Mr. William Bennett – Project Manager
Environmental Engineer 2 -Remedial Bureau C
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Subject:
DRAFT Site Management Plan
Ramapo Paint Sludge Site – Operable Unit 1 and Operable Unit 2 (OU-1 & 2)
Ramapo, Rockland County, New York
Site No. 344065

ENVIRONMENT

Date:
June 24, 2020

Contact:
Krista Mastrocola

Phone:
610.755.7080

Email:
Krista.mastrocola@arcadis.com

Our ref:
30017236

Dear Mr. Bennett:

Arcadis of New York Inc. (Arcadis), on behalf of Ford Motor Company (Ford), is submitting this Draft Site Management Plan (SMP) for Operable Unit 1 (OU-1) and Operable Unit 2 (OU-2) of the Ramapo Paint Sludge Site located in the Town of Ramapo, Rockland County, New York (the Site).

The North of Ramapo Well Field, designated as OU-1, was subject to an Interim Remedial Measure (IRM) consisting of excavation, removal and off-site transportation and disposal of paint sludge and impacted soils. The IRM Construction Completion Report (CCR) was submitted in August 2016 and approved by the NYSDEC on December 20, 2016. A Focused Feasibility Study was submitted in December 2017 and subsequently, a Record of Decision was issued in July 2018 proposing No Further Action with Site Management and Institutional Controls (ICs).

The Torne Valley Road Area, designated as OU-2, was subject to a Remedial Action consisting of excavation, removal and off-site transportation and disposal of paint sludge and impacted soils. A Draft Remedial Design CCR was submitted in April 2019 and is currently under NYSDEC review.

The Draft SMP, attached herein, presents details regarding the institutional and engineering controls present at the Site. Should you have any additional questions or concerns related to the SMP, please feel free to contact me at any time.

Sincerely,

ARCADIS of New York., Inc.

Krista Mastrocola, NY PE 092409-01
Senior Project Engineer

Copies:
M. Zakkar (Ford)
P. Bracken (Arcadis)
T. Dzurinko (TOR)

Enclosures:
Site Management Plan, Ramapo Paint Sludge Site – OU-1 and OU-2

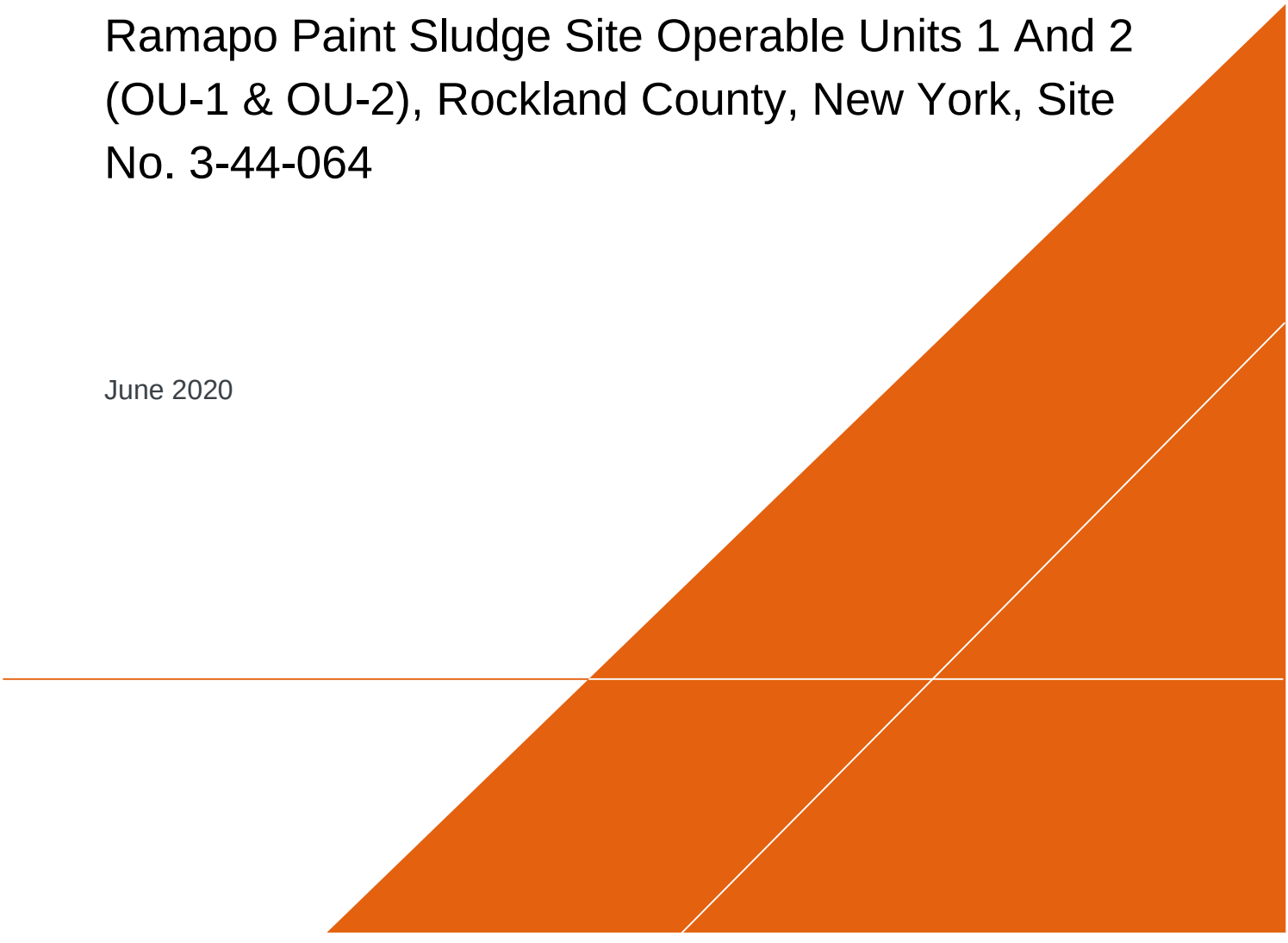
ARCADIS Design & Consultancy for natural and built assets

Ford Motor Company

DRAFT SITE MANAGEMENT PLAN

Ramapo Paint Sludge Site Operable Units 1 And 2 (OU-1 & OU-2), Rockland County, New York, Site No. 3-44-064

June 2020



DRAFT SITE MANAGEMENT PLAN

Ramapo Paint Sludge Site Operable Units 1 And 2 (OU-1 & OU-2), Rockland County, New York, Site No. 3-44-064

Prepared for:

Ford Motor Company

Prepared by:

Arcadis of New York, Inc.

17-17 Route 208 North

Fair Lawn

New Jersey 07410

Tel 201 797 7400

Fax 201 797 4399

Our Ref.:

30017236

Date:

June 2020

Paul Bracken
Principal Environmental Specialist

I,_____, certify that I am currently a NYS registered professional engineer as in defined in 6 NYCRR Part 375 and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Krista Hankins Mastrocola, NY PE 092409-01
Project Civil Engineer

VERSION CONTROL, OPTIONAL

Issue	Revision No	Date Issued	Page No	Description	Reviewed by

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ACRONYMS AND ABBREVIATIONS

Arcadis	Arcadis of New York, Inc.
BAA	Benzo(a)anthracene
BAP	Benzo(a)pyrene
BBF	Benzo(b)fluoranthene
CAMP	Community Air Monitoring Plan
COC	Certificate of Completion
DER	Division of Environmental Remediation
EC	Engineering Control
EWP	Excavation Work Plan
Ford	Ford Motor Company
HASP	Health and Safety Plan
IC	Institutional Control
IHWDS	Inactive Hazardous Waste Disposal Site
Indeno	Indeno(1,2,3-cd)pyrene
IRM	Interim Remedial Measure
MEK	2-butanone
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
OC	Order on Consent
OU	Operable Unit
PAHs	Polyaromatic hydrocarbons
PPM	Parts per million
PPB	Parts per billion
PRR	Periodic Review Report
RA	Remedial Action
RAO	Remedial Action Objective
ROD	Record of Decision
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SVOCs	Semi-Volatile Organic Compounds
TOR	Town of Ramapo
United Water	United Water of New York
VOCs	Volatile Organic Compounds

EXECUTIVE SUMMARY

Site Identification: No. 3-44-064: Ramapo Paint Sludge Site Operable Units 1 and 2

Institutional Controls:	• The property may be used for: restricted residential use; • All ECs must be operated and maintained as specified in this SMP; • All ECs must be inspected at a frequency and in a manner defined in the SMP. • Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP; • All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP; • Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP; • Operation, maintenance, monitoring, inspection, and reporting of ~~any mechanical or physical component of~~ the remedy shall be performed as defined in this SMP; • Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.
Engineering Controls:	Cover system

Inspections:	Frequency
Cover inspection	Quinquennial
Reporting:	
Periodic Review Report	Quinquennial

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

1 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for portions of the Ramapo Paint Sludge Site, Operable Units 1 and 2 (OU-1 & OU-2) located in the Town of Ramapo, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site (IHWDS) Site No. 3-44-064 which is administered by the New York State Department of Environmental Conservation (NYSDEC).

Ford Motor Company (Ford, Remedial Party) entered into an Order on Consent (OC) on March 16, 2006 with the NYSDEC to remediate the Site. Figures showing the site location and boundaries of this Site is provided in Figures 2, 3A, and 3B. The boundaries of the Site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix A.

After completion of the remedial work, some contamination was left at the Site, which is hereafter referred to as "remaining contamination". Institutional Controls and Engineering Controls (ICs and ECs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Rockland County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site.

This SMP was prepared to manage remaining contamination at the Site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the OC for the Site, and thereby subject to applicable penalties.

All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in NYS. A list of contacts for persons involved with the Site is provided in Appendix B of this SMP. A list of property owner and remedial party responsibilities is provided in Appendix C.

This SMP was prepared by Arcadis of New York Inc. (Arcadis), on behalf of Ford, in accordance with the requirements of the NYSDEC's DER- 10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and ECs that are required by the Environmental Easement for the Site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: ~~a change in media monitoring requirements, upgrades to or shut-down of a remedial system,~~ post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the

Site, the NYSDEC will provide a notice of any approved changes to the SMP and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner or remedial party as applicable to NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the OC, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the ~~foundation, structures or~~ EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/property owner has been provided with a copy of the OC, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix B.

TABLE 1: NOTIFICATIONS*

Name	Contact Information
Mohamed Zakkar, Ford Motor Company	313-322-5470 mzakkar@ford.com
William Bennett, NYSDEC Project Manager	518-402-9659 William.bennett@dec.ny.gov
Kevin Carpenter, NYSDEC Regional Manager	518-402-9799 Kevin.carpenter@dec.ny.gov
Anthony Perretta, NYSDOH	518-402-7860 Anthony.perretta@health.ny.gov

* Note: Notifications are subject to change and will be updated, as necessary.

2 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

2.1.1 OU-1

OU-1 is located in Rockland County, New York and is identified as Section 47.07: Block 1, Lot 4 on the Ramapo Tax Map (see Figure 2). OU-1 is 38.5 acres in size located predominantly in the Town of Ramapo with 2.2 acres located in the Village of Hillburn. OU-1 is bounded by the Ramapo River to the north, east and south; railroad tracks and the Orange Turnpike to the west; Bridge Street to the northwest (see Figure 2 – Site Layout Map OU-1). The boundaries of OU-1 are more fully described in Appendix A – Environmental Easement. The property owner of OU-1 at the time of issuance of this SMP is the Town of Ramapo (TOR) with an easement granted to United Water New York, Inc. (United Water).

2.1.2 OU-2

OU-2 is located in Rockland County, New York and is identified as Section 39.19: Block 1, Lot 7.2 and Section 47.11: Block 1, Lot 2 on the Ramapo Tax Map (see Figure 3A & 3B). OU-2 is 15.4 acres in size located in the Town of Ramapo. OU-2 is bound to the west by Torne Brook; to the north by a Consolidated-Edison (ConEdison) Sub Station; to the east by Torne Valley Road; and to the south by Torne Brook and a wooded area owned by the Town of Ramapo (see Figure 3A – Site Layout Map OU-2 Northern and Figure 3B – Site Layout Map OU-2 Southern). The boundaries of OU-2 are more fully described in Appendix A – Environmental Easement. The property owner of OU-2 at the time of issuance of this SMP is the Town of Ramapo (TOR).

2.2 Physical Setting

2.2.1 OU-1

2.2.1.1 Land Use

OU-1 consists of undeveloped forested and open areas overgrown with brush. OU-1 is zoned as restricted residential and is currently utilized as a well field operated by United Water.

The properties adjoining and adjacent to OU-1 primarily include industrial, commercial and recreational properties.

2.2.1.2 Geology and Hydrogeology

The site topography is relatively flat (an average slope of less than 3%), with surface runoff draining to the Ramapo River. The United Water water-supply well logs indicate depth to bedrock varies at OU-1 from 72 to 100 feet below ground surface (bgs) and is covered by stratified drift which consists of unconsolidated deposits consisting of sand, gravel, silt, and clay. Construction logs from these production wells indicate that groundwater is approximately 10 feet bgs with the well screens ranging between 46 feet and 98 feet within the stratified drift. Maximum yield of each well is 900-1,200 gallons per minute.

2.2.2 OU-2

2.2.2.1 Land Use

OU-2 consists of undeveloped forested and open areas overgrown with brush. OU-2 is zoned as restricted residential use and it is currently used for recreational activities.

The properties adjoining and adjacent to OU-2 primarily include industrial, commercial and recreational properties.

2.2.2.2 Geology and Hydrogeology

OU-2 topography is mountainous, with surface runoff draining to the Torne Brook. The majority of OU-2 has been disturbed with areas of stockpiled boulders or large boulders. Torne Brook is a relatively permanent waterway that runs in a north/south direction, before entering the Ramapo River. The depth to groundwater is approximately 10 feet bgs and the permeability of site soils varies between 10^{-4} to 10^{-6} centimeters per second.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 7.0 - References.

- The Site Characterization Report (November 28, 2007) outlines the site reconnaissance and test pit activities that were conducted in 2006 to evaluate the extent of paint sludge deposits.
- The Ramapo River Investigation (October 21, 2008) outlines the results of a reconnaissance survey conducted along the riverbank within OU-1 in August 2008. Results identified one piece of paint sludge located on the western bank of the Ramapo River adjacent to the southern portion of the Site.
- The Remedial Investigation Report (September 1, 2010) presents the results of all previously completed investigation activities between 2006 and 2009. This includes site reconnaissance, test pits, soil borings, groundwater sampling, and surface water/sediment sampling for OU-1 and OU-2.

2.3.1 OU-1

- The OU-1 Geoprobe Investigation Report (September 15, 2009) presents the results from a geoprobe investigation conducted in April 2009 to characterize soil adjacent to and beneath the paint sludge deposits at the Site.
- The Interim Remedial Measure Work Plan (August 24, 2012) and Addendum 1- Utility Corridor Soil Remediation (October 17, 2013) discusses the plan to excavate, remove and off-site transport and dispose of paint sludge and impacted soils, backfill with clean fill materials and restore the Site.
- The Construction Completion Report (February 24, 2015) documents the activities performed as part of the interim remedial measure conducted between December 2013 and April 2014.
- The Focused Feasibility Study (December 13, 2017) recommends the No Further Action with Site Management and ICs be implemented as the long-term remedy for the Site.
- The Record of Decision (ROD; July 2018) identified No Further Action with Site Management and ICs as the selected remedy for OU-1.

2.3.2 OU-2

- The Soil Sampling Report (August 27, 2012) provides additional soil boring information delineating the extent of paint sludge and impacted soil within OU-2.
- The Feasibility Study (June 2013) recommended Targeted Removal of Visible Paint Sludge and Partial Excavation of Embankments.
- The ROD (March 2014) identifies the selected remedy Targeted Removal of Visible Paint Sludge and Partial Excavation of Embankments for OU-2.
- The Final Remedial Design (July 2015) discusses the procedure for implementation of the selected remedy.
- The Construction Completion Report (April 2019) documents the activities performed as part of the remedial action (RA) from August 2015 to April 2016.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the ROD dated July 2018 (OU-1) and March 2014 (OU-2) are as follows:

SOIL

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

2.5 Remaining Contamination

Sediment, surface-water, and groundwater has not been identified as impacted with the COCs associated with paint sludge. Paint sludge and impacted soil was the media targeted during implementation of the IRM, and the associated COCs exceeding the applicable Unrestricted Use SCOs are:

- Volatile Organic Compounds (VOCs) – Acetone, 2-butanone (MEK), ethylbenzene, toluene and xylene;
- Semi-volatile Organic Compounds (SVOCs) – Benzo(a)anthracene (BAA), benzo(a)pyrene (BAP), benzo(b)fluoranthene (BBF), chrysene, and indeno(1,2,3-cd) pyrene (Indeno); and,
- Inorganics – Arsenic, barium, copper, lead, manganese, nickel, selenium and zinc.

Tables 2 and 3, and Figures 4, 5A, and 5B summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs. VOCs and inorganic COCs are consistent with historical data associated with paint sludge. SVOCs have not been historically associated with paint sludge.

2.5.1 OU-1 Soil

Based on a review of Table 2 associated with the soil samples collected after completion of the IRM, six samples representing existing conditions exceed restricted-residential SCOs:

- BAA, BAP, BBF, and Indeno were identified in excess of the restricted residential SCOs of 1 part per million (ppm), 1 ppm, 1 ppm and 0.5 ppm, respectively at PE-P1-Cell0-5SW (1-1.5'). Concentrations of BAA, BAP, BBF, and Indeno were 1.33 ppm, 1.24 ppm, 1.77 ppm, and 0.701 ppm, respectively;
- BBF and Indeno were identified in excess of the restricted residential SCOs of 1 ppm and 0.5 ppm at PE-P1-East-5SW (1-1.5'). Concentrations of BBF and Indeno were 1.33 ppm, 1.24 ppm, 1.09 ppm, and 0.565 ppm, respectively;
- Arsenic was identified in excess of the restricted residential SCO of 16 ppm at PE-WSA-1B (0.5-1') at a concentration of 25 ppm and at PE-WSA-3B (0.5-1') at a concentration of 46.5 ppm; and,
- Manganese was identified in excess of the restricted residential SCO of 2000 ppm at PE-P1-West-13B(5.0-5.5) at a concentration of 3,100 ppm and at PE-P1-West-14SW(3.5-4.0) at a concentration of 3,050 ppm.

The PAH exceedances are marginally above the standard and may be attributed to frequent flooding events associated with the Ramapo River at OU-1. The elevated arsenic concentrations were located in the waste storage area where no paint sludge was observed; however, construction and demolition debris from homes constructed during the early 20th century and slag from mining was observed. Both home construction and mining slag are not related to Ford operations. Manganese is a naturally occurring chemical and exceedances were at a sufficient depth below the soil cover.

2.5.2 OU-2 Soil

Based on a review of Table 3 associated with the soil samples collected after completion of the RA, 15 samples representing existing conditions exceed restricted-residential SCOs:

- Total Xylenes were identified in excess of the restricted residential SCOs of 100 ppm at PE-E-S4(6.0-6.5) at a concentration of 117 ppm;
- BAA was identified in excess of the restricted residential SCOs of 1 ppm at PE-A-S12A(1.0-1.5) at a concentration of 2.2 ppm;
- BAP was identified in excess of the restricted residential SCOs of 1 ppm at PE-A-S12A(1.0-1.5) at a concentration of 2.2 ppm;
- BBF was identified in excess of the restricted residential SCOs of 1 ppm at PE-A-S12A(1.0-1.5) at a concentration of 2.4 ppm;
- Indeno was identified in excess of the restricted residential SCOs of 0.500 ppm at PE-A-S12A(1.0-1.5) and PE-H-A4(2.0-2.5) at concentrations of 1.6 ppm, and 0.53 ppm, respectively;
- Arsenic was identified in excess of the restricted residential SCOs of 16 ppm at PE-G-S5A(5.0-5.5) at a concentration of 21.1 ppm;
- Barium was identified in excess of the restricted residential SCOs of 400 ppm at PE-G-S6A(5.0-5.5), PE-H-C1(8.0-8.5), PE-E-S5(5.0-5.5), PE-G-S5A(5.0-5.5), PE-E-S4(6.0-6.5), PE-E-S6(1.5-2.0), PE-E-F4(11.0-11.5), PE-A-S6 (1.0-1.5), and PE-MSA-M20(0.5-1.0) at concentrations of 618 ppm, 507 ppm, 2,890 ppm, 2,660 ppm, 2,060 ppm, 1,850 ppm, 1,800 ppm, 2,780 ppm, and 409 ppm, respectively;
- Copper was identified in excess of the restricted residential SCOs of 270 ppm at PE-G-S5A(5.0-5.5) and PE-E-C6(2.0-2.5) at concentrations of 401 ppm and 506 ppm, respectively;

- Lead was identified in excess of the restricted residential SCOs of 400 ppm at PE-E-S5(5.0-5.5), PE-G-S4A(5.0-5.5), PE-E-F4(11.0-11.5), PE-E-S6(1.5-2.0), PE-G-S5A(5.0-5.5), PE-E-S4(6.0-6.5), and PE-A-S6 (1.0-1.5) at concentrations of 949 ppm, 701 ppm, 636 ppm, 499 ppm, 2,690 ppm, 1,250 ppm, and 1,030 ppm, respectively;
- Manganese was identified in excess of the restricted residential SCOs of 2,000 ppm at PE-E-E8(2.0-2.5) and PE-MSA-M1(0.5-1.0) at concentrations of 2,220 ppm, and 2,140 ppm, respectively.

Polyaromatic hydrocarbons (PAHs) were identified in PE-A-S12A (1.0-1.5) above the restricted residential SCOs for Area A. At this time, excavation cannot extend any further to the south due to the concrete slab associated with the Salt Box structure. As PAHs are not a known constituent of paint sludge, Arcadis requested approval from the NYDEC to allow these exceedances to remain in place. The NYSDEC approved the request on February 2, 2016.

Further excavation was restricted at PE-A-S6 (1.0-1.5) based on the sample location along Torne Valley Road. The observed paint sludge and impacted soil observed beneath the Torne Valley Road in Area A and Area E was visually delineated to the extent feasible and surveyed. The impermeable asphalt pavement along Torne Valley Road presents an engineering control to prevent direct contact with the remaining paint sludge and impacted soil; therefore, the remaining paint sludge and impacted soil under the road does not pose a significant risk to human health or the environment.

3 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the Site, ICs and ECs are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the Site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/ECs on the Site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix D) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the ROD to: (1) implement, maintain and monitor Engineering Control systems; and (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the Site to Restricted Residential uses only. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figures 6, 7A, and 7B. These ICs are:

- The property may be used for: restricted residential use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- ~~The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the [county name] Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.~~
- ~~Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;~~
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of ~~any mechanical or physical component of~~ the remedy shall be performed as defined in this SMP;
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.

- ~~The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure [x], and any potential impacts that are identified must be monitored or mitigated; and~~
- ~~Vegetable gardens and farming on the site are prohibited;~~

3.3 Engineering Controls

3.3.1 Cover (or Cap)

Exposure to remaining contamination at the Site is prevented by a cover system placed over the Site. This cover system is comprised of a minimum of 24 inches of clean soil. Figures 8, 9A, and 9B present the locations of the cover system and applicable demarcation layers. The Excavation Work Plan (EWP) provided in Appendix D outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring ~~and Sampling~~ Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the Site and provided in Appendix E.

3.3.2 Criteria for Completion of Remediation/Termination of Remedial System

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

3.3.2.1 Cover (or Cap)

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP. ~~in perpetuity.~~

4 MONITORING ~~AND SAMPLING~~ PLAN

4.1 General

This Monitoring ~~and Sampling~~ Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring ~~and Sampling~~ Plan may only be revised with the approval of the NYSDEC. ~~Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the site are included in the Quality Assurance Project Plan provided in Appendix.~~

This Monitoring ~~and Sampling~~ Plan describes the methods to be used for:

- ~~Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);~~
- ~~Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and~~
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring ~~and Sampling~~ Plan provides information on:

- ~~Sampling locations, protocol and frequency;~~
- Information on all designed monitoring systems; and,
- ~~Analytical sampling program requirements;~~
- ~~Inspection and maintenance requirements for monitoring wells;~~
- ~~Monitoring well decommissioning procedures; and,~~
- ~~Annual~~ Quinquennial inspection and ~~periodic~~ certification.

Reporting requirements are provided in Section 6.0 of this SMP.

4.2 Site Wide Inspection

Site-wide inspections will be performed at a minimum of once every five years ~~per year~~. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix F - Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted ~~including, where appropriate, confirmation sampling and a health and safety inspection~~; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the Site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report (PRR). The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;

- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; ~~and~~
- If site records are complete and up to date; and
- Reporting requirements as outlined in Section 6.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the Site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public, if any.

5 PERIODIC ASSESMENTS/EVALUATIONS

5.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the Site is ~~and associated remedial systems are~~ prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding. A vulnerability assessment has not been prepared for the Site.

A vulnerability assessment will be conducted for the Site during ~~periodic assessments the annual inspection~~ the quinquennial inspection, and briefly summarized in the PRRs. The vulnerability assessment will evaluate the vulnerability of the Site and/or ECs to severe storms/weather events and associated flooding. The vulnerability assessment shall include, but not be limited to, a discussion of potential vulnerabilities to be assessed during future reviews such as the following:

- Assessing the flood plain as the Site is located in the 100-year flood plain.
- Assessing evidence of erosion at the Site or areas of the Site which may be susceptible to erosion during periods of severe rain events.

Photographs of any vulnerable areas identified will be taken and incorporated into the inspection report for reference during future vulnerability assessments.

5.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the Site during site management.~~, and as reported in the Periodic Review Report (PRR).~~

5.2.1 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct ~~system checks and or collect samples and shipping samples to a laboratory for analyses~~ site visits have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

Site visits will be limited to one per five years, unless an emergency occurs that is deemed likely to affect the soil cover. If during the inspection, maintenance is required, the maintenance activities will be coordinated to minimize the number of visits to the Site.

5.2.2 Metrics and Reporting

As discussed in Section 6.0 and as shown in Appendix F – Site Management Forms, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during site

management and to identify corresponding benefits~~; a set of metrics has been developed~~.

6 REPORTING REQUIREMENTS

6.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in Appendix F. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, ~~including media sampling data and system maintenance reports,~~ generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 4 and summarized in the PRR.

TABLE 4: SCHEDULE OF INTERIM MONITORING/INSPECTION REPORTS

Task/Report	Reporting Frequency*
Inspection Report	Quinquennial
Periodic Review Report	Quinquennial or as otherwise determined by the Department

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- ~~Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);~~
- Copies of all field forms completed ~~(e.g., well sampling logs, chain-of- custody documentation, etc.)~~;and,
- ~~Sampling results in comparison to appropriate standards/criteria;~~
- ~~A figure illustrating sample type and sampling locations;~~
- ~~Copies of all laboratory data sheets, and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);~~
- Any observations, conclusions, or recommendations.
- ~~A determination as to whether contaminant conditions have changed since the last reporting event.~~

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed; and,
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet).

- ~~Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).~~

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed; and,
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet).
- ~~Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).~~

~~Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.~~

6.2 Periodic Review Reports

A PRR will be submitted to the Department beginning sixteen (16) months after the Certificate of Completion is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted quinquennially to the Department or at another frequency as may be required by the Department. In the event that the Site is subdivided into separate parcels with different ownerships, a single Periodic Review Report will be prepared that addresses the Site described in Appendix A -Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. ~~Media sampling results will also be incorporated into the Periodic Review Report.~~ The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site.
- Results of the required ~~annual~~ site inspections and severe condition inspections, if applicable.
- All applicable site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- ~~A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.~~
- ~~Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.~~
- ~~Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.~~
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the ~~site-specific RAWP,~~ ROD ~~or Decision Document~~;
    - ~~The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;~~
    - Any new conclusions or observations regarding site contamination based on inspections ~~or data generated by the Monitoring and Sampling Plan for the media being monitored~~;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring ~~and~~

~~Sampling~~ Plan; and
- ~~Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.~~
- The overall performance and effectiveness of the remedy.

6.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed in NYS will prepare, and include in the PRR, the following certification as per the requirements of NYSDEC DER-10:

"*For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:*

- *The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- ~~*If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*~~
- *Use of the Site is compliant with the environmental easement;*
- ~~*The engineering control systems are performing as designed and are effective;*~~
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as Owner's/Remedial Party's Designated Site Representative. If I have been authorized and designated by all site owners/remedial parties to sign this certification for the Site."

6.3 Corrective Measures Work Plan

~~If any component of the remedy is found to have failed, or I~~ If the periodic certification cannot be provided due to the failure of an IC or EC, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7 REFERENCES

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ARCADIS. 2013. Feasibility Study, Ramapo Paint Sludge Site– Operable Unit 2 (OU-2), Rockland County, New York, Site No. 3-44-064 (June 2013).

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NYSDEC. 2014. Record of Decision, Ramapo Paint Sludge Site, Operable Unit Number 02: Torne Valley Road Area, State Superfund Project, Rockland County, New York, Site No. 344064 (March 2014).

NYSDEC. 2018. Record of Decision, Ramapo Paint Sludge Site, Operable Unit Number 01: Ramapo Well Field, State Superfund Project, Rockland County, New York, Site No. 344064 (July 2018).

TABLES

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Ramapo Paint Sludge Site - Operable Unit 1
Rockland County, NY
SITE MANAGMENT PLAN

TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-P1-CELL0-5SW (1.0-1.5)	PE-P1-CELL5-4B(8.0-8.5)	PE-P1-CELLO-7B (2.0-2.5)	PE-P1-EAST-2SW (2.0-2.5)	PE-P1-EAST-3B (8.0-8.5)
Duplicate Parent ID	**NYS**	**NYS**						
Sample Date	**Unrestricted**	**Restricted**	**Units**	12/10/2013	2/25/2013	11/20/2013	4/30/2013	5/6/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.0058	<0.0028	<0.0049	<0.0025	<0.0028
Acetone	0.05	100	mg/kg	<0.006	<0.002	<0.0051	<0.0018	<0.002
Ethylbenzene	1	41	mg/kg	<0.00023	<0.00031	<0.00041 J	<0.00028	<0.00031
Toluene	0.7	100	mg/kg	<0.00019	<0.00012	<0.00016	<0.00011	<0.00012
Total Xylenes	0.26	100	mg/kg	<0.00023	<0.002	<0.0049	<0.00015	<0.00016
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	**1.33**	<0.011	0.0472	0.254	<0.011
Benzo(a)pyrene	1	1	mg/kg	**1.24**	<0.01	0.0432	0.235	<0.01
Benzo(b)fluoranthene	1	1	mg/kg	**1.77**	<0.011	0.0569	0.256	<0.011
Chrysene	1	3.9	mg/kg	**1.36**	<0.011	0.0502	0.258	<0.011
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	**0.701**	<0.012	0.024 J	0.152	<0.011
Metals								
Arsenic	13	16	mg/kg	6.3	2.9	5.8	4.4	4.5
Barium	350	400	mg/kg	157	42	201	114	233
Copper	50	270	mg/kg	30.4	9.8	26.4 J	26.9	18.5
Lead	63	400	mg/kg	**250**	**75.7**	**239**	**93.2**	**304**
Manganese	1600	2000	mg/kg	945	315	634 J	485	552
Nickel	30	310	mg/kg	16.8	12.5	22.7	17.2	16
Selenium	3.9	180	mg/kg	0.61 B	<0.26	**4.5**	0.47 B	1.7 B
Zinc	109	10000	mg/kg	**123**	37	94.1 J	56.4	90.3

Ramapo Paint Sludge Site - Operable Unit 1
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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-P1-EAST-5B (1.5-2.0)	PE-P1-EAST-5SW (1.0-1.5) F	PE-P1-WEST-13B (5.0-5.5)	PE-P1-WEST-14SW(3.5-4.0)	PE-P1-WEST-1B(5.0)
Duplicate Parent ID	**NYS**	**NYS**						
Sample Date	**Unrestricted**	**Restricted**	**Units**	6/20/2013	7/22/2013	6/3/2013	6/12/2013	3/28/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.0026	NA	<0.0028	<0.0027	<0.0023
Acetone	0.05	100	mg/kg	<0.0019	NA	<0.0019	<0.0019	<0.0016
Ethylbenzene	1	41	mg/kg	<0.00029	NA	<0.00041 J	<0.0003	<0.00025
Toluene	0.7	100	mg/kg	<0.00012	NA	<0.0016	<0.00012	<0.0001
Total Xylenes	0.26	100	mg/kg	<0.00015	NA	<0.0019	<0.00016	<0.00013
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	0.16	0.81	<0.011	<0.011	<0.01
Benzo(a)pyrene	1	1	mg/kg	0.151	0.844	<0.01	<0.01	<0.0098
Benzo(b)fluoranthene	1	1	mg/kg	0.23 J	**1.09**	<0.011	<0.011	<0.011
Chrysene	1	3.9	mg/kg	0.205	0.92	<0.012	<0.011	<0.011
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	0.0954 J	**0.565**	<0.012	<0.011	<0.011
Metals								
Arsenic	13	16	mg/kg	5.2	NA	4.1	3.4	5
Barium	350	400	mg/kg	107 J	NA	36.9	76.1	44.8
Copper	50	270	mg/kg	28.2 J	NA	12.8	15.6	22.8
Lead	63	400	mg/kg	**78.2**	NA	4.4	3.9 B	12.2
Manganese	1600	2000	mg/kg	680 J	NA	**3100**	**3050**	1430
Nickel	30	310	mg/kg	17.9	NA	19.5	16.1	**43.4**
Selenium	3.9	180	mg/kg	0.98 B	NA	0.56 B	2.7	0.58 B
Zinc	109	10000	mg/kg	74	NA	43.4	31.4	61.6

Ramapo Paint Sludge Site - Operable Unit 1
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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-P1-WEST-6B(7.0-7.5)	PE-P1-WEST-7SW (3.0-3.5)	PE-P1-WEST-8B(7.0-7.5)	PE-P2-CELL-1B (8.0-8.5)	PE-P2-EAST-3SW(4.5-5.0)
Duplicate Parent ID	**NYS**	**NYS**						
Sample Date	**Unrestricted**	**Restricted**	**Units**	4/4/2013	5/30/2013	4/29/2013	11/26/2013	5/17/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.0021	<0.0026 J	<0.0093 J	<0.0045	<0.0028
Acetone	0.05	100	mg/kg	<0.0015	<0.0018	<0.02 J	<0.0047	<0.002
Ethylbenzene	1	41	mg/kg	<0.0011	<0.00029	0.126 J	0.00024 J	<0.00031
Toluene	0.7	100	mg/kg	<0.00046 J	<0.00011	<0.0551 J	<0.00015	<0.00012
Total Xylenes	0.26	100	mg/kg	<0.0084	<0.00015	**1.03**	0.0018	<0.00016
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	<0.012	0.0143 J	<0.011	<0.011	<0.012
Benzo(a)pyrene	1	1	mg/kg	<0.011	<0.011	<0.01	<0.011	<0.012
Benzo(b)fluoranthene	1	1	mg/kg	<0.013 J	<0.012	<0.011	<0.012	<0.013
Chrysene	1	3.9	mg/kg	<0.013	0.0163 J	<0.011	<0.012	<0.013
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	<0.013	<0.012	<0.011 J	<0.012	<0.013
Metals								
Arsenic	13	16	mg/kg	5.1	5	2.2	5.4	2.4
Barium	350	400	mg/kg	117	168	28.8	81.7	62
Copper	50	270	mg/kg	20.1 J	21.8	11.8	16.7	**63.7**
Lead	63	400	mg/kg	**128**	**129**	3.8	9.8	4.6
Manganese	1600	2000	mg/kg	565 J	617 J	261 J	**1890**	444
Nickel	30	310	mg/kg	20.3	17.7	14.4	26.2	21.9
Selenium	3.9	180	mg/kg	0.78 B	<0.29	<0.26	<0.27	<0.29
Zinc	109	10000	mg/kg	74.3 J	77.8	36	44.9	44.9

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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-P3-CELL47-3B(6.0-6.5)	PE-P3-CELL50-3SW (1.5-2.0)	PE-P3-CELL50-4B (3.0-3.5)	PE-P3-CELL50-4B (3.0-3.5)	PE-P3-EAST-11B (6.0-6.5)
Duplicate Parent ID	**NYS**	**NYS**					DUP-111913	
Sample Date	**Unrestricted**	**Restricted**	**Units**	3/20/2013	11/19/2013	11/19/2013	11/19/2013	7/1/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.0033	<0.0048	<0.0044	<0.0043	<0.0027
Acetone	0.05	100	mg/kg	**0.0559**	<0.0049	<0.0046	<0.0044	<0.0019
Ethylbenzene	1	41	mg/kg	0.122	<0.00019	<0.00018	<0.00017	<0.0003
Toluene	0.7	100	mg/kg	0.00066 J	<0.00015	<0.00014	<0.00014	<0.00012
Total Xylenes	0.26	100	mg/kg	0.0898	<0.00019	<0.00018	<0.00017	<0.00016
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	<0.015	0.42	0.0415	0.0334 J	0.0277 J
Benzo(a)pyrene	1	1	mg/kg	<0.014	0.429	0.0418	0.0355 J	<0.012
Benzo(b)fluoranthene	1	1	mg/kg	<0.015	0.551	0.0587	0.0441	<0.013
Chrysene	1	3.9	mg/kg	<0.015	0.46	0.0477	0.0371	0.0252 J
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	<0.016	0.249	0.0269 J	0.0195 J	<0.013
Metals								
Arsenic	13	16	mg/kg	7.5	4.6	4.9	7.3	**14.7**
Barium	350	400	mg/kg	98	95.7	92.1	76.1	50.9
Copper	50	270	mg/kg	35.1	33.4	19.5	21.9	12.4
Lead	63	400	mg/kg	10.4	**97.8**	**63.1**	**69.2**	14.2
Manganese	1600	2000	mg/kg	365	487	562	553	708
Nickel	30	310	mg/kg	23.2	14	11.5	12.3	15.1
Selenium	3.9	180	mg/kg	0.3 B	<0.28	0.34 B	<0.29	<0.32
Zinc	109	10000	mg/kg	51.5	71	66.5	67.8	48.7

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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-P3-EAST-12B (6.5-7.0)	PE-P3-EAST-14B(4.0-4.5)	PE-P3-EAST-2B(6.5-7.0)	PE-P3-EAST-6B(3.0-3.5)	PE-P3-EAST-9SW(0.5-1.0)
Duplicate Parent ID	**NYS**	**NYS**						
Sample Date	**Unrestricted**	**Restricted**	**Units**	7/2/2013	7/3/2013	5/13/2013	6/26/2013	7/26/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.22	<0.0029	<0.21	<0.003	<0.0029
Acetone	0.05	100	mg/kg	<0.16	<0.0021	<0.15	<0.0021	<0.0021
Ethylbenzene	1	41	mg/kg	<0.024	<0.00032	<0.024	<0.00033	<0.00032
Toluene	0.7	100	mg/kg	<0.0096	<0.00013	<0.0094	<0.00013	<0.00013
Total Xylenes	0.26	100	mg/kg	**0.338**	<0.00017	<0.012	<0.00017	<0.00017
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	0.0534	<0.014	<0.015	<0.013	0.0499
Benzo(a)pyrene	1	1	mg/kg	<0.014	<0.013	<0.014	<0.012	0.0513
Benzo(b)fluoranthene	1	1	mg/kg	<0.015	<0.014	<0.015	<0.013	0.0675
Chrysene	1	3.9	mg/kg	0.064	<0.014	<0.016	<0.013	0.058
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	<0.016	<0.015	<0.016	<0.013	0.0415
Metals								
Arsenic	13	16	mg/kg	7.6	9.5	5.9	2.1 B	5
Barium	350	400	mg/kg	157	110	137	55.9	333
Copper	50	270	mg/kg	45.3	36.6	**56.1**	13.5	19.6
Lead	63	400	mg/kg	18.7	50.8	16.7	5.7	**88.4 J**
Manganese	1600	2000	mg/kg	857	942	377	91.5	586
Nickel	30	310	mg/kg	**31.3**	27.9	**30.3**	13.5	14.7
Selenium	3.9	180	mg/kg	<0.37	<0.33	0.98 B	0.6 B	0.59 B
Zinc	109	10000	mg/kg	84	**542**	77.5	**473**	78.7 J

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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-WSA-1B (0.5-1)	PE-WSA-2B (0.5-1)	PE-WSA-3B (0.5-1)	SS-P2-13B (0.5-1.0)	SS-P2-2B(0.5-1.0)
Duplicate Parent ID	**NYS**	**NYS**						
Sample Date	**Unrestricted**	**Restricted**	**Units**	12/13/2013	12/13/2013	12/13/2013	7/17/2013	7/15/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.0042 J	<0.0043 J	<0.0046 J	<0.0027	<0.0027
Acetone	0.05	100	mg/kg	<0.0043 J	<0.0045 J	<0.0048 J	0.0253	0.0315
Ethylbenzene	1	41	mg/kg	<0.00017 J	0.0004 J	<0.00018 J	<0.0003	<0.00029
Toluene	0.7	100	mg/kg	<0.00013 J	<0.00014 J	<0.00015 J	<0.00012	<0.00012
Total Xylenes	0.26	100	mg/kg	0.00019 J	0.0033 J	0.00042 J	<0.00016	<0.00016
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	<0.01	0.0197 J	<0.011	0.0354 J	0.0377 J
Benzo(a)pyrene	1	1	mg/kg	<0.0096	0.0187 J	<0.01	0.0285 J	0.0348 J
Benzo(b)fluoranthene	1	1	mg/kg	<0.01	0.0219 J	<0.011	0.0436 J	0.0522
Chrysene	1	3.9	mg/kg	<0.011	0.0169 J	<0.011	0.0421	0.0445
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	<0.011	0.0269 J	<0.012	0.0216 J	0.0253 J
Metals								
Arsenic	13	16	mg/kg	**25**	5.1	**46.5**	4.6	4.5
Barium	350	400	mg/kg	10.1 B	45.7	9.2 B	70.7 J	61.3
Copper	50	270	mg/kg	<12 UB	7.6	<0.086	22.4 J	30.5
Lead	63	400	mg/kg	3.1	**177**	3.2	**112**	**75.2**
Manganese	1600	2000	mg/kg	550	795	667	682 J	531
Nickel	30	310	mg/kg	2B	2.7B	1.2B	21.7	16.8
Selenium	3.9	180	mg/kg	0.43B	0.5B	0.42B	<0.32	<0.3
Zinc	109	10000	mg/kg	29.8	49.5	20	55.1 J	78.7

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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		SS-P2-8B (0.5-1.0)	SS-P2-1B (1.0-1.5)A	SS-WSA-10B (0.5-1.0)	SS-WSA-13B (0.5-1.0)	SS-WSA-15B (0.5-1.0)
Duplicate Parent ID	**NYS**	**NYS**						
Sample Date	**Unrestricted**	**Restricted**	**Units**	7/16/2013	7/24/2013	8/14/2013	8/15/2013	8/15/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.0026	NA	**0.161**	<0.0025	<0.0026
Acetone	0.05	100	mg/kg	<0.0018	NA	**0.419 DJ**	<0.0018	<0.0018
Ethylbenzene	1	41	mg/kg	<0.00028	NA	<0.00028	<0.00028	<0.00029
Toluene	0.7	100	mg/kg	<0.00011	NA	0.0032	<0.00011	<0.00011
Total Xylenes	0.26	100	mg/kg	<0.00015	NA	0.0012	<0.00015	<0.00015
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	0.0501	NA	0.523	0.468	0.344
Benzo(a)pyrene	1	1	mg/kg	0.0462	NA	0.468	0.474	0.346
Benzo(b)fluoranthene	1	1	mg/kg	0.0612	NA	0.572	0.625	0.46
Chrysene	1	3.9	mg/kg	0.0621	NA	0.545	0.539	0.392
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	0.0363	NA	0.314	0.356	0.283
Metals								
Arsenic	13	16	mg/kg	5	NA	5.6	8.1	6.3
Barium	350	400	mg/kg	64.9 J	NA	146	131	205
Copper	50	270	mg/kg	30.9 J	NA	**58.3 J**	**50.9**	**55.5**
Lead	63	400	mg/kg	**98.8**	**236**	**196**	**225**	**175**
Manganese	1600	2000	mg/kg	476 J	NA	892 J	1400	686
Nickel	30	310	mg/kg	16.9	NA	14.7	16.3	14.6
Selenium	3.9	180	mg/kg	<0.28	NA	<0.29	<0.32	<0.29
Zinc	109	10000	mg/kg	63.4J	NA	**171J**	**124**	102

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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		SS-WSA-17B(0.5-1.0)	SS-WSA-18B(0.5-1.0)	SS-WSA-19B(0.5-1.0)	SS-WSA-20B(0.5-1.0)	SS-WSA-21B(1.0-1.5)
Duplicate Parent ID	**NYS**	**NYS**						
Sample Date	**Unrestricted**	**Restricted**	**Units**	8/16/2013	8/16/2013	8/16/2013	8/16/2013	8/26/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.0027	<0.003	<0.0024	<0.0025	<0.0024
Acetone	0.05	100	mg/kg	<0.0019	<0.0021	<0.0017	<0.0018	0.0222
Ethylbenzene	1	41	mg/kg	<0.0003	<0.00033	<0.00027	<0.00028	<0.00026
Toluene	0.7	100	mg/kg	<0.00012	<0.00013	0.00038 J	<0.00011	<0.0001
Total Xylenes	0.26	100	mg/kg	<0.00016	<0.00017	<0.00014	<0.00015	<0.00014
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	0.175	0.169	0.244	0.175	0.0788
Benzo(a)pyrene	1	1	mg/kg	0.19	0.179	0.242	0.168	0.101
Benzo(b)fluoranthene	1	1	mg/kg	0.271	0.254	0.349	0.237	0.157
Chrysene	1	3.9	mg/kg	0.22	0.202	0.292	0.199	0.105
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	0.15	0.143	0.192	0.131	0.0762
Metals								
Arsenic	13	16	mg/kg	8.6	10.7	6.7	5.9	6.9
Barium	350	400	mg/kg	98.8	70.4	242	124	57.3
Copper	50	270	mg/kg	37.9	34.3	36.6	**60.9**	33.3
Lead	63	400	mg/kg	**230**	**104**	**144**	**119**	**105**
Manganese	1600	2000	mg/kg	1010	935	898	694	747
Nickel	30	310	mg/kg	14.7	17.6	16	14.2	16.7
Selenium	3.9	180	mg/kg	<0.27	<0.55	<0.3	<0.28	0.45B
Zinc	109	10000	mg/kg	82.5	67.5	88.6	98.3	62.6

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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		SS-WSA-21B(1.0-1.5)	SS-WSA-22B(1.0-1.5)	SS-WSA-23B(1.0-1.5)	SS-WSA-24B(1.0-1.5)	SS-WSA-25B(1.0-1.5)
Duplicate Parent ID	**NYS**	**NYS**		DUP(082613)				
Sample Date	**Unrestricted**	**Restricted**	**Units**	8/26/2013	8/26/2013	8/26/2013	8/27/2013	8/27/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	<0.0024	0.016 J	<0.0026	<0.0025	<0.0027 J
Acetone	0.05	100	mg/kg	0.0236	**0.236 EJ**	<0.0018	0.0075 J	0.0383 J
Ethylbenzene	1	41	mg/kg	<0.00027	<0.00024	<0.00028	<0.00028	0.0036 J
Toluene	0.7	100	mg/kg	<0.00011	0.00099	0.00043 J	<0.00011	0.00097 J
Total Xylenes	0.26	100	mg/kg	<0.00014	<0.00013	<0.00015	<0.00015	0.0283 J
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	0.0793	0.22	0.231	0.104	0.349
Benzo(a)pyrene	1	1	mg/kg	0.085	0.258	0.269	0.111	0.329
Benzo(b)fluoranthene	1	1	mg/kg	0.104	0.339	0.365	0.145	0.39
Chrysene	1	3.9	mg/kg	0.0906	0.267	0.286	0.131	0.37
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	0.046	0.177	0.183	0.0644	0.182
Metals								
Arsenic	13	16	mg/kg	7.8	6.2	6.3	8.6	6.2
Barium	350	400	mg/kg	51.3	70.6	81.5	72	128
Copper	50	270	mg/kg	**56.3**	42.5	**52.4**	**50.7**	46.5
Lead	63	400	mg/kg	**89.7**	**144**	**140**	**128**	**193**
Manganese	1600	2000	mg/kg	646	729	680	793	545
Nickel	30	310	mg/kg	15.4	16.5	15.6	15.6	23.2
Selenium	3.9	180	mg/kg	0.81B	0.45B	0.59B	<0.29	1.6B
Zinc	109	10000	mg/kg	58	98.4	**118**	**122**	**151**

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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

Sample ID	**375-6.8(a)**	**375-6.8(b)**		SS-WSA-2B (0.5-1.0)	SS-WSA-3B (0.5-1.0)	SS-YP-1B (1.5-2.0)	SS-YP-2B (1.5-2.0)	SS-YP-3B (3.5-4.0)
Duplicate Parent ID	**NYS**	**NYS**						
Sample Date	**Unrestricted**	**Restricted**	**Units**	8/14/2013	8/14/2013	8/28/2013	8/28/2013	8/29/2013
VOCs								
2-Butanone (MEK)	0.12	100	mg/kg	0.0055 J	<0.0026	<0.0026	<0.0023	<0.0025 J
Acetone	0.05	100	mg/kg	0.0377	<0.0018	<0.0018	<0.0016	<0.0018
Ethylbenzene	1	41	mg/kg	<0.00028	<0.00028	<0.00028	<0.00025	<0.00028
Toluene	0.7	100	mg/kg	0.00055 J	0.00049 J	<0.00011	<0.0001	<0.00011
Total Xylenes	0.26	100	mg/kg	<0.00015	<0.00015	<0.00015	<0.00013	<0.00015
SVOCs								
Benzo(a)anthracene	1	1	mg/kg	0.477	0.213	0.0832	<0.01	<0.012
Benzo(a)pyrene	1	1	mg/kg	0.472	0.199	0.0701	<0.0098	<0.011
Benzo(b)fluoranthene	1	1	mg/kg	0.654	0.276	0.0807	<0.011	<0.012
Chrysene	1	3.9	mg/kg	0.519	0.233	0.0903	<0.011	<0.012
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	0.382	0.151	0.0351 J	<0.011	<0.012
Metals								
Arsenic	13	16	mg/kg	7.1	4.4	3.8	3.1	5
Barium	350	400	mg/kg	72.4	58.4	69.2	23	118
Copper	50	270	mg/kg	**66.8 J**	**56.8 J**	**62.8**	**74.1**	33.7
Lead	63	400	mg/kg	**158**	**102**	**64.5**	**131**	**89.7**
Manganese	1600	2000	mg/kg	668 J	371 J	552	367	557
Nickel	30	310	mg/kg	16.9	14.1	15.2	13.6	14
Selenium	3.9	180	mg/kg	<0.3	<0.28	1.2B	1B	<0.3
Zinc	109	10000	mg/kg	**127J**	**125J**	58.2	86.9	107

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TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

NOTES:

<	Not Detected
Bold	Result exceeds the 375-6.8(a) NYS Unrestricted Use (Unrestricted)
Shade	Result exceeds the 375-6.8(b) NYS Restricted Residential Use (Restricted)
B	Result is between the method detection limit and the reporting limit.
J or JN	Estimated Result
mg/kg	Milligrams per kilogram
NA	Not Analyzed
NS	No Standard
R	Rejected Result
UB	Result non-detected at the listed value due to associated blank contamination.

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Ramapo Paint Sludge Site - Operable Unit 2
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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-A-C2(2.0-2.5)	PE-A-C3(4.0-4.5)	PE-A-C7(2.0-2.5)	PE-A-C8(2.0-2.5)	PE-A-E2(9.0-9.5)	PE-A-S11(3.5-4.0)	PE-A-S12A(1.0-1.5)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	10/22/2015	10/29/2015	11/3/2015	11/3/2015	10/27/2015	10/27/2015	1/6/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	0.0068 J	< 0.0086 U	< 0.01 U	< 0.011 U	0.0192	0.0126	NA
Acetone	0.05	100	mg/kg	**0.053**	0.0092	< 0.01 U	< 0.011 U	**0.131**	**0.0865**	NA
Ethylbenzene	1	41	mg/kg	0.00022 J	< 0.00086 U	< 0.001 U	0.0022	0.0013	0.00026 J	NA
Toluene	0.7	100	mg/kg	0.0003 J	< 0.00086 U	< 0.001 U	< 0.0011 U	0.00078 J	0.00024 J	NA
Total Xylenes	0.26	100	mg/kg	0.0015	< 0.00086 U	< 0.001 U	0.0235	0.0065	0.0017	NA
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	0.0309 J	0.0437	< 0.038 U	< 0.04 U	< 0.035 U	< 0.036 U	**2.16**
Benzo(a)pyrene	1	1	mg/kg	0.0328 J	0.0447	< 0.038 U	< 0.04 U	< 0.035 U	< 0.036 U	**2.23**
Benzo(b)fluoranthene	1	1	mg/kg	0.0456	0.0481	< 0.038 U	< 0.04 U	< 0.035 U	< 0.036 U	**2.41**
Chrysene	1	3.9	mg/kg	0.0285 J	0.0407	< 0.038 U	< 0.04 U	< 0.035 U	< 0.036 U	**2.52**
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	0.0234 J	0.0306 J	< 0.038 U	< 0.04 U	< 0.035 U	< 0.036 U	**1.64**
Metals										
Arsenic	13	16	mg/kg	3.8	2.6	3.4	3.1	2.3	3.1	NA
Barium	350	400	mg/kg	41.6	147	124	223	37.9	36.4	NA
Copper	50	270	mg/kg	14.0	10.8	21.2	21.0	15.3	13.4 J	NA
Lead	63	400	mg/kg	18.9	8.5	57.7	**75.1**	7.5	21.0	NA
Manganese	1600	2000	mg/kg	181	192	276	223	479 J	171	NA
Nickel	30	310	mg/kg	11.0	8.5	12.8	11.9	13.2	11.2	NA
Zinc	109	10000	mg/kg	38.2	**160**	**160 J**	83.7 J	35.9	33.6	NA

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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-A-S5(1.0-1.5)	PE-A-S6 (1.0-1.5)	PE-B-B3(2.0-2.5)	PE-B-D4(2.0-2.5)	PE-B-F3(2.0-2.5)	PE-B-G2A(2.0-2.5)	PE-B-S12(1.5-2.0)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	10/13/2015	10/15/2015	12/10/2015	12/8/2015	12/7/2015	12/4/2015	12/14/2015
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.021 U	< 0.56 U	< 0.0094 U	< 0.0088 U	< 0.0088 U	< 0.009 U	< 0.011 U
Acetone	0.05	100	mg/kg	**0.0644**	< 0.56 U	< 0.0094 U	< 0.0088 U	< 0.0088 U	< 0.009 U	< 0.011 U
Ethylbenzene	1	41	mg/kg	< 0.0021 U	**5.09**	< 0.00094 U	< 0.00088 U	< 0.00088 U	< 0.0009 U	< 0.0011 U
Toluene	0.7	100	mg/kg	< 0.0021 U	0.0161 J	< 0.00094 U	< 0.00088 U	< 0.00088 U	< 0.0009 U	< 0.0011 U
Total Xylenes	0.26	100	mg/kg	< 0.0021 U	**35.1**	< 0.00094 U	< 0.00088 U	< 0.00088 U	< 0.0009 U	< 0.0011 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.068 U	< 0.038 U	< 0.037 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.039 U
Benzo(a)pyrene	1	1	mg/kg	< 0.068 U	0.0175 J	< 0.037 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.039 U
Benzo(b)fluoranthene	1	1	mg/kg	< 0.068 U	0.0192 J	< 0.037 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.039 U
Chrysene	1	3.9	mg/kg	< 0.068 U	0.0244 J	< 0.037 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.039 U
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.068 U	< 0.038 U	< 0.037 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.039 U
Metals										
Arsenic	13	16	mg/kg	5.9	**13.2**	3.8	3.7	3.2	2.5	3.8
Barium	350	400	mg/kg	57.8	**2780 J**	171	59.2 J	70.5 J	173 J	62.0
Copper	50	270	mg/kg	19.5	**59.1 J**	17.4	18.0	12.3	13.3	20.6
Lead	63	400	mg/kg	17.1	**1030 J**	**121**	**89.8 J**	**80.6 J**	**78.7 J**	**78.2**
Manganese	1600	2000	mg/kg	285	307 J	224	247	210	354	183
Nickel	30	310	mg/kg	20.7	24.8 J	7.4	10	7.3	11.0	12.3
Zinc	109	10000	mg/kg	47.4	**521 J**	**137**	74.9 J	54.8 J	48.3 J	77.3

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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-B-S4	PE-B-S5	PE-C-D1(2.0-2.5)	PE-C-E2(2.0-2.5)	PE-C-E6(2.0-2.5)	PE-C-F3(2.0-2.5)	PE-C-F5(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	10/12/2018	10/12/2018	12/16/2015	11/17/2015	11/18/2015	11/18/2015	11/17/2015
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.0085 U	< 0.0081 U	< 0.0093 U	< 0.0092 U	< 0.0073 U	< 0.0087 U	< 0.008 U
Acetone	0.05	100	mg/kg	< 0.0085 U	0.0076 J	< 0.0093 U	< 0.0092 U	< 0.0073 U	< 0.0087 U	< 0.008 U
Ethylbenzene	1	41	mg/kg	0.001	0.118	< 0.00093 U	< 0.00092 U	< 0.00073 U	< 0.00087 U	< 0.0008 U
Toluene	0.7	100	mg/kg	< 0.00085 U	0.0103	< 0.00093 U	< 0.00092 U	< 0.00073 U	< 0.00087 U	< 0.0008 U
Total Xylenes	0.26	100	mg/kg	0.0098	**9.52**	< 0.00093 U	< 0.00092 U	< 0.00073 U	< 0.00087 U	< 0.0008 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.039 U	< 0.038 U	< 0.034 U	< 0.036 U	< 0.034 U	< 0.033 U	< 0.036 U
Benzo(a)pyrene	1	1	mg/kg	< 0.039 U	< 0.038 U	< 0.034 U	< 0.036 U	< 0.034 U	< 0.033 U	< 0.036 U
Benzo(b)fluoranthene	1	1	mg/kg	< 0.039 U	< 0.038 U	< 0.034 U	< 0.036 U	< 0.034 U	< 0.033 U	< 0.036 U
Chrysene	1	3.9	mg/kg	< 0.039 U	< 0.038 U	< 0.034 U	< 0.036 U	< 0.034 U	< 0.033 U	< 0.036 U
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.039 U	< 0.038 U	< 0.034 U	< 0.036 U	< 0.034 U	< 0.033 U	< 0.036 U
Metals										
Arsenic	13	16	mg/kg	3.1	2.8	3.5	3.5	4.3	3.9	4.2
Barium	350	400	mg/kg	96.7	271	50.5	40.8	37.3	46.1	57.1
Copper	50	270	mg/kg	23.2	28.1	18.8 J	17.4	15.6	13.1	21.8
Lead	63	400	mg/kg	39.9	**69.3**	**90.6**	**75.6**	**63.1**	**168**	**308**
Manganese	1600	2000	mg/kg	215 J	201 J	248	187	373	173	422
Nickel	30	310	mg/kg	16.5	12.8	11.7	12.2	18.7	7.5	15.5
Zinc	109	10000	mg/kg	**143 J**	**133 J**	56.7	38.3	56.0	30.8	85.8

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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-C-F8 (2.0-2.5)	PE-C-F9(2.0-2.5)	PE-C-S12(1.5-2.0)	PE-D-B2(2.0-2.5)	PE-D-B3(2.0-2.5)	PE-D-C1(2.0-2.5)	PE-D-C2(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	11/16/2015	11/18/2015	12/17/2015	1/21/2016	1/21/2016	1/21/2016	1/21/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.008 U	< 0.0076 U	< 0.0088 U	< 0.013 U	< 0.013 U	0.0199	0.0043 J
Acetone	0.05	100	mg/kg	0.0034 J	< 0.0076 U	< 0.0088 U	**0.105**	**0.357 J**	**0.736**	**0.148**
Ethylbenzene	1	41	mg/kg	< 0.0008 U	< 0.00076 U	< 0.00088 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	0.00033 J
Toluene	0.7	100	mg/kg	< 0.0008 U	< 0.00076 U	< 0.00088 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U
Total Xylenes	0.26	100	mg/kg	< 0.0008 U	< 0.00076 U	< 0.00088 U	< 0.0013 U	< 0.0013 U	< 0.0011 U	< 0.0011 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.035 U	< 0.034 U	< 0.038 U	0.0153 J	< 0.04 U	< 0.033 U	< 0.036 U
Benzo(a)pyrene	1	1	mg/kg	< 0.035 U	< 0.034 U	< 0.038 U	0.0138 J	< 0.04 U	< 0.033 U	< 0.036 U
Benzo(b)fluoranthene	1	1	mg/kg	< 0.035 U	< 0.034 U	< 0.038 U	0.0248 J	< 0.04 U	< 0.033 U	< 0.036 U
Chrysene	1	3.9	mg/kg	< 0.035 U	< 0.034 U	< 0.038 U	0.0208 J	< 0.04 U	< 0.033 U	< 0.036 U
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.035 U	< 0.034 U	< 0.038 U	< 0.034 U	< 0.04 U	< 0.033 U	< 0.036 U
Metals										
Arsenic	13	16	mg/kg	3.0	6.4	3.0	5.5	3.4	4.5	3.3
Barium	350	400	mg/kg	43.0	48.8	39.0	38.7	51.0	43.9	47.3
Copper	50	270	mg/kg	16.0	19.2	12.9 J	19.7 J	10.4	12.5 J	11.6 J
Lead	63	400	mg/kg	**137**	**329**	**114**	40.7	26.9	15.5	18.0
Manganese	1600	2000	mg/kg	286	360	215	205	303	219	126
Nickel	30	310	mg/kg	14.7	15.1	9.8	12.1	10.1	10.8	10.6
Zinc	109	10000	mg/kg	74.7	88.0	53.8	35.7	36.6	33.1	33.5

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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-D-C3(2.0-2.5)	PE-D-D2(2.0-2.5)	PE-D-D4(4.0-4.5)	PE-D-D6(2.0-2.5)	PE-D-E2(5.0-5.5)	PE-D-E6(2.0-2.5)	PE-D-F2(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	1/21/2016	3/4/2016	1/20/2016	1/20/2016	3/4/2016	1/20/2016	3/4/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.012 U	< 0.0098 U	0.0023 J	0.0054 J	< 0.0088 U	< 0.014 U	< 0.012 U
Acetone	0.05	100	mg/kg	**0.161**	0.0138	**0.114**	**0.0666**	0.0307	**0.0795**	0.0231
Ethylbenzene	1	41	mg/kg	< 0.0012 U	0.001	< 0.001 U	0.00026 J	0.0042	< 0.0014 U	0.0285
Toluene	0.7	100	mg/kg	< 0.0012 U	0.00029 J	< 0.001 U	< 0.0012 U	0.0017	< 0.0014 U	0.0418
Total Xylenes	0.26	100	mg/kg	< 0.0012 U	0.0042	< 0.001 U	< 0.0012 U	0.0273	< 0.0014 U	0.106
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.035 U	< 0.036 U	< 0.038 U	< 0.038 U	< 0.036 U	< 0.037 U	0.0211 J
Benzo(a)pyrene	1	1	mg/kg	< 0.035 U	< 0.036 U	< 0.038 U	< 0.038 U	< 0.036 U	< 0.037 U	0.0196 J
Benzo(b)fluoranthene	1	1	mg/kg	< 0.035 U	< 0.036 U	< 0.038 U	< 0.038 U	< 0.036 U	< 0.037 U	0.0309 J
Chrysene	1	3.9	mg/kg	< 0.035 U	< 0.036 U	< 0.038 U	< 0.038 U	< 0.036 U	< 0.037 U	0.0244 J
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.035 U	< 0.036 U	< 0.038 U	< 0.038 U	< 0.036 U	< 0.037 U	< 0.038 UJ
Metals										
Arsenic	13	16	mg/kg	3.3	3.3	2.6	3.3	3.9	3.5	5.9
Barium	350	400	mg/kg	45.7	98.5	35.1	41.1	63.5	42.2	83.4
Copper	50	270	mg/kg	12.0	10.6	10.0	7.5	8.5	9.0	16.7
Lead	63	400	mg/kg	14.4	**105**	9.1 J	13.9 J	**135**	**85.3**	**159**
Manganese	1600	2000	mg/kg	131	271	82.6	87.6	175 J	112	228 J
Nickel	30	310	mg/kg	11.3	12.0	9.4	10.5	13.0	10.4	12.2
Zinc	109	10000	mg/kg	31.1	53.8	27.4	36.0	42.6 J	43.7	49.2 J

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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-D-F5(2.0-2.5)	PE-D-F8(2.0-2.5)	PE-D-G10(2.0-2.5)	PE-D-G4(2.0-2.5)	PE-D-G5(2.0-2.5)	PE-D-G8(2.0-2.5)	PE-D-G9(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	1/20/2016	1/18/2016	1/13/2016	3/2/2016	1/20/2016	1/18/2016	1/13/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.011 U	< 0.0088 U	< 0.0098 U	0.0165	< 0.012 U	< 0.01 U	< 0.0098 U
Acetone	0.05	100	mg/kg	0.0309	**0.0884**	**0.0538 J**	**0.101**	**0.0903**	**0.062**	**0.0948**
Ethylbenzene	1	41	mg/kg	< 0.0011 U	< 0.00088 U	0.0024	< 0.0011 U	< 0.0012 U	0.00026 J	< 0.00098 U
Toluene	0.7	100	mg/kg	< 0.0011 U	< 0.00088 U	0.00031 J	0.0026	< 0.0012 U	< 0.001 U	< 0.00098 U
Total Xylenes	0.26	100	mg/kg	< 0.0011 U	< 0.00088 U	0.0221	< 0.0011 U	< 0.0012 U	< 0.001 U	< 0.00098 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	0.0757	< 0.036 U	< 0.038 U	< 0.037 U	< 0.036 U	< 0.038 U	< 0.037 U
Benzo(a)pyrene	1	1	mg/kg	0.0261 J	< 0.036 U	< 0.038 U	< 0.037 U	< 0.036 U	< 0.038 U	< 0.037 U
Benzo(b)fluoranthene	1	1	mg/kg	0.0434	< 0.036 U	< 0.038 U	< 0.037 U	< 0.036 U	< 0.038 U	< 0.037 U
Chrysene	1	3.9	mg/kg	0.0713	< 0.036 U	< 0.038 U	< 0.037 U	< 0.036 U	< 0.038 U	< 0.037 U
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.036 U	< 0.036 U	< 0.038 U	< 0.037 U	< 0.036 U	< 0.038 U	< 0.037 U
Metals										
Arsenic	13	16	mg/kg	3.5	2.7	3.6	1.6 B	3.4	4.3	3.0
Barium	350	400	mg/kg	51.4	36.0	51.5	130	46.5	42.4	38.8
Copper	50	270	mg/kg	14.3	20.3	7.8	20.2	19.4	18.8	5.3
Lead	63	400	mg/kg	**73.5 J**	45.5	12.8	3.3	25.8 J	16.3	7.6
Manganese	1600	2000	mg/kg	143	153	108	220 J	254	134	65.8
Nickel	30	310	mg/kg	11.7	9.7	10.4	14.9	10.8	13.8	8.4
Zinc	109	10000	mg/kg	59.4	33.2	37.2	31.7 J	49.1	34.7	26.6

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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-D-H10(2.0-2.5)	PE-D-H9(2.0-2.5)	PE-D-S10(1.5-2.0)	PE-D-S4(1.5-2.0)	PE-D-S8(1.5-2.0)	PE-DUP-020	PE-E-A7(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**							PE-E-A2(2.0-2.5) 31	
Sample Date	**Unrestricted**	**Restricted**	**Units**	1/18/2016	1/18/2016	3/7/2016	1/18/2016	3/7/2016	3/31/2016	4/15/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.016 U	0.0086 J	< 0.0086 U	< 0.012 U	< 0.01 U	< 0.011 U	< 0.63 U
Acetone	0.05	100	mg/kg	**0.1**	**0.249 JD**	< 0.0086 U	**0.0871**	**0.344 J**	0.0076 J	< 0.63 U
Ethylbenzene	1	41	mg/kg	< 0.0016 U	0.00033 J	< 0.00086 U	< 0.0012 U	< 0.001 U	0.00029 J	0.136
Toluene	0.7	100	mg/kg	< 0.0016 U	< 0.0011 U	< 0.00086 U	< 0.0012 U	< 0.001 U	< 0.0011 UJ	0.117
Total Xylenes	0.26	100	mg/kg	< 0.0016 U	0.0022	< 0.00086 U	< 0.0012 U	< 0.001 U	0.00099 J	**1.41**
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.04 U	< 0.04 U	0.0215 J	< 0.039 U	< 0.039 U	0.0289 J	0.0299 J
Benzo(a)pyrene	1	1	mg/kg	< 0.04 U	< 0.04 U	0.0223 J	< 0.039 U	< 0.039 U	0.0295 J	0.0238 J
Benzo(b)fluoranthene	1	1	mg/kg	< 0.04 U	< 0.04 U	0.0288 J	< 0.039 U	< 0.039 U	0.0326 J	0.0388 J
Chrysene	1	3.9	mg/kg	< 0.04 U	< 0.04 U	0.0228 J	< 0.039 U	< 0.039 U	0.0347 J	0.0372 J
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.04 U	< 0.04 U	< 0.034 U	< 0.039 U	< 0.039 U	0.0205 J	< 0.039 U
Metals										
Arsenic	13	16	mg/kg	4.3	3.9	5.5	4.6	2.9	3.2	4.6
Barium	350	400	mg/kg	31.4	105	104	41.4	57.9	115	223 J
Copper	50	270	mg/kg	9.5	12.4	41.5	11.5	19.1	15.5	17.2 J
Lead	63	400	mg/kg	13.6	19.7	**112**	11.2	4.3	**72.3**	**91.9 J**
Manganese	1600	2000	mg/kg	120	110	443	144	282	400	582 J
Nickel	30	310	mg/kg	17.7	12.2	16.9	15.6	11.6	10.1	13.9
Zinc	109	10000	mg/kg	29.7	35.4	91.4	32.6	28.1	68.3	84.7 J

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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-E-B3(4.0-4.5)	PE-E-B9(2.0-2.5)	PE-E-C6(2.0-2.5)	PE-E-C7(2.0-2.5)	PE-E-D10(2.0-2.5)	PE-E-D3(5.0-5.5)	PE-E-D9(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	3/31/2016	4/15/2016	4/15/2016	4/15/2016	4/18/2016	3/14/2016	4/19/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	0.0098	< 0.012 U	0.0267	0.0209	< 0.01 U	< 0.01 U	**0.149**
Acetone	0.05	100	mg/kg	**0.051**	0.0499	**0.155**	**0.0982**	< 0.01 U	**0.0651**	**0.21**
Ethylbenzene	1	41	mg/kg	0.00023 J	0.0539	< 0.00091 U	0.0017	< 0.001 U	< 0.001 U	< 0.0012 U
Toluene	0.7	100	mg/kg	0.00027 J	0.0592	0.00041 J	0.0111	< 0.001 U	< 0.001 U	0.00069 J
Total Xylenes	0.26	100	mg/kg	0.00051 J	**0.524**	< 0.00091 U	0.0121	< 0.001 U	< 0.001 U	< 0.0012 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.038 U	0.0227 J	0.0313 J	< 0.041 U	0.0421	< 0.04 U	< 0.038 U
Benzo(a)pyrene	1	1	mg/kg	< 0.038 U	0.0183 J	0.0299 J	< 0.041 U	0.0279 J	< 0.04 U	< 0.038 U
Benzo(b)fluoranthene	1	1	mg/kg	< 0.038 U	0.0281 J	0.0393	0.0198 J	0.0665	< 0.04 U	< 0.038 U
Chrysene	1	3.9	mg/kg	< 0.038 U	0.0262 J	0.029 J	0.0184 J	0.0547	< 0.04 U	< 0.038 U
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.038 U	< 0.046 U	0.0255 J	< 0.041 U	0.0236 J	< 0.04 U	< 0.038 U
Metals										
Arsenic	13	16	mg/kg	1.7 B	4.7	3.2	3.3	4.9	2.9	4.0
Barium	350	400	mg/kg	42.3	199 J	96.3 J	129 J	138	54.9	32.6
Copper	50	270	mg/kg	3.7	20.1 J	**506 J**	**50.9 J**	23.0	3.3	13.4
Lead	63	400	mg/kg	4.0	62.1 J	**77.4 J**	**71.1 J**	**147**	8.1	11.9
Manganese	1600	2000	mg/kg	140	494 J	228 J	395 J	466	116	169
Nickel	30	310	mg/kg	6.3	14.1	13.3	13.0	15.4	8.4	10.1
Zinc	109	10000	mg/kg	21.8	75.5 J	**144 J**	**121 J**	92.9	28.3	38.4

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TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-E-E8(2.0-2.5)	PE-E-F10(2.0-2.5)	PE-E-F4(11.0-11.5)	PE-E-F8(2.0-2.5)	PE-E-F9(2.0-2.5)	PE-E-G5(12.0-12.5)	PE-DUP-015
Duplicate Parent ID	**NYS**	**NYS**								PE-E-G5(12.0-12.5) 23
Sample Date	**Unrestricted**	**Restricted**	**Units**	4/19/2016	4/18/2016	3/14/2016	4/19/2016	4/18/2016	2/23/2016	2/23/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.013 U	**0.176**	0.0196	0.0822	< 0.013 U	0.103	0.0733
Acetone	0.05	100	mg/kg	0.0253	**0.95**	**0.409 J**	**0.208**	< 0.013 U	**1.04**	**0.983**
Ethylbenzene	1	41	mg/kg	< 0.0013 U	< 0.0013 U	**3.54**	< 0.0011 U	< 0.0013 U	< 0.00092 U	< 0.00095 U
Toluene	0.7	100	mg/kg	0.00074 J	0.002	0.11	0.0008 J	< 0.0013 U	0.0013	0.0019
Total Xylenes	0.26	100	mg/kg	< 0.0013 U	< 0.0013 U	**27.3**	< 0.0011 U	< 0.0013 U	0.001	0.0025
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.046 U	0.0223 J	< 0.24 U	0.0293 J	0.0189 J	< 0.035 U	< 0.038 U
Benzo(a)pyrene	1	1	mg/kg	< 0.046 U	0.0203 J	< 0.24 U	0.0265 J	< 0.046 U	< 0.035 U	< 0.038 U
Benzo(b)fluoranthene	1	1	mg/kg	< 0.046 U	0.0268 J	< 0.24 U	0.0386 J	0.0225 J	< 0.035 U	< 0.038 U
Chrysene	1	3.9	mg/kg	< 0.046 U	0.0246 J	< 0.24 U	0.0281 J	< 0.046 U	< 0.035 U	< 0.038 U
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.046 U	< 0.042 U	< 0.24 U	0.0224 J	< 0.046 U	< 0.035 U	< 0.038 U
Metals										
Arsenic	13	16	mg/kg	7.8	4.0	4.6	4.9	4.3	1.6 B	1.6 B
Barium	350	400	mg/kg	154	206 J	**1800**	239	92.7	33.0	28.4
Copper	50	270	mg/kg	27.8	25.5 J	23.8	38.4	19.6	12.5	12.1
Lead	63	400	mg/kg	51.3	**69.3 J**	**636**	**165**	**109**	1.9 B	2.3
Manganese	1600	2000	mg/kg	**2220**	381 J	232	447	711	133 J	117 J
Nickel	30	310	mg/kg	22.8	13.6	16.2	17.3	14.1	8.6	9.1
Zinc	109	10000	mg/kg	92.7	**124 J**	**214**	**250**	67.5	18.5 J	18.8 J

Ramapo Paint Sludge Site - Operable Unit 2
Rockland County, NY
SITE MANAGMENT PLAN

TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-E-H6(12.0-12.5)	PE-E-S13(1.5-2.0)	PE-DUP-022	PE-E-S4(6.0-6.5)	PE-E-S5(5.0-5.5)	PE-E-S6(1.5-2.0)	PE-G-A3(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**				PE-E-S13(1.5-2.0) 14				
Sample Date	**Unrestricted**	**Restricted**	**Units**	2/23/2016	4/14/2016	4/14/2016	2/1/2016	2/1/2016	2/1/2016	1/22/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.52 U	< 0.01 U	< 0.01 U	< 0.59 U	< 0.6 U	< 0.019 U	< 0.011 U
Acetone	0.05	100	mg/kg	< 0.52 U	< 0.01 UJ	0.0392 J	< 0.59 U	< 0.6 U	< 0.019 U	< 0.011 U
Ethylbenzene	1	41	mg/kg	0.155	< 0.001 U	< 0.001 U	**23.9**	**6.68**	0.0055	< 0.0011 U
Toluene	0.7	100	mg/kg	0.0558	< 0.001 U	< 0.001 U	**8.71**	0.0291 J	0.0015 J	< 0.0011 U
Total Xylenes	0.26	100	mg/kg	**0.987**	0.00073 J	0.0003 J	**117**	**26.3**	0.0221	< 0.0011 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.037 U	0.0653	< 0.037 U	0.91	< 0.038 U	0.0263 J	0.0551
Benzo(a)pyrene	1	1	mg/kg	< 0.037 U	0.0624	< 0.037 U	0.768	< 0.038 U	0.0277 J	0.0494
Benzo(b)fluoranthene	1	1	mg/kg	< 0.037 U	0.0787	0.0165 J	0.904	< 0.038 U	0.0349 J	0.0539
Chrysene	1	3.9	mg/kg	< 0.037 U	0.0674	< 0.037 U	0.942	0.0285 J	0.037 J	0.0534
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.037 U	0.0452	< 0.037 U	0.467	< 0.038 U	< 0.051 U	0.0261 J
Metals										
Arsenic	13	16	mg/kg	2.2	3.0	3.4	6.0	4.8	4.1	3.0
Barium	350	400	mg/kg	45.0	79.2 J	75.0 J	**2060**	**2890**	**1850**	109
Copper	50	270	mg/kg	16.0	24.6 J	33.3 J	29.8	17.3	29.7	19.7 J
Lead	63	400	mg/kg	4.2	**121 J**	**64.9 J**	**1250**	**949**	**499**	59.8
Manganese	1600	2000	mg/kg	265 J	271	396	304 J	209 J	220 J	246
Nickel	30	310	mg/kg	10.7	12.0	12.8	15.6	13.5	14.4	13.8
Zinc	109	10000	mg/kg	25.5 J	78.7 J	108 J	**215 J**	**215 J**	**134 J**	**112**

Ramapo Paint Sludge Site - Operable Unit 2
Rockland County, NY
SITE MANAGMENT PLAN

TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-G-S2(1.5-2.0)	PE-G-S4A(5.0-5.5)	PE-G-S5A(5.0-5.5)	PE-G-S6A(5.0-5.5)	PE-H-A4(2.0-2.5)	PE-H-B1(8.0-8.5)	PE-H-B2(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	1/22/2016	2/4/2016	2/4/2016	2/4/2016	3/28/2016	3/25/2016	3/28/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.0095 U	< 0.0097 U	< 0.01 U	< 0.0095 U	< 0.013 U	0.011 J	0.0164
Acetone	0.05	100	mg/kg	< 0.0095 U	0.0046 J	0.014	0.008 J	< 0.013 U	0.044 J	**0.0708 J**
Ethylbenzene	1	41	mg/kg	< 0.00095 U	< 0.00097 U	< 0.001 U	< 0.00095 U	< 0.0013 U	< 0.0014 U	< 0.001 U
Toluene	0.7	100	mg/kg	< 0.00095 U	< 0.00097 U	< 0.001 U	< 0.00095 U	< 0.0013 U	< 0.0014 U	< 0.001 U
Total Xylenes	0.26	100	mg/kg	< 0.00095 U	< 0.00097 U	< 0.001 U	< 0.00095 U	< 0.0013 U	< 0.0014 U	< 0.001 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	< 0.037 U	0.382	0.0207 J	< 0.035 U	0.836	0.0901	0.256
Benzo(a)pyrene	1	1	mg/kg	< 0.037 U	0.519	0.0191 J	< 0.035 U	0.828	0.0962	0.279
Benzo(b)fluoranthene	1	1	mg/kg	< 0.037 U	0.638	0.0285 J	< 0.035 U	0.907	0.117	0.337
Chrysene	1	3.9	mg/kg	< 0.037 U	0.456	0.0297 J	< 0.035 U	0.859	0.104	0.27
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.037 U	0.445	0.0194 J	< 0.035 U	**0.532**	0.0754	0.201
Metals										
Arsenic	13	16	mg/kg	3.0	5.4	**21.1**	3.3	4.7	10.1	3.6
Barium	350	400	mg/kg	89.0	342	**2660**	**618**	158	181	55.3
Copper	50	270	mg/kg	**66.9 J**	**98.8**	**401**	**269**	34.6	28.0	22.2
Lead	63	400	mg/kg	35.2	**701**	**2690**	**162**	**217**	**92.5**	**86.6**
Manganese	1600	2000	mg/kg	220	254 J	818 J	322 J	318	426	309
Nickel	30	310	mg/kg	11.0	**38.3**	**185**	14.4	15.6	18.8	12.6
Zinc	109	10000	mg/kg	75.4	**858 J**	**2690 J**	**393 J**	**655**	**205**	**145**

Ramapo Paint Sludge Site - Operable Unit 2
Rockland County, NY
SITE MANAGMENT PLAN

TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-H-B3(2.0-2.5)	PE-H-C1(8.0-8.5)	PE-H-C2(8.0-8.5)	PE-H-S4(1.5-2.0)	PE-DUP-019	PE-I-A2(2.0-2.5)	PE-I-B2(2.0-2.5)
Duplicate Parent ID	**NYS**	**NYS**						PE-H-S5(1.5-2.0) 29		
Sample Date	**Unrestricted**	**Restricted**	**Units**	3/28/2016	3/25/2016	3/25/2016	3/28/2016	3/29/2016	9/9/2015	9/9/2015
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	< 0.013 U	0.0086 J	0.008 J	< 0.0098 U	< 0.0097 U	< 0.011 U	< 0.0095 U
Acetone	0.05	100	mg/kg	< 0.013 U	0.0359	**0.0513**	< 0.0098 U	< 0.0097 U	< 0.011 U	0.0063 J
Ethylbenzene	1	41	mg/kg	< 0.0013 U	< 0.001 U	< 0.0011 U	< 0.00098 U	< 0.00097 U	< 0.0011 U	< 0.00095 U
Toluene	0.7	100	mg/kg	< 0.0013 U	< 0.001 U	< 0.0011 U	< 0.00098 U	< 0.00097 U	< 0.0011 U	< 0.00095 U
Total Xylenes	0.26	100	mg/kg	< 0.0013 U	< 0.001 U	< 0.0011 U	< 0.00098 U	< 0.00097 U	< 0.0011 U	< 0.00095 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	0.161	0.0396	0.0412	0.0679	0.1	0.0442	0.0275 J
Benzo(a)pyrene	1	1	mg/kg	0.162	0.0431	0.0425	0.0693	0.12	0.0416	0.025 J
Benzo(b)fluoranthene	1	1	mg/kg	0.201	0.0512	0.0555	0.0862	0.13	0.0476	0.0365
Chrysene	1	3.9	mg/kg	0.169	0.0413	0.0582	0.0752	0.139	0.0456	0.0312 J
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	0.107	0.0366 J	0.0472	0.0501	0.0816	0.0312 J	0.0207 J
Metals										
Arsenic	13	16	mg/kg	4.3	3.5	3.8	3.7	10.1	3.8	3.6
Barium	350	400	mg/kg	103	**507**	244	65.5	42.5	184	329
Copper	50	270	mg/kg	35.4	28.1	27.9	19.5	14.0 J	24.9	26.5
Lead	63	400	mg/kg	**153**	**156**	**138**	**70.4**	41.1	**84.5**	**135**
Manganese	1600	2000	mg/kg	511	525	242	295	165 J	411	193
Nickel	30	310	mg/kg	14.1	13.4	16.1	11.4	10.6	14.1	10.5
Zinc	109	10000	mg/kg	**172**	**259**	**284**	97.0	**133 J**	**142**	**196**

Ramapo Paint Sludge Site - Operable Unit 2
Rockland County, NY
SITE MANAGMENT PLAN

TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-I-S3B(1.0-1.5)	PE-J-C2(2.0-2.5)	PE-J-S5(1.5-2.0)	PE-MSA-M1(0.5-1.0)	PE-MSA-M12(0.5-1.0)	PE-MSA-M13(0.5-1.0)	PE-MSA-M17(0.5-1.0)
Duplicate Parent ID	**NYS**	**NYS**								
Sample Date	**Unrestricted**	**Restricted**	**Units**	9/18/2015	4/5/2016	4/7/2016	4/12/2016	4/12/2016	4/12/2016	4/11/2016
VOCs										
2-Butanone (MEK)	0.12	100	mg/kg	NA	0.0247 J	0.0109	< 0.01 U	0.0818	< 0.01 U	0.0417
Acetone	0.05	100	mg/kg	NA	**0.0549 J**	**0.0914 J**	< 0.01 U	**0.196**	**0.0517**	0.0446
Ethylbenzene	1	41	mg/kg	NA	0.00028 J	< 0.00092 U	< 0.001 U	< 0.0011 U	< 0.001 U	< 0.001 U
Toluene	0.7	100	mg/kg	NA	< 0.0011 U	< 0.00092 U	< 0.001 U	< 0.0011 U	0.0035	< 0.001 U
Total Xylenes	0.26	100	mg/kg	NA	< 0.0011 U	< 0.00092 U	< 0.001 U	< 0.0011 U	< 0.001 U	< 0.001 U
SVOCs										
Benzo(a)anthracene	1	1	mg/kg	NA	0.0329 J	0.0245 J	< 0.042 U	< 0.041 U	0.0218 J	0.0293 J
Benzo(a)pyrene	1	1	mg/kg	NA	0.0322 J	0.0209 J	< 0.042 U	< 0.041 U	0.0176 J	0.0452
Benzo(b)fluoranthene	1	1	mg/kg	NA	0.0381	0.0229 J	< 0.042 U	< 0.041 U	0.0238 J	0.0689
Chrysene	1	3.9	mg/kg	NA	0.0295 J	0.0236 J	< 0.042 U	< 0.041 U	0.0248 J	0.0318 J
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	NA	0.0217 J	< 0.034 U	< 0.042 U	< 0.041 U	< 0.04 U	0.0217 J
Metals										
Arsenic	13	16	mg/kg	3.4	2.1	2.0 B	5.3	2.5	3.8	3.2
Barium	350	400	mg/kg	134	37.8 J	20.6 J	138 J	54.6 J	83.6 J	225 J
Copper	50	270	mg/kg	21.0	9.2	**173**	20.2 J	12.4 J	20.4 J	21.1
Lead	63	400	mg/kg	**90.6**	10.1	36.2	**143**	19.1	30.2	**70.0**
Manganese	1600	2000	mg/kg	244	145 J	161 J	**2140**	122	417	489 J
Nickel	30	310	mg/kg	12.3	8.0	8.2	18.4	9.7	13.7	11.7
Zinc	109	10000	mg/kg	**155**	29.7	28.7	47.7 J	50.8 J	71.5 J	**116**

Ramapo Paint Sludge Site - Operable Unit 2
Rockland County, NY
SITE MANAGMENT PLAN

TABLE 3. REMAINING SOIL SAMPLE EXCEEDANCES OU-2

Sample ID	**375-6.8(a)**	**375-6.8(b)**		PE-MSA-M19(0.5-1.0)	PE-MSA-M20(0.5-1.0)	PE-MSA-M22(0.5-1.0)	PE-MSA-M23(0.5-1.0)	PE-MSA-M28(0.5-1.0)	PE-MSA-M6(0.5-1.0)
Duplicate Parent ID	**NYS**	**NYS**							
Sample Date	**Unrestricted**	**Restricted**	**Units**	4/13/2016	4/13/2016	4/11/2016	4/11/2016	4/13/2016	4/12/2016
VOCs									
2-Butanone (MEK)	0.12	100	mg/kg	< 0.01 U	**0.153**	< 0.013 U	0.0215	< 0.0099 U	< 0.011 U
Acetone	0.05	100	mg/kg	< 0.01 U	**0.103**	0.006 J	**0.731**	< 0.0099 U	< 0.011 U
Ethylbenzene	1	41	mg/kg	< 0.001 U	< 0.001 U	< 0.0013 U	0.0017	< 0.00099 U	< 0.0011 U
Toluene	0.7	100	mg/kg	< 0.001 U	< 0.001 U	0.00071 J	0.0315	< 0.00099 U	< 0.0011 U
Total Xylenes	0.26	100	mg/kg	< 0.001 U	< 0.001 U	< 0.0013 U	< 0.00098 U	< 0.00099 U	< 0.0011 U
SVOCs									
Benzo(a)anthracene	1	1	mg/kg	< 0.038 U	< 0.038 U	0.0486	0.0535	0.0249 J	< 0.042 U
Benzo(a)pyrene	1	1	mg/kg	< 0.038 U	< 0.038 U	0.0471	0.0498	0.0229 J	< 0.042 U
Benzo(b)fluoranthene	1	1	mg/kg	0.0171 J	< 0.038 U	0.0799	0.0698	0.0321 J	0.0183 J
Chrysene	1	3.9	mg/kg	< 0.038 U	< 0.038 U	0.0644	0.0547	0.0268 J	0.0161 J
Indeno(1,2,3-cd)pyrene	0.5	0.5	mg/kg	< 0.038 U	< 0.038 U	0.0348 J	0.0375 J	< 0.039 U	< 0.042 U
Metals									
Arsenic	13	16	mg/kg	3.2	4.3	3.5	3.7	3.0	4.0
Barium	350	400	mg/kg	226 J	**409 J**	129 J	119 J	109 J	115 J
Copper	50	270	mg/kg	22.8 J	**56.6 J**	29.1	19.2	30.1 J	**59.5 J**
Lead	63	400	mg/kg	**131**	**207**	**76.3**	48.4	**80.4**	27.3
Manganese	1600	2000	mg/kg	207	316	380 J	305 J	296	515
Nickel	30	310	mg/kg	10.7	15.5	13.1	12.4	11.2	12.0
Zinc	109	10000	mg/kg	**284 J**	**362 J**	**129**	93.7	54.4 J	71.1 J

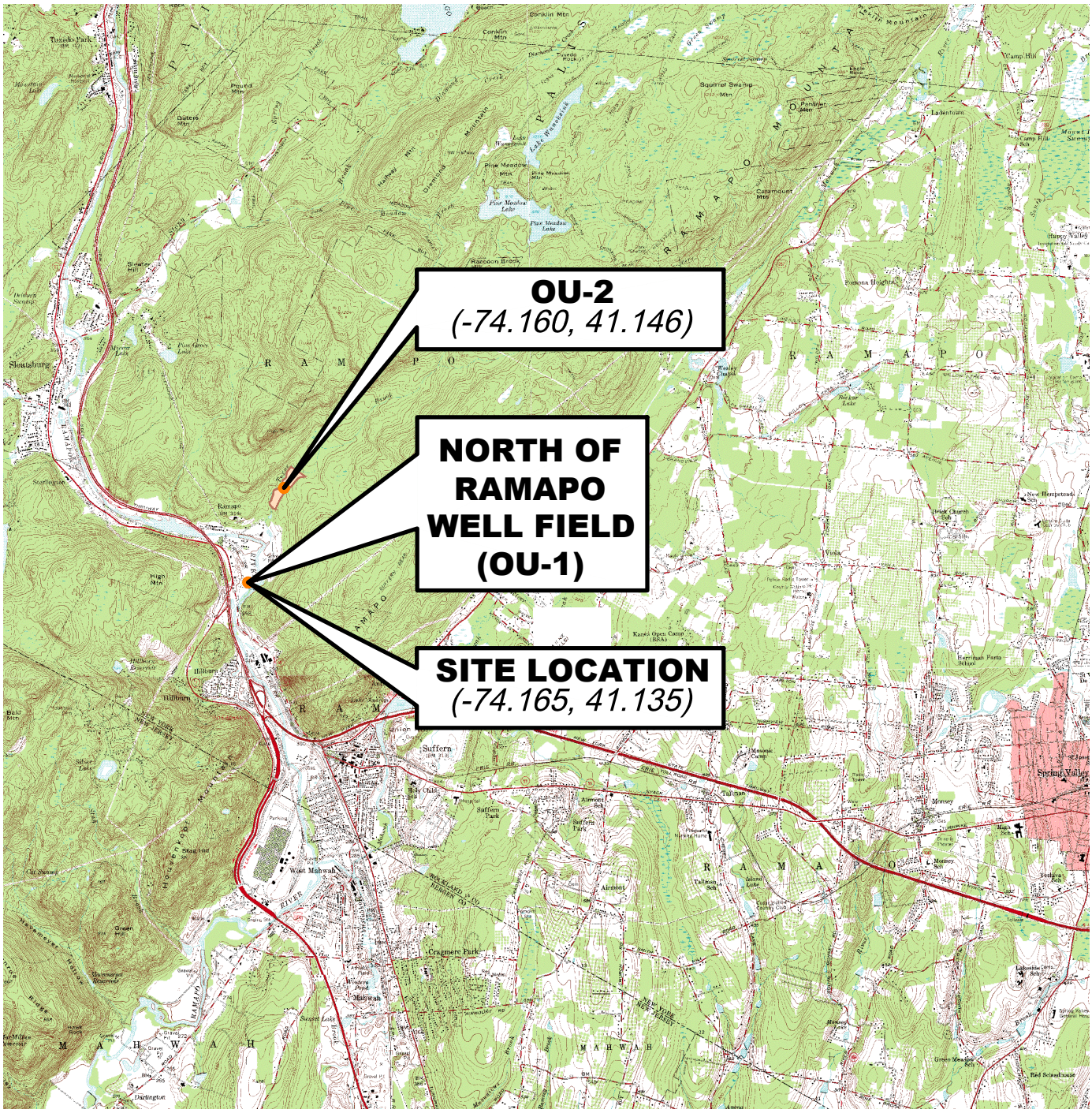
Ramapo Paint Sludge Site - Operable Unit 1
Rockland County, NY
SITE MANAGMENT PLAN

TABLE 2. REMAINING SOIL SAMPLE EXCEEDANCES

NOTES:

<	Not Detected
Bold	Result exceeds the 375-6.8(a) NYS Unrestricted Use (Unrestricted)
Italic	Result exceeds the 375-6.8(b) NYS Protection of Groundwater (POG)
Shade	Result exceeds the 375-6.8(b) NYS Restricted Residential Use (Restricted)
B	Result is between the method detection limit and the reporting limit.
J or JN	Estimated Result
mg/kg	Milligrams per kilogram
NA	Not Analyzed
NS	No Standard
R	Rejected Result
UB	Result non-detected at the listed value due to associated blank contamination.

FIGURES

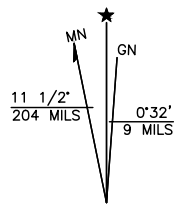


CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

SOURCE: USGS 7.5 MIN. SLOATSBURG QUADRANGLE, SLOATSBURG, NY–NJ. 1952, PARK RIDGE QUADRANGLE, PARK RIDGE, NJ–NY, 1955, RAMSEY QUADRANGLE, RAMSEY, NJ–NY, 1955, THIELS QUADRANGLE, THIELS, NJ–NY, 1955

DRAFT



UTM GRID AND 1955
MAGNETIC NORTH

0 6000
SCALE IN FEET

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

IMAGES:
O41074A1.TIF
O41074A2.TIF
O41074B1.TIF
O41074B2.TIF

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB: LPOSENAUER PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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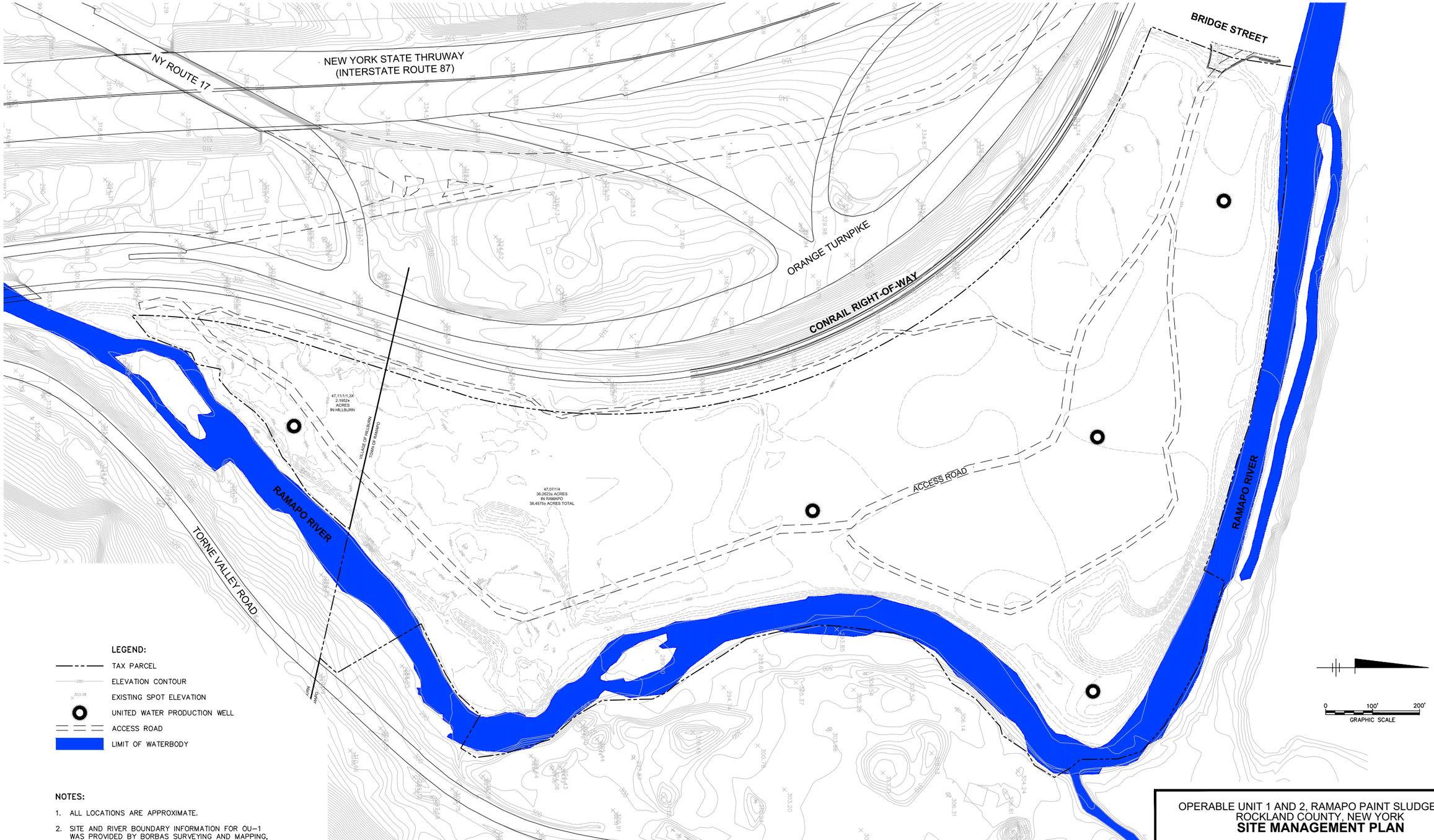

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. SITE AND RIVER BOUNDARY INFORMATION FOR OU-1 WAS PROVIDED BY BORBAS SURVEYING AND MAPPING, LLC SURVEYORS, FROM A CAD DRAWING NAMED "071005_2014-03-03_RESTORATION_SEND.DWG".

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OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

SITE LAYOUT MAP OU-1

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

LEGEND:

- TAX PARCEL
- ELEVATION CONTOUR
- ACCESS ROAD
- LIMIT OF WATERBODY
- MONITORING WELL

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. BASE MAP SUPPLIED BY BORBAS SURVEYING & MAPPING; DATED FEBRUARY 10, 2017.

TORNE BROOK

TAX LOT 7.2
BLOCK 1

FRAME BUILDING

TORNE VALLEY ROAD

2-OS-101
2-OS-C
2-OS-B

0 40' 80'
GRAPHIC SCALE

MATCH LINE - SEE FIGURE 3B

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OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

SITE LAYOUT MAP OU-2 NORTHERN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3A

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB: L.POSENAUER PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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PLTFULL.CTB PLOTTED: 8/26/2019 11:27 AM BY: POSENAUER, LISA
XREFS:
RAMAPO-X-BASE
RAMAPO-X-TITLE-SMP

MATCH LINE - SEE FIGURE 3A

TAX LOT 7.2
BLOCK 1

TORNE BROOK

TORNE VALLEY ROAD

1-OS-A
1-OS-B
1-OS-C

LEGEND:

- TAX PARCEL
- ELEVATION CONTOUR
- ACCESS ROAD
- LIMIT OF WATERBODY
- MONITORING WELL

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. BASE MAP SUPPLIED BY BORBAS SURVEYING & MAPPING; DATED FEBRUARY 10, 2017.

0 40' 80'
GRAPHIC SCALE

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

SITE LAYOUT MAP OU-2 SOUTHERN

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FIGURE
3B

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB: LPOSENAUER PM:(Req'd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\lposenauer\BIM 360\Arcadis\ANA - FORD MOTOR COMPANY\Project Files\RAMAPO SMP\2019\3001727010\1-DWG\RAMAPO_OU1&2-SMP_FIG03-PLTFULL.CTB PLOTTED: 8/26/2019 11:27 AM BY: POSENAUER, LISA
XREFS:
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RAMAPO-X-TITLE-SMP
SMP_FIG03-SITE LAYOUT MAP OU2.dwg LAYOUT: 3B SAVED: 8/26/2019 11:11 AM ACADVER: 23.0S (LMS TECH) PAGESETUP: C-PA-PDF PLOTSTYLETABLE:

NEW YORK STATE THRUWAY
(INTERSTATE ROUTE 87)

NY ROUTE 17

ORANGE TURNPIKE

CONRAIL RIGHT-OF-WAY

BRIDGE STREET

ACCESS ROAD

TORNE VALLEY ROAD

RAMAPO RIVER

VILLAGE OF HILLBURN

TOWN OF RAMAPO

47,11/1/1,3X
2,195?± ACRES
IN HILLBURN

47,07/1/4
36,262?± ACRES
IN RAMAPO
38,457?± ACRES TOTAL

PE-P1-CELL0-7B
PE-P1-CELL0-5SW
PE-P1-CELL5-4B
PE-P1-WEST-7SW
PE-P1-WEST-8B
PE-P1-WEST-13B
PE-P1-EAST-2SW
PE-P1-WEST-14SW
PE-P1-WEST-6B
PE-P1-WEST-1B
SS-P2-8B
PE-P1-EAST-3B
PE-P1-EAST-5SW
PE-P1-EAST-5B
PE-P2-CELL-1B
PE-P2-EAST-3SW
PE-P2-CELL-2B
SS-P2-2B
SS-P2-1BA
PE-P2-13B

PE-P3-EAST-6B
PE-P3-EAST-2B
PE-P3-EAST-9SW
PE-P3-EAST-12B
PE-P3-CELL47-3B
PE-P3-CELL50-4B
PE-P3-EAST-11B
PE-P3-CELL50-3SW
PE-P3-EAST-14B

SS-YP-3B
SS-YP-2B
SS-YP-1B
SS-WSA-1B
SS-WSA-2B
SS-WSA-3B
SS-WSA-24B
SS-WSA-23B
SS-WSA-10B
SS-WSA-22B
SS-WSA-13B
SS-WSA-21B
SS-WSA-17B
SS-WSA-25B
SS-WSA-18B
SS-WSA-19B
SS-WSA-20B

LEGEND:

- TAX PARCEL
- ELEVATION CONTOUR
- EXISTING SPOT ELEVATION
- UNITED WATER PRODUCTION WELL
- ACCESS ROAD
- LIMIT OF WATERBODY
- REMAINING SOIL SAMPLE EXCEEDANCE

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. SITE AND RIVER BOUNDARY INFORMATION FOR OU-1 WAS PROVIDED BY BORBAS SURVEYING AND MAPPING, LLC SURVEYORS, FROM A CAD DRAWING NAMED "071005_2014-03-03_RESTORATION_SEND.DWG".

0 100' 200'
GRAPHIC SCALE

DRAFT

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

REMAINING SOIL SAMPLE EXCEEDANCES OU-1

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

LEGEND:

- TAX PARCEL
- ELEVATION CONTOUR
- ACCESS ROAD
- LIMIT OF WATERBODY
- MONITORING WELL
- REMAINING SOIL SAMPLE EXCEEDANCE

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. BASE MAP SUPPLIED BY BORBAS SURVEYING & MAPPING; DATED FEBRUARY 10, 2017.

TORNE BROOK

TAX LOT 7.2
BLOCK 1

FRAME BUILDING

TORNE VALLEY ROAD

PE-B-S12
PE-B-B3
PE-B-B4
PE-B-F3
PE-B-S5
PE-B-G2A
PE-B-S4
PE-C-F9
PE-C-F8
PE-D-S1
PE-D-H10
PE-D-G10
PE-D-G9
PE-D-H9
PE-D-S8
PE-C-E6
PE-C-F5
PE-A-S12A
PE-A-E2
PE-A-S11
PE-A-S5
PE-A-C7
PE-A-C8
PE-A-C2
PE-A-C3
PE-A-S6
PE-D-F8
PE-D-G8
PE-D-S10
PE-C-S12
PE-C-F3
PE-C-E2
PE-C-D1
PE-D-D6
PE-D-E6
PE-D-F5
PE-D-G5
PE-D-G4
PE-D-D4
PE-G-S2
PE-G-A3
2-OS-101
2-OS-C
2-OS-B
PE-D-B3
PE-D-C3
PE-D-D2
PE-D-E2
PE-D-F2
PE-D-B2
PE-D-C2
PE-D-C
PE-G-S4A
PE-G-S6A
PE-G-S5A

0 40' 80'
GRAPHIC SCALE

MATCH LINE - SEE FIGURE 5B

DRAFT

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

REMAINING SOIL SAMPLE EXCEEDANCES OU-2 NORTHERN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5A

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB: L.POSENAUER PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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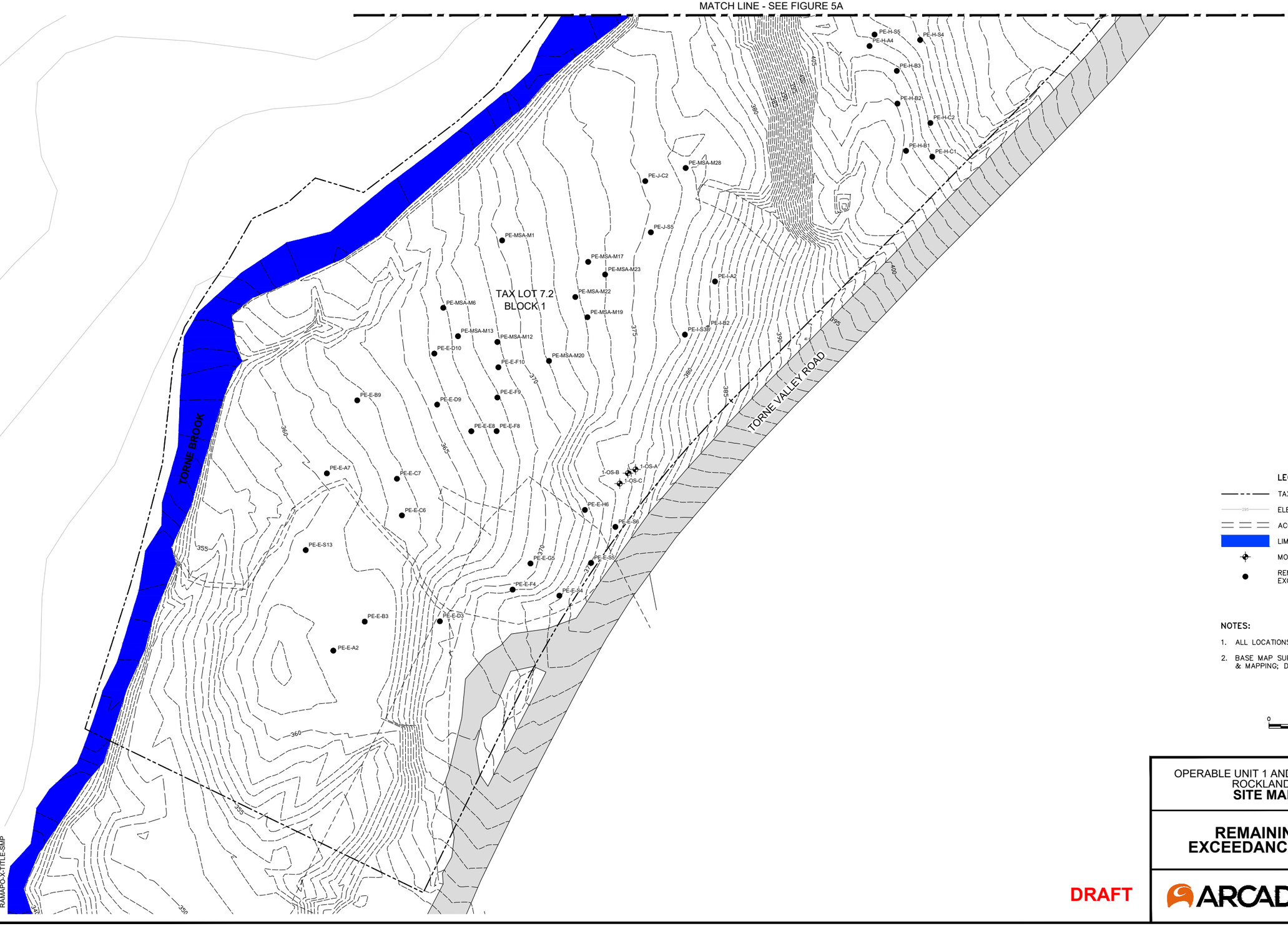
PLTFULL.CTB PLOTTED: 8/26/2019 11:29 AM BY: POSENAUER, LISA
XREFS:
RAMAPO-X-BASE
RAMAPO-X-TITLE-SMP



LEGEND:

- TAX PARCEL
- ELEVATION CONTOUR
- ACCESS ROAD
- LIMIT OF WATERBODY
- MONITORING WELL
- REMAINING SOIL SAMPLE EXCEEDANCE

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. BASE MAP SUPPLIED BY BORBAS SURVEYING & MAPPING; DATED FEBRUARY 10, 2017.

0 40' 80'
GRAPHIC SCALE

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

REMAINING SOIL SAMPLE EXCEEDANCES OU-2 SOUTHERN

DRAFT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5B

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB: LPOSENAUER PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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PLTFULL.CTB PLOTTED: 8/26/2019 11:29 AM BY: POSENAUER, LISA
XREFS:
RAMAPO-X-BASE
RAMAPO-X-TITLE-SMP

NEW YORK STATE THRUWAY
(INTERSTATE ROUTE 87)

NY ROUTE 17

ORANGE TURNPIKE

CONRAIL RIGHT-OF-WAY

BRIDGE STREET

ACCESS ROAD

TORNE VALLEY ROAD

RAMAPO RIVER

INSTITUTIONAL CONTROL

LEGEND:

- TAX PARCEL
- INSTITUTIONAL CONTROLS BOUNDARY
- ELEVATION CONTOUR
- EXISTING SPOT ELEVATION
- UNITED WATER PRODUCTION WELL
- ACCESS ROAD
- LIMIT OF WATERBODY

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. SITE AND RIVER BOUNDARY INFORMATION FOR OU-1 WAS PROVIDED BY BORBAS SURVEYING AND MAPPING, LLC SURVEYORS, FROM A CAD DRAWING NAMED "071005_2014-03-03_RESTORATION_SEND.DWG".

0 100' 200'
GRAPHIC SCALE

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

INSTITUTIONAL CONTROL BOUNDARIES OU-1

DRAFT

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6

LEGEND:

- TAX PARCEL
- INSTITUTIONAL CONTROLS BOUNDARY
- ELEVATION CONTOUR
- ACCESS ROAD
- LIMIT OF WATERBODY
- MONITORING WELL

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. BASE MAP SUPPLIED BY BORBAS SURVEYING & MAPPING; DATED FEBRUARY 10, 2017.

N47°25'40"E 84.27'
N46°34'07"E 88.35'
N42°49'29"E 85.73'
N39°24'52"E 56.12'
N37°49'41"E 82.78'
N08°46'48"E 38.75'
N02°47'14"W 42.80'
N09°31'03"E 82.00'
N31°37'47"E 12.56'
N54°20'43"E 64.06'
N31°24'08"E 49.65'
N60°44'39"E 77.56'
N39°56'02"E 31.64'
N29°01'28"E 22.00'
N08°49'18"W 23.21'
N26°09'00"W 44.02'
N08°19'06"E 32.55'
N26°56'12"E 31.54'
N36°29'10"E 44.84'
S46°37'47"E 681.54'
S38°30'09"W 209.55'

TORNE BROOK
TORNE BROOK
TAX LOT 7.2
BLOCK 1
FRAME BUILDING
TORNE VALLEY ROAD
2-OS-101
2-OS-C
2-OS-B
R=331.71
D=50°40'19"
L=293.38
Ch=283.91
R=974.99
D=6°46'12"
L=115.20
Ch=155.14

0 40' 80'
GRAPHIC SCALE

MATCH LINE - SEE FIGURE 7B

DRAFT

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

INSTITUTIONAL CONTROL BOUNDARIES OU-2 NORTHERN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7A

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB: L.POSENAUER PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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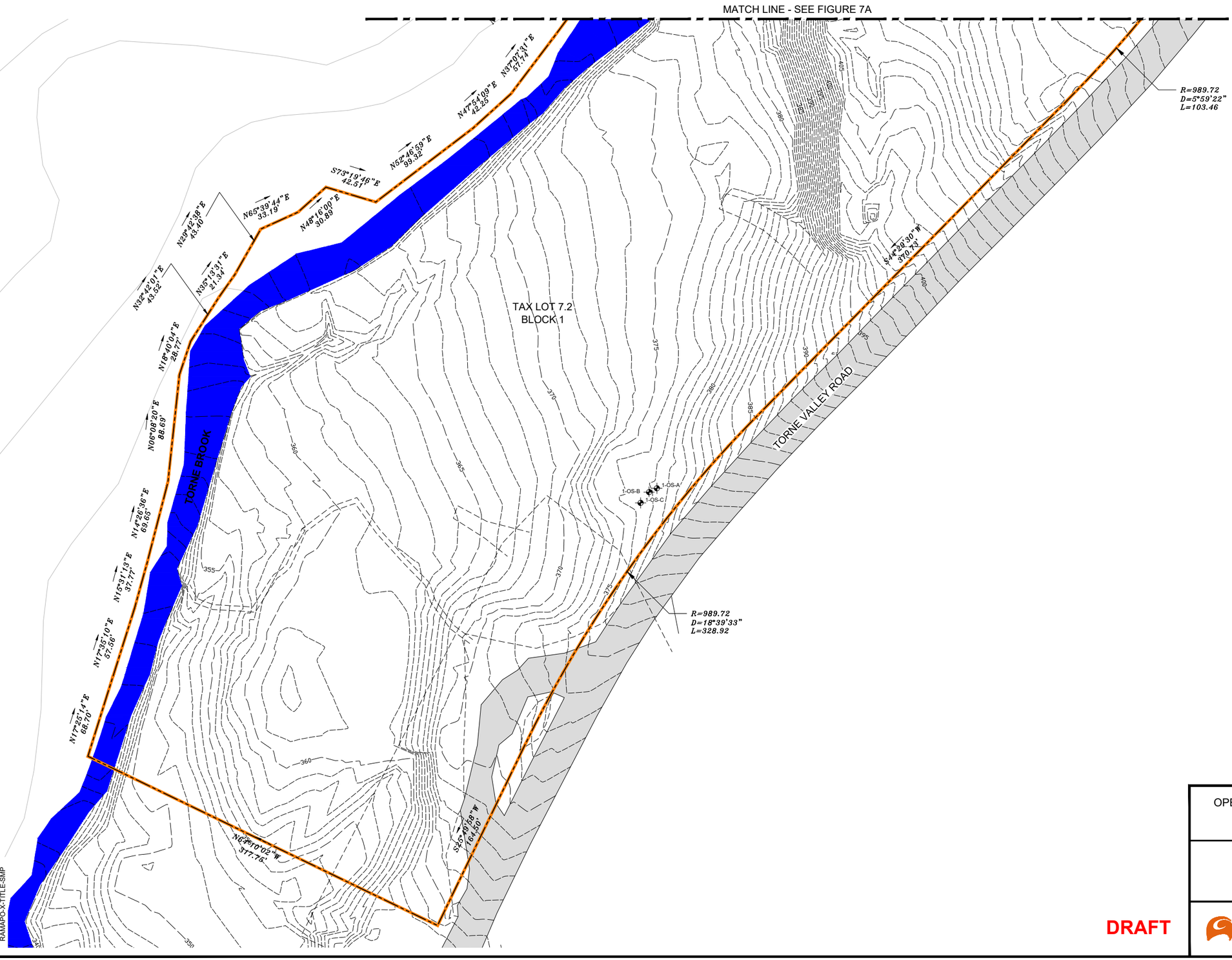
RAMAPO-X-BASE
RAMAPO-X-TITLE-SMP



LEGEND:

- TAX PARCEL
- INSTITUTIONAL CONTROLS BOUNDARY
- ELEVATION CONTOUR
- ACCESS ROAD
- LIMIT OF WATERBODY
- MONITORING WELL

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. BASE MAP SUPPLIED BY BORBAS SURVEYING & MAPPING; DATED FEBRUARY 10, 2017.

0 40' 80'
GRAPHIC SCALE

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

INSTITUTIONAL CONTROL BOUNDARIES OU-2 SOUTHERN

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FIGURE
7B

NEW YORK STATE THRUWAY
(INTERSTATE ROUTE 87)

NY ROUTE 17

ORANGE TURNPIKE

CONRAIL RIGHT-OF-WAY

BRIDGE STREET

ACCESS ROAD

TORNE VALLEY ROAD

RAMAPO RIVER

RAMAPO RIVER

LEGEND:

- TAX PARCEL
- INSTITUTIONAL CONTROLS BOUNDARY
- ELEVATION CONTOUR
- EXISTING SPOT ELEVATION
- UNITED WATER PRODUCTION WELL
- ACCESS ROAD
- LIMIT OF WATERBODY
- SOIL COVER (OR CAP)

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. SITE AND RIVER BOUNDARY INFORMATION FOR OU-1 WAS PROVIDED BY BORBAS SURVEYING AND MAPPING, LLC SURVEYORS, FROM A CAD DRAWING NAMED "071005_2014-03-03_RESTORATION_SEND.DWG".

0 100' 200'
GRAPHIC SCALE

DRAFT

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

ENGINEERING CONTROLS LOCATION OU-1

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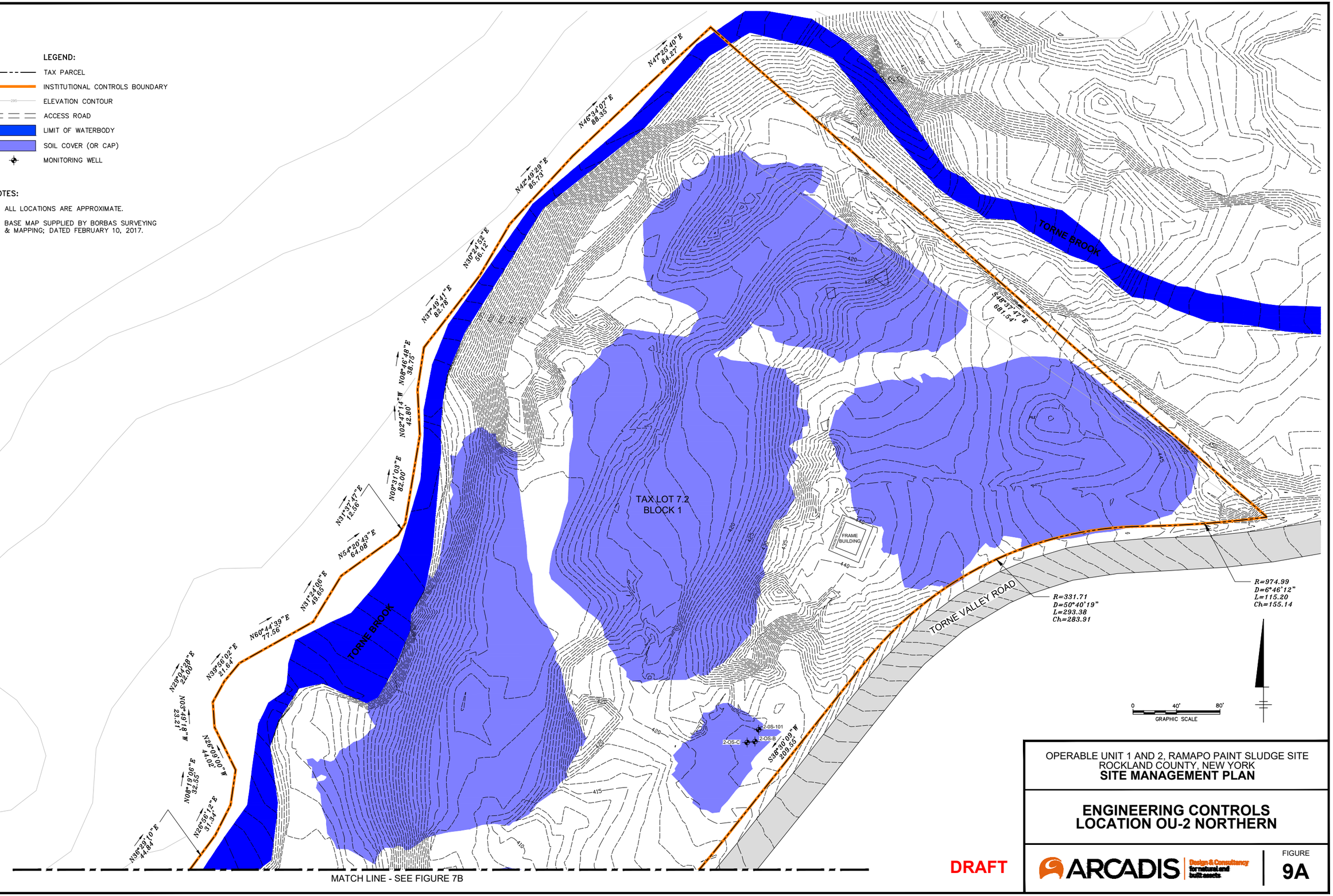
FIGURE
8

LEGEND:

- TAX PARCEL
- INSTITUTIONAL CONTROLS BOUNDARY
- ELEVATION CONTOUR
- ACCESS ROAD
- LIMIT OF WATERBODY
- SOIL COVER (OR CAP)
- MONITORING WELL

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. BASE MAP SUPPLIED BY BORBAS SURVEYING & MAPPING; DATED FEBRUARY 10, 2017.



DRAFT

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

ENGINEERING CONTROLS LOCATION OU-2 NORTHERN

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FIGURE
9A

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB: L.POSENAUER PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 8/26/2019 11:32 AM BY: POSENAUER, LISA
XREFS:
RAMAPO-X-BASE
RAMAPO-X-TITLE-SMP

MATCH LINE - SEE FIGURE 7A

TAX LOT 7.2
BLOCK 1

TORNE BROOK

TORNE VALLEY ROAD

N37°07'31"E
57.74

N47°54'09"E
42.35

N52°46'59"E
99.32

S73°19'46"E
42.57

N48°16'00"E
30.89

N65°39'44"E
33.19

N29°12'38"E
43.40

N38°42'01"E
45.52

N35°18'31"E
21.34

N18°40'04"E
38.77

N06°08'20"E
88.69

N14°36'36"E
69.65

N15°31'13"E
37.71

N17°35'10"E
57.56

N17°25'14"E
68.70

N36°10'02"W
317.76

S25°49'58"W
164.50

S44°28'30"W
370.73

R=989.72
D=5°59'22"
L=103.46

R=989.72
D=18°39'33"
L=328.92

1-OS-A
1-OS-B
1-OS-C

LEGEND:

- TAX PARCEL
- INSTITUTIONAL CONTROLS BOUNDARY
- ELEVATION CONTOUR
- ACCESS ROAD
- LIMIT OF WATERBODY
- SOIL COVER (OR CAP)
- MONITORING WELL

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. BASE MAP SUPPLIED BY BORBAS SURVEYING & MAPPING; DATED FEBRUARY 10, 2017.

0 40' 80'
GRAPHIC SCALE

OPERABLE UNIT 1 AND 2, RAMAPO PAINT SLUDGE SITE
ROCKLAND COUNTY, NEW YORK
SITE MANAGEMENT PLAN

ENGINEERING CONTROLS LOCATION OU-2 SOUTHERN

DRAFT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
9B

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB: L.POSENAUER PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\lposenauer\BM 360\Acadis\ANA - FORD MOTOR COMPANY\Project Files\RAMAPO SMP2019\300172700\1-DWG\RAMAPO_OU1&2-SMP_FIG09-ENG CONTROL LOCS OU2.dwg LAYOUT: 9B SAVED: 8/26/2019 11:22 AM ACADVER: 23.0S (LMS TECH) PAGESETUP: C-PA-PDF
PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 8/26/2019 11:32 AM BY: POSENAUER, LISA
XREFS:
RAMAPO-X-BASE
RAMAPO-X-TITLE-SMP

APPENDIX A

Environmental Easement

ENVIRONMENTAL EASEMENT TO BE DEVELOPED.

APPENDIX B

List of Contacts

DRAFT

Ramapo Paint Sludge Site – Operable Unit 1s and 2 (OU-1 & 2)
Ramapo, Rockland County, New York
Site No. 3-44-064

LIST OF SITE CONTACTS

Name	Phone/Email Address
Ted Dzurinko, Town of Ramapo	845-357-0591 dzurinkot@ramapo-ny.gov
Mohamed Zakkar, Ford Motor Company	313-322-5470 mzakkar@ford.com
Krista Mastrocola, Arcadis of NY Inc.	914 641 2514 krista.mastrocola@arcadis.com
William Bennett, NYSDEC Project Manager	518-402-9659 William.bennett@dec.ny.gov
Kevin Carpenter, NYSDEC Regional Manager	518-402-9799 Kevin.carpenter@dec.ny.gov
Anthony Perretta, NYSDOH	518-402-7860 Anthony.perretta@health.ny.gov
William Prehoda, United Water	845-620-3306 william.prehoda@suez.com
Doreen Simmons, Hancock Estabrook, LLP	315-565-4500 dsimmons@hancocklaw.com

APPENDIX C

Responsibilities of Owner and Remedial Party

Ramapo Paint Sludge Site – Operable Units 1 and 2 (OU-1 & OU-2)
Ramapo, Rockland County, New York
Site No. 3-44-064

RESPONSIBILITIES OF OWNER AND REMEDIAL PARTY

The responsibilities for implementing the Site Management Plan ("SMP") for the Ramapo Paint Sludge Site, Operable Units 1 and 2 (OU-1 & OU-2, respectively) located in the Town of Ramapo, New York (the "site"), number 3-44-064, are divided between the Site Owner and a Remedial Party (RP), as defined below. The Site Owner is currently listed as: Town of Ramapo (the "owner"). The Remedial Party (RP) is: Ford Motor Company.

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order~~, Consent Decree, agreement,~~ or other legally binding document that affects rights and obligations relating to the site.

Site Owner's Responsibilities:

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the site.

2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in a(n) Environmental Easement remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.

3) In the event the site is delisted, the owner remains bound by the Environmental Easement and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easement is still in place and has been complied with.

4) The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and the NYSDEC in accordance with the timeframes indicated in Section 1.3 Notifications.

   In the event some action or inaction by the owner adversely impacts the site (i.e., change of use), the owner must notify the site's RP and the NYSDEC in accordance with 6 NYCRR Part 375 and within the time frame indicated in Section 1.3 - Notifications and coordinate the performance of necessary corrective actions with the RP.

6) The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site properties. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental

Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 1.3 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

7) The owner will maintain the well field, access road, wooden fence, medicine garden, meadow, gravel parking lot and Salt Box ~~on behalf of the RP. The RP remains ultimately responsible for maintaining the engineering controls.~~

8) Until such time as the NYSDEC deems the cover system unnecessary, the owner shall follow the provisions of the SMP (specifically, the Excavation Work Plan) regarding any construction and/or excavation it undertakes at the Site.

9) ~~Until such time as the NYSDEC deems the vapor mitigation system unnecessary, the owner shall operate the system, pay for the utilities for the system's operation, and report any maintenance issues to the RP and the NYSDEC.~~

10) ~~Until such time as the NYSDEC deems the drinking water treatment system unnecessary, the owner shall operate the drinking water treatment system, pay for the utilities and report any maintenance issues to the RP and the NYSDEC.~~

11) ~~In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.~~

Remedial Party Responsibilities

1) The RP must follow the SMP provisions (specifically, the Excavation Work Plan) regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary (i.e., change of use), the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3 - Notifications] of the SMP.

~~7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation systems associated with the site, as required in Section or Appendix (Operation , Monitoring and Maintenance Manual) of the SMP.~~

~~8) The RP is responsible for the proper monitoring and maintenance of any installed drinking water treatment system associated with the site, as required in Section or Appendix (Operation , Monitoring and Maintenance Manual).~~

7) Prior to a change in use that impacts the remedial system or requirements and/or RP responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

8) Any change in use, change in ownership, change in site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the Department to discuss the need to update such documents.

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

APPENDIX D

Excavation Work Plan

Ramapo Paint Sludge Site – Operable Units 1 and 2 (OU-1 & 2)
Ramapo, Rockland County, New York
Site No. 3-44-064

EXCAVATION WORK PLAN (EWP)

1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix B of the SMP.

Table 1: Notifications*

Mohamed Zakkar, Ford Motor Company	313-322-5470 mzakkar@ford.com
William Bennett, NYSDEC Project Manager	518-402-9659 William.bennett@dec.ny.gov
Kevin Carpenter, NYSDEC Regional Manager	518-402-9799 Kevin.carpenter@dec.ny.gov
Anthony Perretta, NYSDOH	518-402-7860 Anthony.perretta@health.ny.gov

*Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix E of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided ~~in Section X of this Appendix~~ below.

3 SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near ~~catch basins,~~ surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected, and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC.

4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and Remedial Party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this plan.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers~~. Loose-fitting canvas-type truck covers will be prohibited.~~ If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: (a) Head south on Bridge Street toward NY-17 N; (b) Turn right at the 1st cross street onto Orange Turnpike; and (c) Follow signage for I-87S/NYS-17S (toward New Jersey) or I-87N/NY-17N (toward New York). All trucks loaded with site materials will exit the vicinity of the Site using only this approved truck route. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during Site remediation and development.

~~Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.~~

6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of material from this Site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre- excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction and demolition recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

7 MATERIALS REUSE ON-SITE

Soil originating on the Site may be reused on the Site provided sampling demonstrates compliance with Standards, Criteria and Guidance as detailed in Appendix 5 Allowable Constituent Levels for Import Fill or Soil Subdivision 5.4 (e) of the DER-10. The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer, ~~or impervious surface,~~ and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived

from clearing and grubbing of the site will not be reused on-site, unless approved by the NYSDEC.

8 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including but not limited to, excavation dewatering, and decontamination waters ~~and groundwater monitoring well purge and development waters,~~ will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering~~, purge and development fluids~~ will not be recharged back to the land surface or subsurface of the Site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Record of Decision. The existing cover system is comprised of a minimum of 24 inches of clean soil. The demarcation layer will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

10 BACKFILL FROM OFF-SITE SOURCES

Soil imported to the site shall: (a) comply with site RAOs; (b) be free of extraneous debris or solid waste; and, (c) not exceed the allowable constituent levels for imported fill as per Appendix 5 Allowable Constituent Levels for Import Fill or Soil Subdivision 5.4 (e) of the DER-10. All materials proposed for import onto the Site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater, and protection of ecological resources criteria, the resulting soil quality standards are listed in ~~Table 1~~ Appendix 5 Allowable Constituent Levels for Import Fill or Soil Subdivision 5.4 (e) of the DER-10. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

11 STORMWATER POLLUTION PREVENTION

For disturbances greater than 1 acre, a Stormwater Pollution Prevention Plan that conforms to the requirements of the NYSDEC Division of Water guidelines and New York State regulations will be drafted.

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

13 COMMUNITY AIR MONITORING PLAN

Air monitoring should be conducted in accordance with the Community Air Monitoring Plan provided as Appendix E in the SMP. In general, perimeter air monitoring stations shall be setup upgradient and downgradient of the proposed excavation. ~~A figure showing the location of air sampling stations based on generally prevailing wind conditions is shown in Figure x.~~ These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and downwind monitoring stations. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off- site. Specific odor control methods to be used on a routine basis are presented below. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the Remedial Party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX E

Health and Safety Plan (and Community Air Monitoring Plan)

Draft Site Specific Health and Safety Plan

Revision 16

Project Name:	Ramapo Paint Sludge Site Rockland County, New York Site #3-44-064
Project Number:	NJ000602.0005
Client Name:	Ford Motor Company
Date:	8/1/2019
	NA

Approvals:

HASP Developer: Joe Burden

Project Manager: Jon Rocklin

HASP Reviewer: Krista Mastrocola

Arcadis Culture of Caring

Arcadis is committed to a Culture of Caring that ensures each Arcadis employee, part time as needed employee (PTAN), temporary agency employee under Arcadis day to day control, Inexperienced Workers and contractor (cumulatively referred to here as "field staff") goes home at the end of the day free from injury or illness. I certify that the following has been performed with all Arcadis field staff on this project either in person or by Skype:

☐ Reviewed the HASP including a discussion of hazard identification and controls.

- ☐ If conducting activities deemed by Arcadis to be "High Risk", frontline management has reviewed applicable H&S standards (Job Safety Analysis [JSA] when authorized by H&S) for these activities with field staff.
- ☐ If permit to work is required, frontline management has reviewed the permit(s) with field staff.

☐ Reviewed proactive H&S engagement expectations/injury prevention actions.
☐ Reviewed Stop Work Authority.
☐ Reviewed the incident reporting process and expectations including when WorkCare should be contacted by staff (WorkCare incident intervention for all minor, non-emergency injuries) and that the WorkCare phone number is programmed into field team cell phone.
☐ For Inexperienced Workers, a mentor has been assigned for the new task being performed.

For short service employees (SSEs), PTANS* and temporary agency employees* :

☐ Provided coaching and mentoring on Arcadis H&S expectations during project work. Reviewed in detail specific hazards and controls and provided a resource who can be contacted if individual has questions regarding planned or unplanned work tasks.

Mentor/Resource # _____ _____
Name Phone Number

Signed:

_____ Project Manager

* Upon hiring/contracting for the first time.

Emergency Information

Site Address: Operable Unit 1 - 2 Bridge Street, Sloatsburg, NY

Operable Unit 2 - Torne Valley Road, Ramapo, NY

Emergency Phone Numbers:

Emergency (police)		911 or 845-357-2400
Emergency (facility specific, if applicable):		
Emergency (fire)		911 or 845-357-9260
Emergency (ambulance)		911 or 845-357-1788
Emergency Other (specify):		
Primary Client Contact:	Mohamed Zakkar	313-322-5470
WorkCare (non-life-threatening injury/illness):		1-888-449-7787
Project H&S:	Krista Mastrocola	914-641-2631
Task Manager:	Krista Mastrocola	914-641-2631
Project Manager:	Jon Rocklin	201-398-4364
Corporate H&S Specialist:	Julie Santaniello	978-551-0033
Corporate H&S Director:	Denis Balcer	614-778-9171

Hospital Name and Address:

Good Samaritan Hospital
255 Lafayette Avenue
Suffern, New York 10901

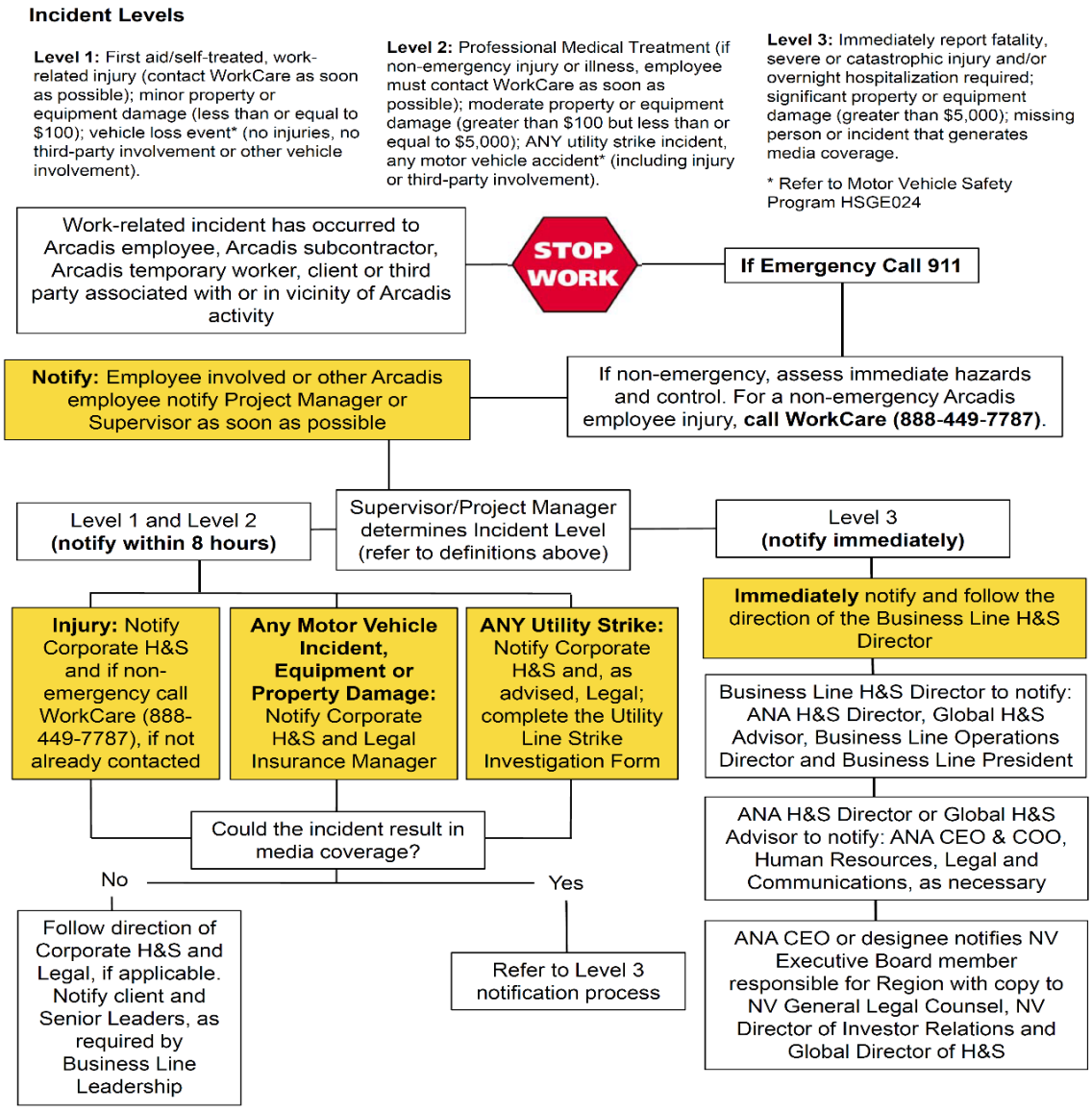
Hospital Phone Number: 845-368-5000

Supplemental Client Contact Information:

Other Important Phone Numbers:

Poison Control Center	1-800-222-1222
Nat. Response Ctr. (spills in reportable quantities)	1-800-424-8802
U.S. Coast Guard (spills to water)	1-800-424-8802
NYS DEC (spill hotline)	1-800-457-7362

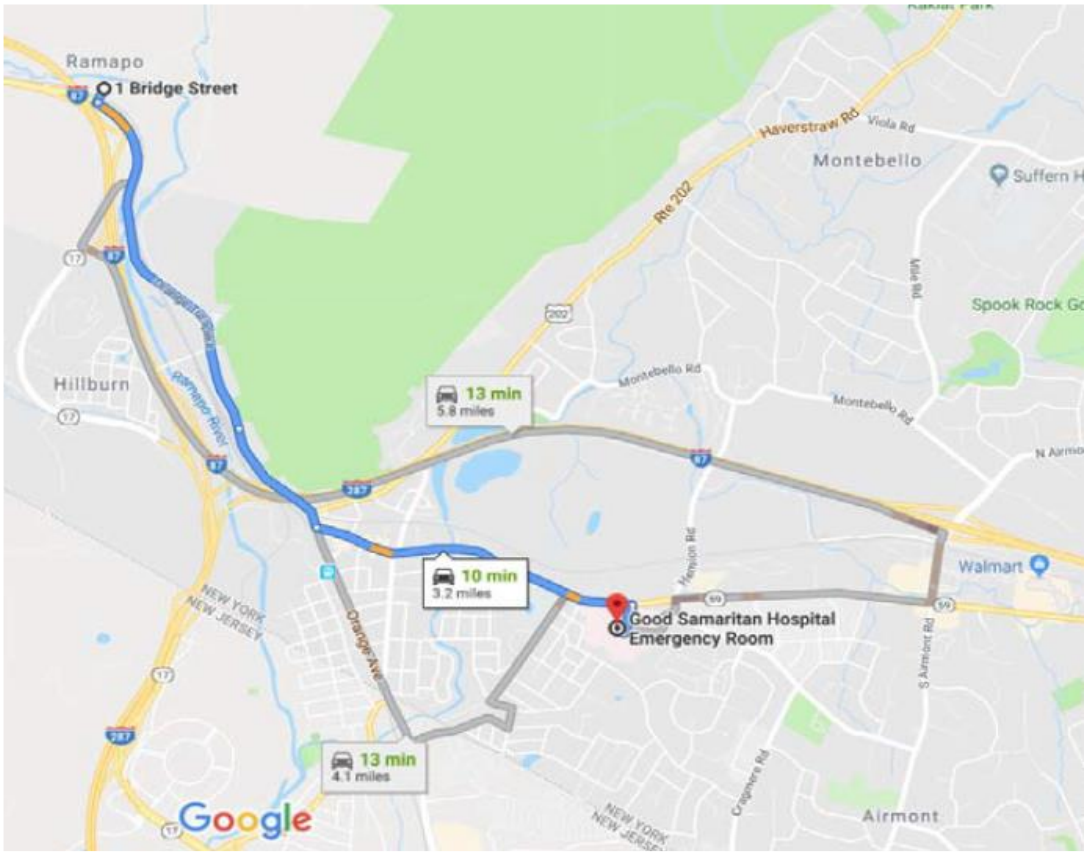
Incident Reporting Protocol Within Arcadis



Client Incident Reporting Protocol

1. Dial 911/ Facility Emergency Number/ Workcare as applicable.
2. Contact PM/Supervisor: Jon Rocklin
3. Contact Corporate H&S: Dennis Balcer
4. Contact Client: Mohamed Zakkar

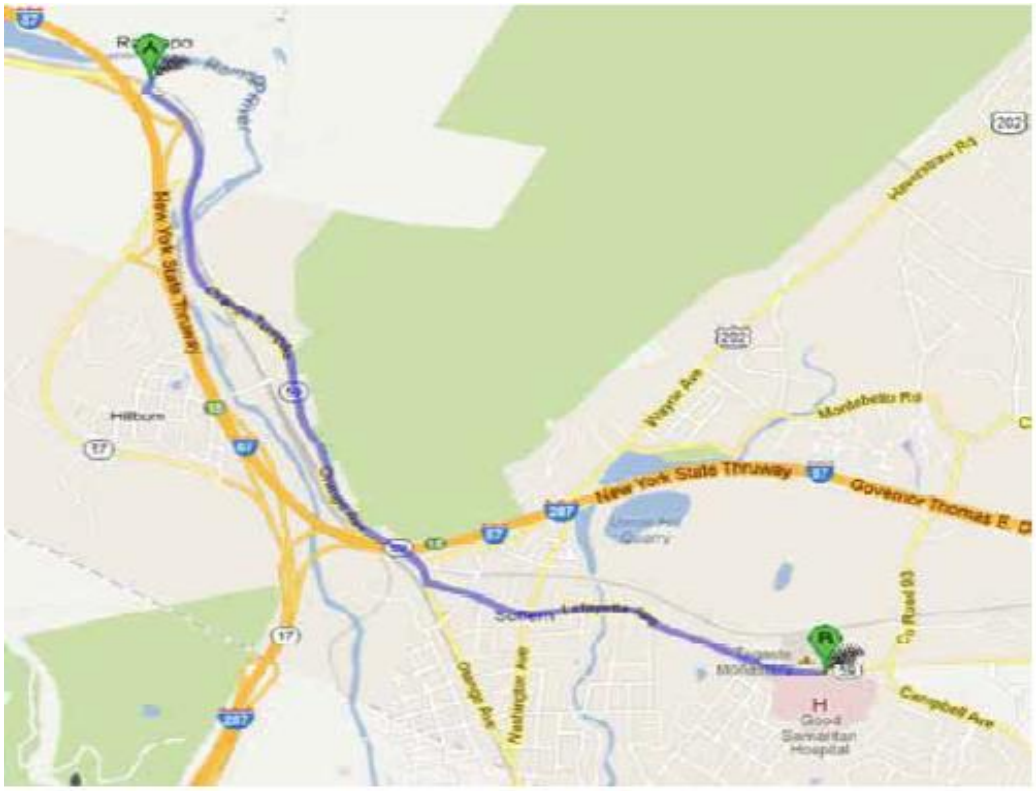
Route to the Hospital (OU1)



1 Bridge St

1. Head south on Bridge St toward NY-17 N — 289 ft
2. Turn left at the 1st cross street onto Orange Turnpike — 1.4 mi
3. Continue onto NY-59 E/Orange Ave — 0.5 mi
4. Turn left onto NY-59 E/Lafayette Ave — 1.1 mi
5. Turn right — 72 ft
6. Turn right — 0.1 mi
7. Keep right
   Destination will be on the right — 135 ft

Route to the Hospital (OU2)



Torne Valley Rd, Hillburn, NY 10931

	1. Head south on Torne Valley Rd toward Orange Turnpike About 2 mins	go 0.9 mi total 0.9 mi
↰	2. Turn left onto Orange Turnpike About 53 secs	go 0.5 mi total 1.4 mi
	3. Continue onto Orange Ave About 56 secs	go 0.5 mi total 1.9 mi
↰	4. Turn left onto Lafayette Ave Destination will be on the right About 2 mins	go 0.9 mi total 2.8 mi

225 Lafayette Ave, Suffern, NY 10901

Site Type

The project site is an inactive facility which historically had the following attributes:

Utility	
Other	

Surrounding Land Use and Topography

The site consists of a valley between gently rolling hills, with substantial forest cover drained by intermittent streams and wetland areas.

Simultaneous Operations (SimOps)

SimOps is expected or will be conducted in proximity to Arcadis work activities on the project site. SimOps creates unique hazards that could affect Arcadis employees and subcontractors and SimOps hazards identified on site will be addressed in the JSA or similar governing document (i.e. permit) for affected Arcadis work tasks. If the SimOps work activities create a high hazard to Arcadis staff or subcontractors, Arcadis will utilize stop work until the SimOps activity is complete or will coordinate work activities with SimOps workers and/or client to ensure SimOps work hazards are mitigated.

Site Background

The North of Ramapo Well Field Site consists of a vacant parcel currently used as a municipal well field for supplying drinking water to area residents, and encompasses approximately 38 acres between the Ramapo River and NYS Route 17. Waste disposed at this site is suspected of including household refuse, construction/demolition debris, tires, fill soil, and paint sludge.

Project Tasks
The following tasks are identified for this project:

1	Inspections and audits - Nonbuilding including non-secure/non-controlled areas
2	Construction - Performing construction work
3	Select
4	Select
5	Select
6	Select
7	Select
8	Select
9	Select
10	Select
11	Select
12	Select
13	Select
14	Select
15	Select
16	Select
17	Select
18	Select
19	Select
20	Select

Supplemental requirements associated with the above task(s):
Not applicable

[X] Required Checklists/Work Forms
Tailgate Safety Briefing Form
Vehicle Inspection Checklist

[ ] Required Permits
Not Applicable

[ ] Required H&S Standards
Not applicable

Short Service Employees (SSEs)
SSEs (employees who are employed with Arcadis for less than 1 year or are Inexperienced Workers) have the potential to work on this project. If SSEs are utilized, the project team working in conjunction with the SSE's administrative supervisor will ensure requirements of ARC HSGE019 "Short Service Employees" are completed. SSE's will be identified on the project Tailgate Safety Meeting Form.

Roles and Responsibilities

	Name	Role	Short Service Employee
1	Jon Rocklin	Project Manager (PM)	No
2	Krista Mastrocola	Site Safety Officer (SSO)	No
3		Inspector	No
4			
5			
6			
7			
8			
9			
10			

Training

All Arcadis employees are required to have the following training to be on site:

- Hazwoper 40-Hour
- PPE (non-certificate)
- Defensive Driving - Smith On-Line
- None
- None
- None
- None
- None
- None
- None
- None
- None
- None
- None
- Client specific:
- Other:

Selected Arcadis employees are required to have the following additional training:

	Names or Numbers from above
First Aid/CPR	3
BBP (Bloodborne Pathogens)	3
None	
None	
None	
None	
None	
None	
None	
None	
None	
None	
None	
None	
None	
None	
Other:	

The Arcadis Fundamental H&S Principles

Staff working on any of the task(s) listed above must utilize the six Arcadis Fundamental H&S Principles to ensure work is conducted safely. These principles include: 1) Use of TRACK, 2) H&S Planning, 3) Stop Work Authority, 4) "If Not Me Then Who", 5) Stewardship, and 6) Incident Reporting. Every project team member plays an important role in project health and safety. This is more than just having a HASP, training, or PPE. Proactive staff engagement with these principles is critical to a safe work environment.

General Task Hazard Assessment and Risk Control (HARC)

General:	Hazards Applicable to All Project Tasks

The 12 hazard category HARC ratings are not available in this General THA. The mitigated and unmitigated ratings for the hazards presented are based on the Risk Assessment Matrix below. Modify hazards and ratings as necessary to meet project needs.

Risk Assessment Matrix		Likelihood Ratings			
Consequences Ratings		A	B	C	D
People	Property	0 Almost Impossible	1 Possible but Unlikely	2 Likely to Happen	3 Almost Certain to Happen
1-Slight or No Health Effect	Slight or No Damage	0-Low	1-Low	2-Low	3-Low
2-Minor Health Effect	Minor Damage	0-Low	2-Low	4-Medium	6-Medium
3-Major Health Effect	Local Damage	0-Low	3-Low	6-Medium	9-High
4-Fatalities	Major Damage	0-Low	4-Medium	8-High	12-High

Hazard #1

Driving - On road - Injury or vehicle damage from motor vehicle accident or incident

Suggested FHSHB Ref:	III V, W, U, AO	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Smith System (on line)
Mitigated Risk:	MEDIUM	JSAs
Comments:	Use Smith System "5-Keys" when driving. See Driving JSA for details.	

Hazard #2

Driving - Driver - Injury, death or property damage due to driver distraction, fatigue, etc.

Suggested FHSHB Ref:	III V, AO	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Smith System (on line)
Mitigated Risk:	LOW	Driver awareness and use of stop work authority
Comments:	Use route planning. Keep eyes moving while driving. See Driving JSA.	

Hazard #3

Biological - skin/eye irritation or damage from poisonous plants

Suggested FHSHB Ref:	III N, AE	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Job Briefing/Site Awareness
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:	Use skin pre-treatment lotions when available.	

Hazard #4

Biological - bites or stings from exposure to insects or arachnids

Suggested FHSHB Ref:	III N	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Job Briefing/Site Awareness
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:	Do body check daily.	

Hazard #5

Biological - cuts, scrapes, skin/eye puncture from exposure to physically damaging plants

Suggested FHSHB Ref:	III N, AE	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Job Briefing/Site Awareness
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:		

General Task HARC (continued)

Hazard #6		
Environmental - Thermal stress - Injury or illness from heat or cold		
Suggested FHSHB Ref:	III M	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Field H&S Handbook (see ref. above)
Mitigated Risk:	LOW	JSAs
Comments:	Use job rotation or rest breaks. Stay hydrated and eat regularly.	
Hazard #7		
Environmental - Inclement weather -Injury or equipment damage from inclement weather		
Suggested FHSHB Ref:	III I	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Weather Monitoring
Mitigated Risk:	LOW	Cont./Emerg. Planning
Comments:	Use 30/30 rule for lightning. See FHSHB for details.	
Hazard #8		
Motion - Musculoskeletal - Injury from lifting, twisting , stooping, or awkward body positions		
Suggested FHSHB Ref:	III AF	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Engineering Controls (specify in comments)
Mitigated Risk:	LOW	Admin. Controls (specify in comments)
Comments:	Use proper lifting techniques. Use job rotation when applicable. See FHSHB for details.	
Hazard #9		
Motion - Musculoskeletal - Injury from repeated work activity or body motion		
Suggested FHSHB Ref:	III AF	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Engineering Controls (specify in comments)
Mitigated Risk:	LOW	Admin. Controls (specify in comments)
Comments:	Use proper lifting techniques. Use job rotation when applicable. See FHSHB for details.	
Hazard #10		
Sound - Noise - Injury or illness due to noise exposure		
Suggested FHSHB Ref:	III L	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Engineering Controls (specify in comments)
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:	Increase distance from source if possible. Maintain equipment.	
Hazard #11		
Gravity - Falls - Injury due to slips and trips		
Suggested FHSHB Ref:	III F	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Site Awareness
Mitigated Risk:	LOW	Housekeeping
Comments:	Use footwear appropriate for site conditions, plan routes and do not hurry while walking.	
Hazard #12		
None		
Suggested FHSHB Ref:	None	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	Not Ranked	Select
Mitigated Risk:	Not Ranked	Select
Comments:		

Task Specific HARC

Task 1:	Inspections and audits - Nonbuilding including non-secure/non-controlled areas

HARC Unmitigated Hazard Types (H-High, M-Medium, L-Low): FHSHB Ref: III F

Biological	L	Chemical	L	Driving	M	Electrical	L
Environmental	L	Gravity	M	Mechanical	L	Motion	L
Personal Safety	L	Pressure	L	Radiation	L	Sound	L

Hazard #1

Driving - Off road - Injury or vehicle damage from object impact/vehicle rollover/improper load securement

Suggested FHSHB Ref:	III V, W, U, AO	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	JSAs
Mitigated Risk:	LOW	
Comments:		

Hazard #2

Gravity - Struck by - Injury from falling object

Suggested FHSHB Ref:	III AC, IV A	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	
Comments:		

Hazard #3

None

Suggested FHSHB Ref:	None	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	Not Ranked	JSAs
Mitigated Risk:	Not Ranked	PPE (see HASP "PPE" section)
Comments:		

Hazard #4

None

Suggested FHSHB Ref:	None	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	Not Ranked	JSAs
Mitigated Risk:	Not Ranked	PPE (see HASP "PPE" section)
Comments:		

Hazard #5

None

Suggested FHSHB Ref:	None	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	Not Ranked	JSAs
Mitigated Risk:	Not Ranked	PPE (see HASP "PPE" section)
Comments:		

Hazard #6

None

Suggested FHSHB Ref:	None	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	Not Ranked	JSAs
Mitigated Risk:	Not Ranked	PPE (see HASP "PPE" section)
Comments:		

Task Specific HARC (continued)

Task 2:	Construction - Performing construction work

HARC Unmitigated Hazard Types (H-High, M-Medium, L-Low): FHSHB Ref: IV

Biological	L	Chemical	L	Driving	-	Electrical	M
Environmental	L	Gravity	H	Mechanical	M	Motion	M
Personal Safety	-	Pressure	L	Radiation	-	Sound	M

Hazard #1

Gravity - Falls - Injury due to falls from height

Suggested FHSHB Ref:	III AC, AK IV A, L	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Competent Person Required (designated person)
Mitigated Risk:	LOW	
Comments:		

Hazard #2

Mechanical - Crushing - Injury by crushing body part in mechanical process

Suggested FHSHB Ref:	III S IV, E, F, G, O	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Site Awareness
Mitigated Risk:	LOW	
Comments:		

Hazard #3

Electrical - Housekeeping - Injury or property damage due to frayed wiring, improperly mounted wiring, missing

Suggested FHSHB Ref:	III AB, AG	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	JSAs
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:		

Hazard #4

Motion - Struck by - Bodily injury from impact with moving object

Suggested FHSHB Ref:	III S	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Site Awareness
Mitigated Risk:	LOW	
Comments:		

Hazard #5

None

Suggested FHSHB Ref:	None	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	Not Ranked	
Mitigated Risk:	Not Ranked	
Comments:		

Hazard #6

None

Suggested FHSHB Ref:	None	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	Not Ranked	
Mitigated Risk:	Not Ranked	
Comments:		

Hazard Communication (HAZCOM)/Global Harmonization System (GHS)

[X] HAZCOM/GHS for this project is managed by the client or general contractor

List the chemicals anticipated to be used by Arcadis on this project per HAZCOM/GHS requirements.
(Modify quantities as needed)

	Preservatives	Qty
X	Not applicable	
	Hydrochloric acid	<500 ml
	Nitric acid	<500 ml
	Sulfuric acid	<500 ml
	Sodium hydroxide	<500 ml
	Zinc acetate	<500 ml
	Ascorbic acid	<500 ml
	Acetic acid	<500 ml
	Isopropyl alcohol	< 4 gal.
	Formalin (<10%)	< 4 gal.
	Methanol	<500 ml
	Sodium bisulfate	<500 ml

	Decontamination	Qty
X	Not applicable	
	Alconox	≤ 5 lbs
	Liquinox	≤ 1 gal
	Acetone	≤ 1 gal
	Methanol	≤ 1 gal
	Hexane	≤ 1 gal
	Isopropyl alcohol	≤ 4 gal
	Nitric acid	≤ 1 L
	Other:	

	Calibration	Qty.
X	Not applicable	
	Isobutylene/air	1 cyl
	Methane/air	1 cyl
	Pentane/air	1 cyl
	Hydrogen/air	1 cyl
	Propane/air	1 cyl
	Hydrogen sulfide/air	1 cyl
	Carbon monoxide/air	1 cyl
	pH standards (4,7,10)	≤ 1 gal
	Conductivity standards	≤ 1 gal
	Other:	

	Fuels	Qty.
X	Not applicable	
	Gasoline	≤ 5 gal
	Diesel	≤ 5 gal
	Kerosene	≤ 5 gal
	Propane	1 cyl
	Other:	

	Kits	Qty.
X	Not applicable	
	Hach (specify):	1 kit
	DTECH (specify):	1 kit
	Other:	1 kit

	Remediation	Qty.
X	Not applicable	

	Other:	Qty.
X	Not applicable	
	Spray paint	≤ 6 cans
	WD-40	≤ 1 can
	Pipe cement	≤ 1 can
	Pipe primer	≤ 1 can
	Mineral spirits	≤ 1 gal

	DOT(1):	Qty.
	MOT eligible soils	
	MOT eligible water	
	MOT eligible solids	
	MOT eligible liquids	

(1) Attach applicable Materials of Trade (MOT) generic shipping determination. SDS not generally applicable to this category.

This project will not utilize materials that are subject to the HAZCOM Standard under OSHA (or State OSHA) regulations. SDSs are not required for this project.

Air Monitoring

	There are no atmospheric chemical, radiological, or particulate hazards on this project requiring air monitoring.
X	Air monitoring is the responsibility of the client or subcontractor. Refer to Community Air Monitoring Plan attached for monitoring parameters.

Constituents of Interest:

Time Weighted Averages (TWAs) are ACGIH 8-Hr Threshold Limit Values (TLVs) unless noted.

None			
TWA	NA	LEL/UEL (%):	NA
STEL	NA	VD (Air = 1):	NA
IDLH	NA	VP (mmHg):	NA

None			
TWA	NA	LEL/UEL (%):	NA
STEL	NA	VD (Air = 1):	NA
IDLH	NA	VP (mmHg):	NA

None			
TWA	NA	LEL/UEL (%):	NA
STEL	NA	VD (Air = 1):	NA
IDLH	NA	VP (mmHg):	NA

None			
TWA	NA	LEL/UEL (%):	NA
STEL	NA	VD (Air = 1):	NA
IDLH	NA	VP (mmHg):	NA

None			
TWA	NA	LEL/UEL (%):	NA
STEL	NA	VD (Air = 1):	NA
IDLH	NA	VP (mmHg):	NA

None			
TWA	NA	LEL/UEL (%):	NA
STEL	NA	RGD (Air = 1):	NA
IDLH	NA	VP (mmHg):	NA

TWA - Time Weighted Average (ACGIH TLV unless noted)
STEL - Short Term Exposure Limit
IDLH - Immediately Dangerous to Life and Health
LEL/UEL - Lower /Upper Explosive Limit
RGD - Relative Gas Density
VP - Vapor Pressure

Notes:

Personal Protective Equipment (PPE)

See JSA or Permit for the task being performed for required PPE. If work is not conducted under a JSA or Permit, refer to the governing document for PPE requirements. At a minimum, the following checked PPE is required for all tasks during field work (outside of field office trailers and vehicles) not covered by a JSA or Permit on this project:

Minimum PPE required to be worn by all staff on project:

						Specify Type:
X	Hard hat	X	Snake chaps/guards	X	Coveralls:	Insulated during winter
X	Safety glasses		Briar chaps		Apron:	
	Safety goggles		Chainsaw chaps		Chem. resistant gloves:	
	Face shield		Sturdy boot	X	Gloves other:	Leather
	Hearing protection	X	Steel or comp. toe boot		Chemical boot:	
X	Rain suit		Metatarsal boot		Boot other:	
	Other:			X	Traffic vest, shirt or coat:	Class II or III
					Life vest:	

Task specific PPE:

Comments:

See Control of Ticks and Poisonous Plants section for important PPE information.

Medical Surveillance

All project workers will be required to be participants in HAZWOPER medical surveillance except employees and/or subcontractors listed below.

Specify Companies:

Hazardous Materials Shipping and Transportation

No samples will be transported or shipped on this project. No supplies containing gaseous, powdered, granulated, and/or liquid materials will be transported or shipped. Additionally, no materials containing explosive, magnetic, or radioactive materials will be transported or shipped. A shipping determination is not required.

Traffic Safety and Traffic Safety Plans (TSPs)

The scope of work on this project will not expose Arcadis workers or subcontractors to vehicular traffic. A traffic safety plan will not be required.

Arcadis Commercial Motor Vehicles (CMVs)

CMVs operated by Arcadis employees on public roadways will not be utilized on this project. Arcadis defines a CMV as any single vehicle with a gross vehicle weight rating (GVWR) ≥10,001 pounds or a truck and trailer combination with a combined GVWR ≥10,001 pounds (GVWR of truck + GVWR of trailer = ≥10,001 pounds).

Site Control

The scope of work on this project does not require use of site control.

Decontamination

Due to the low hazards associated with the scope of work for this project, basic hygiene best management practices including washing hands and face prior to eating, drinking and consuming tobacco products will be used. If conditions change during the course of work warranting additional decontamination protocols, the additional decontamination protocols will be addressed in the applicable task JSA.

Sanitation

Field work for this project will take place in a remote area without reasonable access to plumbed or portable restroom facilities and potable water. Field sanitation is addressed in a plan supplement or JSA for this project. The plan supplement or JSA is attached.

Safety Briefings

Field work for this project will take place in a remote area without reasonable access to plumbed or portable restroom facilities and potable water. Field sanitation is addressed in a plan supplement or JSA for this project. The plan supplement or JSA is attached.

Behavior Based Safety (BBS) Program

The CPM or APM is responsible for reviewing and establishing BBS goals for the project. These goals are summarized below.

TIP required at the following frequency on this project:

1 per task
Near Miss reporting goals for this project:
1 NM per event
Other (specify):

Safety Equipment and Supplies

Safety equipment/supply requirements are addressed in the JSA or Permit for the task being performed. If work is not performed under a JSA or Permit, the following safety equipment is required to be present on site in good condition (Check all that apply):

X	First aid kit	X	Insect repellent:	Permethrin
	Bloodborne pathogens kit	X	Sunscreen	
X	Fire extinguisher		Air horn	
	Eyewash (ANSI compliant)	X	Traffic cones	
X	Eyewash (bottle)		2-way radios	
	Drinking water		Heat stress monitor	
	Other:	X	Poisonous plant pre/post exposure lotion/soap	

Control of Ticks and Poisonous Plants

Work on this project has a high tick exposure hazard. Use of permethrin (apply to clothing at least 4 hours prior to work) is required with DEET (20%-40%) protection on skin. Wear light colored clothing to help identify presence of ticks on staff. Keep shirt tails inside pants. Use of Tyvek or similar light colored outer pant/suit with legs taped to ankles. In high hazard areas, use of a Tyvek suit with ankles and wrists taped is required. Perform tick checks upon conclusion of work for day.

Work on this project has a high poisonous plant exposure hazard. Use of pre-exposure lotion on exposed skin including hands prior to wearing gloves is required. Use of post-exposure soap after conclusion of the work activity and prior to eating and drinking is required. Use of disposable gloves during work and while removing outer footwear/outer clothing is required. Use of clothing with long sleeves to protect forearms is required. Field equipment should be considered impacted with poisonous plant material until properly decontaminated.

International Travel

International travel is not required for this project.

Signatures

I have read, understand and agree to abide by the requirements presented in this health and safety plan. I understand that I have the absolute right to stop work if I recognize an unsafe condition affecting my work until corrected.

Printed Name	Signature	Date

Add additional sheets if necessary

You have an absolute right to STOP WORK if unsafe conditions exist!

Control Number: TSM- NJ000602.0005

TSM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

TAILGATE HEALTH & SAFETY MEETING FORM

Project Name:			**Project Location:**
Date:	**Time:**	**Conducted by:**	**Signature/Title:**

Issues or concerns from previous day's activities:

Task anticipated to be performed today:

☐ Additional permits/checklists attached

USE TRACK! Evaluate the hazards (h) for the tasks being performed today and rank as Low (L), Medium (M) or High (H). Use relevant JSAs, FHSHB, permit or other work standard to communicate controls (c) to be used to eliminate or mitigate identified hazards.

☐ Gravity (i.e., ladder, trips) (L M H) h: c:	☐ Motion (i.e., traffic, machinery) (L M H) h: c:	☐ Mechanical (i.e., augers, motors) (L M H) h: c:
☐ Electrical (i.e., utilities) (L M H) h: c:	☐ Pressure (i.e., gas cyl., wells) (L M H) h: c:	☐ Environment (i.e., heat, cold) (L M H) h: c:
☐ Chemical (i.e., fuel, acid, paint) (L M H) h: c:	☐ Biological (i.e., ticks, poison ivy) (L M H) h: c:	☐ Radiation (i.e., alpha, sun, laser) (L M H) h: c:
☐ Sound (i.e., machinery) (L M H) h: c:	☐ Personal (i.e. alone, night) (L M H) h: c:	☐ Driving (i.e. car, ATV, boat) (L M H) h: c:

☐ Refer to the attached Hazard Analysis Sheet(s) or JSA

Comments:

Signature and Certification: I have read and understand the project specific HASP for this project.

SSE Employee*

Non-Life Threatening Injury or Illness
Call WorkCare 1-888-449-7787

Printed Name/Signature/Company	Sign In Time	Sign Out Time

***Short Service Employee (SSE) working for Arcadis <1 year.**

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call **WorkCare at 1.888.449-7787** and then notify the field supervisor.

Utility strike, motor vehicle accident or 3rd party property damage - field supervisor will immediately notify the Project or Task Manager

Arcadis Weekly Vehicle Inspection Form

Vehicle # / License Plate # _____ **Lease Plan # / Last 6 of Vin #** _____

	Inspection Date												
	Odometer reading												
	Driver / Inspector Name												
	Check the appropriate box and enter repair date for identified repairs:	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date
Interior	Horn operational												
	Door Locks operational												
	Seat Belts in good repair												
	Seats and Seating Controls												
	Steering Wheel - No Excessive Play												
	Interior Lights and Light Controls												
	Instrument Panel/Gauges												
	Wiper Controls operational												
	Heat/Defrost/Air Conditioning working												
	Rear View Mirror present												
	Backup Camera/Sensors working												
	Jack and Lug Wrench present												
Exterior[1]	Lights and Signals operational												
	Tires properly inflated/good tread depth												
	Spare Tire properly inflated												
	Doors operational												
	Windows Not Cracked/Damaged												
	Side View Mirrors												
	Body Panels and Bumpers												
Engine & Brakes	Engine Start & Running Smoothly												
	Fluid Levels, No Noticeable Leaks												
	Belts tight, no cracks												
	Brakes operational, no squeaking												
Emergency Equipment[2]	First Aid Kit, inspected weekly												
	Fire Extinguisher properly secured												
	Fire Extinguisher inspected weekly												
	Orange/Yellow emergency warning light												
	Roadside Assistance Information												
	Recommend spotter cones available												
Cargo	Cargo Secure and Properly Distributed												
	Securing Devices in Good Condition												
Registration	License Plate /Tags												
	Registration and Insurance												
	City/State Inspection Decal												
	Lease Plan information/Fuel Card												

[1] **Note all damages to the vehicle on the back of this page**

[2] **Emergency Equipment required per Motor Vehicle Standard ARC HSGE024**

Note All Vehicle Damage Below

All Vehicle Damage must be reported to Sue Berndt (Corporate Legal), Andrew McDonald (Corporate H&S), and Roger Elliot (Corporate Fleet Manger)

CODES:

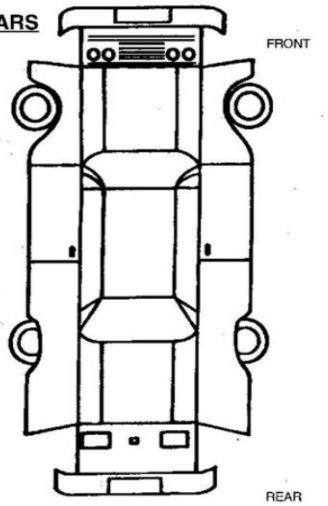
B-BENT
BR-BROKEN
BU-BULGE
C-CHAFED
CH-CHIPPED

CPM-COVERED WITH PROTECTIVE MATERIAL-UNABLE TO DETERMINE DEFECTS IF ANY
CSA-CHAFED AND SCRATCHED ALL OVER
CR-CRACKED
D-DENTED

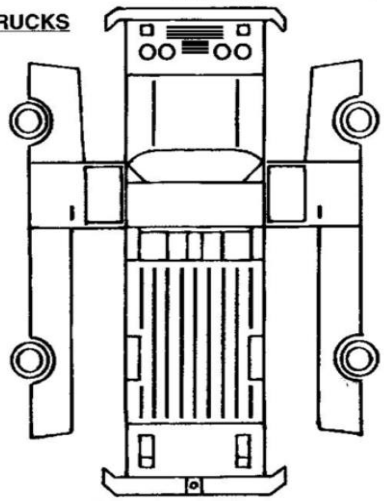
DMC-DUST AND MUD COVERED UNABLE TO DETERMINE OTHER DEFECTS IF ANY
G-GOUGED OR CUT
GC-GLASS CRACKED
HS-HAIRLINE SCRATCH
M-MISSING

P-PUNCTURED
R-RUSTY
S-SCRATCHED
SC-SCRAPED
SM-SMASHED
ST-STAINED AND/OR SOILED
T-TORN

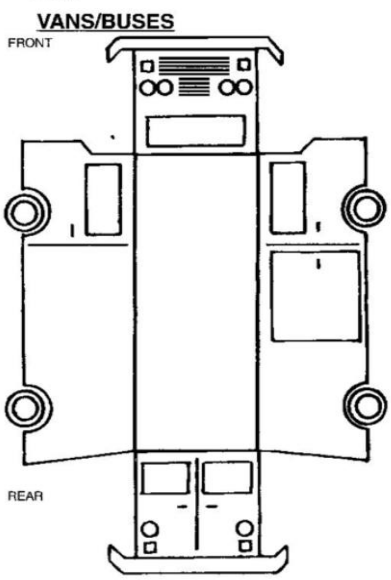
CARS



TRUCKS



VANS/BUSES



-INDICATE ON DIAGRAM-
-GIVE DIMENSIONS-
-CIRCLE WHERE APPLICABLE-

Notes:

Tread guide: If a tread gauge is not available coins may be used to determine remaining tread. 2/32” is the minimum by law in most states (top of Lincoln’s head on penny), 4/32” is minimum recommended for wet surfaces (top of Washington’s head on quarter), 6/32” is minimum recommended for snowy surfaces (top of Lincoln Memorial on penny).Vehicle tires should be replaced if the tread depth is less than 6/32”.

2/32” remaining 4/32” remaining 6/32” remaining

Job Safety Analysis

General

JSA ID	HASP 1	**Status**	Complete
Job Name	General Industry-Driving - passenger vehicles	**Created Date**	4/30/2019
Task Description	Driving a car, van, or truck on public roadways.	**Completed Date**	

Client / Project

Client	Ford Motor Company
Project Number	NJ000602.0005
Project Name	Ramapo Paint Sludge Site
Project Manager	Jon Rocklin

User Roles

Role	Employee	Due Date	Completed Date
Developer	Joe Burden	4/12/2019	4/12/2019
HASP Reviewer	Krista Mastrocola	4/14/2019	4/14/2019
Quality Reviewer	Christina Berardi Tuohy		

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Pre-Trip Inspection	1	Failing to perform pre-trip inspections may cause mechanical failure, accident or injury.	Perform walk around of vehicle with particular attention to tire inflation and condition. Check lights, wipers, seatbelts for proper operating condition. Properly adjust seat and mirrors prior to vehicle operation. Use or review vehicle inspection checklist as required under the MVSP.	ARC HSGE024 Motor Vehicle Safety Standard (MVSP)
		2	Scrapes, cuts, burns to hand if inspecting engine fluids and/or tires. Eye splash hazard if inspecting engine fluids. Pinch or crush hazards when opening or closing hood, trunk, or tailgate.	Wear protective gloves and safety glasses as described below when checking under hood or tires. Use TRACK and keep hands clear when opening/closing hood, trunk, or tailgate to avoid crush or pinch hazard.	
		3	Struck by other vehicles while walking around vehicle performing inspections.	Wear high visibility vest, shirt, or coat while performing inspections in parking lots or other areas with a traffic hazard. Remain vigilant of moving vehicles or equipment in area, face oncoming vehicles to extent practical.	
		4	Improperly secured cargo may dislodge creating injury, property damage, or road hazard.	Ensure all cargo is properly secured to prevent movement while the vehicle is in operation. This includes cargo in the cab of the vehicle.	
2	Driving a motor vehicle on public streets	1	Failing to observe traffic flow ahead increases risk of hard braking resulting in potential impact of vehicle ahead, being struck by another vehicle from behind, and decreases decision making time.	Use Smith System Key #1, "Aim High in Steering". Look ahead (15 seconds if possible) to observe traffic flow and traffic signals. Adjust speed accordingly to keep vehicle moving and avoid frequent braking. Select lane of least traffic and adjust speed based on observed signal timing when possible. Avoid following directly behind large vehicles that obscure view ahead.	Smith System "5-Keys" is a registered trademark of Smith System Driver Improvement Institute, Inc.

		2	Failing to observe vehicles, pedestrians, bicyclists, and other relevant objects in vicinity of your vehicle increases risk of side swipes, rear ending, and third party injury.	Use Smith System Key #2, "Get the Big Picture". Maintain 360 degrees of awareness around vehicle. Check a mirror every 6-8 seconds, maintain space around the vehicle, choose a lane that avoids being boxed in. Look for pedestrian activity ahead in crosswalks or sidewalks. Watch for construction zone approach signs and act early by executing lane changes and reducing speed.	
		3	Failing to keep your eyes moving increases risk of not seeing relevant vehicles, pedestrians, and objects in your vicinity that may impair your ability to make timely and appropriate driving decisions and also increases risk of accident.	Use Smith System Key #3, "Keep Your Eyes Moving". Move your eyes every 2 seconds and avoid staring while evaluating relevant objects. Scan major and minor intersections prior to entering them. Check mirrors.	
		4	Failing to maintain space around and in front of your vehicle increases risk of striking another vehicle or being struck by another vehicle. Insufficient space shortens time for effective driving decision making resulting in increased accident risk.	Use Smith System #4, "Leave Yourself an Out". Use 4 second rule when following a vehicle. Avoid driving in vehicle clusters by adjusting speed and using lanes that permit maximum space and visibility. When stopped, keep one car length space in front of vehicle ahead or white line.	
		5	Failing to communicate with other drivers and pedestrians increases risk of striking vehicles, pedestrians, or being struck by other vehicles, especially from the rear.	Use Smith System Key #5, "Make Sure They See You". Brake early and gradually when stopping to reduce potential of being rear ended. Keep foot on brake while stopped. Use turn signals and horn effectively. Establish eye contact with other drivers and pedestrians to extent practical. Use vehicle positioning that promotes being seen.	
		6	Distractions within the vehicle takes focus off driving, increases risk of accident decreases time for making effective driving decisions.	Cell phone use (any type or configuration) is prohibited while the vehicle is in motion. Familiarize yourself with vehicle layout and controls (radio, temperature controls, etc.) prior to operating unfamiliar vehicles. Set controls prior to operating vehicle. Use GPS in unfamiliar areas to avoid use of paper maps/directions while driving. Set GPS prior to vehicle operation. Pull over and stop to modify GPS functions. Avoid consuming food or drink while driving.	
3	Parking	1	Parking vehicle in areas of clustered parked vehicles or near facility entrance may impair visibility to oncoming traffic in lot and increase exposure to pedestrian traffic.	Use pull through parking or back into parking space when permitted or practical. When practical and safe to do so, park away from other vehicles and avoid parking near the facility entrance or loading docks. If available, use a spotter to aid in backing activity. Back no further than necessary and back slowly. Get out and look (GOAL) if uncertain of immediate surroundings. Tap horn prior to backing.	

PPE Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required

Eye Protection	safety glasses	While checking engine or tires	Required
Hand Protection	work gloves (specify type)	Leather or equivalent checking engine or	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
	other	Vehicle kit (applies to company trucks)	Required
Miscellaneous	fire extinguisher	Applies to company trucks	Required
	first aid kit	Applies to company trucks	Required

Job Safety Analysis

General

JSA ID	HASP 1	**Status**	Complete
Job Name	Site Inspection	**Created Date**	4/30/2019
Task Description	Field observations	**Completed Date**	04/30/2019

Client / Project

Client	Ford Motor Company
Project Number	NJ000602.0005
Project Name	Ramapo Paint Sludge Site
Project Manager	Jon Rocklin

User Roles

Role	Employee	Due Date	Completed Date
Developer	Joe Burden	4/30/2019	4/30/2019
HASP Reviewer	Krista Mastrocola	4/14/2019	4/14/2019
Quality Reviewer	Christina Berardi Tuohy		

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Weather Assessment	1	Severe Weather	Check the daily weather forecast before beginning work and monitor any changes in weather. In the event of lightning in the vicinity of the site, stop all activities and take cover. Stop work at least 30 min after a lightning storm. For other severe weather, such as high winds, hail, or heavy rain, work will be suspended and field personnel will take cover to determine how site activities should proceed. Be aware of potential flooding. All work is to be suspended during high winds and tornadoes, and seek appropriate shelter such as a sturdy building, low lying area, ditch, or culvert immediately.	
		2	Winter Weather Site Conditions (ice/snow) and Hypothermia/Frostbite.	Use caution when walking and wear proper footwear. Assess the site for falling ice/snow from trees/powerlines. Wear hardhat when overhead ice/snow hazards exist. Assess weather conditions prior to deployment and wear proper attire for conditions. Wear proper clothing to avoid hypothermia/frostbite and freezing. Dehydration can be a contributing factor; therefore, regular fluid intake during activities in cold and/or wet environments is important. Remember that hypothermia can occur during temperatures above freezing with the right wet conditions. Watch for hypothermia signs in yourself and others: drowsiness, loss of judgment or coordination; reduced dexterity; slurred speech; or uncontrolled shivering. If signs appear, treat IMMEDIATELY by eliminating exposure to cold or wet conditions; move out of wind; add layers of warm/dry clothing; and begin to rewarm by administering warm liquids.	

2	Evaluate Site Safety and Security	1	Angry Resident	Identify and assess potential issues with unhappy residents prior to deployment, if possible. Carry a copy of the property owner notification letter. Be polite to property owners and show the utmost respect for them and their property. Leave property as requested by property owner and notify PM/TM.	
		2	Personal Security	Assess potential personal security issues prior to starting work. Verify cell phone reception prior to deployment. In high risk areas, have a security escort as needed. Notify PM/TM or supervisor of time of entry, time of exit and anticipated walking route. Utilize buddy system when possible and stop work authority when necessary. Notify PM/TM and local police if you suspect that you are being followed.	
		3	Equipment Security	Secure equipment out of sight inside of vehicle to limit theft potential. If camper shell or bed cover is not available for truck, consider storing equipment in muted colored bins or under seats, covering windows with black bags, or bringing equipment with you when leaving vehicle. Park in a secured area, when available.	
3	Traversing Site	1	Vehicular Traffic	Assess the site and surrounding area for vehicular traffic. Park vehicles in areas that will not obstruct roadways and cause traffic hazards. Use caution when walking near busy roadways. Wear type II or III traffic vest.	
		2	Slips/Trips/Falls	Use caution when walking on uneven surfaces and steep slopes. Choose proper footwear for the environment. Watch for holes, roots, vines, etc. and communicate these hazards to others while in the field. Consider use of trekking pole(s). Walk around steep slopes, if possible, to gain access for areas that need to be assessed.	
		3	Eye/Face Injury	Use caution when walking through trees and brush. Wear proper eye protection with side shields for conditions. Be careful to not let go of tree/brush limbs that have been pushed out of the way that could potentially result in hitting the person following you in the face.	
		4	Stray Animals	Do not approach stray animals. Make a lot of noise while walking through the site in an effort to deter animal approaching. Consider carrying pepper spray (or similar deterrent spray). If dangerous or aggressive animal is spotted, leave the area, return to vehicle, and contact local animal control and TPM/PM.	

3	Traversing Site	5	Physically Damaging or Poisonous Plants	Be aware of thorny plants, which can create hazards to skin or damage clothing. Be aware of poisonous plants that can irritate skin. In addition to long sleeves/long pants, use of briar-resistant clothing is recommended when working in dense thorny vegetation. Wear safety glasses with side shields or goggles to protect eyes. Research poisonous plants common to site before deployment. Carry and wash with special soaps immediately after the field work is complete to remove oils from poisonous plants, Consider carrying an extra set of clothing to change into following the field work to prevent the spread of poisonous oils into the vehicles and other locations. Place field clothes in a plastic or similar type bag.	
		6	Ticks, Mosquitos, and other Insects	Apply insect/tick repellents to clothes &/or skin. Wear light-colored LS shirt/pants; reapply repellent as necessary. Inspect clothes/body frequently for ticks/insects. Minimize exposed skin; tuck in shirt/pants to waist/socks. Use duct tape to limit intrusion. Conditions with flying insects may warrant bug hats/jackets. Limit exposure to stinging/biting insects by avoiding holes in the ground or tree stumps, do not agitate nests, avoid wearing brightly colored or patterned clothing, avoid scented skin care products, & inspect food/drinks prior to consumption. If a nest is disturbed, RUN & alert coworkers. When taking rest breaks, be aware of surroundings especially when sitting. Observe field tools placed on the ground or against vegetation prior to picking up the tool. Watch for fire ant mounds/nests; listen for buzzing of flying stinging insects, s/a yellow jackets, hornets, or wasps, as they frequently make nests at ground level. Discuss allergies with coworkers & be sure all team members know how to administer medication in the event of an emergency.	
		7	Snakes	Research snakes common to project area prior to deployment. Always watch the ground for snakes, especially along the edges of water bodies, dense vegetation, and around fallen logs. Always look on the opposite side of the fallen log prior to stepping over the log. If a snake bite occurs, attempt to obtain markings, size, and color of snake for identification, then transport the victim to the nearest hospital as soon as possible. First aid consists of applying a constriction band and washing the area around the wound to remove any unabsorbed venom.	
3	Traversing Site	8	Hunting Areas	Be aware of open hunting season dates, species, and type of weapon. Wear blaze orange hats and jackets. Make plenty of noise to alert your presence to hunters and use air horns periodically as needed. Avoid areas with active gunfire and report to appropriate property owners and TPM/PM.	

4	Traversing Site	1	Dehydration and Summer Weather Conditions	Thirst cannot be relied on as a guide for hydration. Drink cool, fresh water throughout the day (four 8 oz per hour). Carbohydrate-electrolyte fluids may also be necessary. Avoid long periods of direct sun exposure and wear sunscreen to reduce sunburn potential. Know signs/symptoms of heat related illness.	

PPE	**Personal Protective Equipment**		
Type	**Personal Protective Equipment**	**Description**	**Required**
Eye Protection	Safety Glasses		Required
Hand Protection	Work Gloves (specify type)	Leather (general) and Kevlar (cutting tool use)	Required
Foot Protection	Boots	Sturdy, waterproof	Required
Head Protection	Hard Hat	When overhead hazards present	Required
Misc Protection	Traffic Vest II & III		Required

Supplies			
Type	**Supply**	**Description**	**Required**
Communication Devices	Mobile Phone		Required
	Other	2-way radio	Recommended
Miscellaneous	Fire Extinguisher	In vehicle	Required
	First Aid Kit	In vehicle	Required
	Flashlight	In vehicle	Required
Personal	Eye Wash	In vehicle	Required
	Insect Repellent		Required
	Sunscreen		Required

Job Safety Analysis

General

JSA ID	HASP 1	**Status**	Complete
Job Name	Construction Oversight	**Created Date**	4/30/2019
Task Description	Construction Oversight, Excavation/Trenching (Outdoors)	**Completed Date**	04/30/2019

Client / Project

Client	Ford Motor Company
Project Number	NJ000602.0005
Project Name	Ramapo Paint Sludge Site
Project Manager	Jon Rocklin

User Roles

Role	Employee	Due Date	Completed Date
Developer	Joe Burden	4/30/2019	4/30/2019
HASP Reviewer	Krista Mastrocola	4/14/2019	4/14/2019
Quality Reviewer	Christina Berardi Tuohy		

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Utility Clearance	1	Contact with utilities can cause injury, property damage, and cause releases of hazardous substances to the environment.	Establish a minimum of three lines of evidence, and obtain additional lines of evidence as needed for site specific conditions. Maintain utility markings, perform detailed site inspections, and keep open and constant communication between operators, onsite staff, and project management. Always Use Stop Work Authority if there is a question or concern about the location of a utility.	ARCHSFS 019 - Utility Clearance HS Standard
		2	Slip trip and falls while performing site clearance activities	Focus on task at hand and do not hurry through task. Avoid reading maps/drawings while walking, stop walking when looking up for overhead utilities.	
2	Excavation/Trenching and Backfilling Oversight	1	Slips trips and falls from poor housekeeping around trench or excavation.	Maintain work area and minimize clutter near excavation. Place excavated material properly and at least 2 feet away from the edge of excavation. Remove potential hazards when possible. Mark hazards when it cannot be removed. Create and maintain awareness of hazard. Maintain barriers, fall hazard warning signage and traffic controls properly. Do not cross over caution tape, safety fencing etc. Follow Project specific STAR Plan	

2	Excavation/Trenching and Backfilling Oversight	2	Excavation or trench collapse trapping workers or creating falls.	Excavation/Trench greater than five (5) feet deep in which subcontractor, employees or others will be entering must be properly sloped, benched, shored or have a trench box in place. Sloping, benching, shoring or use of trench box is not required IF an excavation is less than five (5) feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in. Ensure a Competent Person is on site to inspect and oversee excavation/ trenching activities. Where feasible, stay six (6) feet from edge of excavation/trench. A safe means of egress, such as a stairway, ladder, or ramp, shall be located so that no more than twenty-five (25) feet of lateral travel is necessary for site workers conducting activities in trenches exceeding four (4) feet in depth.	
		3	Potential high level of dust, fumes, vapors or particulates creating visibility or inhalation/contact hazards could result in exposure above occupational exposure limit or create an IDLH atmosphere.	Visually monitor air for dust, and wet excavated soil as needed to control dust. Monitor for chemical vapors if hazard exists. The atmosphere must be tested in excavations greater than four (4) feet in depth where oxygen deficiency or toxic or flammable gases are likely to be present, before workers will be permitted to enter. Ensure downwind and perimeter monitoring also performed, if atmospheric hazards exists.	
		4	Excessive noise from excavating equipment or pumps.	Make sure all authorized personnel including subcontractors are wearing hearing protection (ear plugs/muffs) when working around noisy equipment. Increase distance from noise hazard when practical.	
		5	Potential Leaks of Petroleum Fluids and Lubricants from excavating equipment and support equipment.	Make sure all authorized personnel including subcontractors perform equipment inspections looking for leaks, cracked hoses, and loose fittings. Promptly and properly repair all leaks.	
		6	Open Excavation, Unauthorized Entry, or Property Damage	Make sure all authorized personnel including subcontractors mark open excavation with demarcation tape, orange fencing, orange cones, etc. to prevent unauthorized / accidental entry. Make sure controls are adequate for traffic protection after dark or when the site is unstaffed. Backfill excavation area as soon as possible and fence off any excavation not backfilled at the end of the work day.	
		7	Contact with potentially impacted groundwater and soil.	Conduct task in a calm, cautious manner. Wear appropriate PPE. Ensure equipment is in working conditions before start of work every day. Stop work immediately and report to the site manager, if any life threatening conditions exist.	

2	Excavation/Trenching and Backfilling Oversight	8	Working Around Heavy Machinery	Where feasible, maintain distance from excavation equipment in excess of the swing radius. Maintain eye contact with operators at all time. Ensure equipment is in good working condition before work begins. Wear appropriate PPE, including safety vest. Do not wear loose clothing and pull back long hair. Be aware of and avoid standing in red zones (equipment operator "blind-spots"). No personnel are permitted to stand underneath suspended loads.	
3	Stockpile Maintenance and Sampling	1	Falls climbing on or during covering of stockpile.	Avoid climbing on stockpiles when possible, keep hands free, do not hurry trough tasks such as pulling plastic sheeting up onto or over piles.	
		2	Overexertion placing plastic sheeting, weight, and straw bales.	Use proper lifting techniques, avoid twisting of body, and forceful pulling/pushing. Do not hurry through task.	
		3	Cuts, scrapes, impalement from debris in stockpiles.	Have excavation contractor remove/isolate large chunks of concrete, exposed rebar etc. from stockpile to extent practical. Inspect areas prior to kneeling or placing hands when sampling upon stockpile.	

PPE	**Personal Protective Equipment**		
Type	**Personal Protective Equipment**	**Description**	**Required**
Eye Protection	Safety Glasses		Required
Hand Protection	Work Gloves (specify type)	Leather (general) and Kevlar (cutting tool use)	Required
Foot Protection	Steal-toe Boots	Sturdy, waterproof	Required
Head Protection	Hard Hat	When overhead hazards present	Required
Hearing Protection	Ear Plugs	When working near heavy equipment	Required
Misc Protection	Traffic Vest II & III		Required

Supplies			
Type	**Supply**	**Description**	**Required**
Communication Device	Mobile Phone	Check signal strength	Required
Miscellaneous	Fire Extinguisher	In vehicle	Required
	First Aid Kit	In vehicle	Required
	Flashlight	In vehicle	Required
Personal	Eye Wash	In vehicle	Required
	Insect Repellent		Required
	Sunscreen		Required

Ramapo Paint Sludge Site – Operable Units 1 and 2 (OU-1 & 2)
Ramapo, Rockland County, New York
Site No. 3-44-064

Community Air Monitoring Plan

ARCADIS of New York, Inc. (ARCADIS), on behalf of the Ford Motor Company (Ford), has prepared this Community Air Monitoring Plan (CAMP) for Operable Units 1 and 2 (OU-1 & OU-2) at the Ramapo Paint Sludge Site, located in the Town of Ramapo, Rockland County, New York (the Site). This CAMP outlines the air monitoring activities to be implemented during excavation work being performed under the Site Management Plan (SMP).

This CAMP has been prepared in accordance with the requirements outlined within Appendix 1A of the NYSDEC Division of Environmental Remediation-Technical Guidance for Site Investigation and Remediation (DER-10).

OBJECTIVES

Air Monitoring activities are designed to assure that excavation work conducted at the Site is conducted in a manner that is protective of human health and the environment, with a particular emphasis on the health of site workers and local residents. Air monitoring shall be performed at the Site to fulfill the following objectives:

- Assure proper worker safety; and,
- Monitor and document the concentrations of VOCs and particulates within and at the perimeter of the work zone to protect the public.

AIR MONITORING

Air monitoring activities within this document include the analyses necessary to ensure that appropriate levels of protection are adequate for Site workers, and that potential off-site receptors near the Site are not exposed to Site-related constituents at unsafe concentrations. In general, the air monitoring system will incorporate the following general components:

- Real-time monitoring within the work zone using a Multi-RAE 4- gas meter to measure total volatile organic compounds (VOC) concentrations in parts per million (ppm) by volume and the Lower Exposure Limit (LEL) readings in percent (%) of the LEL.
- Continuous monitoring at the work zone perimeter for total VOCs and particulates using Multi-Rae photo-ionization detector (PID) to measure total VOC concentrations in ppm and a particulate monitor to measure dust concentration in micrograms per cubic meter (ug/m^3).

Air Monitoring During Excavation

Perimeter Air Monitor (PAM) locations will be setup at a location upgradient and downgradient of the planned excavation work. PAM setups will consist of the following:

- A particulate monitor to continuously monitor for particulates.
- A PID to continuously monitor for VOCs.
- Both the particulate monitors and the PIDs will have data logging capabilities suitable for calculating a 5-minute average, and for the subsequent downloading and evaluation of monitoring data.

In addition to PAMs, the following air monitoring should be conducted within the work zone:

- Real-time environmental monitoring will be conducted using a 4- gas meter within the work zone.
- Monitoring for VOCs will be conducted continuously within the cab of the excavator using a PID.

Air Monitoring Action Levels

Action levels will be implemented to identify the increased personal levels of protection and/or engineering controls required to protect Site workers and the public, during implementation. The following procedures will be followed:

- Monitor for VOCs and particulates within the work zone, the excavator cab and at the work zone perimeter using the procedures outlined above.
- Concentrations of VOCs and/or particulates will be documented with field logs on a daily basis.
- If total VOCs are detected at a concentration exceeding 5 ppm at the perimeter of the work zone for a period of more than 5 minutes, work will temporarily be halted, and monitoring will continue.
    - If total VOC concentrations decrease readily based on instantaneous readings over time, work will continue.
    - If readings again exceed a concentration of 5 ppm at the work zone perimeter, work will cease until a method to prevent additional releases has been proposed and accepted by NYSDEC.
- If total VOC concentrations exceed 25 ppm at the perimeter of the work zone, activities will be shut down until a method to prevent additional releases has been proposed and accepted by NYSDEC.

- If particulate levels are detected at concentrations exceeding 100 ug/m^3 downwind of the work zone for a period of more than 5 minutes or airborne dust is observed leaving the work area, dust suppression techniques must be employed.

    - Work may continue with dust suppression techniques provided that the downwind particulate levels do not exceed 150 ug/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

    - If after implementation of the dust suppression techniques, downwind particulate levels exceed 150 ug/m^3 above the upwind level, work must be stopped, and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are implemented to reduce the downwind particulate concentration to within 150 ug/m^3 of the upwind level differential and preventing visible dust migration.

- Air monitoring will also be performed within the work zone for flammable/explosive gases and vapors. If the LEL readings meet or exceed 10 percent (%) of the LEL, work will be discontinued, workers will move upwind, and the work area will be permitted to dissipate until LEL readings are less than 10 percent.

Quality Assurance/Quality Control

Field sampling instruments (both fixed-base and mobile units) will be calibrated on a daily basis in conformance with manufacturer's recommendations to assure that data are collected accurately by the instruments.

Reporting

Field measurements and logs will be available at the Site for inspection by NYSDEC on a daily basis during excavation activities. Results of air monitoring activities will be provided to NYSDEC at the completion of the Site activities.

APPENDIX F

Site Management Forms

Draft Summary of Green Remediation Metrics for Site Management

Site Name:_____ Site Code: _____
Address:_____ City:_____
State:_____ Zip Code:_____ County: _____

Initial Report Period (Start Date of period covered by the Initial Report submittal)
Start Date: _____

Current Reporting Period
Reporting Period From:_____ To: _____

Contact Information
Preparer's Name:_____ Phone No.: _____
Preparer's Affiliation: _____

I. Energy Usage: Quantify the amount of energy used directly on-site and the portion of that derived from renewable energy sources.

	Current Reporting Period	**Total to Date**
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on- site.

	Current Reporting Period (tons)	**Total to Date (tons)**
Total waste generated on-site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-site to landfills		
Transported off-site to other disposal facilities		
Transported off-site for recycling/reuse		
Reused on-site		

Provide a description of any implemented waste reduction programs for the site in the space provided on Page 3.

III. **Transportation/Shipping:** Quantify the distances travelled for delivery of supplies, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	**Total to Date (miles)**
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the site.

IV. **Water Usage:** Quantify the volume of water used on-site from various sources.

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the site in the space provided on Page 3.

V. **Land Use and Ecosystems:** Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	**Total to Date (acres)**
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Other:

CERTIFICATION BY CONTRACTOR

I,_____(**Name**) do hereby certify that I am _____ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including that last day of the period covered by this application.

_____

Date **Contractor**

Arcadis U.S., Inc.

50 Millstone Road

Building 200

Suite 220

East Windsor, New Jersey 08520

Tel 609 860 0590

Fax 609 448 0890

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