Concern: the DPW Incinerator Area, the Stadium Property, the Baker Hall Property, and the Smokes Creek Corridor. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each Area of Concern (AoC) and for each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found within each AoC in the media and compares the data with the applicable SCGs for the AoC. The contaminants are arranged into a single category, inorganics (metals and cyanide), and presented for each of the four AoCs. For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

For the discussions in the following sections, please note that analytical testing of the various media at this site initially included a broad suite of chemical parameters. As described in Section 6.3, during the initial phase of the RI, laboratory analysis included the following analytical suites: Target Compound List (TCL) VOCs, TCL SVOCs, Target Analyte List (TAL) metals, TCL pesticides, TCL PCBs, and total cyanide. Based on that data, subsequent testing was limited to inorganics (metals), specifically lead and arsenic, which are the key indicators of contamination at this site.

Waste/Source Areas

As described in the RI report, waste materials were identified at the site and are impacting soil. The waste areas identified are associated with the use of ash and slag in the construction of an access ramp to the 3rd floor of the 1950 incinerator building and the land/surface disposal of bottom ash resulting from the historic operation of two (2) municipal waste incinerators on site.

Wastes are defined in 6 NYCRR Part 375-1.2(aw) and include solid, industrial and/or hazardous wastes. Waste areas that were identified in the area of the site include the DPW Incinerator Area, the adjacent Baker Hall Property and the Smokes Creek Corridor. Results from the RI indicate that soils on the Stadium Property were not impacted. Laboratory extraction and analysis of select soil samples was conducted to identify the leaching potential of contaminants (toxicity characteristic leaching procedure, TCLP) in the waste material. Results from soil boring samples taken adjacent to SB-13 (northeastern location on the 21.5' soil ramp on site) indicated that the waste material was not characteristic of hazardous waste. Analysis of samples taken from soil boring SB-13 detected lead up to 6,820 ppm, one of the highest concentrations of lead detected during the RI. Waste material placed in the lowest level of the southern incinerator building was unable to be sampled and analyzed by the TCLP due to the structure being condemned by the City of Lackawanna. During the 2005 preliminary site assessment lead was detected up to 23,600 ppm in waste material sampled from within the southern incinerator building.

Operation of both the 1927 and 1950 incinerators generated a bottom ash waste that was disposed of in the site area (Figure 2). The ash is comprised of vitrified material containing inorganic constituents, primarily lead

and arsenic. Of the areas impacted, the waste was identified in the top one to four feet of soil. The highest levels of contaminants were identified in the constructed ramp on-site and in a pocket of soil in the eastern extent of the recreational trail in the Smokes Creek Corridor.

An IRM was completed during the RI/FS, as described in Section 6.2. As indicated by laboratory analysis of confirmatory sampling, the IRM was effective at addressing contaminated soil at the Baker Hall Property. Confirmatory sampling indicated that all soils exceeding 6 NYCRR Part 375 Residential SCOs for all Contaminants of Concern (TAL Metals – Inorganics) had been removed and disposed of off-site.

The Baker Hall Property waste area has been addressed by the IRM described in Section 6.2. The remaining waste areas identified during the RI, the DPW Incinerator Area and the Smokes Creek Corridor, will be addressed in the remedy selection process.

Groundwater

In November 2012, seven overburden groundwater monitoring wells were installed to investigate site groundwater quality. The monitoring well network is shown on Figure 3. Groundwater samples were collected from the seven monitoring wells during two sampling events (November 2012 and April 2013) to determine if groundwater quality has been impacted by site-related activities. Groundwater samples were collected and analyzed for TCL VOCs, TCL SVOCs and TCL metals. Analytical results were compared to the NYSDEC Class GA groundwater standards and guidance values (6 NYCRR Part 703.5 Water Quality Regulations) as summarized in Table 1. Due to elevated turbidity observed in samples collected from MW-04, MW-06 and MW-08 in November 2012, unpreserved samples were submitted to the laboratory where the samples were filtered, preserved, and analyzed.

Concentrations of several inorganic constituents (antimony, arsenic, chromium, iron, lead, nickel, and sodium) exceeded the Class GA standards and guidance values in groundwater samples collected from one or more monitoring wells. Groundwater sampling from monitoring well MW-07 detected lead exceeding Class GA standards in November 2012, but attained Class GA standards for lead in April 2013. Groundwater sampling from monitoring well MW-06 (filtered and unfiltered samples) and MW-07 indicated achievement of Class GA standards for arsenic in November 2012, but detected levels exceeding Class GA standards for arsenic in April 2013. Monitoring well MW-06 is located in the northern section of the DPW Incinerator Area west of the ramp, and MW-07 is located along the downgradient DPW Incinerator Area boundary, north of the ramp. Lead detected in one of seven monitoring wells during one of the two sampling events is not indicative of groundwater quality contamination in exceedance of groundwater quality standards. Arsenic detected in two of the seven monitoring wells during one of the two sampling events is not indicative of groundwater quality contamination in exceedance of groundwater quality standards. All other inorganic constituents that exceeded Class GA SCGs (antimony, chromium, iron, nickel and sodium) were detected at higher concentrations in groundwater monitoring well MW-04, located upgradient from the site, than from monitoring wells on-site or downgradient of the site; therefore, any detected inorganic contamination in on-site wells is most likely from upgradient sources.

Table 1 – Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
Inorganics			
Antimony	4.000[d] – 6.08	3	6 / 14
Arsenic	2.100[d] – 43.7	25	2 / 14
Chromium (total)	0.55[d] – 293	50	1 / 14
Iron	10.2[d] – 15,000	300	13 / 14
Lead	1.300[d] – 30.5	25	1 / 14
Magnesium	27,800 – 72,800	35,000	12 / 14
Manganese	50 – 364	300	3 / 14
Nickel	2.100[d] - 195	100	2 / 14
Sodium	27,400 – 254,000[c]	20,000	14 / 14

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.

b - SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

c - The anomalously elevated sodium concentrations at MW-03A are likely due to its proximity to the DPW road salt storage area.

d - Analysis of samples that yielded a value of Non-Detect are presented at the Method Detection Limit.

Statistical analysis of groundwater analytical results indicate that contamination contained in impacted soils has not significantly migrated to the shallow groundwater at the site and has not contributed to a groundwater area of contamination. Furthermore, analysis of contaminated soil by means of Toxicity Characteristic Leaching Procedure, test Method 1311 in ‘‘Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,’’ EPA Publication SW–846 (TCLP), extraction indicates that metals do not have the potential to migrate from the soil matrix into groundwater. Therefore, no remedial alternatives need to be evaluated for groundwater.

Soil

Surface and subsurface soil samples were collected at the site during the RI. Surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure. Subsurface soil samples were collected from depths ranging from just below ground surface to depths generally up to 8 feet below ground surface (bgs), but up to 25 feet bgs in the area of the ramp on site, to assess exposure pathways and potential soil contamination impacts to groundwater. During the initial phase (Phase I) of the RI, laboratory analysis included the following analytical suites: TCL VOCs, TCL SVOCs, TAL metals, TCL pesticides, TCL PCBs, and total cyanide. However, during the off-site delineation phases (Phases II–V) that followed, the analytical list was focused on site-related Contaminants of Concern (i.e., TAL metals). As all samples that had an exceedance of an Unrestricted Use SCOs for inorganics also had exceedances of arsenic and/or lead, the soil investigation continued until the limit of

arsenic and lead impacts, below Unrestricted SCOs, was delineated. The results (extent of contamination interpreted in Figure 4) indicate that soils at the site exceed the Unrestricted, Residential and/or Commercial SCGs for metals. Additionally, background surface soil samples taken during Phase II of the RI indicated that numerous inorganic constituents are present in areas geographically outside of the range of site impacts. Lead, nickel and zinc were detected in background surface soil samples that exceeded Unrestricted SCOs, not uncommon for urban environments.

DPW Incinerator Area

Ten surface soil samples and 68 subsurface soil samples from 13 soil boring locations (Figure 5) were collected from the DPW Incinerator Area during the RI. Surface and subsurface soil results indicate that several inorganic constituents, primarily arsenic and lead, are present at concentrations that exceed Unrestricted Use and Commercial SCOs in the soil/fill material at the site.

Table 2a – Soil: DPW Incinerator Area

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Commercial Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Inorganics					
Arsenic	1.51 – 51.5	13	15 / 78	16	7 / 78
Barium	21.3 – 1,500	350	10 / 78	400	7 / 78
Cadmium	0.170 – 42.7	2.5	16 / 78	9.3	4 / 78
Chromium (total)	5.87 - 513	30.0	17 / 78	1,500	0 / 78
Copper	4.47 – 1,510	50	20 / 78	270	6 / 78
Cyanide (total)	0.096 - 170	27	3 / 13	27	3 / 13
Lead	9.70 – 6,820	63	38 / 78	1,000	7 / 78
Manganese	69.8 – 4,190	1,600	4 / 78	10,000	0 / 78
Mercury	0.011 – 1.00	0.18	11 / 78	3	0 / 78
Nickel	5.17 - 342	30	60 / 78	310	1 / 78
Selenium	2.21 – 15.2	3.9	5 / 78	6,800	0 / 78
Silver	0.290 – 26.0	2	16 / 78	1,500	0 / 78
Zinc	20.8 – 4,910	109	45 / 78	10,000	0 / 78

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.

c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use.

Stadium Property

Seven surface soil samples and 16 subsurface soil samples from five soil boring locations were collected from the Stadium Property during the RI. None of the surface or subsurface soil samples collected from the Stadium Property contained arsenic or lead (identified, based on the DPW Incinerator Area sampling, as the indicator metals) at concentrations that exceeded residential SCOs. No concentrations of arsenic or lead exceeded unrestricted use SCOs in the western extent of soil sampling locations. Detected concentrations of chromium, lead, nickel, and zinc, in excess of unrestricted use SCOs, were of similar concentration to those identified in background samples.

Table 2b – Soil: Stadium Property

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Inorganics					
Arsenic	0.286 – 11.5	13	0 / 23	16	0 / 23
Barium	31.2 – 93.1	350	0 / 23	400	0 / 23
Cadmium	0.07[d] – 1.52	2.5	0 / 23	4.3	0 / 23
Chromium (total)	3.98 – 40.5	30.0	1 / 23	180	0 / 23
Copper	6.27 – 29.7	50	0 / 23	270	0 / 23
Cyanide (total)	0.145 – 2.1	27	0 / 3	27	0 / 3
Lead	8.65 – 120	63	4 / 23	400	0 / 23
Manganese	67.4 – 1,410	1,600	0 / 23	2,000	0 / 23
Mercury	0.008 – 1.96	0.18	1 / 23	0.81	0 / 23
Nickel	5.72 – 51.8	30	8 / 23	310	0 / 23
Selenium	0.49[d] – 3.73	3.9	0 / 23	180	0 / 23
Silver	0.18[d] – 1.04	2	0 / 23	180	0 / 23
Zinc	29.1 – 168	109	2 / 23	10,000	0 / 23

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.

c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Restricted Residential Use.
d - Analysis of samples that yielded a value of Non-Detect are presented at the Method Detection Limit.

No site-related soil contamination of concern was identified on the Stadium Property during the RI. Therefore, no remedial alternatives need to be evaluated for soil at this Area of Concern.

Baker Hall Property

An IRM was completed during the RI/FS, as described in Section 6.2. Prior to the implementation of the IRM, during RI Phases I – IV (October – November 2012, April 2013, July 2013, and August 2013, respectively) surface and subsurface soil samples were taken from 17 locations on or east of the Baker Hall Property (Figure 6). Analytical results indicated metals from disposed incinerator ash and slag had significantly impacted the soil at 7 of these locations, which were subsequently excavated during the IRM described in Section 6.2.

During the course of the IRM, confirmation sampling was performed prior to the backfilling of areas of excavation (Figures 7a and 7b). A tally of RI and IRM analytical results describing the remaining levels of metals in the Baker Hall Property area of concern are summarized in Table 2c. The 28 RI samples and the 129 IRM confirmation samples (86 sidewall and 43 bottom of excavation sample locations) were tested for TAL metals by USEPA Method 6010A. Sample results were compared to the 6 NYCRR Part 375 unrestricted and residential use Soil SCOs for lead. Results indicated that all site-impacted soil exceeding the residential use SCOs had been removed and disposed of offsite.

Table 2c – Soil: Baker Hall Property

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Inorganics					
Arsenic	0.40[d] – 41.7	13	2 / 154	16	1 / 154
Barium	25.6 – 830	350	1 / 154	350	1 / 154
Cadmium	0.07[d] – 13.6	2.5	1 / 154	2.5	1 / 154
Chromium (total)	5.8 – 135	30	2 / 154	36	2 / 154
Copper	3.06 – 553	50	9 / 154	270	2 / 154
Lead	5.04 – 1,440	63	52 / 154	400	1 / 154
Manganese	59.5 – 2,010	1,600	1 / 154	2,000	1 / 154
Mercury	0.006 – 0.385	0.18	2 / 53	0.81	0 / 53
Nickel	5.67 – 100	30	27 / 154	140	0 / 154

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Selenium	0.49 [d] – 11	3.9	3 / 154	36	0 / 154
Silver	0.18 [d] – 3.29	2	6 / 154	36	0 / 154
Zinc	16.8 – 2,470	109	69 / 154	2,200	1 / 154

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Residential Use.
d - Analysis of samples that yielded a value of Non-Detect are presented at the Method Detection Limit.

Analytical results (contained in Table 2c above) from one RI sampling location (SB-49(0-1)) indicated the presence of metals exceeding unrestricted and residential use SCOs. Considering the isolated geographic location of the sample point, the continuous disposal pattern that exists for site-related contamination, and additional sampling in the area of SB-49, the impacted soil at SB-49 has been determined to be unrelated to the site.

Considering RI sampling and IRM confirmation sampling, no site-related soil contaminants of concern were identified above the Residential Use SCO. Therefore, no further action is necessary and no remedial alternatives need to be evaluated for soil.

Smokes Creek Corridor

During the RI, a total of 22 surface soil samples and 64 subsurface soil samples were collected from 26 soil boring locations (including 4 shallow [from 0 to 6 in. below ground surface] floodplain soil locations) (Figures 8 and 9).

Surface Soil
Nineteen of 22 surface soil samples contained lead concentrations exceeding the unrestricted use SCO (63 ppm), with concentrations ranging from 42 to 2,720 ppm. The lead concentrations which exceeded the commercial SCO (1,000 ppm) were found in samples adjacent to the recreational path, extending from the DPW Incinerator Area to approximately 50 feet beyond the eastern extent of the recreational path.

Arsenic, barium, cadmium, copper, manganese, mercury, nickel, selenium, silver, and zinc concentrations also exceeded Residential SCOs in the same areas where elevated lead concentrations were detected. Arsenic, barium, cadmium, chromium, copper, manganese, mercury, nickel, selenium, silver, and zinc also exceeded unrestricted use and/or protection of ecological resources SCOs in at least one surface soil sample.

Subsurface Soil
Lead concentrations exceeded the unrestricted use SCO in at least one subsurface soil sampling interval from 19 of 26 soil borings advanced along the Smokes Creek Corridor, with concentrations ranging from 65.9 to 8,210

ppm. Lead concentrations did not exceed the unrestricted use SCOs in the subsurface soil intervals in the three easternmost sampling locations.

The highest lead concentrations (976–8,210 ppm) in the Smokes Creek corridor, which exceed the commercial SCO (1,000 ppm), were generally detected in subsurface soil along the recreational path, north of the Baker Hall Property and city park. Lead impacts are present throughout the fill, which average approximately 2 feet in thickness throughout this area; however, in contrast to the DPW Incinerator Area, concentrations do not decrease with depth.

Arsenic, barium, cadmium, copper, total cyanide, mercury, nickel, selenium, silver, and zinc concentrations also exceeded residential SCOs in the same areas where elevated lead concentrations were detected. Arsenic, barium, cadmium, chromium, copper, total cyanide, mercury, nickel, selenium, silver, and zinc also exceeded unrestricted use and/or protection of ecological resources SCOs in at least one subsurface soil sample.

Table 2d – Soil: Smokes Creek Corridor

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Commercial Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Inorganics					
Arsenic	4.00 – 80.0	13	28 / 86	16	23 / 86
Barium	47.6 – 8,800	350	28 / 86	400	21 / 86
Cadmium	0.165 – 57.5	2.5	32 / 86	9.3	14 / 86
Chromium (total)	11.7 – 146	30.0	31 / 86	1,500	0 / 86
Copper	10.2 – 8,180	50	37 / 86	270	18 / 86
Cyanide (total)	0.052 – 110	27	1 / 5	27	1 / 5
Lead	10.88 – 8,210	63	54 / 86	1,000	20 / 86
Manganese	103 – 2,490	1,600	1 / 86	10,000	0 / 86
Mercury	0.008 – 2.09	0.18	24 / 86	3	0 / 86
Nickel	16.5 – 250	30	83 / 86	310	0 / 86
Selenium	0.390 – 13.0	3.9	7 / 86	6,800	0 / 86
Silver	0.135 – 19.1	2	19 / 86	1,500	0 / 86
Zinc	54.7 – 2,830	109	64 / 86	10,000	0 / 86

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.

c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use.

Based on the findings of the Remedial Investigation, the past disposal of hazardous waste has resulted in the contamination of surface and subsurface soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are, lead and arsenic.

Surface Water

Surface water samples were collected from five locations (Figure 9) in Smokes Creek during the RI Phase II in April 2013 and analyzed for inorganic constituents including TAL metals including mercury, cyanide, and hardness. Analytical results for surface water samples were compared to the NYSDEC Class C, Type Aquatic (Chronic) (A[C]) surface water standards and guidance values (6 NYCRR Part 703.5 Water Quality Regulations, as presented in the Division of Water Technical and Operational Guidance Series 1.1.1, 1998, as amended).

Several inorganic constituents were detected in surface water samples collected from Smokes Creek; however, none of the levels detected were above the Class C, Type A(C) standards, except for aluminum detected at concentrations ranging from 100 to 111 ppb, just above the standard (100 ppb). Aluminum is a component of clay soils typically found in the environment. These results indicate that contamination contained in impacted soils has not migrated to surface waters in the area of the site.

Table 3 - Surface Water

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
Inorganics			
Aluminum	85.2 – 111	100	2 / 5
Copper	ND[c] – 2.3	74.89 – 87.56[d]	0 / 5
Nickel	ND[c] – 15.6	80.66 – 93.88[d]	0 / 5
Zinc	ND[c] – 15.8	78.4 – 91.22[d]	0 / 5

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b - SCG: Class C Criteria – Aquatic Chronic A(C) - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1) and 6 NYCRR Part 703: Surface Water and Groundwater Quality Standards.
c - The constituent was not detected.
d - These constituents have hardness-specific criteria. The range of hardness-corrected criteria for these samples is provided.

No site-related contaminants of concern were identified in surface water during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediment

A total of 8 sediment samples (Figure 9) were taken utilizing a Ponar grab sampler. In sediment samples, nickel and silver were the only inorganic constituents that exceeded Class A sediment guidance values. Detected nickel concentrations, which ranged from 28.1 to 42.1 ppm, fall within the Class B sediment range (23–49 ppm). One silver concentration (1.1 ppm) fell within the lowest level of the Class B sediment range (1–2.2 ppm).

Nickel concentrations were frequently detected in surface and subsurface soil samples at concentrations above the Unrestricted Use SCO (30 ppm) in the DPW Incinerator Area; however, only one subsurface soil sample contained a nickel concentration (342 ppm) above restricted residential/commercial SCOs (310 ppm). Therefore, nickel is not considered to be a primary site-related contaminant of concern. Additionally, nickel concentrations from two background soil sample locations were above the unrestricted use SCO, which indicates that there might be other naturally-occurring sources of elevated nickel in sediment at Smokes Creek.

Table 4 – Sediment: Smokes Creek

Detected Constituents	Concentration Range Detected (ppm)[a]	SCG[b] Class A (ppm)	Frequency Exceeding Class A	SCG[c] Class B (ppm)	Frequency Exceeding Class B
Inorganics					
Lead	11.9 - 23	< 36	0/8	36 - 130	0/8
Nickel	22.8 – 42.1	< 23	6/8	23 - 49	0/8
Silver	0.11 – 1.1	< 1	1/8	1 – 2.2	0/8
Zinc	64.1 - 107	< 120	0/8	120 - 460	0/8

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in sediment;
b - SCG: Class A - The Department''s Screening and Assessment of Contaminated Sediment. (June 2014)
c - SCG: Class B - The Department''s Screening and Assessment of Contaminated Sediment. (June 2014)

No site-related contaminants of concern were identified in sediment during the RI. Therefore, no remedial alternatives need to be evaluated for sediment.

Soil Vapor

To evaluate the potential for vapor intrusion at the northern incinerator building, two co-located indoor air and sub-slab soil vapor samples were collected in March 2013, during the winter heating season. In addition, one outdoor ambient air sample was collected upwind of the northern incinerator building.

Table 5 – Sub-slab, Indoor, Ambient Air: Northern Incinerator Building

Detected Constituents	Concentration Range Detected (mcg/m^3)[a]	NYSDOH Air Guideline Values	Frequency Exceeding NYSDOH Air Guideline Values
Methylene Chloride[b]	0.31 – 163.06	60	1/5
Tetrachloroethene[c]	0.41 – 1.42	30	0/5
Trichloroethene[d]	0.28 – 0.32	2	0/5

a - All values reported in mcg/m^3 (micrograms per meter cubed).
b - NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October 2006. Table 3.1 Air guideline values derived by the NYSDOH.
c - Tetrachloroethene (PERC) In Indoor and Outdoor Air - September 2013 Fact Sheet. NYSDOH
d - Trichloroethene (TCE) In Indoor and Outdoor Air - August 2015 Fact Sheet. NYSDOH

The indoor air and sub-slab soil vapor results were evaluated in accordance to the State's Soil Vapor Intrusion Guidance (NYSDOH, 2006). Various volatile organic compounds were detected in all vapor samples, most commonly related to gasoline and solvent products that are commonly used by the City of Lackawanna DPW. Analysis of the outdoor ambient air sample (sample 915206-0A-01) detected methylene chloride (163.06 mcg/m^3) which may have been laboratory contamination or related to current chemical use by the City of Lackawanna DPW. Based on a review of analytes detected, no sub-slab or indoor air samples exceeded NYSDOH Guideline Values (Table 5), nor were any site-related contaminants of concern identified in sub-slab soil vapor or indoor air during the RI. Therefore, no remedial alternatives need to be evaluated for soil vapor.

Exhibit B

Description of Remedial Alternatives

The following alternatives, described for each Area of Concern individually, were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

DPW INCINERATOR AREA

DPW Incinerator Area Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

DPW Incinerator Area Alternative 2A and 2B: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include: excavation and removal of the ramp that leads up to the northern incinerator building; removal of both incinerator buildings (Alternative 2A) or only the southern incinerator building (Alternative 2B); and offsite disposal of all removed material. The excavated area would be restored to smooth grades using clean fill from an off-site source, eliminating the ramp and depressions near the northern incinerator building for Alternative 2A, or sloping down toward the storm drain west of the northern incinerator building for Alternative 2B. Approximately 30,100 yd^3 of impacted soil would be removed from the site under these Alternatives.

2A Present Worth:.....$6,069,000
2A Capital Cost:.....$6,069,000
2A Annual Costs: $0

2B Present Worth:.....$5,583,000
2B Capital Cost:.....$5,583,000
2B Annual Costs: $0

DPW Incinerator Area Alternative 3: Site Management

The Site Management Alternative requires only institutional controls for the site. This alternative includes institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination identified at the site.

Present Worth:.....$48,000
Capital Cost:.....$25,000
Annual Costs: $750

DPW Incinerator Area Alternatives 4A and 4B: Partial Excavation (Ramp) to Commercial Use SCOs, Demolition and Removal of Incinerator Building(s), and Re-Grading and Covering of Remaining Impacted Soil with a Soil Cover

DPW Incinerator Area Alternative 4 involves excavation and removal of part of the ramp that leads up to the northern incinerator building, removal of both incinerator buildings (Alternative 4A) or only the southern incinerator building (Alternative 4B), re-grading, and covering of remaining impacted soil/fill exceeding Commercial SCOs with a soil cover. The former ramp area would be graded with a gentle slope toward the Smokes Creek Corridor area under Alternative 4A, or towards the existing storm drain to the west of the northern incinerator building under Alternative 4B. The soil cover would consist of 6 in. of clean soil and 6 in. of clean topsoil to prevent human exposure to remaining impacted soil. A demarcation layer of geotextile would be placed on top of the remaining impacted soil prior to placement of the soil cover. Installation of the soil cover would prevent exposure; however, because contamination would remain in the incinerator area under this alternative, a Land Use Restriction in the form of an Environmental Easement, as well as long-term monitoring and maintenance would be necessary.

4A Present Worth:.....$3,178,000
4A Capital Cost:.....$2,969,000
4A Annual Costs: $7,100

4B Present Worth:.....$2,741,000
4B Capital Cost:.....$2,643,000
4B Annual Costs: $3,300

DPW Incinerator Area Alternatives 5A and 5B: Partial Excavation (Ramp) to Commercial Use SCOs, Demolition and Removal of Incinerator Building(s), and Re-Grading and Covering of Remaining Impacted Soil with Asphalt

DPW Incinerator Area Alternatives 5A and 5B are similar to Alternatives 4A and 4B, in that they involve: excavation and removal of part of the ramp that leads up to the northern incinerator building; removal of both incinerator buildings (Alternative 5A), or only the northern incinerator building (Alternative 5B); re-grading; and covering of remaining impacted soil/fill exceeding Commercial SCOs. The difference between Alternatives 4A/4B and Alternatives 5A/5B is that the cover would consist of asphalt rather than soil.

5A Present Worth:.....$3,461,000
5A Capital Cost:.....$3,379,000
5A Annual Costs: $2,800

5B Present Worth:.....$2,930,000
5B Capital Cost:.....$2,848,000
5B Annual Costs: $2,800

DPW Incinerator Area Alternatives 6A and 6B: Soil/Fill Excavation to Commercial Use SCOs with Disposal Off-Site, Demolition and Removal of Both Incinerator Buildings or the Southern Incinerator Building Only

Under these alternatives, all impacted soil exceeding commercial SCOs would be excavated and disposed of off-site. Similar to Alternatives 4A, 4B, 5A, and 5B, the excavated area would be backfilled with clean fill material and restored to smooth grades, eliminating the ramp and depressions near the northern incinerator building for Alternative 6A, or sloping down toward the storm drain west of the northern incinerator building for Alternative 6B.

6A Present Worth:.....$4,290,000
6A Capital Cost:.....$4,267,000
6A Annual Costs: $750

6B Present Worth:.....$3,830,000
6B Capital Cost:.....$3,807,000
6B Annual Costs: $750

DPW Incinerator Area Alternative 7: Site Cover

DPW Incinerator Area Alternative 7 includes the placement of a soil cover to encapsulate the mounded ramp that leads up to the northern incinerator building as well as cover the northeastern area of the site where commercial soil clean up objectives listed in Part 375-6.8 (a) are exceeded in the top one foot of soil. The soil cover would consist of at least one foot of placed stone and/or 6 inches of clean fill and 6 inches of topsoil to prevent human exposure to remaining impacted soil. A demarcation layer of geotextile would be placed on top of the remaining impacted soil prior to placement of the soil cover. Installation of the soil cover would prevent exposure; however, because contamination would remain in the incinerator area under this alternative, a land use restriction in the form of an environmental easement, as well as long-term monitoring and maintenance of the cover would be necessary. The soil cover would be placed over approximately 32,000 square feet of impacted soil under this alternative.

7 Present Worth:.....$477,000
7 Capital Cost:.....$418,000
7 Annual Costs:.....$2,100

<u>SMOKES CREEK CORRIDOR</u>

Smokes Creek Corridor Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the Smokes Creek Corridor in its present condition and does not provide any additional protection to public health and the environment.

Smokes Creek Corridor Alternatives 2A, 2B, and 2C: Partial Removal of Contaminated Soil to Commercial Use SCOs with Soil and Asphalt Cover of Remaining Contaminated Soil/Fill

This alternative is aimed at removing some impacted soil, and covering the remaining soil and fill exceeding the Commercial SCOs along the Smokes Creek Corridor to prevent contact. Under Alternative 2A, soil to a depth of 1 ft. on either side of the asphalt recreational path, as well as the wedge of impacted soil/fill along the side slope contamination area would be removed and disposed of off-site; under Alternative 2B, the asphalt recreational path and impacted soil beneath the path to a total depth of 1 ft. would be removed in addition to the soil being removed under Alternative 2A. Under both alternatives, a hot spot measuring 30 ft. by 30 ft. by 4 ft. deep will be removed at the eastern extent of the proposed excavation. Alternative 2C is identical to 2A except that the hot spot in the eastern extent of the area would remain in place, approximately 1,800 cubic yards of soil would be removed under this alternative. Remaining contaminated soil/fill would be covered with a non-woven geotextile demarcation layer. Site restoration under Alternatives 2A and 2C consist of placing a soil cover (consisting of 6 in. of clean fill and 6 in. of clean topsoil) over the remaining soil/fill and returning the side slope to original grades with clean fill and topsoil. Site restoration under Alternative 2B involves the same soil cover and an engineered asphalt cover to replace the asphalt recreational path. Both the asphalt and soil cover would serve as barriers to prevent contact with remaining contamination, and prevent erosion and sedimentation of impacted soil into Smokes Creek; however, because contamination would remain on the property under these alternatives, long term monitoring and maintenance would be necessary.

2A Present Worth:.....$733,000
2A Capital Cost:.....$643,000
2A Annual Costs: $3,100

2B Present Worth:.....$947,000
2B Capital Cost:.....$857,000
2B Annual Costs: $3,100

2C Present Worth:.....$830,000
2C Capital Cost:.....$740,000
2C Annual Costs: $3,100

Smokes Creek Corridor Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include the excavation and off-site disposal of soil from along the Smokes Creek Corridor remediation area at a commercial landfill. This alternative is aimed at removing the soil exceeding the Unrestricted Use SCOs from along the Smokes Creek Corridor. The excavated area would be completely restored to pre-remediation grades with the re-installation of the asphalt recreational path.

Present Worth:.....$1,548,000
Capital Cost:.....$1,548,000
Annual Costs: $0

Exhibit C

Remedial Alternative Costs

Alternative	Description	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
DPW INCINERATOR AREA				
1	No Action	$0	$0	$0
2A	Excavation to Unrestricted Use, Off-site Disposal, Demolition of both Incinerator Buildings	$6,069,000	$0	$6,069,000
2B	Excavation to Unrestricted Use, Off-site Disposal, Demolition of Southern Incinerator Building	$5,583,000	$0	$5,583,000
3	Site Management	$25,000	$750	$48,000
4A	Partial Excavation, Off-site Disposal, Demolition of both Incinerator Buildings, Topsoil/Seed Soil Cover	$2,969,000	$7,100	$3,178,000
4B	Partial Excavation, Off-site Disposal, Demolition of Southern Incinerator Building, Topsoil/Seed Soil Cover	$2,643,000	$3,300	$2,741,000
5A	Partial Excavation, Off-site Disposal, Demolition of both Incinerator Buildings, Asphalt Soil Cover	$3,379,000	$2,800	$3,461,000
5B	Partial Excavation, Off-site Disposal, Demolition of Southern Incinerator Building, Asphalt Soil Cover	$2,848,000	$2,800	$2,930,000
6A	Excavation to Commercial Use, Off-site Disposal, Demolition of both Incinerator Buildings	$4,267,000	$750	$4,290,000

6B	Excavation to Commercial Use, Off-site Disposal, Demolition of Southern Incinerator Building	$3,807,000	$750	$3,830,000
7	Site Cover	$418,000	$2,100	$477,000
SMOKES CREEK CORRIDOR				
1	No Action	$0	$0	$0
2A	Partial Excavation (Soil) to Commercial Use, Off-site Disposal, Soil Cover	$643,000	$3,100	$733,000
2B	Partial Excavation (Soil and Asphalt) to Commercial Use, Off-site Disposal, Soil Cover	$857,000	$3,100	$947,000
2C	Partial Excavation (Soil) to Commercial Use on embankment/Ecological on slope, Off-site Disposal, Soil Cover	$740,000	$3,100	$830,000
3	Excavation to Unrestricted Use, Asphalt Removal, Off-site Disposal,	$1,548,000	$0	$1,548,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department is proposing the combination of Alternatives described in the below table as the remedy for this site. Based on the objective to cleanup DPW Incinerator Area soil and Smokes Creek Corridor soil to Commercial Use SCOs, and the recommended remedial strategy is summarized in the following table:

Area	Alternative Description	Total Cost
DPW Incinerator Area	DPW Incinerator Area Alternative 7: Site Cover	**$477,000**
Smokes Creek Corridor	Smokes Creek Corridor Alternative 2C: Partial removal of contaminated soil to commercial use (embankment)/ecological (side slope) SCOs with soil cover of remaining contaminated soil	**$830,000**
	Total	**$1,307,000**

This combination of alternatives would involve demolition and off-site disposal of both incinerator buildings, as well as excavation and off-site disposal of all soil exceeding the appropriate SCOs for the incinerator area. The top foot of soil exceeding Commercial Use SCOs, as well as the hot spot identified at the eastern extent of the remedial area, would be removed from the Smokes Creek Corridor.

The selected combination of Alternatives: DPW Incinerator Area - 7 combined with Smokes Creek Corridor – 2C would achieve the remediation goals for the site primarily through the partial excavation and offsite disposal of contaminated soil and the placement of soil covers as identified. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figures 10 through 13.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

The selected remedy (DPW Incinerator Area Alternative 7 combined with Smokes Creek Corridor Alternative 2C) will satisfy this criterion by removing contaminated soils for offsite disposal that exceed SCGs discussed in Section 6.1.1 and through the construction, monitoring, and maintenance of a soil cover to prohibit exposure to remaining contamination.

DPW Incinerator Area
Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated any further. Alternatives 2A/2B, by removing all soil contaminated above the unrestricted use soil cleanup objective, meets the threshold criteria. Alternative 3 (Site Management) is not protective of public health as the current use of the property is for commercial purposes where the RI identified inorganic contaminants exceeding Industrial Use. The partial excavation actions coupled with various soil covers and associated demarcation barriers contained in Alternatives 4A/4B, 5A/5B and 6A/6B also comply with this criterion. Alternative 7 complies with this criterion by placement of a soil cover and visible demarcation barrier..

Smokes Creek Corridor
Alternative 1 (No Action) does not provide any protection to public health and the environment and will only be evaluated as a basis for comparison. Alternative 3, by removing all soil contaminated above the unrestricted use soil cleanup objective, meets the threshold criteria. Alternatives 2A, 2B, and 2C also comply with this criterion by excavating and/or covering all soil that exceeds commercial use SCOs. A visible demarcation barrier will be placed over all impacted soil left in place for all alternatives where a soil cover is constructed.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

DPW Incinerator Area
Alternatives 2A/2B, by removing all soil contaminated above the unrestricted use soil cleanup objective, meets the threshold criteria. Alternative 3 (Site Management) does not satisfy SCGs, since remaining contamination exceeds industrial use SCOs, and will not be evaluated further. The partial excavation actions coupled with various soil covers contained in Alternatives 4A/4B and 5A/5B also comply with this criterion but with lower certainty. Alternative 6A complies with this criterion. Alternative 6B also complies with this criterion but with lower certainty - contamination exceeding SCGs may be left in place resulting from physical restrictions to access due to the presence of the Northern Incinerator Building. Alternative 7 also complies with this criterion, although contamination exceeding SCGs will be left in place.

Smokes Creek Corridor
Alternatives 2A, 2B, and 2C comply with all applicable SGCs by excavating and/or covering all soil that exceeds commercial use SCOs, although varying amounts of impacted soil will remain in place. Alternative 3, by removing all soil contaminated above the Unrestricted Use soil cleanup objective, meets the threshold criteria.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of

these controls.

DPW Incinerator Area
Alternatives 4A/4B, 5A/5B, and 7 fulfill this criterion; each alternative involves leaving impacted soil/fill onsite requiring long-term monitoring and maintenance of soil cover controls. Alternatives 2A and 6A fulfill this criterion as contaminants at concentrations exceeding respective SCGs will be permanently removed from the site, whereas contamination may remain underneath the northern incinerator building with Alternatives 2B and 6B.

Smokes Creek Corridor
Alternatives 2A, 2B, and 2C fulfill this criterion, although these alternatives involve leaving impacted soil/fill onsite and require long-term monitoring and maintenance. Alternative 3 fulfills this criterion as known contaminants would be removed from the Area of Concern and disposed of offsite.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

DPW Incinerator Area
Alternatives 4A/4B and 5A/5B fulfill this criterion by reducing the volume and mobility of waste via soil removal and soil isolation/containment. Alternatives 2A and 6A fulfill this criterion via removal of waste exceeding respective SCGs, whereas contamination may remain underneath the northern incinerator building with Alternatives 2B and 6B. Alternative 7 has the ability to reduce the mobility of waste at the site, but the toxicity and volume of waste remains unchanged.

Smokes Creek Corridor
Alternative 2A, 2B, and 2C will fulfill this criterion by reducing the volume of contamination and by reducing the probability for transport. Alternative 3 will fulfill this criterion by complete removal of contamination.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

DPW Incinerator Area
Alternatives 2A, 2B, and 4A/4B, 5A/5B, and 6A/6B pose increased short-term risks to the public during excavation and grading, through the production of dust; these effects can be reduced through the implementation of standard dust mitigation construction practices. Workers can potentially be exposed to impacted media during excavation activities involved in Alternatives 2A/2B, 4A/4B, 5A/5B, and 6A/6B. Alternative 7 poses increased short-term risks to the public during soil cover construction through the production of dust, although the construction time for Alternative 7 will be substantially shorter in duration than would be for Alternatives 2A/2B, 4A/4B, 5A/5B, and 6A/6B. Risks can be minimized by implementing health and safety controls, including the use of appropriate personal protective equipment.

Smokes Creek Corridor
Alternatives 2A, 2B, 2C and 3 pose increased short-term risks to the public during excavation, grading, and other

site activities through the production of dust; these effects can be reduced through the implementation of standard dust mitigation construction practices. Workers can potentially be exposed to impacted media during excavation activities involved in Alternatives 2A, 2B, 2C and 3. Risks can be minimized by implementing health and safety controls, including the use of appropriate personal protective equipment.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

DPW Incinerator Area
All alternatives are implementable and have been used nationally.

Smokes Creek Corridor
All alternatives are implementable and have been used nationally; however, Alternative 2A and 2C would be more difficult to implement due to equipment and space limitations along the creek embankment and adjacent property.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

DPW Incinerator Area
Alternatives 4A and 5A are similar in cost, as are Alternatives 4B and 5B; however, Alternatives 4B and 5B are as effective as Alternatives 4A and 5A at a lesser cost. Alternatives 2A and 6A are the most effective to achieve respective SCOs and the most expensive. Alternatives 2B and 6B are less effective, but also cost less than their respective counterparts. Alternative 7 achieves applicable SCOs at a reduced cost compared to Alternatives 2A/2B, 4A/4B, 5A/5B, and 6A/6B.

Smokes Creek Corridor
Alternative 3 costs 50 percent more than Alternative 2A, and more than twice as much as Alternative 2B, but it is also the most effective.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

DPW Incinerator Area
Impacted fill will remain in the incinerator area for Alternatives 4A/4B, 5A/5B, and 7. Alternatives 4A and 4B involve a soil cover, and land use would be restricted. Alternatives 5A and 5B involve a more resilient asphalt cover, and land use could be similar to the current use (DPW equipment/materials storage). Alternative 7 leaves the existing mounded ramp in place with construction of a soil cover over the ramp and nearby area, and land

use would be limited and restricted. Alternatives 6A and 6B involve the removal of fill with concentrations of metals exceeding commercial SCGs; however, the northern incinerator with potential contamination around the footprint and potentially underneath the structure will remain in Alternative 6B, which will restrict future land use. Alternatives 2A and 2B involve the removal of fill with concentrations of metals exceeding unrestricted use SCGs; however, as with Alternative 6B, the northern incinerator with potential contamination underneath will remain in Alternative 2B, which would restrict future land use.

Smokes Creek Corridor
Alternative 1 would not positively affect the future use of the site since contamination will remain. Impacted fill will remain along the Smokes Creek embankment for Alternatives 2A, 2B, and 2C; however, the recreational path will remain or be replaced, in kind, and the land use will not change. Alternative 3 involves removal of impacted fill and replacement of the asphalt path, in kind, and the land use will not change.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

The combination of Alternatives: DPW Incinerator Area Alternative 7 and Smokes Creek Corridor Alternative 2C is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

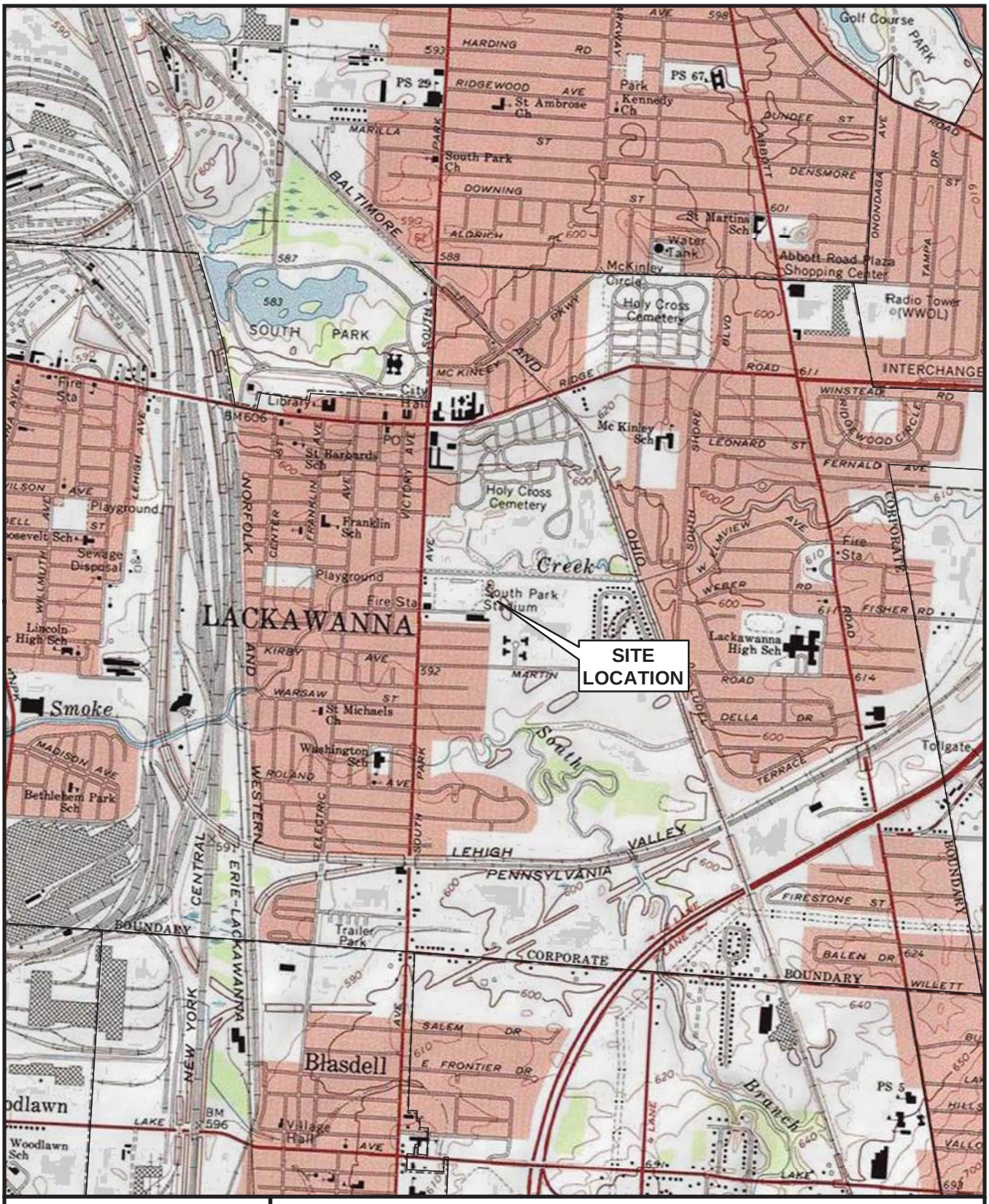


Figure 1

Site Location Map

Lackawanna Incinerator Site
City of Lackawanna, Erie
Site No. 915206

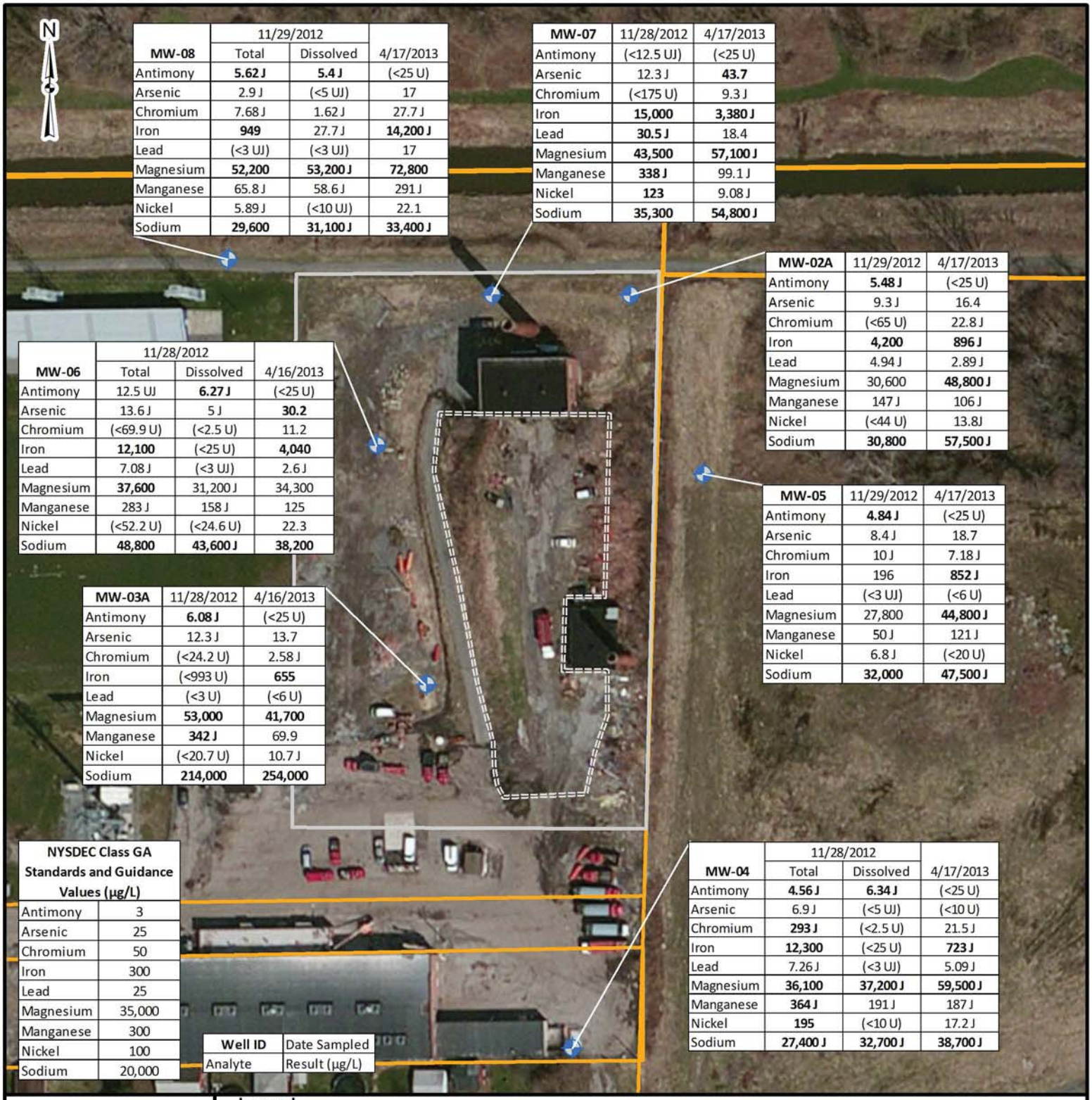
DEPARTMENT OF ENVIRONMENTAL CONSERVATION • NEW YORK STATE •

Figure 2

Site Map

Lackawanna Incinerator Site
City of Lackawanna, Erie County
Site No. 915206

DEPARTMENT OF ENVIRONMENTAL CONSERVATION • NEW YORK STATE •



MW-08	11/29/2012 Total	11/29/2012 Dissolved	4/17/2013
Antimony	**5.62 J**	**5.4 J**	(<25 U)
Arsenic	2.9 J	(<5 UJ)	17
Chromium	7.68 J	1.62 J	27.7 J
Iron	**949**	27.7 J	**14,200 J**
Lead	(<3 UJ)	(<3 UJ)	17
Magnesium	**52,200**	**53,200 J**	**72,800**
Manganese	65.8 J	58.6 J	291 J
Nickel	5.89 J	(<10 UJ)	22.1
Sodium	**29,600**	**31,100 J**	**33,400 J**

MW-07	11/28/2012	4/17/2013
Antimony	(<12.5 UJ)	(<25 U)
Arsenic	12.3 J	**43.7**
Chromium	(<175 U)	9.3 J
Iron	**15,000**	**3,380 J**
Lead	**30.5 J**	18.4
Magnesium	**43,500**	**57,100 J**
Manganese	**338 J**	99.1 J
Nickel	**123**	9.08 J
Sodium	**35,300**	**54,800 J**

MW-02A	11/29/2012	4/17/2013
Antimony	**5.48 J**	(<25 U)
Arsenic	9.3 J	16.4
Chromium	(<65 U)	22.8 J
Iron	**4,200**	**896 J**
Lead	4.94 J	2.89 J
Magnesium	30,600	**48,800 J**
Manganese	147 J	106 J
Nickel	(<44 U)	13.8J
Sodium	**30,800**	**57,500 J**

MW-06	11/28/2012 Total	11/28/2012 Dissolved	4/16/2013
Antimony	12.5 UJ	**6.27 J**	(<25 U)
Arsenic	13.6 J	5 J	**30.2**
Chromium	(<69.9 U)	(<2.5 U)	11.2
Iron	**12,100**	(<25 U)	**4,040**
Lead	7.08 J	(<3 UJ)	2.6 J
Magnesium	**37,600**	31,200 J	34,300
Manganese	283 J	158 J	125
Nickel	(<52.2 U)	(<24.6 U)	22.3
Sodium	**48,800**	**43,600 J**	**38,200**

MW-05	11/29/2012	4/17/2013
Antimony	**4.84 J**	(<25 U)
Arsenic	8.4 J	18.7
Chromium	10 J	7.18 J
Iron	196	**852 J**
Lead	(<3 UJ)	(<6 U)
Magnesium	27,800	**44,800 J**
Manganese	50 J	121 J
Nickel	6.8 J	(<20 U)
Sodium	**32,000**	**47,500 J**

MW-03A	11/28/2012	4/16/2013
Antimony	**6.08 J**	(<25 U)
Arsenic	12.3 J	13.7
Chromium	(<24.2 U)	2.58 J
Iron	(<993 U)	**655**
Lead	(<3 U)	(<6 U)
Magnesium	**53,000**	**41,700**
Manganese	**342 J**	69.9
Nickel	(<20.7 U)	10.7 J
Sodium	**214,000**	**254,000**

NYSDEC Class GA Standards and Guidance Values (µg/L)	
Antimony	3
Arsenic	25
Chromium	50
Iron	300
Lead	25
Magnesium	35,000
Manganese	300
Nickel	100
Sodium	20,000

Well ID	Date Sampled
Analyte	Result (µg/L)

MW-04	11/28/2012 Total	11/28/2012 Dissolved	4/17/2013
Antimony	**4.56 J**	**6.34 J**	(<25 U)
Arsenic	6.9 J	(<5 UJ)	(<10 U)
Chromium	**293 J**	(<2.5 U)	21.5 J
Iron	**12,300**	(<25 U)	**723 J**
Lead	7.26 J	(<3 UJ)	5.09 J
Magnesium	**36,100**	**37,200 J**	**59,500 J**
Manganese	**364 J**	191 J	187 J
Nickel	**195**	(<10 U)	17.2 J
Sodium	**27,400 J**	**32,700 J**	**38,700 J**

Legend

- Monitoring Well
- On-Site Area
- Soil Ramp
- Tax Parcels

Note: Bold indicates exceedance of NYSDEC Class GA Standards and Guidance Values for inorganics.
J = Estimated value
U = The constituent was not detected; the associated value is the reporting limit.
µg/L = micrograms per liter

0 50 100 200 Feet
1 in = 100 ft

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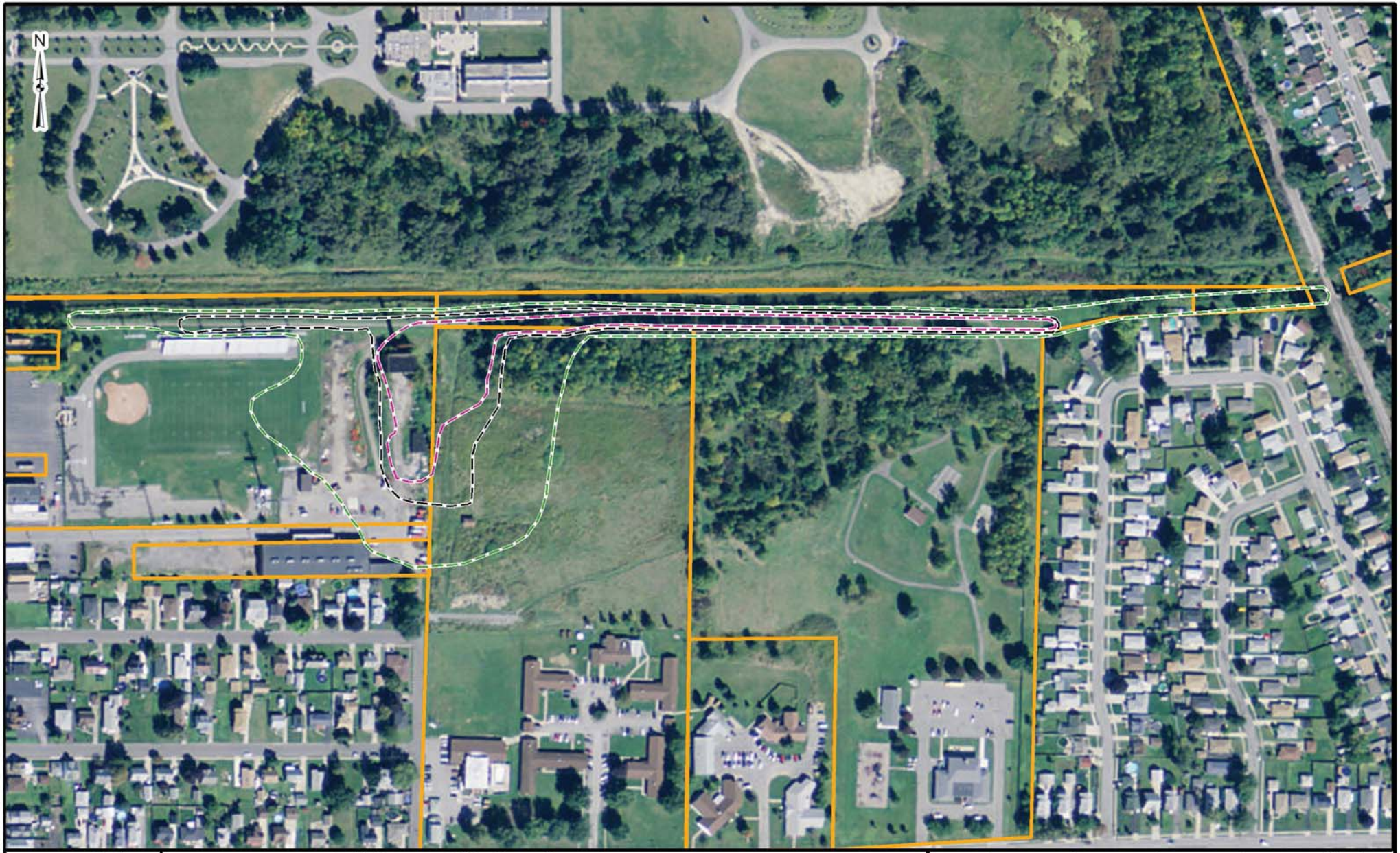
LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN / RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 3
Groundwater Inorganic Results

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JMB	HAW	HAW	MEM	AS SHOWN	NOV 2015	1490710	GIS/MXD/PRAP_ROD



Legend

- Tax Parcels

Soil Cleanup Objectives Exceedance

- Unrestricted Use
- Commercial
- Restricted Residential

0 100 200 400 600 800 Feet

1 in = 308 ft

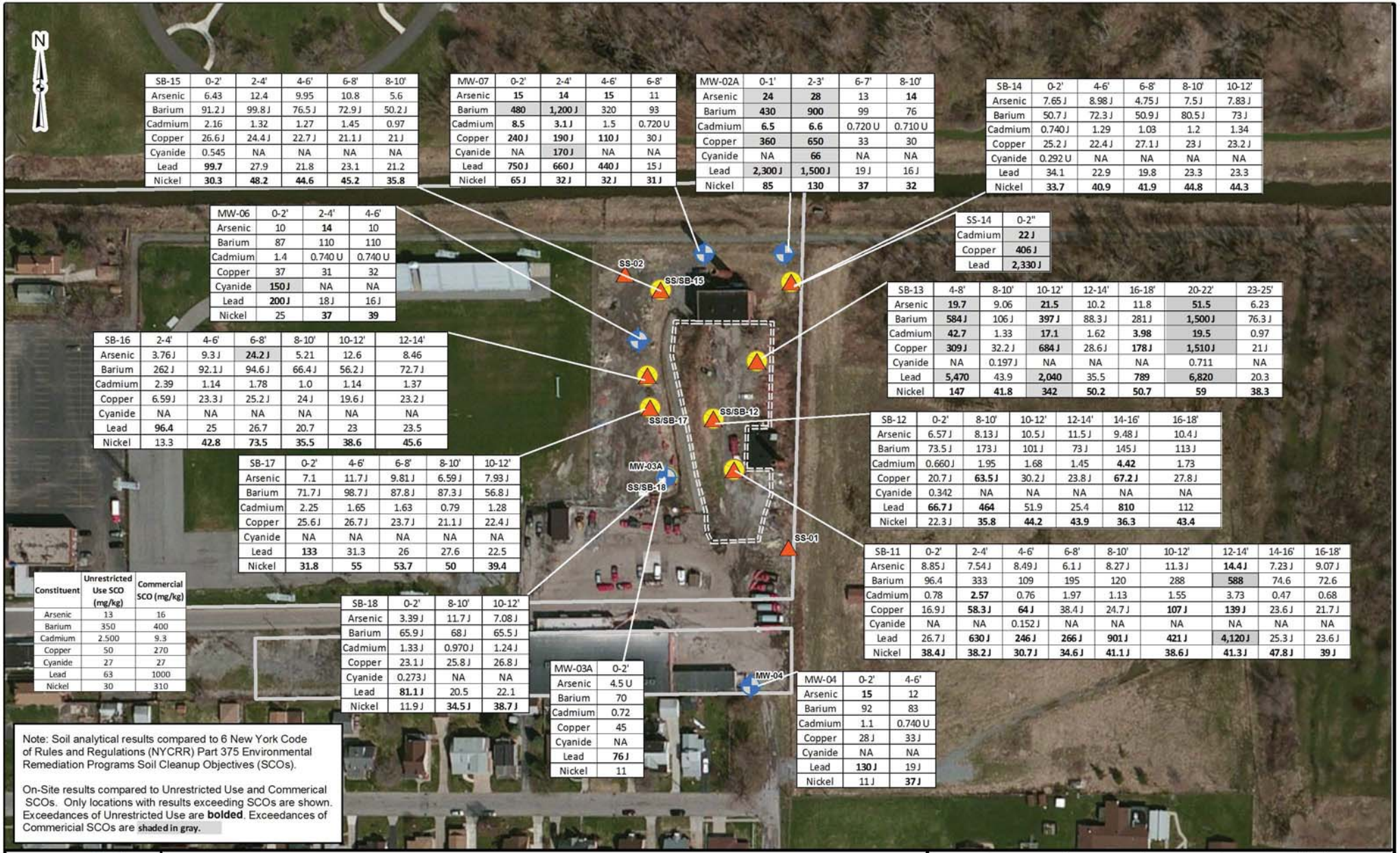
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN / RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 4
Interpreted Extent of Lead
in Soil/Fill

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JMB	ALK	HAW	MEM	AS SHOWN	NOVEMBER 2015	14907.10	GIS/MXD/PRAP_ROD



SB-15	0-2'	2-4'	4-6'	6-8'	8-10'
Arsenic	6.43	12.4	9.95	10.8	5.6
Barium	91.2 J	99.8 J	76.5 J	72.9 J	50.2 J
Cadmium	2.16	1.32	1.27	1.45	0.97
Copper	26.6 J	24.4 J	22.7 J	21.1 J	21 J
Cyanide	0.545	NA	NA	NA	NA
Lead	**99.7**	27.9	21.8	23.1	21.2
Nickel	**30.3**	**48.2**	**44.6**	**45.2**	**35.8**

MW-07	0-2'	2-4'	4-6'	6-8'
Arsenic	**15**	**14**	**15**	11
Barium	**480**	**1,200 J**	320	93
Cadmium	**8.5**	**3.1 J**	1.5	0.720 U
Copper	**240 J**	**190 J**	**110 J**	30 J
Cyanide	NA	**170 J**	NA	NA
Lead	**750 J**	**660 J**	**440 J**	15 J
Nickel	**65 J**	**32 J**	**32 J**	**31 J**

MW-02A	0-1'	2-3'	6-7'	8-10'
Arsenic	**24**	**28**	13	**14**
Barium	**430**	**900**	99	76
Cadmium	**6.5**	**6.6**	0.720 U	0.710 U
Copper	**360**	**650**	33	30
Cyanide	NA	**66**	NA	NA
Lead	**2,300 J**	**1,500 J**	19 J	16 J
Nickel	**85**	**130**	**37**	**32**

SB-14	0-2'	4-6'	6-8'	8-10'	10-12'
Arsenic	7.65 J	8.98 J	4.75 J	7.5 J	7.83 J
Barium	50.7 J	72.3 J	50.9 J	80.5 J	73 J
Cadmium	0.740 J	1.29	1.03	1.2	1.34
Copper	25.2 J	22.4 J	27.1 J	23 J	23.2 J
Cyanide	0.292 U	NA	NA	NA	NA
Lead	34.1	22.9	19.8	23.3	23.3
Nickel	**33.7**	**40.9**	**41.9**	**44.8**	**44.3**

MW-06	0-2'	2-4'	4-6'
Arsenic	10	**14**	10
Barium	87	110	110
Cadmium	1.4	0.740 U	0.740 U
Copper	37	31	32
Cyanide	**150 J**	NA	NA
Lead	**200 J**	18 J	16 J
Nickel	25	**37**	**39**

SS-14	0-2"
Cadmium	**22 J**
Copper	**406 J**
Lead	**2,330 J**

SB-13	4-8'	8-10'	10-12'	12-14'	16-18'	20-22'	23-25'
Arsenic	**19.7**	9.06	**21.5**	10.2	11.8	**51.5**	6.23
Barium	**584 J**	106 J	**397 J**	88.3 J	281 J	**1,500 J**	76.3 J
Cadmium	**42.7**	1.33	**17.1**	1.62	**3.98**	**19.5**	0.97
Copper	**309 J**	32.2 J	**684 J**	28.6 J	**178 J**	**1,510 J**	21 J
Cyanide	NA	0.197 J	NA	NA	NA	0.711	NA
Lead	**5,470**	43.9	**2,040**	35.5	**789**	**6,820**	20.3
Nickel	**147**	**41.8**	**342**	**50.2**	**50.7**	**59**	**38.3**

SB-16	2-4'	4-6'	6-8'	8-10'	10-12'	12-14'
Arsenic	3.76 J	9.3 J	**24.2 J**	5.21	12.6	8.46
Barium	262 J	92.1 J	94.6 J	66.4 J	56.2 J	72.7 J
Cadmium	2.39	1.14	1.78	1.0	1.14	1.37
Copper	6.59 J	23.3 J	25.2 J	24 J	19.6 J	23.2 J
Cyanide	NA	NA	NA	NA	NA	NA
Lead	**96.4**	25	26.7	20.7	23	23.5
Nickel	13.3	**42.8**	**73.5**	**35.5**	**38.6**	**45.6**

SB-12	0-2'	8-10'	10-12'	12-14'	14-16'	16-18'
Arsenic	6.57 J	8.13 J	10.5 J	11.5 J	9.48 J	10.4 J
Barium	73.5 J	173 J	101 J	73 J	145 J	113 J
Cadmium	0.660 J	1.95	1.68	1.45	**4.42**	1.73
Copper	20.7 J	**63.5 J**	30.2 J	23.8 J	**67.2 J**	27.8 J
Cyanide	0.342	NA	NA	NA	NA	NA
Lead	**66.7 J**	**464**	51.9	25.4	**810**	112
Nickel	22.3 J	**35.8**	**44.2**	**43.9**	**36.3**	**43.4**

SB-17	0-2'	4-6'	6-8'	8-10'	10-12'
Arsenic	7.1	11.7 J	9.81 J	6.59 J	7.93 J
Barium	71.7 J	98.7 J	87.8 J	87.3 J	56.8 J
Cadmium	2.25	1.65	1.63	0.79	1.28
Copper	25.6 J	26.7 J	23.7 J	21.1 J	22.4 J
Cyanide	NA	NA	NA	NA	NA
Lead	**133**	31.3	26	27.6	22.5
Nickel	**31.8**	**55**	**53.7**	**50**	**39.4**

SB-11	0-2'	2-4'	4-6'	6-8'	8-10'	10-12'	12-14'	14-16'	16-18'
Arsenic	8.85 J	7.54 J	8.49 J	6.1 J	8.27 J	11.3 J	**14.4 J**	7.23 J	9.07 J
Barium	96.4	333	109	195	120	288	**588**	74.6	72.6
Cadmium	0.78	**2.57**	0.76	1.97	1.13	1.55	3.73	0.47	0.68
Copper	16.9 J	**58.3 J**	**64 J**	38.4 J	24.7 J	**107 J**	**139 J**	23.6 J	21.7 J
Cyanide	NA	NA	0.152 J	NA	NA	NA	NA	NA	NA
Lead	26.7 J	**630 J**	**246 J**	**266 J**	**901 J**	**421 J**	**4,120 J**	25.3 J	23.6 J
Nickel	**38.4 J**	**38.2 J**	**30.7 J**	**34.6 J**	**41.1 J**	**38.6 J**	**41.3 J**	**47.8 J**	**39 J**

Constituent	Unrestricted Use SCO (mg/kg)	Commercial SCO (mg/kg)
Arsenic	13	16
Barium	350	400
Cadmium	2.500	9.3
Copper	50	270
Cyanide	27	27
Lead	63	1000
Nickel	30	310

SB-18	0-2'	8-10'	10-12'
Arsenic	3.39 J	11.7 J	7.08 J
Barium	65.9 J	68 J	65.5 J
Cadmium	1.33 J	0.970 J	1.24 J
Copper	23.1 J	25.8 J	26.8 J
Cyanide	0.273 J	NA	NA
Lead	**81.1 J**	20.5	22.1
Nickel	11.9 J	**34.5 J**	**38.7 J**

MW-03A	0-2'
Arsenic	4.5 U
Barium	70
Cadmium	0.72
Copper	45
Cyanide	NA
Lead	**76 J**
Nickel	11

MW-04	0-2'	4-6'
Arsenic	**15**	12
Barium	92	83
Cadmium	1.1	0.740 U
Copper	28 J	33 J
Cyanide	NA	NA
Lead	**130 J**	19 J
Nickel	11 J	**37 J**

Note: Soil analytical results compared to 6 New York Code of Rules and Regulations (NYCRR) Part 375 Environmental Remediation Programs Soil Cleanup Objectives (SCOs).

On-Site results compared to Unrestricted Use and Commerical SCOs. Only locations with results exceeding SCOs are shown. Exceedances of Unrestricted Use are **bolded**. Exceedances of Commericial SCOs are shaded in gray.

Legend

Monitoring Well | Soil Boring | On-Site Area

Surface Soil | Soil Ramp

Feet

0 50 100 200 300 400

1 in = 170 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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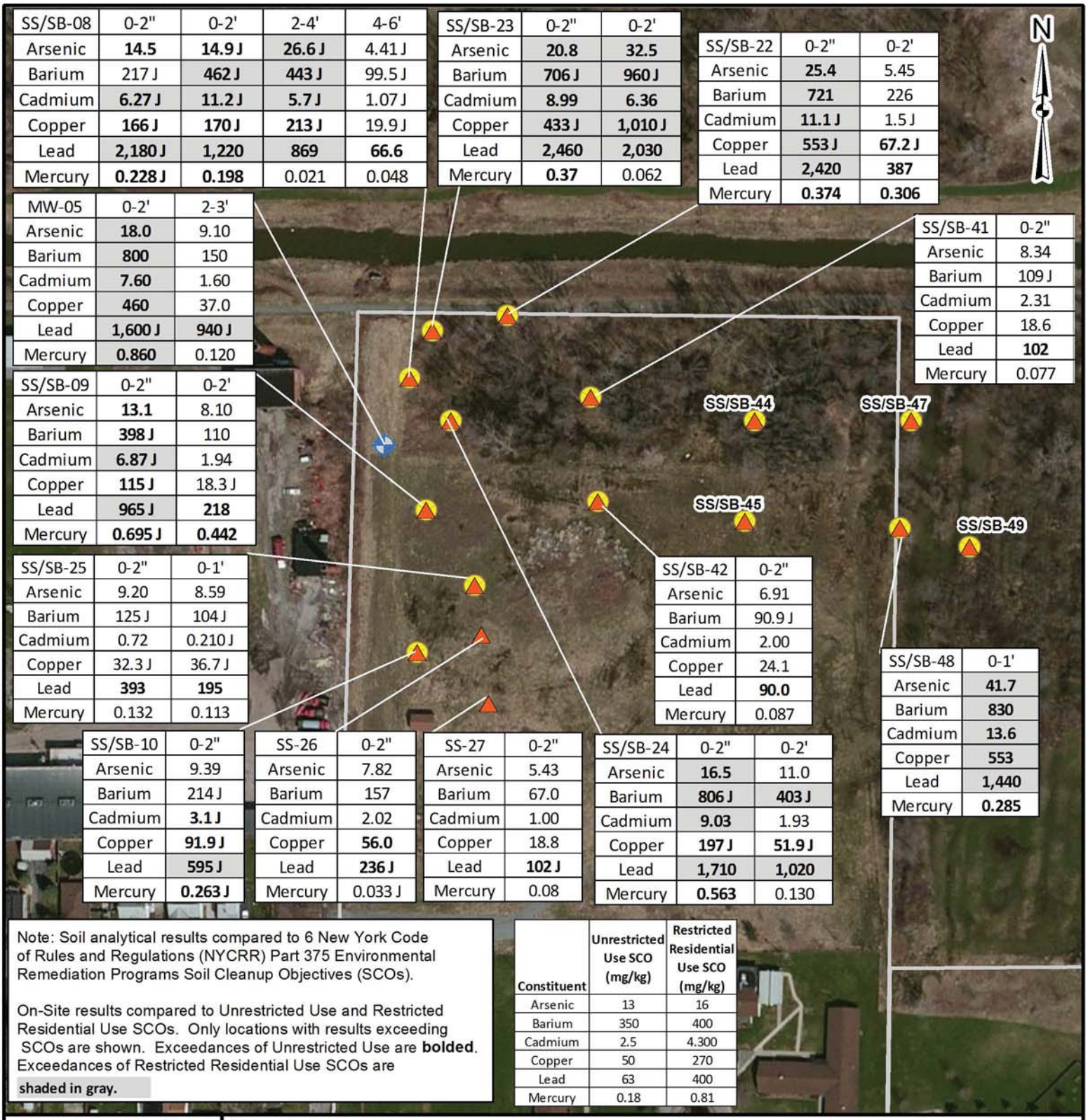
LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN / RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 5
RI Inorganic Soil Results
On-Site Area

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JMB	ALK	HAW	MEM	AS SHOWN	NOVEMBER 2015	14907.10	GIS/MXD/PRAP_ROD



SS/SB-08	0-2"	0-2'	2-4'	4-6'
Arsenic	**14.5**	**14.9 J**	**26.6 J**	4.41 J
Barium	217 J	**462 J**	**443 J**	99.5 J
Cadmium	**6.27 J**	**11.2 J**	**5.7 J**	1.07 J
Copper	**166 J**	**170 J**	**213 J**	19.9 J
Lead	**2,180 J**	**1,220**	**869**	**66.6**
Mercury	**0.228 J**	**0.198**	0.021	0.048

SS/SB-23	0-2"	0-2'
Arsenic	**20.8**	**32.5**
Barium	**706 J**	**960 J**
Cadmium	**8.99**	**6.36**
Copper	**433 J**	**1,010 J**
Lead	**2,460**	**2,030**
Mercury	**0.37**	0.062

SS/SB-22	0-2"	0-2'
Arsenic	**25.4**	5.45
Barium	**721**	226
Cadmium	**11.1 J**	1.5 J
Copper	**553 J**	**67.2 J**
Lead	**2,420**	**387**
Mercury	**0.374**	**0.306**

MW-05	0-2'	2-3'
Arsenic	**18.0**	9.10
Barium	**800**	150
Cadmium	**7.60**	1.60
Copper	**460**	37.0
Lead	**1,600 J**	**940 J**
Mercury	**0.860**	0.120

SS/SB-41	0-2"
Arsenic	8.34
Barium	109 J
Cadmium	2.31
Copper	18.6
Lead	**102**
Mercury	0.077

SS/SB-09	0-2"	0-2'
Arsenic	**13.1**	8.10
Barium	**398 J**	110
Cadmium	**6.87 J**	1.94
Copper	**115 J**	18.3 J
Lead	**965 J**	**218**
Mercury	**0.695 J**	**0.442**

SS/SB-25	0-2"	0-1'
Arsenic	9.20	8.59
Barium	125 J	104 J
Cadmium	0.72	0.210 J
Copper	32.3 J	36.7 J
Lead	**393**	**195**
Mercury	0.132	0.113

SS/SB-42	0-2"
Arsenic	6.91
Barium	90.9 J
Cadmium	2.00
Copper	24.1
Lead	**90.0**
Mercury	0.087

SS/SB-48	0-1'
Arsenic	**41.7**
Barium	**830**
Cadmium	**13.6**
Copper	**553**
Lead	**1,440**
Mercury	**0.285**

SS/SB-10	0-2"
Arsenic	9.39
Barium	214 J
Cadmium	**3.1 J**
Copper	**91.9 J**
Lead	**595 J**
Mercury	**0.263 J**

SS-26	0-2"
Arsenic	7.82
Barium	157
Cadmium	2.02
Copper	**56.0**
Lead	**236 J**
Mercury	0.033 J

SS-27	0-2"
Arsenic	5.43
Barium	67.0
Cadmium	1.00
Copper	18.8
Lead	**102 J**
Mercury	0.08

SS/SB-24	0-2"	0-2'
Arsenic	**16.5**	11.0
Barium	**806 J**	**403 J**
Cadmium	**9.03**	1.93
Copper	**197 J**	**51.9 J**
Lead	**1,710**	**1,020**
Mercury	**0.563**	0.130

Note: Soil analytical results compared to 6 New York Code of Rules and Regulations (NYCRR) Part 375 Environmental Remediation Programs Soil Cleanup Objectives (SCOs).

On-Site results compared to Unrestricted Use and Restricted Residential Use SCOs. Only locations with results exceeding SCOs are shown. Exceedances of Unrestricted Use are **bolded**. Exceedances of Restricted Residential Use SCOs are **shaded in gray.**

Constituent	Unrestricted Use SCO (mg/kg)	Restricted Residential Use SCO (mg/kg)
Arsenic	13	16
Barium	350	400
Cadmium	2.5	4.300
Copper	50	270
Lead	63	400
Mercury	0.18	0.81

Legend

- Monitoring Well
- Surface Soil
- Soil Boring
- Baker Hall Property

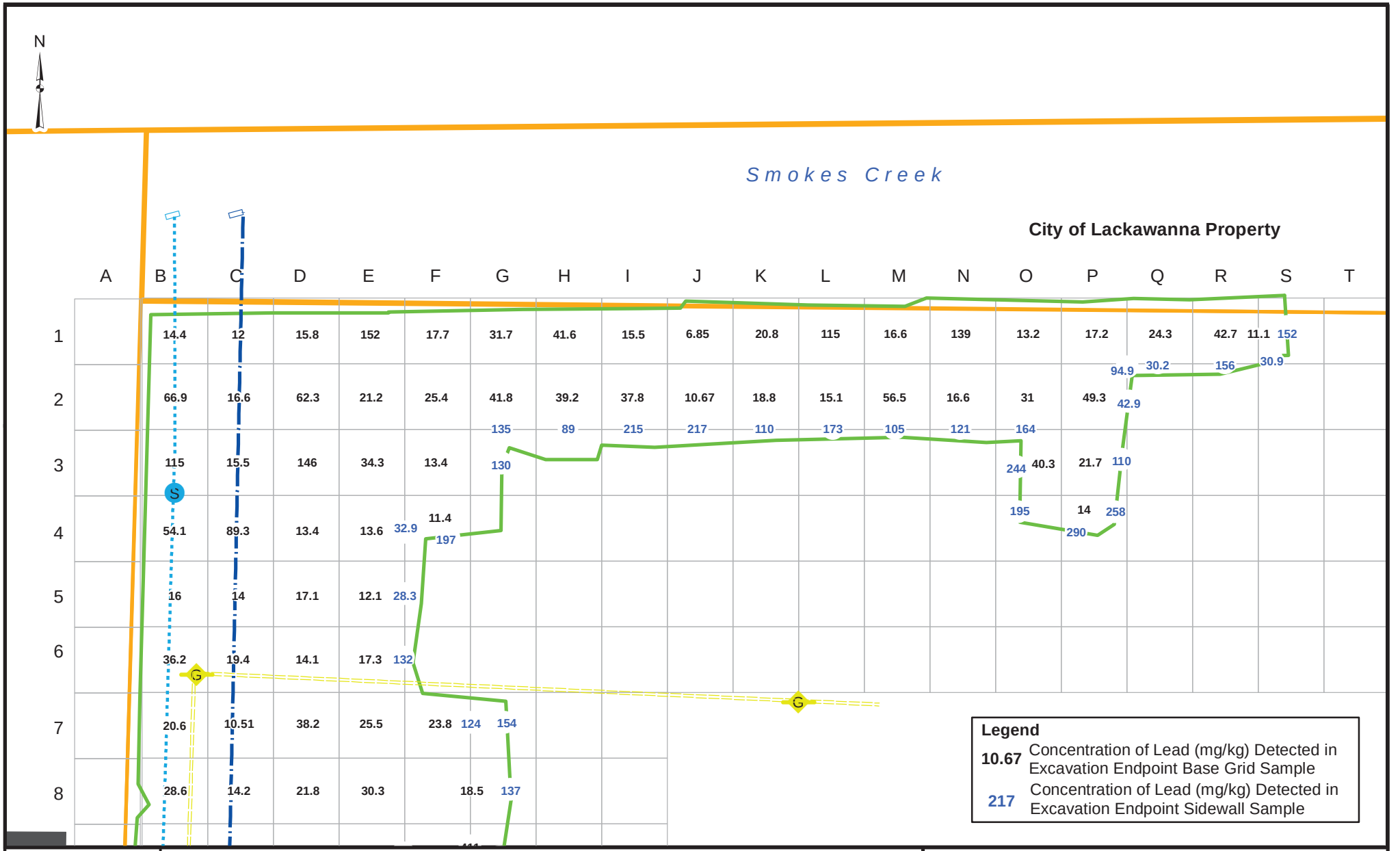
Feet
0 75 150 300
1 in = 150 ft

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN / RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 6
RI Inorganic Soil Results
Baker Hall Property

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JMB	HAW	HAW	MEM	AS SHOWN	NOVEMBER 2015	1490710	GIS/MXD/PRAP_ROD



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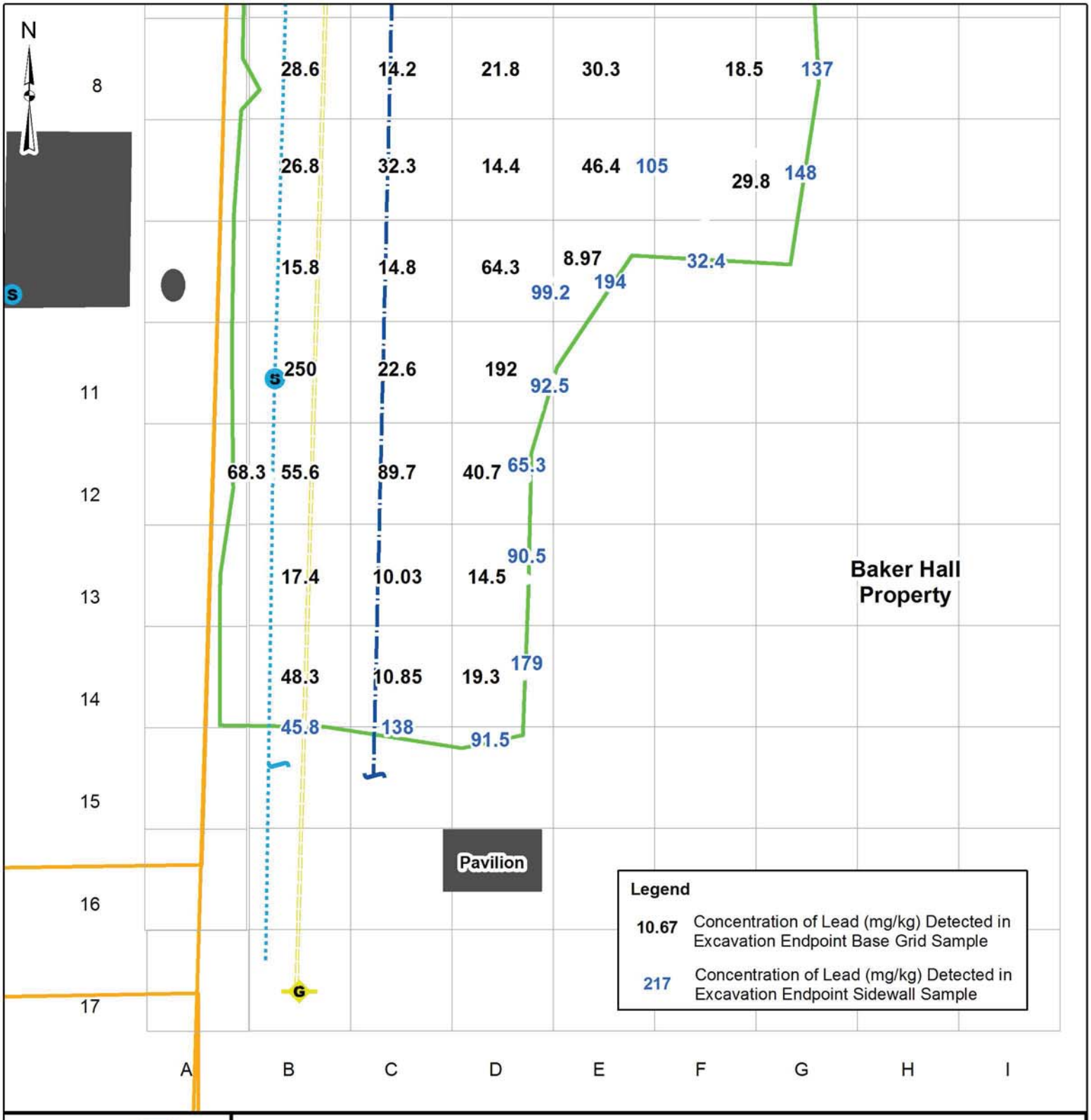
LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN / RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 7A
Excavation Endpoint Sampling -
Lead Results North

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JMB	ALK	HAW	MEM	AS SHOWN	NOVEMBER 2015	14907.10	GIS/MXD/PRAP_ROD



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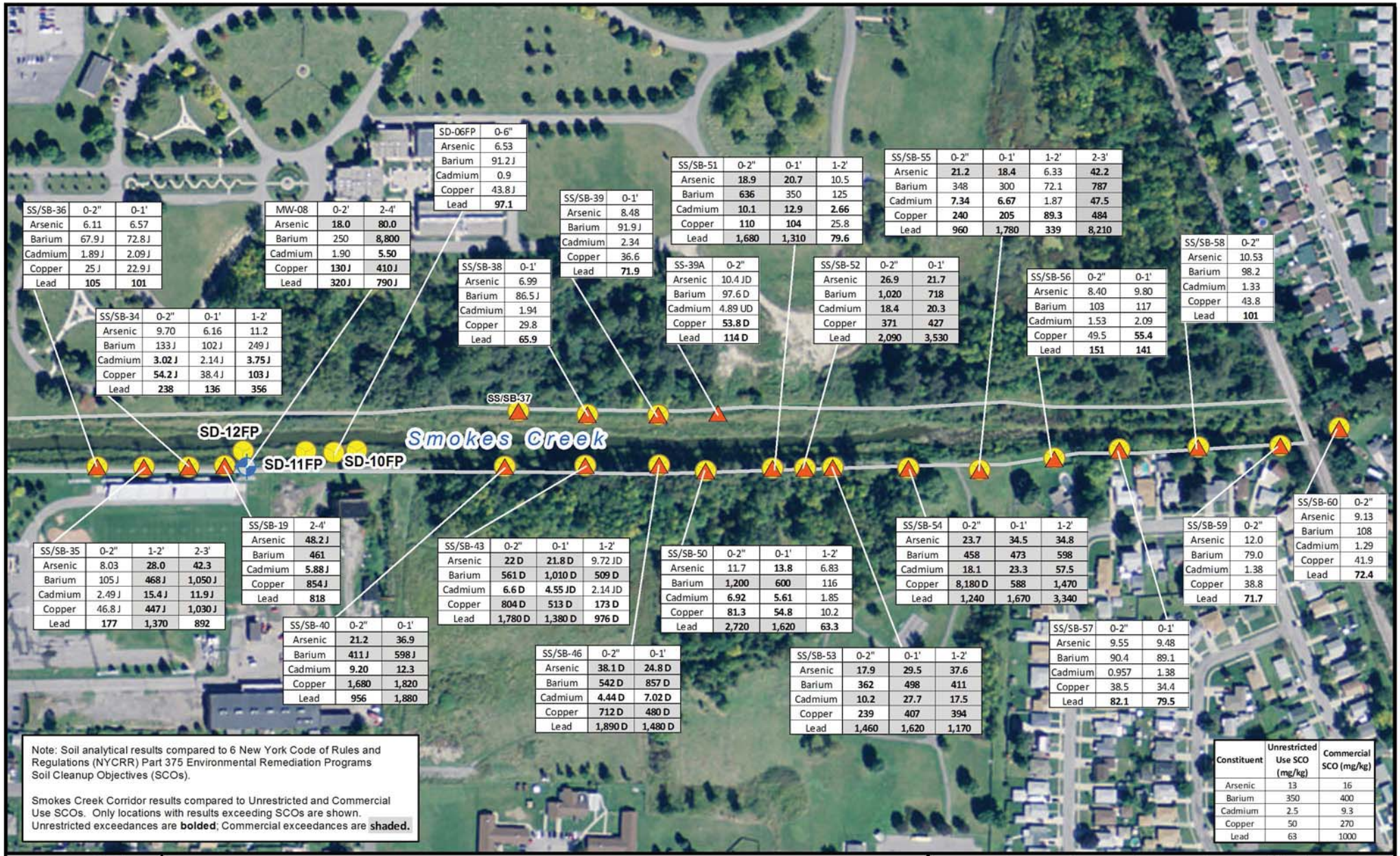
LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN /
RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 7B
EXCAVATION ENDPOINT SAMPLING LEAD RESULTS - SOUTH

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JCH	CJS	HAW	MEM	AS SHOWN	NOVEMBER 2015	1490710	GIS/MXD/PRAP_ROD



SS/SB-36	0-2"	0-1'
Arsenic	6.11	6.57
Barium	67.9 J	72.8 J
Cadmium	1.89 J	2.09 J
Copper	25 J	22.9 J
Lead	105	101

MW-08	0-2'	2-4'
Arsenic	18.0	80.0
Barium	250	8,800
Cadmium	1.90	5.50
Copper	130 J	410 J
Lead	320 J	790 J

SD-06FP	0-6"
Arsenic	6.53
Barium	91.2 J
Cadmium	0.9
Copper	43.8 J
Lead	97.1

SS/SB-39	0-1'
Arsenic	8.48
Barium	91.9 J
Cadmium	2.34
Copper	36.6
Lead	71.9

SS/SB-51	0-2"	0-1'	1-2'
Arsenic	18.9	20.7	10.5
Barium	636	350	125
Cadmium	10.1	12.9	2.66
Copper	110	104	25.8
Lead	1,680	1,310	79.6

SS/SB-55	0-2"	0-1'	1-2'	2-3'
Arsenic	21.2	18.4	6.33	42.2
Barium	348	300	72.1	787
Cadmium	7.34	6.67	1.87	47.5
Copper	240	205	89.3	484
Lead	960	1,780	339	8,210

SS/SB-58	0-2"
Arsenic	10.53
Barium	98.2
Cadmium	1.33
Copper	43.8
Lead	101

SS/SB-38	0-1'
Arsenic	6.99
Barium	86.5 J
Cadmium	1.94
Copper	29.8
Lead	65.9

SS-39A	0-2"
Arsenic	10.4 JD
Barium	97.6 D
Cadmium	4.89 UD
Copper	53.8 D
Lead	114 D

SS/SB-52	0-2"	0-1'
Arsenic	26.9	21.7
Barium	1,020	718
Cadmium	18.4	20.3
Copper	371	427
Lead	2,090	3,530

SS/SB-56	0-2"	0-1'
Arsenic	8.40	9.80
Barium	103	117
Cadmium	1.53	2.09
Copper	49.5	55.4
Lead	151	141

SS/SB-34	0-2"	0-1'	1-2'
Arsenic	9.70	6.16	11.2
Barium	133 J	102 J	249 J
Cadmium	3.02 J	2.14 J	3.75 J
Copper	54.2 J	38.4 J	103 J
Lead	238	136	356

SS/SB-35	0-2"	1-2'	2-3'
Arsenic	8.03	28.0	42.3
Barium	105 J	468 J	1,050 J
Cadmium	2.49 J	15.4 J	11.9 J
Copper	46.8 J	447 J	1,030 J
Lead	177	1,370	892

SS/SB-19	2-4'
Arsenic	48.2 J
Barium	461
Cadmium	5.88 J
Copper	854 J
Lead	818

SS/SB-43	0-2"	0-1'	1-2'
Arsenic	22 D	21.8 D	9.72 JD
Barium	561 D	1,010 D	509 D
Cadmium	6.6 D	4.55 JD	2.14 JD
Copper	804 D	513 D	173 D
Lead	1,780 D	1,380 D	976 D

SS/SB-50	0-2"	0-1'	1-2'
Arsenic	11.7	13.8	6.83
Barium	1,200	600	116
Cadmium	6.92	5.61	1.85
Copper	81.3	54.8	10.2
Lead	2,720	1,620	63.3

SS/SB-54	0-2"	0-1'	1-2'
Arsenic	23.7	34.5	34.8
Barium	458	473	598
Cadmium	18.1	23.3	57.5
Copper	8,180 D	588	1,470
Lead	1,240	1,670	3,340

SS/SB-59	0-2"
Arsenic	12.0
Barium	79.0
Cadmium	1.38
Copper	38.8
Lead	71.7

SS/SB-60	0-2"
Arsenic	9.13
Barium	108
Cadmium	1.29
Copper	41.9
Lead	72.4

SS/SB-40	0-2"	0-1'
Arsenic	21.2	36.9
Barium	411 J	598 J
Cadmium	9.20	12.3
Copper	1,680	1,820
Lead	956	1,880

SS/SB-46	0-2"	0-1'
Arsenic	38.1 D	24.8 D
Barium	542 D	857 D
Cadmium	4.44 D	7.02 D
Copper	712 D	480 D
Lead	1,890 D	1,480 D

SS/SB-53	0-2"	0-1'	1-2'
Arsenic	17.9	29.5	37.6
Barium	362	498	411
Cadmium	10.2	27.7	17.5
Copper	239	407	394
Lead	1,460	1,620	1,170

SS/SB-57	0-2"	0-1'
Arsenic	9.55	9.48
Barium	90.4	89.1
Cadmium	0.957	1.38
Copper	38.5	34.4
Lead	82.1	79.5

Note: Soil analytical results compared to 6 New York Code of Rules and Regulations (NYCRR) Part 375 Environmental Remediation Programs Soil Cleanup Objectives (SCOs).

Smokes Creek Corridor results compared to Unrestricted and Commercial Use SCOs. Only locations with results exceeding SCOs are shown. Unrestricted exceedances are **bolded**; Commercial exceedances are **shaded.**

Constituent	Unrestricted Use SCO (mg/kg)	Commercial SCO (mg/kg)
Arsenic	13	16
Barium	350	400
Cadmium	2.5	9.3
Copper	50	270
Lead	63	1000

Legend

Monitoring Well | Soil Boring | Smokes Creek Area

Surface Soil

Feet

0 75 150 300 450 600

1 in = 300 ft

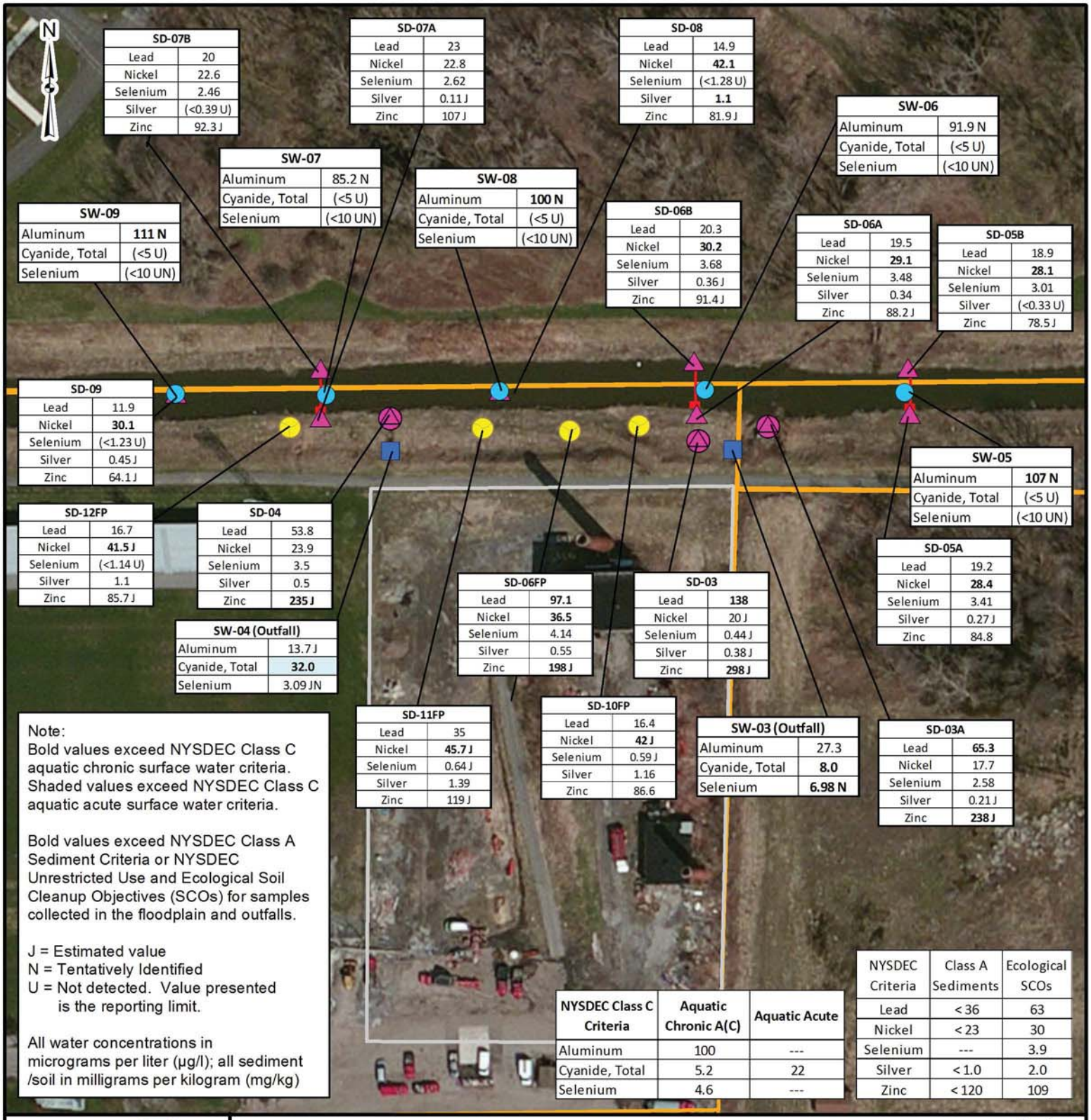
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN / RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 8
RI Inorganic Soil Results
Smokes Creek Corridor

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JMB	ALK	HAW	MEM	AS SHOWN	NOVEMBER 2015	14907.10	GIS/MXD/PRAP_ROD



NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN / RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 9
Stormwater Outfall, Smokes Creek Surface Water and Sediment Inorganic Results

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JMB	HAW	HAW	LM	AS SHOWN	NOVEMBER 2015	1490710	GIS/MXD/PRAP_ROD

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\14907.10 – LACKAWANNA\CAD\14907.10-LACKAWANNA-MODIFIED4B.DWG [MOD.4B] 1/5/16

ASPHALT SIDEWALK

CHAIN LINK FENCE

CHAIN LINK FENCE

1 FT OF SOIL COVER

SPOIL PILE

POLE #NG 86R4

GRAVEL

GRAVEL

STACK

8" ASH

8" ASH

STORM DRAIN TO BE REPAIRED

BOULDERS

NORTHERN INCINERATOR BUILDING

STORM DRAIN TO BE DECOMMISSIONED

RETAINING WALL

SPOIL PILE

DITCH

8" ASH

RET WALL

RET WALL

GUY

DEAD POLE #NM 101R3

BROKEN ASPHALT

U.P. #NG 86R3

EROSION CONTROL SYSTEM

RETAINING WALL

CHAIN LINK FENCE

GATE

GRAVEL

SPOIL PILE

SPOIL PILE

SPOIL PILE

BROKEN ASPHALT

U.P. #NG 86R2

DITCH

DEAD POLE #NM 101R2

SOUTHERN INCINERATOR BUILDING

S 1° 53' 17" W 527.29'

GUY

DITCH

U.P. #NG 86L-1

1037

1035

1036 METAL POSTS

BOLLARDS

POLE #NG 86-1

CONC. BARRIER WALL

EDGE OF PAVEMENT

BOLLARD

BOLLARD

POLE #NM 101R

ASPHALT

ASPHALT

M.H. M.H.

FILL CAP FILL CAP

MON. WELLS

PUMP PUMP

BOL. BOL.

CODE BOX

BLOCK SHED

GRAVEL

EDGE OF PAVEMENT

1 FT OF SOIL COVER

FENCE

DPW INCINERATOR AREA ALTERNATIVE 7: SITE COVER

SOIL COVER: 31,160 SF
EROSION CONTROL SYSTEM: 14,425 SF

LEGEND:

--595-- EXISTING MAJOR CONTOUR

------ EXISTING MINOR CONTOUR

EROSION CONTROL SYSTEM

DPW INCINERATOR AREA ALTERNATIVE 7 COVER AREA

40 20 0 40

GRAPHIC SCALE IN FEET

SOURCE:
SURVEY BY POPLI, ARCHITECTURE AND ENGINEERING & L.S., P.C. ON OCTOBER 4, 2012.

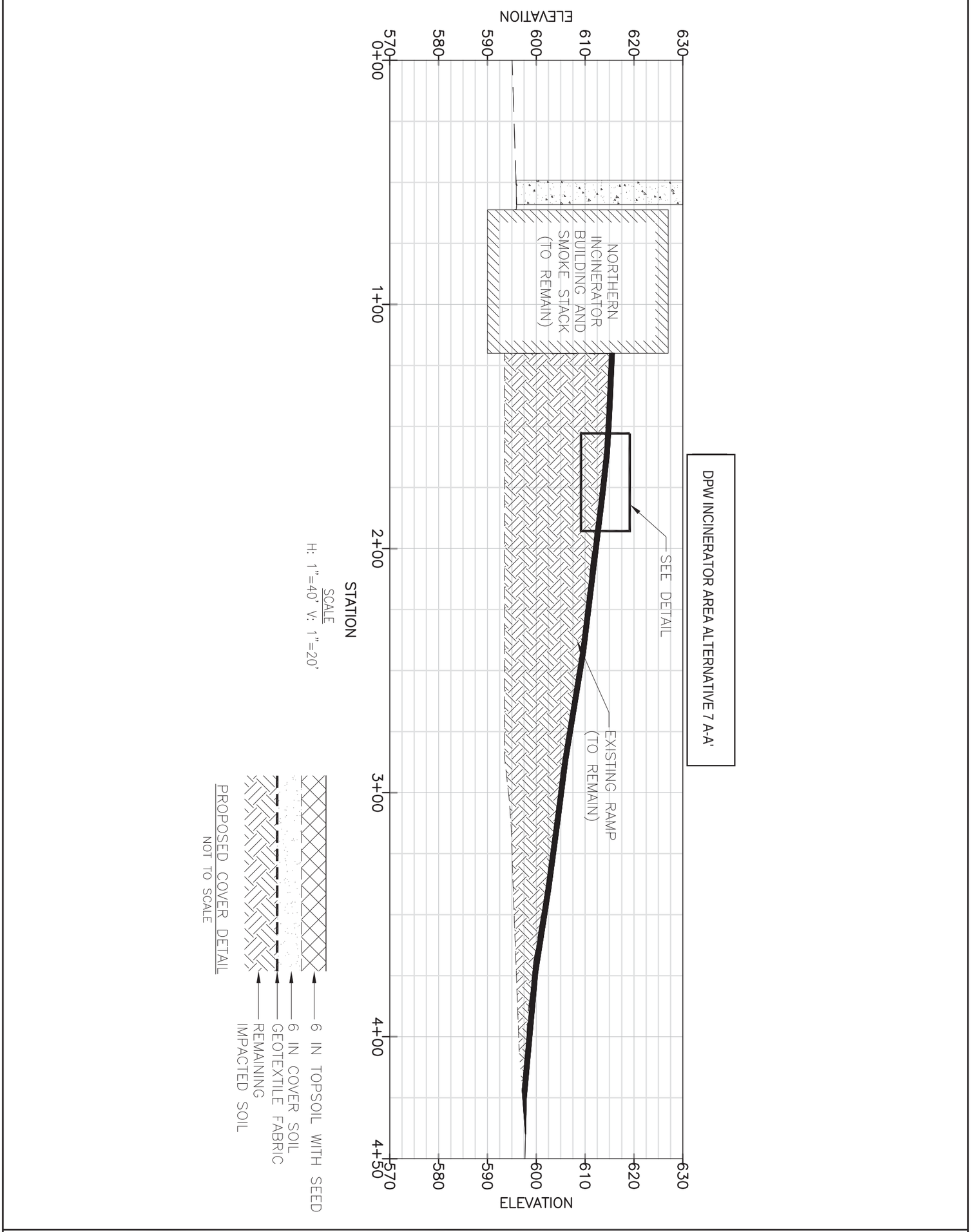
NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN/
RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 10
DPW INCINERATOR AREA ALTERNATIVE 7
FINAL CONDITIONS

PROJECT MGR	DESIGNED BY	CREATED BY	CHECKED BY	SCALE	DATE	PROJECT NO.	FILE NO.
JMB	MEM	DPA	JH	1" = 40'	JAN 2016	14907.10	Lackawanna-Figures

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\14907.10 – LACKAWANNA\CAD\14907.10-LACKAWANNA-MODIFIED4B.DWG [MOD.4B A-A'] 1/4/16



LEGEND:

— —— — EXISTING SURFACE

- - — - - - SUBGRADE SURFACE

REMAINING IMPACTED SOIL

SOIL COVER

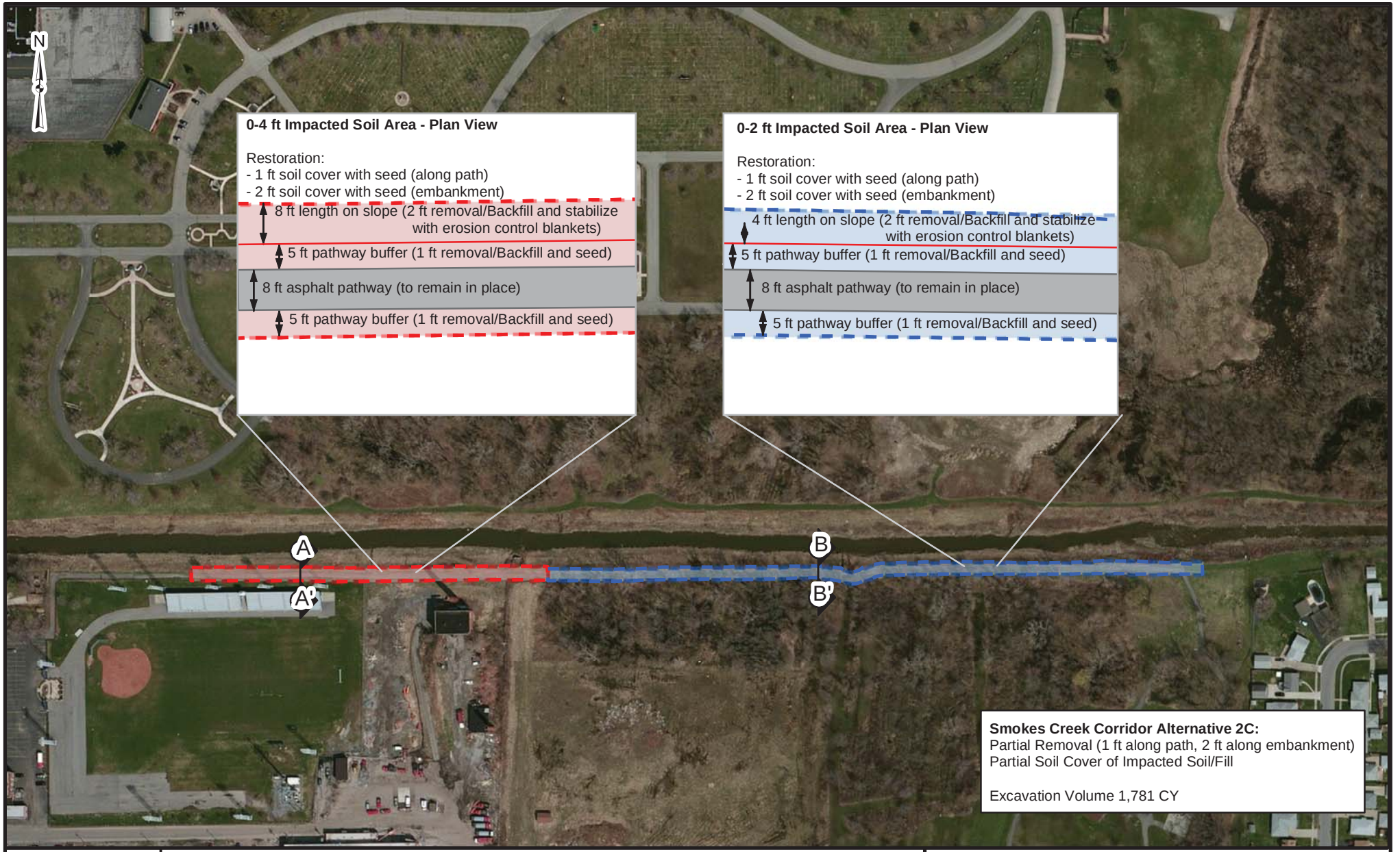
SOURCE:
SURVEY BY POPLI, ARCHITECTURE AND ENGINEERING & L.S., P.C. ON OCTOBER 4, 2012.

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN/
RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 11
DPW INCINERATOR AREA ALTERNATIVE 7
CROSS SECTION

PROJECT MGR	DESIGNED BY	CREATED BY	CHECKED BY	SCALE	DATE	PROJECT NO.	FILE NO.
JMB	MEM	DPA	JH	AS SHOWN	JAN 2016	14907.10	Lackawanna-Figures



Legend

- 0-2 ft. Impact Depth
- 0-4 ft. Impact Depth

0 62.5 125 250 375 500 Feet

1 in = 250 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

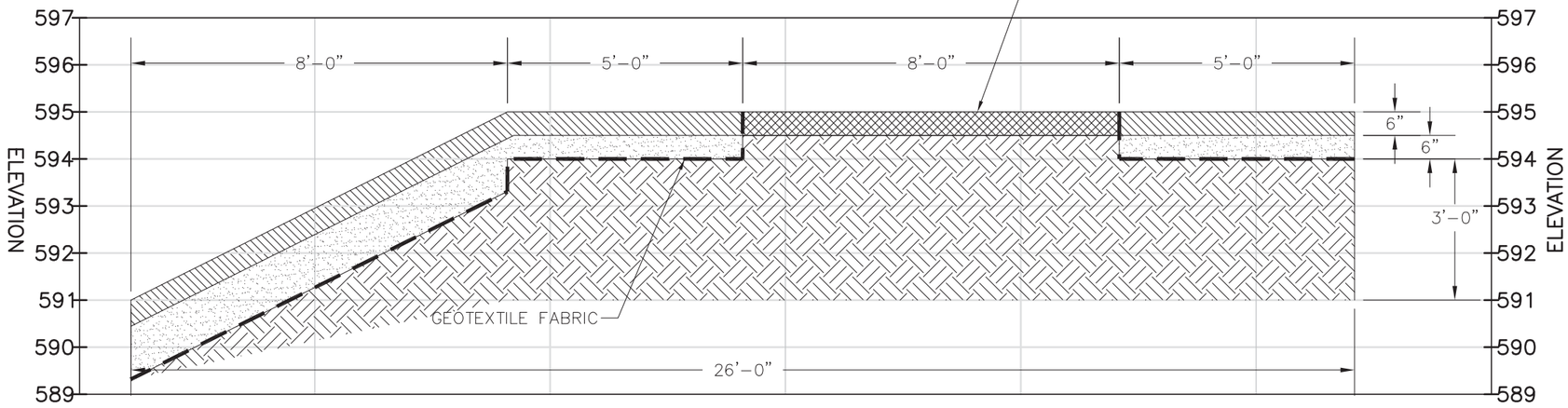
NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN / RECORD OF DECISION
LACKAWANNA, NEW YORK

FIGURE 12
Smokes Creek Corridor Alternative 2C

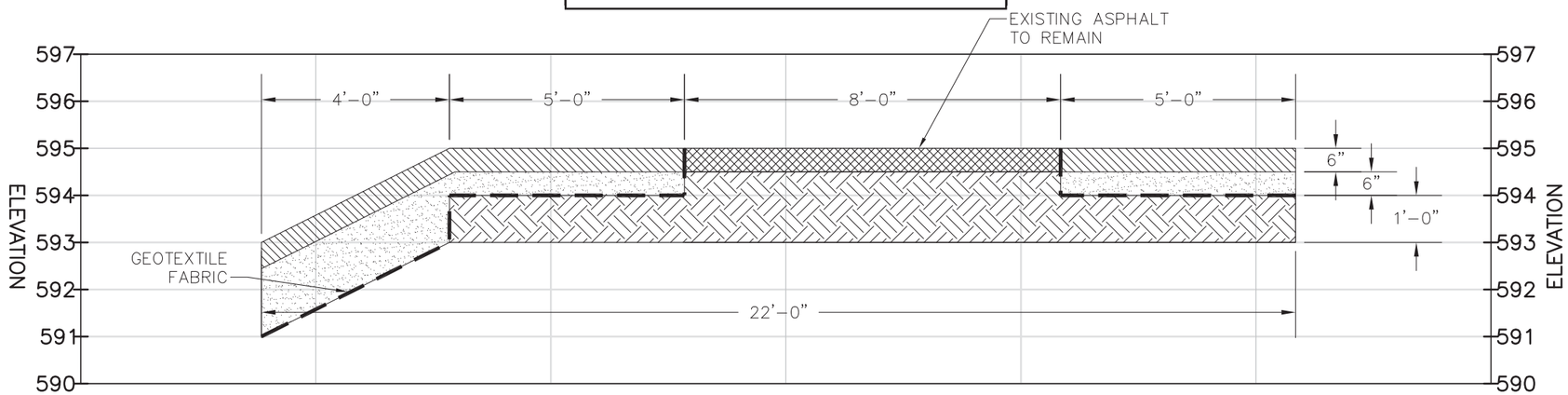
PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JMB	ALK	HAW	MEM	AS SHOWN	NOVEMBER 2015	14907.10	GIS/MXD/PRAP_ROD

SMOKES CREEK CORRIDOR ALTERNATIVE 2C A-A'



SCALE
H: 1"=3'
V: 1"=3'

SMOKES CREEK CORRIDOR ALTERNATIVE 2C B-B'



SCALE
H: 1"=3'
V: 1"=3'

SOURCE:
SURVEY BY POPLI, ARCHITECTURE AND ENGINEERING & L.S., P.C. ON OCTOBER 4, 2012.

LEGEND:
- REMAINING IMPACTED SOIL
- ASPHALT
- TOPSOIL
- BACKFILL

FIGURE 13
SMOKES CREEK CORRIDOR
ALTERNATIVE 2C
CROSS SECTIONS

LACKAWANNA INCINERATOR (SITE NO. 915206)
PROPOSED REMEDIAL ACTION PLAN/
RECORD OF DECISION
LACKAWANNA, NEW YORK

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

SCALE	AS SHOWN
DATE	JAN 2016
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APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Lackawanna Incinerator Site
State Superfund Project
City of Lackawanna, Erie County, New York
Site No. 915206

The Proposed Remedial Action Plan (PRAP) for the Lackawanna Incinerator Site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on April 5, 2017. The PRAP outlined the remedial measure proposed for the contaminated soil at the Lackawanna Incinerator Site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on April 19, 2017, which included a presentation of the remedial investigation and feasibility study (RI/FS) for the Lackawanna Incinerator Site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions, and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on May 5, 2017.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: Regarding the public meeting presentation slide 22, “Phase I Sample Locations,” was sampling and investigation conducted further south and east in the area of the Baker Hall facilities?

RESPONSE 1: Yes. Additional sampling to identify the extent of contamination on the Baker Hall property was conducted during Phases II and III of the Remedial Investigation as well as during delineation sampling in preparation for the Interim Remedial Measure conducted on the Baker Hall property. The full nature and extent of contamination was delineated through these combined sampling events.

COMMENT 2: Why was work performed by the DEC on the adjacent Baker Hall property?

RESPONSE 2: Based on soil sampling and visual observation the presence of incinerator bottom ash extended beyond the fence line of the City of Lackawanna property onto the adjacent Baker Hall property. Considering planned construction on the adjacent Baker Hall property, a time-critical Interim Remedial Measure was conducted by the Department on the approximate 3-acre area of identified contamination.

COMMENT 3: “DPW Incinerator Area Alternative 3: Site Management” with a Present Worth

value of $48,000 is financially favorable to the City of Lackawanna.

RESPONSE 3: Noted.

COMMENT 4: The City of Lackawanna could not afford the cost of a remedy in 2011, and it still can't in 2017.

RESPONSE 4: Noted.

COMMENT 5: Regarding the selected remedy, can the incinerator structures be left in place?

RESPONSE 5: Yes. Based on depth to native soil and the elevation of the slab-on-ground of the northern structure, the Northern Incinerator appears to have been constructed on native soil and can remain in place without any threat to public or the environment. If remaining contamination did exist beneath the slab of the Northern Incinerator, the structure itself would provide appropriate cover, preventing direct contact with the soil below. The Southern Incinerator building is suspected to have contaminated incinerator ash and soil within the lower level of the building that does not meet commercial use soil cleanup objectives (SCOs) and may remain in place as long as direct contact with that material is restricted, by means of a soil cover (e.g., soil, asphalt, stone), or by the structure itself.

COMMENT 6: Regarding the selected remedy, will the incinerator chimneys be left in place?

RESPONSE 6: Yes. Based on the selected remedy for the incinerator area, "DPW Incinerator Area Alternative 7: Site Cover," the incinerator structures, as well as the associated chimneys, will be left in place.

COMMENT 7: Should public comments on the Proposed Remedy be submitted to the library?

RESPONSE 7: No, outside of the April 19th public meeting, public comments may be submitted to the site Project Manager, NYS Department of Environmental Conservation, Division of Environmental Remediation through May 5, 2017, as identified in the Proposed Remedial Action Plan.

COMMENT 8: What process was conducted to arrive at the $1.7 million selected remedy?

RESPONSE 8: The remedial goal for all remedial actions is considered to be the restoration of the site to the pre-disposal/pre-release conditions to the extent practicable. As required by Environmental Conservation Law Section 27-1303, in determining the scope of a remedial program, the Department considered among others, the following factors: the technological feasibility of all remedial actions; the nature of the danger to human health and the environment which the actions are designed to address; and the extent to which the actions would reduce such danger to human health or the environment or would otherwise benefit human health or the environment.

Based on the nature and extent of contamination and exposure pathways identified during the

Remedial Investigation, a list of Remedial Action Objectives (RAOs) was identified. Alternatives were identified by the feasibility study that would satisfy the RAOs for the site which included no action, institutional controls, containment, removal, treatment, disposal, monitoring, or a combination thereof. These preliminary alternatives were then screened based on their effectiveness, implementability, and cost, and developed into remedial alternatives to address impacted media at the site.

The list of remedial alternatives was then weighed against the list of nine factors identified in 6 NYCRR 375-1.8(f) before the selected remedy was determined. The nine factors are: (1) Overall protectiveness of the public health and the environment, (2) Standards, criteria and guidance, (3) Long-term effectiveness and permanence, (4) Reduction in toxicity, mobility or volume of contamination through treatment, (5) Short-term impacts and effectiveness, (6) Implementability, (7) Cost-effectiveness, including capital costs and annual site maintenance plan costs, (8) Community acceptance, and (9) Land use. This remedy selection process is then memorialized in a Feasibility Study report.

COMMENT 9: Were other alternatives considered during the remedy selection process?

RESPONSE 9: Yes. The complete list of alternatives and an evaluation based on the nine criteria presented in Response 8 can be found in the Feasibility Study (November 2015) for the site. A summary of this evaluation is provided for in the Proposed Remedial Action Plan as "Exhibit B Description of Remedial Alternatives."

COMMENT 10: If no remedial action is conducted, is the recreational trail along Smokes Creek appropriate and safe for public use in its current state?

RESPONSE 10: The asphalt surface of the maintained recreational trail serves as an appropriate cover material to prevent direct contact with soil that may exceed the commercial use SCOs. The soil just below the sod layer on the sides of the asphalt trail is contaminated with metals at concentrations that exceed the commercial use SCOs and if exposed would increase the potential of contact with contaminants in the soil.

COMMENT 11: What was the cost of the Interim Remedial Measure conducted on the Baker Hall property?

RESPONSE 11: Approximately $1.3 million.

COMMENT 12: Considering the need for remedial action and risk to public health and the environment, how does this site compare to the waterfront areas (Bethlehem Steel site)?

RESPONSE 12: Both the Lackawanna Incinerator site and the Bethlehem Steel site are classified as Class 2 sites, indicating that a significant threat exists that demands remedial attention. The Incinerator site include areas that are not completely fenced, allowing access by the public, whereas the Bethlehem site is completely fenced with restricted access. The Incinerator site contaminants of concern are solid phase inorganics (metals) with no indication of off-site migration by groundwater flow or sediment runoff, additionally there are no volatile organic

Compounds (VOC) of concern detected at the Incinerator site. The Bethlehem site investigation did identify VOC groundwater contamination, potentially resulting in increased pathways for contaminant migration and exposure.

COMMENT 13: Should former incinerator employees be concerned about potential workplace exposure and any related health effects?

RESPONSE 13: Workplace exposures are under the auspices of the Occupational Safety & Health Administration and would be addressed by that administration. As site contaminants were in incinerator bottom ash, former incinerator employees may have been exposed to this material during the course of their work at the facility. Any concerns regarding potential health effects from the potential exposure to this material should be discussed with the employee's private physician.

COMMENT 14: Will there be health screening of former incinerator employees as part of the remedial investigation or during any remedial action?

RESPONSE 14: Health screenings are not anticipated as part of the remedial action. If employees are interested in a health screening based on their potential exposure to incinerator contamination, they should contact an occupational health specialist.

COMMENT 15: Is cost information associated with the Interim Remedial Measure (IRM) conducted at Baker Hall property available to the public?

RESPONSE 15: Cost information associated with the IRM can be obtained.

COMMENT 16: Who are the identified responsible parties for the site and adjacent property?

RESPONSE 16: The City of Lackawanna is the only identified responsible party.

COMMENT 17: If the City of Lackawanna declines to implement the selected remedy will DEC mandate the remedy be implemented by the City?

RESPONSE 17: If the City of Lackawanna, the identified responsible party, elects to not implement the selected remedy then the Department will implement the remedy. The Department may seek to recover the costs associated with implementing the remedy from the City.

COMMENT 18: Is the City of Lackawanna also responsible for costs incurred during the design and implementation of the Interim Remedial Measure on the Baker Hall property?

RESPONSE 18: Yes, see Response 17.

COMMENT 19: Was there a comment period prior to the Interim Remedial Measure (IRM), if so, when?

RESPONSE 19: Citizen Participation activities are not required for IRMs unless the scope of the

IRM is likely to represent the remedy or a significant portion of the remedy. It was determined that a public comment period for the IRM would not be necessary as the IRM applied to only a portion of the site area, approximately 3 acres of vacant field compared to 12.1 acres that included the incinerator structures, a recreational trail, the creek embankment, and storm water conveyance systems.

COMMENT 20: When was the Interim Remedial Measure (IRM) implemented?

RESPONSE 20: IRM delineation sampling was completed in October 2014 and the soil removal was conducted between November 13, 2014 and January 30, 2015.

COMMENT 21: Is it true the City of Lackawanna began the initial environmental investigation at the former incinerator site?

RESPONSE 21: Early work by the City of Lackawanna included nomination of the Lackawanna Incinerator Site to EPA in April 2004 for use of Environmental Site Assessment funds. Federal funding was made available and preliminary site assessment was completed by the City in April 2005. A report was provided in November 2005.

COMMENT 22: I just moved back to Lackawanna a year and a half ago, and after this meeting, I must say, I'm sorry I did.

RESPONSE 22: Noted.

COMMENT 23: This presentation was excellent, informative, and thorough, as opposed to the Lackawanna/Bethlehem Steel fire presentation from a couple months ago, which was not at all.

RESPONSE 23: Noted.

COMMENT 24: What was the name of the company who produced the film clip shown during the Public Meeting presentation?

RESPONSE 24: The film segment shown during the public meeting was a portion of a promotional marketing film produced by the Nye Odorless Incinerator Co. circa 1930. The film was obtained from the Prelinger Archives (public domain) and can be found at: https://archive.org/details/0388_Historical_Review_of_Incineration_20_41_13_20

APPENDIX B

Administrative Record

Administrative Record

Lackawanna Incinerator Site
State Superfund Project
City of Lackawanna, Erie County, New York
Site No. 915206

1. *Proposed Remedial Action Plan for the Lackawanna Incinerator Site,* dated March 2017, prepared by the Department.

2. Referral Memorandum dated January 20, 2012 from the NYS DEC Office of General Counsel Remediation & Revitalization Bureau conveying authorization to the Division of Environmental Remediation to use state funds to complete the Remedial Program.

3. "DRAFT Site Investigation / Remedial Alternatives Report," dated November 2005, prepared by Malcolm Pirnie, Inc. for the City of Lackawanna.

4. *Work Plan for the Lackawanna Incinerator Site (915206),* dated October 2012, prepared by EA Engineering, P.C.

5. *Remedial Investigation (First Phase) Letter Report*, letter report dated April 2013, prepared by EA Engineering, P.C.

6. *Remedial Investigation Letter Work Plan Addendum*, letter report dated April 2013, prepared by EA Engineering, P.C.

7. *Remedial Investigation Letter Work Plan Addendum No. 2*, letter report dated June 2013, prepared by EA Engineering, P.C.

8. *Remedial Investigation Letter Work Plan Addendum No. 3*, letter report dated August 2013, prepared by EA Engineering, P.C.

9. *Remedial Investigation Letter Work Plan Addendum No. 4*, letter report dated October 2013, prepared by EA Engineering, P.C.

10. *Remedial Investigation Letter Work Plan Addendum No. 5*, letter report dated January 2014, prepared by EA Engineering, P.C.

11. *Remedial Action Objectives and Feasibility Study Technology Screening*, letter report dated January 2014, prepared by EA Engineering, P.C.

12. *Lackawanna Interim Remedial Measure Letter Work Plan*, dated September 2014, prepared by EA Engineering, P.C.

13. “Remedial Investigation Report for the Lackawanna Incinerator Site (915206),” dated October 2014, prepared by EA Engineering, P.C.

14. “Interim Remedial Measure Construction Completion Report Former Lackawanna Incinerator Site,” dated September 2015, prepared by EA Engineering, P.C.

15. “Feasibility Study Report Lackawanna Incinerator Site (915206),” dated November 2015, prepared by EA Engineering, P.C.