**May 9, 2011**

# FINAL ENGINEERING REPORT FOR BEST EQUITIES PROPERTY OPERABLE UNIT 2 (OU-2)

## 236-286 Richmond Valley Road
**(Former Nassau Metals Corporation Facility)**
## Staten Island, New York
## Site Number V-00159-2

***Prepared for***

**NASSAU METALS CORPORATION**
**600 Mountain Avenue**
**New Providence, New Jersey 07974-2008**


**Remedial Engineering, P.C.**
***Environmental Engineers***

***and ROUX ASSOCIATES, INC.***

***209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600***

# CERTIFICATION

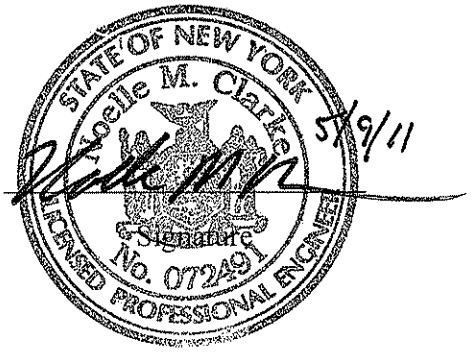
I, Noelle M. Clarke, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Design was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Design.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Design and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

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, Noelle M. Clarke, of Remedial Engineering, P.C., am certifying as Owner's Designated Site Representative for the site.




072491 — NYS Professional Engineer #

5/9/11 — Date

Signature

Note: include PE stamp

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

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## LIST OF ACRONYMS

| Acronym | Definition |
|---|---|
| CAMP | Community Air Monitoring Plan |
| C&D | Construction and Demolition |
| CCP | Construction Contingency Plan |
| CQAP | Construction Quality Assurance Plan |
| CQCP | Construction Quality Control Plan |
| DGA | Dense Graded Aggregate |
| EC | Engineering Control |
| ECDI | East Coast Drilling, Inc. |
| FER | Final Engineering Report |
| GCL | Geosynthetic Clay Liner |
| HASP | Health and Safety Plan |
| HDPE | High Density Polyethylene |
| IC | Institutional Control |
| NYCDEP | New York City Department of Environmental Protection |
| NYCRR | New York City Rules and Regulations |
| NYS | New York State |
| NYSDEC | New York State Department of Environmental Conservation |
| NYSDOH | New York State Department of Health |
| OM&M | Operation, Maintenance and Monitoring |
| OU | Operable Unit |
| PCB | Polychlorinated Biphenyl |
| RA | Remedial Action |
| RAO | Remedial Action Objective |

## LIST OF ACRONYMS

| Acronym | Definition |
|---|---|
| RAWP | Remedial Action Work Plan |
| RCP | Reinforced Concrete Pipe |
| RCRA | Resource Conservation and Recovery Act |
| RI | Remedial Investigation |
| RSCO | Recommended Soil Cleanup Objective |
| RRAPDR | Revised Remedial Alternatives and Preliminary Design Report |
| SMP | Site Management Plan |
| SPDES | State Pollution Discharge Elimination System |
| SVOC | Semi-Volatile Organic Compound |
| TAGM | Technical Administrative Guidance Memorandum |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TCP | Traffic Control Plan |
| TSCA | Toxic Substances Control Act |
| TSDF | Treatment, Storage and Disposal Facility |
| USACE | United States Army Corps of Engineers |
| USDOT | United States Department of Transportation |
| USEPA | United States Environmental Protection Agency |
| VCA | Voluntary Cleanup Agreement |
| VCP | Voluntary Cleanup Program |
| VOC | Volatile Organic Compound |
| WWHP | Work and Waste Handling Plan |

## 1.0 INTRODUCTION

On behalf of the Nassau Metals Corporation ("Nassau Metals"), Remedial Engineering, P.C ("Remedial Engineering") has prepared this Final Engineering Report ("FER") to describe the remedial activities performed at the Best Equities LLC ("Best Equities")-owned portion of Site No. V-00159-2, located east of Arthur Kill Road, which is designated as Operable Unit 2 ("OU-2") as shown on Figures 1 and 2. Remedial Engineering is a New York State professional service corporation organized primarily for the purpose of providing engineering services for clients of Roux Associates, Inc. ("Roux Associates"). The Site No. V-00159-2 is defined in the Voluntary Cleanup Agreement ("VCA") between the New York State Department of Environmental Conservation ("NYSDEC") and Nassau Metals (W2-0801-01-04 dated January 4, 2002 and amended April 16, 2010) as the property formerly owned, in its entirety, by Nassau Metals that will be referred to, herein, as the "VCA Property". Under this agreement, Nassau Metals entered into New York State's Voluntary Cleanup Program ("VCP") to address the environmental conditions at the VCA Property. For the purposes of summarizing remediation activities at the VCA Property, now owned by multiple entities, Nassau Metals has subdivided the former facility into the following operable units, which are depicted on Figure 2:

- OU-1: the Nassau Metals-owned portion of the VCA Property located east of Arthur Kill Road;
- OU-2: the Best Equities LLC-owned portion of the VCA Property located east of Arthur Kill Road; and
- OU-3: the Nassau Metals-owned portion of the VCA Property located west of Arthur Kill Road.

Separate FERs and Site Management Plans ("SMPs") will be issued for each operable unit. OU-2 is the subject of this FER and will be referred to, herein, as "the Site."

Remedial activities for OU-2 were performed at various times between September 26, 2006 and August 29, 2008 in accordance with the applicable portions of the NYSDEC approved Specifications, Project Plans and Contract Documents ("Final Design Documents") dated February 14, 2006, with exceptions noted herein The Final Design Documents and FER, which were prepared for Nassau Metals by Remedial Engineering, are considered a part of the VCA as an addendum to the Remedial Action Work Plan ("RAWP") for the VCA Property. The RAWP

is presented as Exhibit "B" of the January 3, 2002 VCA and consists of the February 28, 2001 VCP Revised Remedial Alternatives and Preliminary Design Report ("RRAPDR") and five addenda. The addenda include two separate comment letters presented by the NYSDEC, the New York State Department of Health ("NYSDOH"), and the New York City Department of Environmental Protection ("NYCDEP"), Nassau Metals' response to those comments, and a revised project schedule.

In addition, a set of "for construction" contract documents dated May 17, 2006 was issued to the bidders for the remedial construction. In addition, four addenda to the May 17, 2006 contract documents were issued to the bidders during the bid phase (Addendum No. 1 dated June 5, 2006; Addendum No. 2 dated June 20, 2006; Addendum No. 3 dated June 23, 2006, and Addendum No. 4 dated June 30, 2006). These documents did not change the essential elements of the remedy. They were issued to finalize contractual elements missing from the February 14, 2006 set; provide additional language regarding the dredge window imposed on work in Mill Creek and the embayment areas; and provide minor design modifications based on value engineering conducted during the bid phase and questions from the bidders. This FER summarizes the work performed in accordance with the Final Design Documents and any subsequent approved modifications.

This report is divided into the following five sections:

- Section 1.0: provides an introduction;
- Section 2.0: provides background information for the VCA Property and the Site;
- Section 3.0: presents the remedial goals and a summary of the Final Design remedy that are applicable to OU-2;
- Section 4.0: provides a summary of the remedial action performed for OU-2; and
- Section 5.0: provides a summary of the NYSDEC-approved deviations from the Final Design.

Supporting tables, figures and appendices are included at the end of this report. All appendices have been included electronically on a DVD that is located in a sleeve on the inside back cover of this report. In addition, a hard copy version of Appendix I (As-Built Drawings) has also been provided.

## 2.0 VCA PROPERTY AND SITE BACKGROUND

This section provides a description of the location and history of the VCA Property, where applicable, and the Site, geologic conditions and nature and extent of contamination.

### 2.1 VCA Property and Site Description

The VCA Property is located in the Staten Island County of Richmond, New York. The VCA property is immediately bordered on the north by Richmond Valley Road and on the south by the Staten Island Rapid Transit railroad tracks. The developed portions of the VCA property are bordered on the east by Page Avenue and on the west by Arthur Kill Road (portion of OU-1). The undeveloped portions of the VCA property extend approximately 500 feet east of Page Avenue (portion of OU-1) and 600 feet west of Arthur Kill Road (OU-3). Mill Creek bisects the VCA Property, discharging to the Arthur Kill.

Operable Unit 2 ("the Site") is identified as Section 5, Block 7971 and Lots 250, 260, 270, and 280 on the Richmond County Tax Map. Operable Unit 2 is an approximate 8.48-acre area bordered to the north by Richmond Valley Road, on the south by the Nassau Metals-owned portion (OU-1) of the VCA Property, to the east by Page Avenue and to the west by Arthur Kill Road (see Figure 2).

### 2.2 Operational History

Manufacturing at the former facility located within the limits of the VCA Property began around 1900. All manufacturing operations occurred east of Arthur Kill Road. The Tottenville Copper Company was the original operator at the VCA property, and used copper, lead, tin, and zinc as part of their manufacturing process. In 1923, a fire destroyed a portion of the facility, which was subsequently rebuilt. In 1931, Nassau Metals became the operator of the facility. The facility became the centralized site for the reclamation of non-ferrous scrap metals from Western Electric plants as well as from other telephone companies. The scrap metals were refined and formed into metal products, including copper wire, solder, and lead sleeving. The facility contained two primary manufacturing operations: 1) copper was handled in Building 10/10X (formerly known as the "red metals" building), and 2) lead and tin were handled in Building 2 (formerly known as the "white metals" building). These buildings were located south of Mill Creek, within the limits of OU-1.

Small quantities of organic chemicals were used for equipment maintenance during the facility's history.

Much of the VCA Property east of Arthur Kill Road has been filled in over the years to support the expansion of the facility. Fill material consisted of soil, construction debris, telephone equipment, slag, and refractory bricks. The filled areas were then occupied by buildings, onsite roadways or pavement. The creation of land using fill material ceased by the 1970s.

In 1973, a wastewater treatment facility was built within the limits of the VCA Property to treat metals bearing wastewater. The wastewater treatment facility was located in the southeastern portion of the VCA Property within OU-1. During the initial operation of the wastewater treatment facility, approximately 6 to 7 cubic yards of dry, vacuum-filtered sludge were generated per week. Until 1979, the sludge was stockpiled on the ground underneath the Page Avenue overpass. From 1979 through 1981, the sludge was stored in the "red metals" building in containers, and processed for precious metals recovery. Starting in 1981, the sludge was sent offsite for precious metals recovery.

In 1981, copper operations in the "red metals" building ceased. The building was decommissioned and demolished in 1984-1985. Lead and tin operations in Building 2 (the "white metals" building) continued until 1991. The "white metals" building was demolished in 1996-1997. Demolition activities are documented in the May 7, 1997 Building Demolition Completion Report prepared by Roux Associates. Additional building demolition on the south side of the VCA Property was performed by Roux Associates in 1998. Demolition activities are documented in the June 3, 1998 Phase I Building Demolition Completion Report. In 1999, all electroplating manufacturing operations moved from the south side of the VCA Property (OU-1) to 236 Richmond Valley Road, also known as Building 41 on the north side of the VCA Property in OU-2. Following the transfer of operations, all remaining buildings on the south side of Mill Creek, including the wastewater treatment facility, were demolished. Decommission and demolition activities for these buildings are documented in the August 2000 Completion Report for Nassau Metals Corporation Phase II Building Closure and Demolition Project prepared by Environmental Engineering Services. All manufacturing operations were terminated at the VCA Property in 2001.

Nassau Metals does not currently have any buildings or conduct any operations within the limits of OU-2. Best Equities currently leases 286 Richmond Valley Road for office use. Nassau Metals previously utilized this building for administration offices. Best Equities retrofitted 236 Richmond Valley Road for multipurpose use, which now includes offices, recreation (roller rink facility and basketball courts), and other commercial use.

### 2.3 Regulatory History

After all decommissioning and demolition activities were performed at the VCA Property and manufacturing operations were subsequently terminated in 2001, Nassau Metals entered into a VCA (W3-081-97-09) with the NYSDEC to evaluate environmental conditions at the VCA Property in preparation for anticipated redevelopment of the Nassau Metals-owned portion of the VCA Property. In accordance with the VCA, a Remedial Investigation ("RI") was performed to characterize the nature and extent of contamination at the VCA Property as discussed in Section 2.5 below. Based on the results of the RI, a RAWP and subsequent remedial design were developed to address sources of contamination identified at the VCA Property. A summary of the Remedial Action ("RA") is provided in Section 4.0. Following the performance of the RA, Nassau Metals initiated the process to amend the existing VCA, which subdivides the VCA Property into three operable units (OU-1, OU-2 and OU-3), as discussed previously. The VCA Amendment #1 was fully executed on April 16, 2010. Accordingly, separate FERs and SMPs have been prepared for each operable unit. OU-2 is the subject of this FER.

### 2.4 Geologic Conditions

The VCA Property is located in the southwestern portion of Staten Island, New York (Figure 1). Prior to the Remedial Action, the majority of the VCA Property east of Arthur Kill Road was underlain by fill material, which varied in thickness but averaged approximately 8 feet. Over 450,000 cubic yards of fill underlie the VCA Property, east of Arthur Kill Road. The fill material is comprised of fine to coarse sand with minor amounts of silt and clay, wire, slag, bricks, glass, plastic, wood, metal and parts of old telephones. The fill material is directly underlain by low permeability estuarine deposits in the vicinity of Mill Creek, and glacial moraine deposits in areas of the VCA Property furthest from Mill Creek. The estuarine deposits are comprised of peat, clay and silt, and range in thickness from 2 feet ("ft") to 9 ft. Previous geotechnical analyses indicate that the vertical permeability of the estuarine deposits is very low,

measuring 3.96 x $10^{-8}$ centimeters per second ("cm/sec"). Where present, the estuarine deposits will act as a low permeability barrier between the overlying fill and the underlying glacial moraine deposits.

The glacial moraine deposits are comprised of sand with minor amounts of gravel, silt, and clay. These deposits range in thickness from 32 ft to 58 ft. The glacial moraine deposits comprise the groundwater aquifer beneath the VCA Property. However, the underlying groundwater is not used as a drinking water supply. Drinking water in Staten Island has been supplied by the upstate New York reservoirs since the early 1970s.

Underlying the glacial moraine deposits is the Raritan Clay, which was encountered during previous investigations ranging in depths from 52 ft to 72 ft. Previous geotechnical analyses indicate that the vertical permeability of the Raritan Clay is very low, ranging from 1.95 x 10 to 2.20 x $10^{-8}$ cm/sec. Bedrock reportedly lies approximately 300 ft below land surfaced ("bls") beneath Staten Island.

The water table underlying the VCA Property occurs within portions of the base of the fill material and in the glacial moraine. Depth to water beneath the VCA Property ranged from 1 ft to 10 ft bls during April 2010. Three synoptic rounds of water-level measurements were made in selected wells at the VCA Property from May 20 through May 22, 1998. The groundwater flow direction was determined during the May 20, 1998 low tide water-level measurements to be towards Mill Creek from both the south and north portions of the VCA Property. The two remaining water-level measurement rounds were evaluated (low and high tides), and the resulting groundwater flow patterns are consistent with the May 20, 1998 water-level measurement round. These data indicate that tidal influences generally do not affect the overall groundwater flow directions. However, due to the 4-5 ft change in surface-water elevations observed during the tidal cycle, it is expected that during high tide, surface water will recharge groundwater within the immediate vicinity of Mill Creek. This phenomenon is commonly referred to as "bank storage."

## 2.5 Nature and Extent of Contamination

Prior to performing the RA, a RI was performed to characterize the nature and extent of contamination at the VCA Property. The results of the RI are described in detail in the following reports:

- December 1991 United States Environmental Protection Agency ("USEPA") Site Investigation Report prepared by Malcolm Pirnie, Inc.;
- May 1997 Initial Study Report prepared by Roy F. Weston, Inc.;
- September 1998 Site Investigation Report prepared by Roux Associates;
- November 1998 Voluntary Cleanup Program Remedial Alternatives Report prepared by Roux Associates;
- October 2000 Voluntary Cleanup Program Supplemental Site Investigation Report prepared by Roux Associates; and
- February 2001 Voluntary Cleanup Program Revised Remedial Alternatives and Preliminary Design Report prepared by Roux Associates.

Over 450,000 cubic yards of fill immediately underlie the VCA Property, east of Arthur Kill Road. Based upon the results of the various investigations performed, it was determined that the fill material contains wire, slag, bricks, metal, and other manmade materials.

As part of this effort in OU-2, ten (10) samples of the fill material were submitted for total metals analysis and one (1) sample of the fill material was submitted for metals analysis using the toxicity characteristic leaching procedure ("TCLP"). The TCLP analysis was performed to determine whether or not this material would be classified as a Resource Conservation and Recovery Act ("RCRA") characteristically hazardous waste if the fill material was removed from the ground since this classification does not apply if the fill materials remain in place. The one TCLP sample yielded a concentration of lead exceeding USEPA regulatory levels for classifying the material as RCRA characteristically hazardous waste. Preconstruction tabular and graphical summaries of analytical data generated during the performance of the RI are presented in the RI reports cited above.

## 3.0 REMEDIAL GOALS, PROPOSED REMEDY AND FINAL DESIGN APPROVAL

This section presents the objectives of the remedial action, generally summarizes the proposed remedy and describes the design approval process.

### 3.1 Remedial Action Objectives

The media of concern at the VCA Property include sediment and fill material, however, for OU-2, only fill material is present. The remedial action objectives ("RAOs") developed for the VCA Property that are applicable to OU-2 are as follows:

- manage the metals-containing fill material underlying the VCA Property; and
- prevent future metal loading into Mill Creek from the exposed fill material.

### 3.2 Summary of Proposed Remedy

The applicable elements of the proposed remedy for OU-2 are as follows:

- soil excavation and onsite backfill beneath the proposed caps for OU-1 and OU-2;
- Import of soil/sand to be used for backfill in compliance with NYSDEC Technical and Administrative Guidance Memorandum ("TAGM") 4046 Recommended Soil Cleanup Objectives ("RSCOs");
- Installation of a Composite Cover System consisting of a soil cap with GCL or asphalt/ concrete cap over various upland portions of the site;
- installation/rehabilitation of portions of the stormwater sewer system (catch basins, manholes, piping and outfalls) north of Mill Creek; and
- implementation of a SMP to verify the effectiveness of the remedy.

Erosion and sediment control measures and appropriate engineering controls were also required to be employed throughout the construction period.

Implementation of remedial elements applicable to OU-2, as specified in the Final Design Documents, along with noted exceptions are discussed in the following section of this FER.

### 3.3 Final Design Approval

On October 18, 2006, the NYSDEC provided its formal approval of the Final Design Documents. The NYSDEC determined that the Final Design Documents substantially addressed

the requirements of the VCA RAWP of January 2001 and the 100% Design Documents that were previously approved in July 2004. As noted previously, exceptions to the approved design, applicable to OU-2, are discussed herein. The October 18, 2006 approval letter is included in Appendix A.

### 3.3.1 Final Design Modification

The Final Design Documents included several areas of "Low Permeability Fill Material Caps" immediately adjacent to the north and east sides of the building at 236 Richmond Valley Road and "GCL-Soil Cap" on the south side of the building. In a letter dated December 4, 2006 (Appendix B), Nassau Metals proposed substituting an asphalt cap for areas previously identified as Low Permeability Fill Material Caps" or "Soil-Geosynthetic Clay Liner ("GCL") Cap" immediately adjacent to the north, south and east sides of the building. On January 29, 2007, Remedial Engineering issued a proposed design modification for the remediation of OU-2 (Appendix B), which detailed these changes based upon the owner's plans for the building at that time. The alternative remedy proposed for those areas immediately surrounding the building at 236 Richmond Valley Road consisted removal of two feet of soil, installation of a geosynthetic filter fabric layer or orange snow fence to act as a visual barrier above the existing fill material, backfill with 12 inches of clean offsite common fill and eight inches of crushed stone, meeting the requirements of the specifications, and installation of four inches of asphalt, meeting the requirements of the specifications. The NYSDEC approved the proposed design modifications on April 12, 2007 (Appendix A). Concrete walkways (4 inches thick, meeting the requirements of the specifications), were later substituted for portions of the asphalt pavement around the building.

Additionally, on May 7, 2007, the NYSDEC was informed via email and in the minutes to Progress Meeting No. 29 (Appendix C) that the two remaining areas in OU-2 that were initially proposed to be "Low Permeability Fill Material Caps", would be constructed as Soil-GCL Caps, meeting the requirements of the specifications. This change was made to improve constructability of the caps in these smaller areas of OU-2.

## 4.0 SUMMARY OF REMEDIAL ACTION

Provided below is a summary of the remediation activities conducted within the limits of OU-2. Remedial activities for both OU-1 and OU-2 were performed by Shaw Environmental and Infrastructure, Inc. ("Shaw"). Shaw and its designated subcontractors performed the bulk of the remedial action under the direct supervision of Remedial Engineering at various times, from September 26, 2006 to November 28, 2007 except for paving of the asphalt cap and for installing portions of the "sidewalk" concrete cap located along the building perimeter. This Work was performed directly by Best Equities without any oversight provided by Nassau Metals, Remedial Engineering or Shaw. Roux Associates performed the following on behalf of Nassau Metals, at various times, between September 26, 2006 and August 29, 2008:

- supported Nassau Metals in coordinating all required permitting;
- handled all regulatory agency coordination and reporting;
- attended weekly project meetings and prepared/ issued related agendas and minutes;
- provided ongoing contract document clarification to Shaw, as required;
- organized and maintained the information needed to document the construction;
- provided field oversight and support, as necessary, of the specified remedial activities; and
- implemented the required Community Air Monitoring Plan ("CAMP") during all intrusive activities.

Copies of daily construction reports and monthly construction progress reports prepared and submitted to the NYSDEC during the performance of the work are provided in Appendices C and D, respectively. The major components of the remedial action are identified below, and are detailed in the following sections of this FER. These tasks include:

- permitting;
- contractor submittals;
- implementation and management of a site-specific Health and Safety Plan;
- preconstruction meeting, mobilization and site preparation (i.e., construction of temporary access roads, clearing and grubbing, soil erosion and sedimentation control, etc…);

- water management;
- soil excavation and onsite placement within limits of OU-1 or OU-2;
- construction of the soil caps with GCL ("Soil-GCL Cap");
- construction of the asphalt caps;
- construction of the concrete caps;
- rehabilitation of site Stormwater System;
- installation of offsite fill materials;
- seeding of Soil-GCL cap areas;
- monitoring well abandonment and construction;
- surveying and As-Built Drawings (certified by Remedial Engineering);
- equipment Decontamination;
- demobilization; and
- implementation of an OM&M Plan to verify the effectiveness of the remedy (Roux Associates).

### 4.1 Permitting

The following key permits were obtained prior to commencement of the related remedial activities at the VCA Property and are included in Appendix E.

- United States Army Corps of Engineers ("USACE") Permit No. 2002-01563 – Executed on November 9, 2006;
- extension to USACE Permit – On March 16, 2007, the USACE approved an extension of the dredging window from March 16, 2007 to June 1, 2007 for the 2007/ 2008 dredging season;
- NYSDEC Water Quality Permit No. 2-6405-00001/02004 – Executed on July 19, 2006. The respective notification to commence work was issued on November 17, 2006;
- modification of Topography Authorization for Application No. 060355 RAR – Formally approved on October 11, 2006;
- State Pollution Discharge Elimination System ("SPDES") Permit Equivalent for Site No. W2-0801-01-04 – Executed on November 14, 2006;

- addendum to SPDES Permit Equivalent for Site No. W2-0801-01-04 – Executed on February 12, 2007; and
- Building Permit No. 500856291-01-EW-OT – Issued on February 16, 2007 and renewed on September 11, 2007.

### 4.2 Contract Submittals

Prior to commencement of remedial activities at the site, Shaw provided the following documents, where applicable, for review and approval by Remedial Engineering and the NYSDEC when requested:

- materials and equipment suppliers and manufacturers;
- list and qualifications of subcontractors;
- construction schedule;
- quality control procedures;
- work Sequence;
- contractor Work Plans (Work and Waste Handling Plan {"WWHP"}, Health and Safety Plan {"HASP"}, Construction Quality Assurance Plan {"CQAP"}, Construction Quality Control Plan {"CQCP"}, Construction Contingency Plan {"CCP"} and Traffic Control Plan {"TCP"}); and
- preconstruction survey.

The Contractors provided numerous other submittals and shop drawings as required in the Specifications. Work did not commence in a particular area (i.e., water management, import of offsite fill materials, geosynthetic clay liner installation, etc.) until the required submittals were received and approved by Nassau Metals, Remedial Engineering and the NYSDEC, where applicable.

Although formal approvals were not provided, NYSDEC comments, where applicable, were provided on Shaw's HASP, CQCP, CCP and TCP on October 27, 2006 and the CQAP on November 11, 2006. Approval of Shaw's WWHP was provided by the NYSDEC on November 11, 2006 (Appendix A). Additional information requested by the NYSDEC in their approval letter was specific to the remedial action in OU-3 and, as such, will be discussed in the FER for OU-3.

The preconstruction survey was provided to the NYSDEC on December 15, 2006 (Appendix B).

### 4.3 Implementation and Management of a Site-Specific Health and Safety Plan

Remediation activities were performed in a manner consistent with 29 CFR 1910 and 1926 and in accordance with the Contractors' HASPs, where applicable. Shaw performed work in Level D protection, which included work boots, rubber over-boots, as required, hard hats, and safety glasses.

Roux Associates and Shaw conducted particulate and Volatile Organic Compound ("VOC") monitoring during the performance of intrusive remedial activities as discussed below.

#### 4.3.1 Air Particulate Monitoring

Particulate air monitoring was performed consistent with NYSDEC TAGM 4031 and the NYSDOH Community Air Monitoring Protocol provided in Appendix J of the Final Design Documents during intrusive remedial activities. Particulate dust monitoring was performed upwind and downwind of the Work areas.

Dust monitoring data are provided in Appendix F. Data reports were not provided for days when data could not be collected due to problematic weather events (i.e., rain or snow) or equipment malfunction.

##### 4.3.1.1 Dust Control

During the course of the work, all construction activities performed by Shaw were conducted to minimize dust that would cause a hazard or nuisance to others. Roux Associates was responsible for monitoring dust in accordance with the specifications and Shaw implemented all necessary measures to control dust to within acceptable levels. As noted above, Shaw had a water truck equipped with a water cannon dedicated to dust suppression available on site at all times. The measures that were taken included:

- applying water on the haul roads;
- misting equipment and excavation faces;
- hauling materials in tarped, or water tight containers;

- reducing speed of vehicles moving through areas of the site;
- covering excavated areas and material after excavation activity ceases;
- stopping work; and
- Dirt Glue™ applied to exposed surfaces, where applicable.

The primary sources of water for dust control were 39,000 gallons of treated wastewater as discussed in Section 4.5; a portion of the 120,000 gallons of offsite non-potable water delivered to the site by Dana Transport, Inc. (Appendix G); and additional water, as needed, from a nearby, offsite fire hydrant permitted by the City of New York.

### 4.3.2 Volatile Organic Compound Air Monitoring

Air monitoring for VOCs was performed consistent with the NYSDOH Community Air Monitoring Protocol provided in Appendix J of the Final Design Documents during intrusive remedial activities. No VOC action levels were exceeded during the performance of the Work.

VOC air monitoring data is provided in Appendix F. Data reports were not provided for days when data could not be collected due to problematic weather events (i.e., rain or snow) or equipment malfunction.

## 4.4 Pre-Construction Meeting, Mobilization and Site Preparation

Prior to mobilizing to the site, a Pre-Construction Meeting was conducted on September 20, 2006 to identify the roles and responsibilities of key project personnel, review procedures for contractor submittals, health and safety, schedule, payment requisitions, change order requests and other general administrative issues. The selected Contractor for the remediation of OU-1 and OU-2, Shaw, mobilized to the site on September 26, 2006. Following mobilization to the site, a preconstruction meeting was held onsite between key project personnel from Nassau Metals, Shaw and the NYSDEC.

Remedial Engineering's field representative provided construction oversight for the duration of the Remedial Action. Construction oversight included shop drawing review, daily inspection to verify conformance with the Contract Documents, health and safety monitoring, material

tracking, preparation of daily field reports, preparation of monthly construction progress reports, photo documentation, and holding weekly progress meetings.

Prior to the initiation of the major remedial construction activities, several site preparation tasks were performed by Shaw as listed below:

- verification of onsite utilities within the work zone prior to initiating any intrusive activities;
- performance of an initial site Survey;
- set up and operation of temporary construction utilities and facilities such as trailers, telephone and electrical service, sanitary facilities and emergency response materials;
- installation of NYSDEC required project sign and general warning signs;
- installation of soil erosion and sedimentation control measures;
- construction of stockpiles areas;
- construction of temporary access roads;
- set up and operation of systems for management of site construction wastewater;
- installation of a decontamination area;
- clearing and grubbing in the work areas; and
- repair of fencing along the site perimeter.

During the performance of site preparation activities, the following exceptions to the Final Design Documents were approved by the NYSDEC:

- Hay bales were installed on paved areas and fastened to adjacent fencing, where applicable, based on the verbal approval provided during the October 4, 2006 Kickoff Meeting at the site and subsequently memorialized in Progress Report No. 1 (Appendix D).
- Existing asphalt was utilized as the primary stabilized entrance to OU-1 and OU-2 based on the verbal approval provided during the October 4, 2006 Kickoff Meeting at the site and subsequently memorialized in Progress Report No. 1 (Appendix D).
- Modifications to the proposed access road layout and construction requirements were issued and approved in the field on October 4, 2006 during the Kickoff Meeting at the site. Follow-up questions on the proposed layout were addressed in the subsequent

Minutes issued on October 9, 2006 and related email dated October 10, 2006 (Appendix A).

- Use of a protective, interim dust and erosion control coating of Dirt Glue™ Light for onsite stockpiles to be consolidated under the Soil-GCL Cap for OU-1 was verbally authorized on June 8, 2007 by the NYSDEC.

### 4.5 Water Management

Shaw was responsible for water management at the site during the performance of the remedial action for OU-1 and OU-2. Water management was required for Mill Creek Water (OU-1) and construction wastewater (OU-1 and OU-2). Construction wastewater was generated during the performance of Work in OU-2 from the following sources:

- construction and development of Monitoring Well MW-101;
- runoff from disturbed areas;
- runoff from stockpiles; and
- decontamination activities.

Construction wastewater was collectively generated and treated during the performance of the remedial actions for both OU-1 and OU-2; therefore, an allocation between the actual quantity of construction wastewater generated, treated and sampled for each individual operable unit cannot be made in this FER.

All construction wastewater during the remediation of OU-2 was treated by the temporary construction wastewater treatment facility constructed by Shaw on OU-1, sampled and discharged/ utilized as discussed below.

#### 4.5.1 Onsite Treatment of Construction Wastewater

A wastewater treatment facility was constructed in accordance with the NYSDEC approved WWHP in the south central portion of OU-1 to treat all construction wastewater generated during the performance of the Work at OU-1 and OU-2. The treatment system contained the following components:

- two primary 20,000 gallon influent tanks;
- two secondary 20,000 gallon influent tanks;

- bag filtration at 10 microns;
- two 2,000 pound carbon absorption units;
- bag filtration at 5 to 10 microns;
- one 2,000 pound organo clay filter unit; and
- two 20,000 gallon effluent tanks.

All construction wastewater was pumped to the influent tanks and subsequently pumped for treatment through a series of 10 micron filter bags, carbon treatment vessels, organo clay filter units, when applicable, 5 micron filter bags and eventually discharged temporarily discharged into the two effluent holding tanks. Once treated, the construction wastewater was managed as discussed below.

Treated construction wastewater was re-used to support sanitary/ sewer cleaning operations within OU-1, discharged to the Arthur Kill Waterway pursuant to the NYSDEC SPDES Permit Equivalent issued for the project on November 14, 2006 and subsequent addendum issued on February 12, 2007 (Appendix E) or utilized for dust control during the remediation of OU-1 and OU-2. Approval to use treated construction wastewater for dust control was requested via e-mail (Appendix B); verbally approved on January 31, 2007 and memorialized in Progress Report No. 4 (Appendix D).

In accordance with the requirements of the SPDES permit, two treated effluent samples were collected and analyzed. For comparison purposes, two respective untreated effluent samples were collected and analyzed. The results of the samples collected for maintenance dewatering during sediment removal in Mill Creek and sewer cleaning operations are provided in Appendix H and were below all specified treatment levels. A brief description of the four samples collected is provided below:

- the samples of analytical results of untreated maintenance dewatering wastewater (MI-1) and untreated sewer cleaning wastewater (SC-1) samples were collected on December 20, 2006; and
- the samples of analytical results of treated maintenance dewatering wastewater (ME-1) and treated sewer cleaning wastewater (SE-1) samples were collected on December 27, 2006.

Approximately 73,000 gallons of wastewater was treated and managed during the performance of the work as follows:

- 24,000 gallons of treated wastewater that were re-used to support sanitary/ sewer cleaning operations as discussed in the FER for OU-1;
- 10,000 gallons were discharged in accordance with the requirements of the site-specific SPDES Permit Equivalent; and
- 39,000 gallons of treated wastewater were used for onsite dust control for OU-1 and OU-2.

Prior to demobilization of the influent frac tanks, the solids remaining in the tank were removed, dewatered, and containerized for sampling and analysis. Based on the results of the waste characterization analytical data generated, the solids were disposed offsite as hazardous waste as discussed in the FER for OU-1. Since the contamination associated with the sediments was associated with the cleaning of the onsite sewer system for OU-1 the analysis and disposal of these sediments are not discussed in this FER for OU-2. However, the results of the impacted wastewater treatment system media disposed of offsite are discussed in this FER within Section 4.12.

### 4.6 Soil Excavation and Onsite Placement

Within the proposed areas of remediation at 236 Richmond Valley Road, impacted soil was excavated up to 2 feet below final design grade, relocated within the footprint of the Soil-GCL Caps constructed within the limits of OU-1 and OU-2, where applicable, and regraded to the preliminary grades shown on As-Built Drawing AB-1 (Appendix I). Accordingly, an allocation of the quantity of excavated material consolidated below the capped portions of the Site for OU-1 and OU-2 cannot be made in this FER. An as-built description of the Soil-GCL, asphalt and concrete caps constructed within the remediated limits of OU-2 are discussed in the following sections of this FER with the construction of the various types of caps installed for OU-1 discussed in the respective FER for OU-1.

### 4.7 Construction of Soil-GCL Caps

Two Soil-GCL Caps were installed in upland areas (above the 4-foot elevation) as shown on As-Built Drawing AB-3 (Appendix I).

Installation of the NYSDEC approved Soil-GCL Caps for OU-2 included the following key components:

- Installation of a geosynthetic filter layer as a visual barrier at 2 feet below final grade;
- Installation of sand layer above the filter fabric;
- installation of GCL;
- installation of perforated high density polyethylene ("HDPE") drainage pipe layer;
- installation of sand cover and drainage layer; and
- installation of vegetated topsoil layer.

A typical cross-section of the Soil-GCL Cap is depicted on Detail 7 of As-Built Drawing AB-9 (Appendix I). Greater detail on each element listed above is provided in the following subsections of this FER.

### 4.7.1 Installation of a Geosynthetic Filter Layer

Prior to installing the Soil-GCL cap for OU-2, a SKAPS GT-131 visual barrier was installed 2 feet below the final grade above the non-remediated subgrade. Product specifications for the warning barrier are provided in Appendix J.

### 4.7.2 Installation of Sand Layer

Once the visual barrier was installed, a 12-inch layer of sand was installed. The sand layer was installed and compacted with a vibratory roller to 95% or greater of the maximum dry density as determined by the Modified Proctor. Nuclear field density tests were performed at a minimum frequency of one per half-acre. Compaction test results for the site are included in Appendix L.

All soil/sand imported to the site was compared with the chemical criteria presented in Table 1. Chemical and physical testing for imported sand utilized below the GCL is discussed in Section 4.11.3. The facility scale tickets for all imported sand are provided in Appendix M.

### 4.7.3 Installation of Geosynthetic Clay Liner

The GCL was installed on top of the sand layer to provide an impermeable barrier. The reinforced GCL (Bentonite DN as manufactured by CETCO) consists of a layer of sodium

bentonite between two non-woven geotextiles, which are needle-punched together. Product specifications for the GCL are provided in Appendix J. The GCL was installed by CETCO (a subcontractor to Shaw), a Bentonite DN-approved installer. The subgrade was inspected for items such as large sharp objects and sudden changes in grade and approved by CETCO prior to installation of the GCL. The subgrade approval forms are included in Appendix K. The GCL was installed, overlapped, and seamed in accordance with the specifications and the manufacturer instructions. The Panel and seam layout are also included in Appendix K. Approximately 619,491 square feet of GCL was installed onsite across OU-1 and OU-2 as shown in As-Built Drawing AB-3 (Appendix I). The GCL was utilized for the construction of each Soil-GCL Cap during the performance of the remedial actions for both OU-1 and OU-2.; therefore, an allocation between the actual quantity of GCL used for individual elements of the remedial action within OU-1 and OU-2, cannot be made in this FER.

### 4.7.4 Installation of Perforated HDPE Drainage Pipe Layer

Along the concrete curb for each Soil-GCL Cap in OU-2, a perforated 6-inch diameter HDPE drainage pipe within a gravel trench constructed with 0.75-inch crushed stone was installed above the GCL layer. The perforated drainage pipe was installed to capture and convey storm-water infiltrating through the Soil-GCL Cap to the onsite stormwater collection system as shown on Drawing AB-5 and discussed in Section 4.10 of this FER.

### 4.7.5 Installation of Sand Cover and Drainage Layer

A 6-inch sand layer was installed on top of the GCL and perforated HDPE drainage pipe layers to provide cover and drainage. The sand was installed with a minimum permeability of 0.01 cm/sec as discussed in Section 4.11.3. The sand layer was installed and compacted with a vibratory roller to 95% or greater of the maximum dry density as determined by the Modified Proctor. Nuclear field density tests were performed at a minimum frequency of one per half-acre. Compaction test results for the site are included in Appendix L.

All soil/sand imported to the site was compared with the chemical criteria presented in Table 1. Chemical and physical testing for imported sand utilized for the sand cover layer is discussed in Section 4.11.3.

### 4.7.6 Installation of Vegetated Topsoil Layer

An uncompacted, 6-inch topsoil layer was installed over the sand cover layer. The actual limits of the vegetated topsoil layer is shown on As-Built Drawing AB-4 (Appendix I).

All soil/sand imported to the site was compared with the chemical criteria presented in Table 1. Chemical and physical testing for imported topsoil utilized for the topsoil layer is discussed in Section 4.11.2.

The Soil-GCL Cap was manually seeded with the following mix rate: 45% Carmen Chewing Fescue, 25% Ken Blue Kentucky Blue Grass, 15% Red Top and 15% Astoria Bentgrass.

## 4.8 Construction of Asphalt Caps

An area of approximately 65,100 square feet surrounding 236 Richmond Valley Road was capped with a minimum of 4 inches of asphalt and additional dense graded aggregate ("DGA"), as necessary, by Best Equities after Shaw completed construction of the subbase portion of the asphalt cap as shown on Detail 3 on Drawing AB-4 (Appendix I). The limits of the asphalt cap are shown on As-Built Drawing AB-3 (Appendix I).

Prior to installing the asphalt cap, a SKAPS GT-131 visual barrier was installed 2 feet below top of asphalt over the unremediated subgrade. Product specifications for the warning barrier are provided in Appendix J. Once the visual barrier was installed, a 12-inch common fill layer was installed consisting of offsite common fill from Almasi followed by an 8-inch subbase layer consisting of a combination of 0.75-inch crushed stone and DGA. The facility scale tickets for all imported common fill, crushed stone, and DGA are provided in Appendix M. The respective clean fill certifications are provided in Appendix N. A front end loader and vibratory roller were used to place, grade and compact the underlying stone subbase prior to installation of the asphalt cap.

Once final grading of the stone subbase was completed, a 4-inch asphalt cap and additional DGA, where warranted, was installed by Best Equities. This work was not completed under the direct supervision of Nassau Metals, Remedial Engineering or Shaw.

### 4.9 Construction of Concrete Caps

Around the perimeter of 236 Richmond Valley Road, concrete walkways (caps) were installed at a minimum of 4 inches thick as shown on Drawing AB-3 (Appendix I). In addition, concrete caps, with a minimum thickness of 4 inches, were installed within the 4 sets of islands within the limits of the active parking lot located in the eastern portion of OU-2 except for around existing trees. In accordance with the approved design, at each tree, a 5 foot by 5 foot square area of mulch was installed in lieu of concrete as depicted on Detail 5 on Drawing AB-8 (Appendix I).

### 4.10 Rehabilitation of Site Stormwater System

The following subsections discuss rehabilitation of existing stormwater outfalls north of Mill Creek and installation of new drainage swales and associated drainage features (i.e., new manholes and catch basins) north and south of Mill Creek. Because the work performed within the limits of OU-1 and OU-2 were interconnected, the rehabilitation of the respective Stormwater System is discussed in its entirety within this FER.

Pipe outfalls No. 013, 014 and 015 north of Mill Creek were replaced/ modified as noted in Detail 15 of As-built Drawing AB-10 (Appendix I). These outfalls connect to existing manholes MH-65, MH-63 and MH-67, respectively, located on OU-1 and OU-2 as shown on As-Built Drawing AB-5 (Appendix I). Outfall No. 012 was not located during the performance of the Work. A new headwall structure was installed for a previously unidentified 36-inch reinforced concrete pipe ("RCP") of unknown origin between Outfalls No. 14 and 15.

All drainage swales ultimately discharge to Mill Creek through five outfall swales. Outfalls Swales No. 1, 2 and 3 convey stormwater south of Mill Creek and Outfall Swales No. 4 and 5 convey stormwater north of Mill Creek. Construction details for these swales are presented on Detail 15 on As-Built drawing AB-10 (Appendix I). Outfall swale No. 5 was added during the implementation of the remedy to facilitate stormwater drainage in this area of the VCA Property.

New catch basins CB-B, CB-C, CB-D, CB-E, CB-F, CB-G, and CB-H) and new HDPE piping were installed within the capped areas of OU-2, as Shown on Drawing AB-5. Details of the new catch basins are shown on Drawing AB-10. In addition, as shown on Drawing AB-5, seven new headwalls and associated HDPE piping were installed north of Mill Creek to convey

stormwater from OU-2 new catch basins CB-B, CB-C, CB-D, CB-E, CB-F, CB-G, and CB-H), respectively, to Mill Creek. The seven new outfalls discharge into the drainage swale north of Mill Creek, which ultimately discharges to the creek through the outfall swales No. 4 and 5. An additional headwall and associated perforated and solid 6-imch diameter HDPE piping was installed to convey infiltrated stormwater from the Soil-GCL Cap located within the eastern portion of OU-2 to Mill Creek through the drainage swale north of the creek. To confirm connection of existing catch basins located on OU-2 with Mill Creek, a limited dye study was performed on June 5, 2007. Notification for the performance of this dye study was provided on June 4, 2007.

Based on seeps observed during the installation of the Soil-GCL Cap along the slopes of the northern edge of the property, a 4-inch perforated HDPE drainage pipe was installed within a gravel trench below the installed GCL to capture and convey any water to Catch Basin CB-29 as depicted on Drawing AB-5 (Appendix I).

### 4.11 Offsite Fill Materials

During the performance of the remedial action for OU-1 and OU-2, the following materials were imported and placed onsite as discussed in this FER. It should be noted, there were other offsite fill materials that were utilized during the remediation of OU-1 that are specifically discussed in the respective FER for OU-1.

- 2,408.18 tons of common fill from the Almasi Contractor's Site located in the Town of Edison, Jersey;
- 2,866 total cubic yards of topsoil (355 cubic yards of low organic topsoil and 2,511 cubic yards of high organic topsoil) from Nature's Choice Belvidere, New Jersey site;
- 60,916.58 tons of sand from Amboy Aggregates Facility located in South Amboy, New Jersey;
- 12,520.20 tons of DGA from Stavola Company, Inc.'s ("Stavola's") quarry located in Bridgewater Township in New Jersey; and
- 3,806.25 tons of ¾-inch crushed stone from Stavola's quarry located in Bridgewater Township in New Jersey.

Clean fill certifications for all imported common fill, topsoil, sand, and DGA, are provided in Appendix O. Chemical and physical data for each type of material, where applicable, is discussed in the following subsections of this FER.

### 4.11.1 Imported Common Fill

2,408.18 tons of common fill was imported from a clean, virgin source by Almasi Contractors ("Almasi") located in Woodbridge, New Jersey. The source of the common fill provided by Almasi was located at Block No. 390C and Lot No. 1, King George Road South, Town of Edison, County of Middlesex, New Jersey.

A total of one pre-qualification and two post-qualification samples from the proposed common fill source were collected and analyzed for VOCs, semi-volatile organic compounds ("SVOCs"), metals, polychlorinated biphenyls ("PCBs") and pesticides/ herbicides with the respective analytical results being summarized in Tables 2 through 6. The respective analytical data reports are included in Appendix N for this fill material source. The respective clean fill certification is provided in Appendix O.

All chemicals of concern were below NYSDEC TAGM 4046 RSCOs cited in the remedial design or below the Part 375 unrestricted standards as summarized in Tables 2 through 6.

The prequalification physical data report (Appendix P) for the common fill imported by Almasi indicated that approximately 97% of the common fill would pass the No. 10 sieve, which was above the specified rate of 90%.

All of the imported common fill was utilized within the limits of OU-2 during the installation of the asphalt cap or Soil-GCL cap for OU-2. The delivery tickets for all imported fill materials are provided in Appendix M.

### 4.11.2 Imported Topsoil

2,866 cubic yards of topsoil was imported from a clean, virgin source, which was provided by Nature's Choice Facility located in Belvidere, New Jersey. Of this material, 355 cubic yards of "low organic" topsoil was imported and placed in OU-2 and 2,511 cubic yards of "high organic"

topsoil was placed in OU-1. The facility was formerly a farm and has since been operated as a supplier of organic landscaping products facility for 15 years. All of the sand used at the Nature's Choice site comes from Siberini & Sons in Middle Smithfield, Pennsylvania. All of the compost used is produced at the Natures Choice site from leaves, grass and yard waste brought to their facility.

A total of one pre-qualification and two post-qualification samples from the proposed topsoil source, which is representative of both "low and high organic" topsoil imported to the VCA Property during the remediation of OU-1 and OU-2, were collected and analyzed for VOCs, SVOCs, metals, PCBs and pesticides/ herbicides with the respective analytical results being summarized in Tables 2 through 6. The analytical data reports are included in Appendix N for this fill material source. The clean fill certification is provided in Appendix O.

All chemicals of concern were below NYSDEC TAGM 4046 RSCOs cited in the remedial design or below the Part 375 unrestricted standards except an acetone detection of 400 mg/kg for the July 20, 2007 sample collected from the 2nd post-qualification set of samples from the Nature's Choice topsoil site. For reference purposes, detections for chemical parameters (benzo(b)fluoranthene, benzo(a)pyrene, calcium, magnesium and acetone) that exceeded TAGM 4046 RSCOs; but are below Part 375 unrestricted standards, are highlighted in bold, where applicable, in Tables 2 through 6.

The representative physical data report (Appendix P) for the "low organic" topsoil from the Nature's Choice facility indicate that the offsite fill material achieved some, but not all, of the minimum requirements of the technical specifications as noted below:

- For the "low organic" topsoil, these reports specifically indicate that the **total organic content** is approximately 10.87% (is slightly above the specified range of 1% and 10%); sand content is approximately 64.2% (greater than 55% maximum requirement); and silt/ clay content is approximately 35.8% (within the acceptable range of 12% and 50%).

Formal approval to import and use topsoil from the Nature's Choice facility was requested on May 17, 2007 (based on pre-qualification results) and July 26, 2007 (based on the first set of post-qualification results) from the NYSDEC. The NYSDEC reviewed these requests and subsequently provided their formal approval on May 31, 2007 for the first request (Appendix A)

and informal approval on the second request by meeting the conditions for approval in our July 27, 2007 email to the NYSDEC.

The delivery tickets for all imported fill materials are provided in Appendix M.

### 4.11.3 Imported Sand

60,916.58 tons of sand was imported from a clean, virgin source, which was provided by Amboy Aggregates' Facility located at Block 161, Lot 25, 175 Main Street, City of South Amboy, County of Middlesex, New Jersey. The imported sand originated from the Ambrose Channel in Lower New York Bay under Federal Permit No. 2001-00492 and NJDEP Permit No. 84-0745.

A total of one pre-qualification and eight post-qualification samples from the proposed sand source were collected and analyzed for VOCs, SVOCs, metals, PCBs and pesticides/ herbicides with the respective analytical results being summarized in Tables 2 through 6. The respective analytical data reports are included in Appendix N for this fill material source. The respective clean fill certification is provided in Appendix O.

All chemicals of concern were below NYSDEC TAGM 4046 RSCOs cited in the remedial design or below the Part 375 unrestricted standards. For reference purposes, detections for chemical parameters (antimony) that exceeded TAGM 4046 RSCOs; but are below Part 375 unrestricted standards, are highlighted in bold, where applicable, in Tables 2 through 6.

The representative physical data reports (Appendix P) for the sand from the Amboy Aggregates' Facility indicated the following:

- The sieve analyses for all pre- and post-qualification tests indicated that 85% passing of the No. 10 sieve, which was slightly below the specified rate of 90%.
- The permeability analyses for all pre- and post-qualification tests were indicated, on average, that the $10^{-2}$ cm/sec permeability requirement, as specified in the remedial design, was achieved.

All of the imported sand was utilized within the limits of OU-1 and OU-2. The sand was utilized for several purposes (i.e., construction of the Soil-GCL Cap and restoration of the wetland banks for OU-1 and remediation of several areas within OU-2) during the performance of the remedial

actions for OU-1 and OU-2.; therefore, an allocation between the quantity and quality of sand used for individual elements of the remedial action within OU-1, cannot be made in this FER. The delivery tickets for all imported fill materials are provided in Appendix M.

### 4.11.4 Imported Dense Graded Aggregate

12.520.20 tons of DGA was imported from a clean, virgin source, which was provided by Stavola's Facility located at Block 6.01, Lot 711 in Bridgewater Township, New Jersey. The respective clean fill certification is provided in Appendix O.

Consistent with the requirements of the Final Design Documents, no chemical analysis was required or performed for any imported DGA. The representative physical data report for this fill material is provided in Appendix P.

Imported DGA from Stavola was utilized for several purposes (construction of asphalt subbase for OU-1 and OU-2 and construction of temporary access roads) during the performance of the remedial action for OU-1 and OU-2; therefore, an allocation between the quantity of DGA used between each operable unit, as well as the individual elements of the remedial action within each operable unit, cannot be made in this FER. The delivery tickets for all imported fill materials are provided in Appendix M.

### 4.11.5 Imported ¾-Inch Crushed Stone From Stavola

3,806.25 tons of ¾-inch crushed stone was imported from a clean, virgin source, provided by Stavola's Facility located at Block 6.01, Lot 711 in Bridgewater Township, New Jersey. The respective clean fill certification is provided in Appendix O.

Consistent with the requirements of the Final Design Documents, no chemical analysis was required or performed for any imported ¾-inch stone. The representative physical data report for this fill material is provided in Appendix P.

Imported ¾-inch crushed stone was utilized for several purposes (subbase for OU-2 asphalt cap and construction of new stormwater facilities for OU-2, which were connected to outfalls located within the limits of OU-1) during the performance of the remedial action for OU-1 and OU-2;

therefore, an allocation between the quantity of ¾-inch crushed stone used between each operable unit, as well as the individual elements of the remedial action within each operable unit, cannot be made in this FER. The delivery tickets for all imported fill materials are provided in Appendix M.

### 4.12 Waste Transportation and Disposal

All C&D debris, bulky waste and spent filter bags generated during the performance of the remedial action for OU-1 and OU-2 by Shaw was transported and disposed at an appropriate recycling facility/ transfer station. In addition, the following contaminated wastes were generated, transported and disposed at appropriate treatment, storage and disposal facilities ("TSDFs") during the performance of the remedial action for OU-1 and OU-2 as noted below:

- hazardous sediments generated from cleaning the former sanitary/ sewer system (discussed in the FER for OU-1);
- hazardous petroleum-impacted soil excavated along the south bank of Mill Creek (discussed in the FER for OU-1);
- non-hazardous spent wastewater treatment facility media (discussed in the FERs for OU-1 and OU-2); and
- non-hazardous construction wastewater generated from cleaning a portion of the former sanitary/ sewer system (discussed in the FER for OU-1).

All TSDFs were permitted under the Resource Conservations and Recovery Act ("RCRA"), Toxic Substances Control Act ("TSCA"), and/or by the State in which the TSDF is located, where applicable. The haulers of all wastes were permitted and licensed to transport wastes in New York and all localities and states through which they transported the wastes. All transporters, where applicable, were permitted in accordance with RCRA, United States Department of Transportation ("USDOT"), state and local requirements, and possessed an EPA identification number. All vehicles used for the transportation of wastes, where applicable, were also in conformance with USDOT and USEPA requirements and the requirements of all states through which the wastes were transported. All applicable manifesting and placarding transportation requirements were implemented. In accordance with the Final Design Documents, all trucks were visually inspected by Shaw and Roux Associates onsite personnel and properly decontaminated prior to leaving the VCA Property.

Shaw coordinated the transportation and disposal of all C&D debris and bulky waste, hazardous solid waste, non-hazardous spent wastewater media and non-hazardous construction wastewater generated during the performance of their component of the remedial action performed at the VCA Property, as discussed below and in the FER for OU-1. For reference purposes, tabular summaries of C&D debris and bulky waste and non-hazardous spent wastewater media shipped offsite by Shaw, which were applicable to OU-2, are presented in Table 7 through 8, respectively.

### 4.12.1 Construction and Demolition Debris and Bulky Waste

A summary of the construction and demolition ("C&D") debris and bulky waste generated, transported and disposed of offsite during the course of the remediation project for all Operable Units is provided below, within this FER for OU-2, since there was no allocation by operable unit for C&D debris and bulky waste generated during the performance of the remedial action by Shaw for the VCA Property:

- 50 pieces of railroad steel (1 load);
- 240 cubic yards of aquadam (6 loads);
- 180 cubic yards of concrete and rebar (6 loads);
- 540 cubic yards of general debris (18 loads);
- 120 cubic yards of railroad ties (6 loads);
- 120 cubic yards of scrap metal (4 loads);
- 90 cubic yards of site debris/ trash (3 loads); and
- 210 cubic yards of vegetative debris (7 loads).

All C&D debris and bulky waste was transported by Flag Container Services, Inc. with its headquarters located in Staten Island, New York or Nacirema Industries, Inc. with its headquarters located in Bayonne, New Jersey to the following facilities:

- all vegetative debris (7 loads) – Reliable Wood Recycling located in Jersey City, New Jersey;
- all railroad ties (6 loads) – Eagle Recycling located in North Bergen, New Jersey; and

- all scrap metal, steel and site debris (38 loads) – Nacirema Industries, Inc. located in Bayonne, New Jersey.

The six loads of aquadam were generated as part of efforts to isolate the Embayment Area for OU-3, but were disposed of as part of the OU-1 remediation effort. The demolition and removal of the former remnants of the railroad line located east of Page Avenue, north of Mill Creek were not included as an element of the remedial design, but was included as a field modification during the performance of the work. The respective load of railroad steel and 4 loads of railroad ties generated during the performance of the Work were disposed of as part of the OU-1 remediation effort.

The disposal tickets for each shipment of C&D debris and bulky waste are provided in Appendix Q.

### 4.12.2 Non-Hazardous Wastewater Treatment System Spent Media

A summary of the non-hazardous wastewater treatment system spent media generated, transported and disposed of offsite during the course of the remediation project for OU-1 and OU-2 is provided below:

- 6,000 pounds of non-hazardous spent organo-clay media (one load) was transported by CleanVentures and disposed of at Cycle Chem's disposal facility located in Elizabeth, New Jersey; and

- 5,000 pounds of non-hazardous spent carbon media (one load) was transported by CleanVentures and disposed of at Cycle Chem's disposal facility located in Elizabeth, New Jersey.

For reference purposes, the respective waste characterization data is provided in Appendix R. The respective non-hazardous bills of lading are provided in Appendix S.

## 4.13 Monitoring Well Abandonment and Construction

During the performance of the remedial action on OU-1 and OU-2, twenty-six (26) monitoring wells were abandoned in accordance with NYSDEC requirements by Shaw's Subcontractor, East Coast Drilling, Inc. ("ECDI") located in Moorestown, New Jersey between. The abandoned monitoring wells were constructed of either 2-inch or 4-inch PVC and installed to depths ranging from 7-feet to 4l-feet deep. ECDI removed the wells by over drilling them with hollow stem

augers. The augers created a l0-inch diameter borehole. The borehole was backfilled with cement-bentonite grout via the tremie method. Any drill cuttings generated were consolidated below the onsite Soil-GCL Cap for OU-1. The augers, drilling rig and tools were decontaminated between locations. The decontamination procedure was performed at the decontamination pad located within the limits of OU-1. The well abandonment logs are provided in Appendix T. Notification for abandonment was provided to the NYSDEC on March 26, 2007 (Appendix B).

New monitoring well MW-101, the only groundwater monitoring well located within the limits of OU-2, was installed and developed by Shaw's subcontractor ECDI, as shown on As-Built Drawing AB-3 (Appendix I). NYSDEC Notification for well installation was provided on June 15, 2007. The respective monitoring well construction log is provided in Appendix U. All development water generated by Shaw was treated by the temporary, onsite construction wastewater treatment system. All development water generated by Roux Associates was containerized onsite, but treated as part of the wastewater treatment system constructed, operated, and maintained during the remediation of OU-3. All soil cuttings generated from the construction of monitoring wells installed by Shaw were consolidated below the Soil-GCL Cap for OU-1.

### 4.14 Surveying and As-Built Drawings

Surveying was performed throughout the work to document as-built conditions for all elements of the work performed for the Site. The bulk of surveying was performed by Layout, Inc., a New York State-certified surveyor, under the direction of Shaw. The as-built drawings for OU-1 and OU-2 are provided in Appendix I since an allocation between the surveying performed for both operable units during the performance of the work was not made.

### 4.15 Equipment Decontamination

All equipment that came into contact with impacted areas of OU-2 was decontaminated prior to removal from the Site. Disposal vehicles were loaded in non-impacted areas of OU-1 and therefore did not require decontamination. Equipment decontamination certificates are provided in Appendix V.

### 4.16 Demobilization

Once the bulk of remedial activities were completed for OU-1 and OU-2, Shaw proceeded to demobilize from the Site on November 28, 2007. As part of these efforts, the following major tasks were performed:

- All temporary utilities (electric, water and telephone) were disconnected.
- All major temporary facilities (engineering trailer, construction trailer, union trailer, water treatment system, sanitary units, trash units, equipment decontamination pad, etc…), except one storage container (with unused geotextiles, unused media, etc…), unused jersey barriers and unused erosion controls were temporarily located below Page Avenue Bridge, were dismantled and removed. The materials temporarily staged below Page Avenue Bridge were subsequently removed as part of the remedial action for OU-3.
- All health and safety monitoring and sampling supplies and equipment, temporary work zone barriers, temporary construction fencing and soil erosion and sedimentation control measures were removed.
- The fencing between the OU-1 and OU-2 parcels was secured and the keys for each locked access gate were furnished to Nassau Metals.

### 4.17 Implementation of Site Management Plan

The Site contains residual contamination in soil and groundwater left after completion of the remedial action performed under the VCP. Engineering Controls have been incorporated into the remedy to provide proper management of residual contamination in the future to ensure protection of public health and the environment. A Site-specific Declaration of Covenants and Restrictions ("deed restriction" or the Declaration) will be recorded with the Richmond County Clerk that provides an enforceable means to ensure the continued and proper management of residual contamination and protection of public health and the environment. It requires strict adherence to all Engineering Controls ("ECs") and all Institutional Controls ("ICs") placed on the Site by the grantor of the deed restriction and any and all successors and assigns of the grantor. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs.

Site management is the last phase of the remedial process and is triggered by the approval of the Final Engineering Report and issuance of the VCA Release and Covenant Not to Sue ("VCA Release") by NYSDEC. The SMP continues in perpetuity or until extinguished in accordance

with 6NYCRR Part 375. It is the responsibility of the deed restriction grantor, and its successors and assigns to ensure that all Site Management responsibilities under the SMP are performed.

The SMP provides a detailed description of all procedures required to manage residual contamination at the Site following the completion of the Remedial Action. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain all treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

The ICs on the Site ("Controlled Property") include:

- Compliance with the Declaration of Covenants and Restrictions and this SMP by the Grantor and the Grantor's successors and assigns.
- All Engineering Controls must be operated and maintained as specified in this SMP.
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP.
- Unless prior written approval by the NYSDEC or if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens (hereinafter referred to as "the Relevant Agency") is first obtained, there shall be no construction, use, or occupancy of the Site that results in the disturbance or excavation of the Site which threatens the integrity of the composite cover system, or which results in unacceptable human exposure to contaminated soils.
- The Controlled Property may be used for restricted industrial/restricted commercial use only (not including day care, child care, and medical care) provided the long-term Engineering and Institutional Controls included in the SMP remain in use without the express written waiver of such prohibition by the NYSDEC or other Relevant Agency.
- The owner of the Site shall maintain the composite cover system, where appropriate, or after obtaining the written approval from the Relevant Agency, by modifying with alternative materials.

- Vegetable gardens and farming on the Controlled Property are prohibited.

- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from previous certification or that any changes to the controls were approved by the NYSDEC; and (2) nothing has occurred that impairs the ability of the controls to protect public health and the environment or that constitute a violation or failure to comply with the SMP.

- NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually or at an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

- The owner of the Site shall prohibit the use of the groundwater underlying the Site without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the Relevant Agency.

- The Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Site and shall provide that the owner, and its successors and assigns, consent to the enforcement by the Relevant Agency, of the prohibitions and restrictions that Paragraph X of the VCA requires to be recorded and hereby covenants not to contest the authority of the Department to seek enforcement.

- Any deed of conveyance including the portion of the Site referred to as the Site shall recite that the said conveyance is subject to the Declaration of Covenants and Restrictions.

A description of the engineering controls, institutional controls, and post-remediation Operation, Maintenance and Monitoring ("OM&M") associated with the site are presented in the site-specific SMP for OU-2 provided in Appendix W. The executed copy of the Declaration of Covenants and Restrictions is provided in Appendix X.

## 5.0 DEVIATIONS FROM THE APPROVED REMEDIAL DESIGN

Nassau Metals has completed the implementation of the Remedial Action for the Best Equities LLC-owned portion of Site No. V-00159-2, which is designated as OU-2, located in Staten Island, New York. In accordance with the requirements of the VCA (No. W2-0801-01-04, dated January 4, 2002) between the NYSDEC and Nassau Metals, Remedial Engineering, P.C. certifies that the remedial action was implemented in accordance with the NYSDEC-approved Specifications, Project Plans and Contract Documents dated February 14, 2006, with the exceptions noted in this FER. The exceptions noted in this FER are listed below and discussed in Section 4. Minor modifications to the remedy that did not change the essential elements of the remedy are also discussed throughout Section 4.

It is worth noting that a set of "for construction" contract documents dated May 2006 was issued to the bidders for the remedial construction. In addition, four addenda to the May 17, 2006 contract documents were issued to the bidders during the bid phase (Addendum No. 1 dated June 5, 2006; Addendum No. 2 dated June 20, 2006; Addendum No. 3 dated June 23, 2006 and Addendum No. 4 dated June 30, 2006). These documents did not change the essential elements of the remedy. They were issued to finalize contractual elements missing from the February 14, 2006 set; provide additional language regarding the dredge window imposed on work in Mill Creek and the embayment areas; and provide minor design modifications based on value engineering conducted during the bid phase and questions from the bidders.

### 5.1 Exceptions to Design Documents

The following list includes exceptions to the Final Design Documents applicable to OU-2, in addition to the modifications described in Section 3.3.1, and identifies sections within this FER where these exceptions are discussed. The NYSDEC has been notified and has approved these exceptions, as appropriate.

- Hay bales were installed on paved areas and fastened to adjacent fencing, where applicable (Section 4.4).
- Use of a protective, dust and erosion control coating of Dirt Glue™ Light for onsite stockpiles to be consolidated beneath the Soil-GCL Cap was permitted (Section 4.4).
- Discharge of treated water to the Arthur Kill Waterway was permitted during the performance of the Work (Section 4.5).

- Use of treated water to “wet down” dry areas within OU-2 to minimize dust generation (Section 4.5).

- A limited dye study was performed (Section 4.10.1).

- Use of topsoil from the Nature’s Choice facility. For reference purposes, detections for chemical parameters (benzo(b)fluoranthene, benzo(a)pyrene, calcium, magnesium and acetone) that exceeded TAGM 4046 RSCOs; but are below Part 375 unrestricted standards, are highlighted in bold, where applicable, in Tables 2 through 6 (Section 4.11.2).

**Table 1. Chemical Criteria/Limits for Soil/Sand Imported from Off-Site Sources**
**Final Engineering Report for OU-2, Site No. V-00159-2**
**Nassau Metals Corporation, Staten Island, New York**

| Parameter | NYSDEC RSCOs[1] | Part 375 Unrestricted Use[1] |
|---|---|---|
| **VOCSs (ug/kg)** | | |
| 1,1,1-Trichloroethane | 800 | 680 |
| 1,1,2,2-Tetrachloroethane | 600 | -- |
| 1,1,2-Trichlorotrifluoroethane | 6,000 | -- |
| 1,2,3-Trichloropropane | 400 | -- |
| 1,1-Dichloroethane | 200 | 270 |
| 1,1-Dichloroethene | 400 | 330 |
| 1,2-Dichloroethane | 100 | 20 |
| 1,3-Dichloropropane | 300 | -- |
| 2-Butanone (MEK) | 300 | 120 |
| 4-Methyl-2-pentanone (MIBK) | 1,000 | -- |
| Acetone | 200 | 50 |
| Benzene | 60 | 60 |
| Carbon disulfide | 2,700 | -- |
| Carbon tetrachloride | 600 | 760 |
| Chlorobenzene | 1,700 | 1,100 |
| Chloroethane | 1,900 | -- |
| Chloroform | 300 | 370 |
| Dibromochloromethane | -- | -- |
| Ethylbenzene | 5,500 | 1,000 |
| Methylene chloride | 100 | 50 |
| Tetrachloroethene | 1,400 | 1,300 |
| Toluene | 1,500 | 700 |
| trans-1,2-Dichloroethene | 300 | 190 |
| Trichloroethene | 700 | 470 |
| Vinyl chloride | 200 | 20 |
| Xylenes (total) | 1,200 | 260 |
| **SVOCSs (ug/kg)** | | |
| 1,2,4-Trichlorobenzene | 3,400 | -- |
| 1,2-Dichlorobenzene | 7,900 | 8,400 |
| 1,4-Dichlorobenzene | 8,500 | 1,800 |
| 2,4,5-Trichlorophenol | 100 | -- |
| 2,4-Dichlorophenol | 400 | -- |
| 2,4-Dinitrophenol | 200 | -- |
| 2,6-Dinitrotoluene | 1,000 | -- |
| 2-Chlorophenol | 800 | -- |
| 2-Methylnaphthalene | 36,400 | -- |
| 2-Methylphenol | 100 | 330 |
| 2-Nitroaniline | 430 | -- |
| 2-Nitrophenol | 330 | -- |
| 3,3'-Dichlorobenzidine | -- | -- |
| 3-Nitroaniline | 500 | -- |
| 4-Chloro-3-methylphenol | 240 | -- |
| 4-Chloroaniline | 220 | -- |
| 4-Methylphenol | 900 | -- |
| 4-Nitrophenol | 100 | -- |
| Acenaphthene | 50,000 | 20,000 |
| Acenaphthylene | 50,000 | 100,000 |
| Anthracene | 50,000 | 100,000 |

**Table 1. Chemical Criteria/Limits for Soil/Sand Imported from Off-Site Sources**
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**Nassau Metals Corporation, Staten Island, New York**

| Parameter | NYSDEC RSCOs[1] | Part 375 Unrestricted Use[1] |
|---|---|---|
| **SVOCSs (ug/kg)** | | |
| Aniline | 100 | -- |
| Benzo[a]anthracene | 224 | 1,000 |
| Benzo[a]pyrene | 61 | 1,000 |
| Benzo[b]fluoranthene | 220 | 1,000 |
| Benzo[g,h,i]perylene | 50,000 | 100,000 |
| Benzo[k]fluoranthene | 220 | 800 |
| Bis(2-ethylhexyl) phthalate | 50,000 | -- |
| Butylbenzyl phthalate | 50,000 | -- |
| Chrysene | 400 | 1,000 |
| Dibenzo[a,h]anthracene | 14 | 330 |
| Dibenzofuran | 6,200 | 7,000 |
| Diethyl phthalate | 7,100 | -- |
| Dimethyl phthalate | 2,000 | -- |
| Di-n-butyl phthalate | 8,100 | -- |
| Di-n-octyl phthalate | 50,000 | -- |
| Fluoranthene | 50,000 | 100,000 |
| Fluorene | 50,000 | 30,000 |
| Hexachlorobenzene | 410 | 330 |
| Indeno[1,2,3-cd]pyrene | 3,200 | 500 |
| Isophorone | 4,400 | -- |
| Naphthalene | 13,000 | 12,000 |
| Nitrobenzene | 200 | -- |
| Pentachlorophenol | 1,000 | 800 |
| Phenanthrene | 50,000 | 100,000 |
| Phenol | 30 | 330 |
| Pyrene | 50,000 | 100,000 |
| **Metals (mg/kg)** | | |
| Aluminum | 33,000 | -- |
| Antimony | 4.3 (SB) | -- |
| Arsenic | 9.7 (SB) | 13 |
| Barium | 300 | 350 |
| Beryllium | 0.72 (SB) | 7.2 |
| Cadmium | 1 | 2.5 |
| Calcium | 35,000 | -- |
| Chromium | 15 (SB) | -- |
| Cobalt | 30 | -- |
| Copper | 365 (SB) | 50 |
| Iron | 17,000 (SB) | -- |
| Lead | 500 | 63 |
| Magnesium | 5,000 | -- |
| Manganese | 5,000 | 1600 |
| Mercury | 0.3 (SB) | 0.18 |
| Nickel | 34.9 (SB) | 30 |
| Potassium | 43,000 | -- |
| Selenium | 2 | 3.9 |
| Silver | -- | 2 |
| Sodium | 8,000 | -- |
| Thallium | -- | -- |
| Vanadium | 150 | -- |
| Zinc | 333 (SB) | 109 |

**Table 1. Chemical Criteria/Limits for Soil/Sand Imported from Off-Site Sources**
**Final Engineering Report for OU-2, Site No. V-00159-2**
**Nassau Metals Corporation, Staten Island, New York**

| Parameter | NYSDEC RSCOs[1] | Part 375 Unrestricted Use[1] |
|---|---|---|
| **PCBs (ug/kg)** | | |
| Aroclor-1016 | -- | -- |
| Aroclor-1221 | -- | -- |
| Aroclor-1232 | -- | -- |
| Aroclor-1242 | -- | -- |
| Aroclor-1248 | -- | -- |
| Aroclor-1254 | -- | -- |
| Aroclor-1260 | -- | -- |
| Aroclor-1262 | -- | -- |
| Total PCBs: | 10,000 | 1,000 |
| 4,4'-DDD | 2,900 | 3.3 |
| 4,4'-DDE | 2,100 | 3.3 |
| 4,4'-DDT | 2,100 | 3.3 |
| Aldrin | 41 | 5 |
| alpha-BHC | 110 | 20 |
| Chlordane | 540 | -- |
| beta-BHC | 200 | 36 |
| **Pesticides (ug/kg)** | | |
| delta-BHC | 300 | 40 |
| Dieldrin | 44 | 94 |
| Endosulfan I | 900 | 2,400 |
| Endosulfan II | 900 | 2,400 |
| Endosulfan sulfate | 1,000 | 2,400 |
| Endrin ketone | -- | -- |
| Endrin | 100 | 14 |
| gamma-BHC (Lindane) | 60 | 100 |
| gamma-Chlordane | 540 | -- |
| Heptachlor epoxide | 20 | -- |
| Heptachlor | 100 | 42 |
| Methoxychlor | -- | -- |
| **Herbicides (ug/kg)** | | |
| 2,4-D | 500 | -- |
| 2,4,5-TP (Silvex) | 700 | 3,800 |
| 2,4,5-T | 1,900 | -- |

Notes:

[1] - The chemical criteria/limits for soil/sand imported from off-Site sources were compared to the RSCOs cited in NYSDEC TAGM 4046 and the Unrestricted Use Soil Cleanup Objectives cited in Part 375 6.8(A) of Title 6 of the NYCRR.

SB - Site Background

NYSDEC - New York State Department of Environmental Conservation

RSCOs - Recommended Soil Cleanup Objectives

NYCRR - New York Codes, Rules and Regulations

-- No Standard available

µg/kg - Micrograms per kilogram

mg/kg - Milligrams per kilogram

**Table 2. Volatile Organic Compounds Detected in Off-Site Fill Materials**
**Final Engineering Report for OU-2, Site No. V-00159-2**
**Nassau Metals Corporation, Staten Island, New York**

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Almasi Company Site Common Fill | Almasi Company Site Common Fill | Almasi Company Site Common Fill | Amboy Aggregates Sand | Amboy Aggregates Sand |
|---|---|---|---|---|---|---|---|---|
| | | | Type of Sample: | Prequalification | Post-Qualification No. 1 | Post-Qualification No. 2 | Prequalification | Post-Qualification No. 1 |
| | | | Sample Designation: | PJP-001 | FM-17 | FM-18 | FM-02 | FM-05 |
| | | | Sample Date: | 01/09/07 | 05/07/07 | 05/07/07 | 10/31/06 | 01/11/07 |
| 1,1,1-Trichloroethane | 800 | 680 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| 1,1,2,2-Tetrachloroethane | 600 | -- | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| 1,1,2-Trichlorotrifluoroethane | 6,000 | -- | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| 1,2,3-Trichloropropane | 400 | -- | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| 1,1-Dichloroethane | 200 | 270 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| 1,1-Dichloroethene | 400 | 330 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| 1,2-Dichloroethane | 100 | 20 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| 1,3-Dichloropropane | 300 | -- | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| 2-Butanone (MEK) | 300 | 120 | | 210 U | 25 U | 28 U | 5.3 U | 130 U |
| 4-Methyl-2-pentanone (MIBK) | 1,000 | -- | | 210 U | 25 U | 28 U | 26 U | 130 U |
| Acetone | 200 | 50 | | 210 U | 25 U | 28 U | 5.3 U | 130 U |
| Benzene | 60 | 60 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Carbon disulfide | 2,700 | -- | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Carbon tetrachloride | 600 | 760 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Chlorobenzene | 1,700 | 1,100 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Chloroethane | 1,900 | -- | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Chloroform | 300 | 370 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Dibromochloromethane | -- | -- | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Ethylbenzene | 5,500 | 1,000 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Methylene chloride | 100 | 50 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Tetrachloroethene | 1,400 | 1,300 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Toluene | 1,500 | 700 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| trans-1,2-Dichloroethene | 300 | 190 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Trichloroethene | 700 | 470 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Vinyl chloride | 200 | 20 | | 210 U | 5.0 U | 5.6 U | 5.3 U | 27 U |
| Xylenes (total) | 1,200 | 260 | | 210 U | 10.0 U | 11.0 U | 10.6 U | 27 U |

Notes:

U - Analyte was not detected at or above the reporting limit
B - Compound was found in the blank and sample
J - Estimated value
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- No Standard available
ft bls - Feet below land surface
µg/kg - Micrograms per kilogram

**Table 2. Volatile Organic Compounds Detected in Off-Site Fill Materials**
**Final Engineering Report for OU-2, Site No. V-00159-2**
**Nassau Metals Corporation, Staten Island, New York**

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | | | | | |
|---|---|---|---|---|---|---|---|
| | | | **Off-Site Fill Material Type:** | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand |
| | | | **Type of Sample:** | Post-Qualification No. 2 | Post-Qualification No. 3 | Post-Qualification No. 4 | Post-Qualification No. 5 |
| | | | **Sample Designation:** | FM-09 | FM-13 | FM-23 | FM-37 |
| | | | **Sample Date:** | 03/01/07 | 03/27/07 | 05/23/07 | 06/28/07 |
| 1,1,1-Trichloroethane | 800 | 680 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| 1,1,2,2-Tetrachloroethane | 600 | -- | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| 1,1,2-Trichlorotrifluoroethane | 6,000 | -- | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| 1,2,3-Trichloropropane | 400 | -- | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| 1,1-Dichloroethane | 200 | 270 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| 1,1-Dichloroethene | 400 | 330 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| 1,2-Dichloroethane | 100 | 20 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| 1,3-Dichloropropane | 300 | -- | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| 2-Butanone (MEK) | 300 | 120 | | 32 U | 27 U | 26 U | 27 U |
| 4-Methyl-2-pentanone (MIBK) | 1,000 | -- | | 32 U | 27 U | 26 U | 27 U |
| Acetone | 200 | 50 | | 21 JB | 18 JB | 26 U | 27 U |
| Benzene | 60 | 60 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Carbon disulfide | 2,700 | -- | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Carbon tetrachloride | 600 | 760 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Chlorobenzene | 1,700 | 1,100 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Chloroethane | 1,900 | -- | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Chloroform | 300 | 370 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Dibromochloromethane | -- | -- | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Ethylbenzene | 5,500 | 1,000 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Methylene chloride | 100 | 50 | | 6.3 U | 5.5 U | 2.0 J | 5.4 U |
| Tetrachloroethene | 1,400 | 1,300 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Toluene | 1,500 | 700 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| trans-1,2-Dichloroethene | 300 | 190 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Trichloroethene | 700 | 470 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Vinyl chloride | 200 | 20 | | 6.3 U | 5.5 U | 5.2 U | 5.4 U |
| Xylenes (total) | 1,200 | 260 | | 6.3 U | 5.5 U | 10 U | 16 U |

| | Amboy Aggregates Sand | Amboy Aggregates Sand |
|---|---|---|
| **Off-Site Fill Material Type:** | | |
| **Type of Sample:** | Post-Qualification No. 6 | |
| **Sample Designation:** | FM-48 | |
| **Sample Date:** | 08/02/07 | |
| 1,1,1-Trichloroethane | 5.6 U | |
| 1,1,2,2-Tetrachloroethane | 5.6 U | |
| 1,1,2-Trichlorotrifluoroethane | 5.6 U | |
| 1,2,3-Trichloropropane | 5.6 U | |
| 1,1-Dichloroethane | 5.6 U | |
| 1,1-Dichloroethene | 5.6 U | |
| 1,2-Dichloroethane | 5.6 U | |
| 1,3-Dichloropropane | 5.6 U | |
| 2-Butanone (MEK) | 28 U | |
| 4-Methyl-2-pentanone (MIBK) | 28 U | |
| Acetone | 28 U | |
| Benzene | 5.6 U | |
| Carbon disulfide | 5.6 U | |
| Carbon tetrachloride | 5.6 U | |
| Chlorobenzene | 5.6 U | |
| Chloroethane | 5.6 U | |
| Chloroform | 5.6 U | |
| Dibromochloromethane | 5.6 U | |
| Ethylbenzene | 5.6 U | |
| Methylene chloride | 7.2 B | |
| Tetrachloroethene | 5.6 U | |
| Toluene | 5.6 U | |
| trans-1,2-Dichloroethene | 5.6 U | |
| Trichloroethene | 5.6 U | |
| Vinyl chloride | 5.6 U | |
| Xylenes (total) | 17 U | |

Notes:

U - Analyte was not detected at or above the reporting limit
B - Compound was found in the blank and sample
J - Estimated value
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- No Standard available
ft bls - Feet below land surface
µg/kg - Micrograms per kilogram

**Table 2. Volatile Organic Compounds Detected in Off-Site Fill Materials**
**Final Engineering Report for OU-2, Site No. V-00159-2**
**Nassau Metals Corporation, Staten Island, New York**

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | | | | | |
|---|---|---|---|---|---|---|---|
| | | | **Off-Site Fill Material Type:** | Amboy Aggregates Sand | Amboy Aggregates Sand | Nature's Choice Site Topsoil | Nature's Choice Site Topsoil |
| | | | **Type of Sample:** | Post-Qualification No. 7 | Post-Qualification No. 8 | Prequalification | Post-Qualification No. 1 | Post-Qualification No. 2 |
| | | | **Sample Designation:** | FM-56 | FM-58 | FM-19 | FM-25 | FM-47 |
| | | | **Sample Date:** | 09/05/07 | 09/24/09 | 05/08/07 | 06/07/07 | 07/20/07 |
| 1,1,1-Trichloroethane | 800 | 680 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| 1,1,2,2-Tetrachloroethane | 600 | -- | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| 1,1,2-Trichlorotrifluoroethane | 6,000 | -- | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| 1,2,3-Trichloropropane | 400 | -- | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| 1,1-Dichloroethane | 200 | 270 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| 1,1-Dichloroethene | 400 | 330 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| 1,2-Dichloroethane | 100 | 20 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| 1,3-Dichloropropane | 300 | -- | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| 2-Butanone (MEK) | 300 | 120 | | 26 U | 26 U | 14 J | 34 U | 73 |
| 4-Methyl-2-pentanone (MIBK) | 1,000 | -- | | 26 U | 26 U | 34 U | 34 U | 45 U |
| Acetone | 200 | 50 | | 26 U | 26 U | 130 | 34 U | **400** |
| Benzene | 60 | 60 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Carbon disulfide | 2,700 | -- | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Carbon tetrachloride | 600 | 760 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Chlorobenzene | 1,700 | 1,100 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Chloroethane | 1,900 | -- | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Chloroform | 300 | 370 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Dibromochloromethane | -- | -- | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Ethylbenzene | 5,500 | 1,000 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Methylene chloride | 100 | 50 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 15 |
| Tetrachloroethene | 1,400 | 1,300 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Toluene | 1,500 | 700 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 9.3 |
| trans-1,2-Dichloroethene | 300 | 190 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Trichloroethene | 700 | 470 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Vinyl chloride | 200 | 20 | | 5.3 U | 5.2 U | 6.8 U | 6.8 U | 8.9 U |
| Xylenes (total) | 1,200 | 260 | | 16 U | 15 U | 14 U | 14 U | 27 U |

Notes:

U - Analyte was not detected at or above the reporting limit
B - Compound was found in the blank and sample
J - Estimated value
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- No Standard available
ft bls - Feet below land surface
µg/kg - Micrograms per kilogram

## Table 2. Volatile Organic Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | | Nature's Choice Site | Nature's Choice Site |
|---|---|---|---|---|---|
| | | | **Off-Site Fill Material Type:** | Topsoil | Topsoil |
| | | | **Type of Sample:** | Post-Qualification No. 3 | Post-Qualification No. 4 |
| | | | **Sample Designation:** | NMHO-01 | NMHO-02 |
| | | | **Sample Date:** | 07/26/09 | 07/26/09 |
| 1,1,1-Trichloroethane | 800 | 680 | | 5.9 U | 5.7 U |
| 1,1,2,2-Tetrachloroethane | 600 | -- | | 5.9 U | 5.7 U |
| 1,1,2-Trichlorotrifluoroethane | 6,000 | -- | | 5.9 U | 5.7 U |
| 1,2,3-Trichloropropane | 400 | -- | | 5.9 U | 5.7 U |
| 1,1-Dichloroethane | 200 | 270 | | 5.9 U | 5.7 U |
| 1,1-Dichloroethene | 400 | 330 | | 5.9 U | 5.7 U |
| 1,2-Dichloroethane | 100 | 20 | | 5.9 U | 5.7 U |
| 1,3-Dichloropropane | 300 | -- | | 5.9 U | 5.7 U |
| 2-Butanone (MEK) | 300 | 120 | | 12 U | 5.7 U |
| 4-Methyl-2-pentanone (MIBK) | 1,000 | -- | | 5.9 U | 5.7 U |
| Acetone | 200 | 50 | | 31 | 26 J |
| Benzene | 60 | 60 | | 1.2 U | 1.1 U |
| Carbon disulfide | 2,700 | -- | | 5.9 U | 5.7 U |
| Carbon tetrachloride | 600 | 760 | | 5.9 U | 5.7 U |
| Chlorobenzene | 1,700 | 1,100 | | 5.9 U | 5.7 U |
| Chloroethane | 1,900 | -- | | 5.9 U | 5.7 U |
| Chloroform | 300 | 370 | | 5.9 U | 5.7 U |
| Dibromochloromethane | -- | -- | | 5.9 U | 5.7 U |
| Ethylbenzene | 5,500 | 1,000 | | 1.2 U | 1.1 U |
| Methylene chloride | 100 | 50 | | 30 B | 32 B |
| Tetrachloroethene | 1,400 | 1,300 | | 5.9 U | 5.7 U |
| Toluene | 1,500 | 700 | | 1.2 U | 1.1 U |
| trans-1,2-Dichloroethene | 300 | 190 | | 5.9 U | 5.7 U |
| Trichloroethene | 700 | 470 | | 5.9 U | 5.7 U |
| Vinyl chloride | 200 | 20 | | 5.9 U | 5.7 U |
| Xylenes (total) | 1,200 | 260 | | 1.2 U | 1.1 U |

Notes:

U - Analyte was not detected at or above the reporting limit
B - Compound was found in the blank and sample
J - Estimated value
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- No Standard available
ft bls - Feet below land surface
µg/kg - Micrograms per kilogram

# Table 3. Semivolatile Organic Compounds Detected in Off-Site Fill Materials
# Final Engineering Report for OU-2, Site No. V-00159-2
# Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Almasi Company Site Common Fill Prequalification | Almasi Company Site Common Fill Post-Qualification No. 1 | Almasi Company Site Common Fill Post-Qualification No. 2 |
|---|---|---|---|---|---|---|
| | | | Sample Designation: | PJP-001 | FM-17 | FM-18 |
| | | | Sample Date: | 01/09/07 | 05/07/07 | 05/07/07 |
| 1,2,4-Trichlorobenzene | 3,400 | -- | | 210 U | 5.6 U | 5.6 U |
| 1,2-Dichlorobenzene | 7,900 | 8,400 | | 210 U | 5.6 U | 5.6 U |
| 1,3-Dichlorobenzene | 1,600 | 2,400 | | 210 U | 5.6 U | 5.6 U |
| 1,4-Dichlorobenzene | 8,500 | 1,800 | | 210 U | 5.6 U | 5.6 U |
| 2,4,5-Trichlorophenol | 100 | -- | | 730 U | 930 U | 930 U |
| 2,4-Dichlorophenol | 400 | -- | | 360 U | 370 U | 370 U |
| 2,4-Dinitrophenol | 200 | -- | | 730 U | 930 U | 930 U |
| 2,6-Dinitrotoluene | 1,000 | -- | | 360 U | 370 U | 370 U |
| 2-Chlorophenol | 800 | -- | | 360 U | 370 U | 370 U |
| 2-Methylnaphthalene | 36,400 | -- | | 360 U | 370 U | 620 |
| 2-Methylphenol | 100 | 330 | | 360 U | 370 U | 370 U |
| 2-Nitroaniline | 430 | -- | | 730 U | 930 U | 930 U |
| 2-Nitrophenol | 330 | -- | | 360 U | 370 U | 370 U |
| 3,3'-Dichlorobenzidine | -- | -- | | 360 U | 370 U | 370 U |
| 3-Nitroaniline | 500 | -- | | 730 U | 930 U | 930 U |
| 4-Chloro-3-methylphenol | 240 | -- | | 360 U | 370 U | 370 U |
| 4-Chloroaniline | 220 | -- | | 360 U | 370 U | 370 U |
| 4-Nitrophenol | 100 | -- | | 730 U | 930 U | 930 U |
| Acenaphthene | 50,000 | 20,000 | | 360 U | 370 U | 370 U |
| Acenaphthylene | 50,000 | 100,000 | | 360 U | 370 U | 370 U |
| Anthracene | 50,000 | 100,000 | | 360 U | 370 U | 370 U |
| Aniline | 100 | -- | | 360 U | 370 U | 370 U |
| Benzo[a]anthracene | 224 | 1,000 | | 360 U | 370 U | 370 U |
| Benzo[a]pyrene | 61 | 1,000 | | 360 U | 370 U | 370 U |
| Benzo[b]fluoranthene | 220 | 1,000 | | 360 U | 370 U | 370 U |
| Benzo[g,h,i]perylene | 50,000 | 100,000 | | 360 U | 370 U | 370 U |
| Benzo[k]fluoranthene | 220 | 800 | | 360 U | 370 U | 370 U |
| Bis(2-ethylhexyl) | 50,000 | -- | | 220 J | 370 U | 370 U |
| Butylbenzyl phthalate | 50,000 | -- | | 360 U | 370 U | 370 U |
| Chrysene | 400 | 1,000 | | 360 U | 370 U | 370 U |
| Dibenzo[a,h]anthracene | 14 | 330 | | 360 U | 370 U | 370 U |
| Dibenzofuran | 6,200 | 7,000 | | 360 U | 370 U | 370 U |
| Diethyl phthalate | 7,100 | -- | | 360 U | 370 U | 370 U |
| Dimethyl phthalate | 2,000 | -- | | 360 U | 370 U | 370 U |
| Di-n-butyl phthalate | 8,100 | -- | | 360 U | 370 U | 370 U |
| Di-n-octyl phthalate | 50,000 | -- | | 360 U | 370 U | 370 U |
| Fluoranthene | 50,000 | 100,000 | | 360 U | 370 U | 370 U |
| Fluorene | 50,000 | 30,000 | | 360 U | 370 U | 370 U |
| Hexachlorobenzene | 410 | 330 | | 360 U | 370 U | 370 U |
| Indeno[1,2,3-cd]pyrene | 3,200 | 500 | | 360 U | 370 U | 370 U |
| Isophorone | 4,400 | -- | | 360 U | 370 U | 370 U |
| Naphthalene | 13,000 | 12,000 | | 360 U | 370 U | 2,400 |
| Nitrobenzene | 200 | -- | | 360 U | 370 U | 370 U |
| Pentachlorophenol | 1,000 | 800 | | 730 U | 930 U | 930 U |
| Phenanthrene | 50,000 | 100,000 | | 360 U | 370 U | 370 U |
| Phenol | 30 | 330 | | 360 U | 370 U | 370 U |
| Pyrene | 50,000 | 100,000 | | 360 U | 370 U | 370 U |

Notes:

- B - Compound was found in the blank and sample
- J - Estimated value
- U - Analyte was not detected at or above the reporting limit
- NA - Not Analyzed
- NYSDEC - New York State Department of Environmental Conservation
- RSCOs - Recommended Soil Cleanup Objectives
- Bold - Concentration exceeds NYSDEC RSCO
- -- - No Standard available
- ft bls - Feet below land surface
- µg/kg - Micrograms per kilogram
- SVOCs - Semivolatile Organic Compounds

# Table 3. Semivolatile Organic Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Amboy Aggregates Sand Prequalification | Amboy Aggregates Sand Post-Qualification No. 1 | Amboy Aggregates Sand Post-Qualification No. 2 |
|---|---|---|---|---|---|---|
| | | | **Sample Designation:** | FM-02 | FM-05 | FM-09 |
| | | | **Sample Date:** | 10/31/06 | 01/11/07 | 03/01/07 |
| 1,2,4-Trichlorobenzene | 3,400 | -- | | 5.3 U | 27 U | 6.3 U |
| 1,2-Dichlorobenzene | 7,900 | 8,400 | | 5.3 U | 27 U | 6.3 U |
| 1,3-Dichlorobenzene | 1,600 | 2,400 | | 5.3 U | 27 U | 6.3 U |
| 1,4-Dichlorobenzene | 8,500 | 1,800 | | 5.3 U | 27 U | 6.3 U |
| 2,4,5-Trichlorophenol | 100 | -- | | 880 U | 890 U | 1,000 U |
| 2,4-Dichlorophenol | 400 | -- | | 350 U | 890 U | 420 U |
| 2,4-Dinitrophenol | 200 | -- | | 880 U | 350 U | 1,000 U |
| 2,6-Dinitrotoluene | 1,000 | -- | | 350 U | 350 U | 420 U |
| 2-Chlorophenol | 800 | -- | | 350 U | 350 U | 420 U |
| 2-Methylnaphthalene | 36,400 | -- | | 350 U | 350 U | 420 U |
| 2-Methylphenol | 100 | 330 | | 350 U | 350 U | 420 U |
| 2-Nitroaniline | 430 | -- | | 880 U | 890 U | 1,000 U |
| 2-Nitrophenol | 330 | -- | | 350 U | 350 U | 420 U |
| 3,3'-Dichlorobenzidine | -- | -- | | 350 U | 350 U | 420 U |
| 3-Nitroaniline | 500 | -- | | 880 U | 890 U | 1,000 U |
| 4-Chloro-3-methylphenol | 240 | -- | | 350 U | 350 U | 420 U |
| 4-Chloroaniline | 220 | -- | | 350 U | 350 U | 420 U |
| 4-Nitrophenol | 100 | -- | | 880 U | 890 U | 1,000 U |
| Acenaphthene | 50,000 | 20,000 | | 350 U | 350 U | 420 U |
| Acenaphthylene | 50,000 | 100,000 | | 350 U | 350 U | 420 U |
| Anthracene | 50,000 | 100,000 | | 350 U | 350 U | 420 U |
| Aniline | 100 | -- | | 350 U | 350 U | 420 U |
| Benzo[a]anthracene | 224 | 1,000 | | 350 U | 350 U | 420 U |
| Benzo[a]pyrene | 61 | 1,000 | | 350 U | 350 U | 420 U |
| Benzo[b]fluoranthene | 220 | 1,000 | | 350 U | 350 U | 420 U |
| Benzo[g,h,i]perylene | 50,000 | 100,000 | | 350 U | 350 U | 420 U |
| Benzo[k]fluoranthene | 220 | 800 | | 350 U | 350 U | 420 U |
| Bis(2-ethylhexyl) | 50,000 | -- | | 350 U | 130 J | 420 U |
| Butylbenzyl phthalate | 50,000 | -- | | 350 U | 350 U | 420 U |
| Chrysene | 400 | 1,000 | | 350 U | 350 U | 420 U |
| Dibenzo[a,h]anthracene | 14 | 330 | | 350 U | 350 U | 420 U |
| Dibenzofuran | 6,200 | 7,000 | | 350 U | 350 U | 420 U |
| Diethyl phthalate | 7,100 | -- | | 350 U | 350 U | 420 U |
| Dimethyl phthalate | 2,000 | -- | | 350 U | 350 U | 420 U |
| Di-n-butyl phthalate | 8,100 | -- | | 350 U | 350 U | 420 U |
| Di-n-octyl phthalate | 50,000 | -- | | 350 U | 350 U | 420 U |
| Fluoranthene | 50,000 | 100,000 | | 350 U | 350 U | 420 U |
| Fluorene | 50,000 | 30,000 | | 350 U | 350 U | 420 U |
| Hexachlorobenzene | 410 | 330 | | 350 U | 350 U | 420 U |
| Indeno[1,2,3-cd]pyrene | 3,200 | 500 | | 350 U | 350 U | 420 U |
| Isophorone | 4,400 | -- | | 350 U | 350 U | 420 U |
| Naphthalene | 13,000 | 12,000 | | 350 U | 350 U | 420 U |
| Nitrobenzene | 200 | -- | | 350 U | 350 U | 420 U |
| Pentachlorophenol | 1,000 | 800 | | 880 U | 890 U | 1,000 U |
| Phenanthrene | 50,000 | 100,000 | | 350 U | 350 U | 420 U |
| Phenol | 30 | 330 | | 350 U | 350 U | 420 U |
| Pyrene | 50,000 | 100,000 | | 350 U | 350 U | 420 U |

Notes:

- B - Compound was found in the blank and sample
- J - Estimated value
- U - Analyte was not detected at or above the reporting limit
- NA - Not Analyzed
- NYSDEC - New York State Department of Environmental Conservation
- RSCOs - Recommended Soil Cleanup Objectives
- Bold - Concentration exceeds NYSDEC RSCO
- -- - No Standard available
- ft bls - Feet below land surface
- µg/kg - Micrograms per kilogram
- SVOCs - Semivolatile Organic Compounds

# Table 3. Semivolatile Organic Compounds Detected in Off-Site Fill Materials
# Final Engineering Report for OU-2, Site No. V-00159-2
# Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand |
|---|---|---|---|---|---|---|
| | | | | Post-Qualification No. 3 | Post-Qualification No. 4 | Post-Qualification No. 5 |
| | | | Sample Designation: | FM-13 | FM-23 | FM-37 |
| | | | Sample Date: | 03/27/07 | 05/23/07 | 06/28/07 |
| 1,2,4-Trichlorobenzene | 3,400 | -- | | 5.5 U | 5.2 U | 5.4 U |
| 1,2-Dichlorobenzene | 7,900 | 8,400 | | 5.5 U | 5.2 U | 5.4 U |
| 1,3-Dichlorobenzene | 1,600 | 2,400 | | 5.5 U | 5.2 U | 5.4 U |
| 1,4-Dichlorobenzene | 8,500 | 1,800 | | 5.5 U | 5.2 U | 5.4 U |
| 2,4,5-Trichlorophenol | 100 | -- | | 910 U | 860 U | 890 U |
| 2,4-Dichlorophenol | 400 | -- | | 360 U | 340 U | 350 U |
| 2,4-Dinitrophenol | 200 | -- | | 910 U | 860 U | 890 U |
| 2,6-Dinitrotoluene | 1,000 | -- | | 360 U | 340 U | 350 U |
| 2-Chlorophenol | 800 | -- | | 360 U | 340 U | 350 U |
| 2-Methylnaphthalene | 36,400 | -- | | 360 U | 340 U | 350 U |
| 2-Methylphenol | 100 | 330 | | 360 U | 340 U | 350 U |
| 2-Nitroaniline | 430 | -- | | 910 U | 860 U | 890 U |
| 2-Nitrophenol | 330 | -- | | 360 U | 340 U | 350 U |
| 3,3'-Dichlorobenzidine | -- | -- | | 360 U | 340 U | 350 U |
| 3-Nitroaniline | 500 | -- | | 910 U | 860 U | 890 U |
| 4-Chloro-3-methylphenol | 240 | -- | | 360 U | 340 U | 350 U |
| 4-Chloroaniline | 220 | -- | | 360 U | 340 U | 350 U |
| 4-Nitrophenol | 100 | -- | | 910 U | 860 U | 890 U |
| Acenaphthene | 50,000 | 20,000 | | 360 U | 340 U | 350 U |
| Acenaphthylene | 50,000 | 100,000 | | 360 U | 340 U | 350 U |
| Anthracene | 50,000 | 100,000 | | 360 U | 340 U | 350 U |
| Aniline | 100 | -- | | 360 U | 340 U | 350 U |
| Benzo[a]anthracene | 224 | 1,000 | | 360 U | 340 U | 350 U |
| Benzo[a]pyrene | 61 | 1,000 | | 360 U | 340 U | 350 U |
| Benzo[b]fluoranthene | 220 | 1,000 | | 360 U | 340 U | 350 U |
| Benzo[g,h,i]perylene | 50,000 | 100,000 | | 360 U | 340 U | 350 U |
| Benzo[k]fluoranthene | 220 | 800 | | 360 U | 340 U | 350 U |
| Bis(2-ethylhexyl) | 50,000 | -- | | 360 U | 340 U | 350 U |
| Butylbenzyl phthalate | 50,000 | -- | | 360 U | 340 U | 350 U |
| Chrysene | 400 | 1,000 | | 360 U | 340 U | 350 U |
| Dibenzo[a,h]anthracene | 14 | 330 | | 360 U | 340 U | 350 U |
| Dibenzofuran | 6,200 | 7,000 | | 360 U | 340 U | 350 U |
| Diethyl phthalate | 7,100 | -- | | 360 U | 340 U | 350 U |
| Dimethyl phthalate | 2,000 | -- | | 360 U | 340 U | 350 U |
| Di-n-butyl phthalate | 8,100 | -- | | 360 U | 340 U | 350 U |
| Di-n-octyl phthalate | 50,000 | -- | | 360 U | 340 U | 350 U |
| Fluoranthene | 50,000 | 100,000 | | 360 U | 59 J | 350 U |
| Fluorene | 50,000 | 30,000 | | 360 U | 340 U | 350 U |
| Hexachlorobenzene | 410 | 330 | | 360 U | 340 U | 350 U |
| Indeno[1,2,3-cd]pyrene | 3,200 | 500 | | 360 U | 340 U | 350 U |
| Isophorone | 4,400 | -- | | 360 U | 340 U | 350 U |
| Naphthalene | 13,000 | 12,000 | | 360 U | 340 U | 350 U |
| Nitrobenzene | 200 | -- | | 360 U | 340 U | 350 U |
| Pentachlorophenol | 1,000 | 800 | | 910 U | 860 U | 890 U |
| Phenanthrene | 50,000 | 100,000 | | 360 U | 71 J | 350 U |
| Phenol | 30 | 330 | | 360 U | 340 U | 350 U |
| Pyrene | 50,000 | 100,000 | | 360 U | 340 U | 350 U |

Notes:

B - Compound was found in the blank and sample
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- - No Standard available
ft bls - Feet below land surface
µg/kg - Micrograms per kilogram
SVOCs - Semivolatile Organic Compounds

# Table 3. Semivolatile Organic Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Amboy Aggregates Sand Post-Qualification No. 6 | Amboy Aggregates Sand Post-Qualification No. 7 | Amboy Aggregates Sand Post-Qualification No. 8 |
|---|---|---|---|---|---|---|
| | | | **Sample Designation:** | FM-48 | FM-56 | FM-58 |
| | | | **Sample Date:** | 08/02/07 | 09/05/07 | 09/24/09 |
| 1,2,4-Trichlorobenzene | 3,400 | -- | | 5.6 U | 5.3 U | 5.2 U |
| 1,2-Dichlorobenzene | 7,900 | 8,400 | | 5.6 U | 5.3 U | 5.2 U |
| 1,3-Dichlorobenzene | 1,600 | 2,400 | | 5.6 U | 5.3 U | 5.2 U |
| 1,4-Dichlorobenzene | 8,500 | 1,800 | | 5.6 U | 5.3 U | 5.2 U |
| 2,4,5-Trichlorophenol | 100 | -- | | 920 U | 880 U | 870 U |
| 2,4-Dichlorophenol | 400 | -- | | 370 U | 350 U | 350 U |
| 2,4-Dinitrophenol | 200 | -- | | 920 U | 880 U | 870 U |
| 2,6-Dinitrotoluene | 1,000 | -- | | 370 U | 350 U | 350 U |
| 2-Chlorophenol | 800 | -- | | 370 U | 350 U | 350 U |
| 2-Methylnaphthalene | 36,400 | -- | | 370 U | 350 U | 350 U |
| 2-Methylphenol | 100 | 330 | | 370 U | 350 U | 350 U |
| 2-Nitroaniline | 430 | -- | | 920 U | 880 U | 870 U |
| 2-Nitrophenol | 330 | -- | | 370 U | 350 U | 350 U |
| 3,3'-Dichlorobenzidine | -- | -- | | 370 U | 350 U | 350 U |
| 3-Nitroaniline | 500 | -- | | 920 U | 880 U | 870 U |
| 4-Chloro-3-methylphenol | 240 | -- | | 370 U | 350 U | 350 U |
| 4-Chloroaniline | 220 | -- | | 370 U | 350 U | 350 U |
| 4-Nitrophenol | 100 | -- | | 920 U | 880 U | 870 U |
| Acenaphthene | 50,000 | 20,000 | | 370 U | 350 U | 350 U |
| Acenaphthylene | 50,000 | 100,000 | | 370 U | 350 U | 350 U |
| Anthracene | 50,000 | 100,000 | | 370 U | 350 U | 350 U |
| Aniline | 100 | -- | | 370 U | 350 U | 350 U |
| Benzo[a]anthracene | 224 | 1,000 | | 370 U | 350 U | 120 J |
| Benzo[a]pyrene | 61 | 1,000 | | 370 U | 350 U | 59 J |
| Benzo[b]fluoranthene | 220 | 1,000 | | 370 U | 350 U | 54 J |
| Benzo[g,h,i]perylene | 50,000 | 100,000 | | 370 U | 350 U | 76 J |
| Benzo[k]fluoranthene | 220 | 800 | | 370 U | 350 U | 350 U |
| Bis(2-ethylhexyl) | 50,000 | -- | | 370 U | 350 U | 350 U |
| Butylbenzyl phthalate | 50,000 | -- | | 370 U | 350 U | 350 U |
| Chrysene | 400 | 1,000 | | 370 U | 350 U | 190 J |
| Dibenzo[a,h]anthracene | 14 | 330 | | 370 U | 350 U | 350 U |
| Dibenzofuran | 6,200 | 7,000 | | 370 U | 350 U | 350 U |
| Diethyl phthalate | 7,100 | -- | | 370 U | 350 U | 350 U |
| Dimethyl phthalate | 2,000 | -- | | 370 U | 350 U | 350 U |
| Di-n-butyl phthalate | 8,100 | -- | | 370 U | 350 U | 350 U |
| Di-n-octyl phthalate | 50,000 | -- | | 370 U | 350 U | 350 U |
| Fluoranthene | 50,000 | 100,000 | | 370 U | 58 J | 350 U |
| Fluorene | 50,000 | 30,000 | | 370 U | 350 U | 350 U |
| Hexachlorobenzene | 410 | 330 | | 370 U | 350 U | 350 U |
| Indeno[1,2,3-cd]pyrene | 3,200 | 500 | | 370 U | 350 U | 350 U |
| Isophorone | 4,400 | -- | | 370 U | 350 U | 350 U |
| Naphthalene | 13,000 | 12,000 | | 370 U | 350 U | 350 U |
| Nitrobenzene | 200 | -- | | 370 U | 350 U | 350 U |
| Pentachlorophenol | 1,000 | 800 | | 920 U | 880 U | 870 U |
| Phenanthrene | 50,000 | 100,000 | | 370 U | 59 J | 350 U |
| Phenol | 30 | 330 | | 370 U | 350 U | 350 U |
| Pyrene | 50,000 | 100,000 | | 370 U | 350 U | 350 U |

Notes:

B - Compound was found in the blank and sample
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- - No Standard available
ft bls - Feet below land surface
µg/kg - Micrograms per kilogram
SVOCs - Semivolatile Organic Compounds

# Table 3. Semivolatile Organic Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Nature's Choice Site Topsoil Prequalification | Nature's Choice Site Topsoil Post-Qualification No. 1 | Nature's Choice Site Topsoil Post-Qualification No. 2 |
|---|---|---|---|---|---|---|
| | | | **Sample Designation:** | FM-19 | FM-25 | FM-47 |
| | | | **Sample Date:** | 05/08/07 | 06/07/07 | 07/20/07 |
| 1,2,4-Trichlorobenzene | 3,400 | -- | | 6.8 U | 6.8 U | 8.9 U |
| 1,2-Dichlorobenzene | 7,900 | 8,400 | | 6.8 U | 6.8 U | 8.9 U |
| 1,3-Dichlorobenzene | 1,600 | 2,400 | | 6.8 U | 6.8 U | 8.9 U |
| 1,4-Dichlorobenzene | 8,500 | 1,800 | | 6.8 U | 6.8 U | 8.9 U |
| 2,4,5-Trichlorophenol | 100 | -- | | 1,100 U | 1,100 U | 1,500 J |
| 2,4-Dichlorophenol | 400 | -- | | 450 U | 450 U | 590 U |
| 2,4-Dinitrophenol | 200 | -- | | 1,100 U | 1,100 U | 1,500 J |
| 2,6-Dinitrotoluene | 1,000 | -- | | 450 U | 450 U | 590 U |
| 2-Chlorophenol | 800 | -- | | 450 U | 450 U | 590 U |
| 2-Methylnaphthalene | 36,400 | -- | | 450 U | 450 U | 590 U |
| 2-Methylphenol | 100 | 330 | | 450 U | 450 U | 590 U |
| 2-Nitroaniline | 430 | -- | | 1,100 U | 1,100 U | 1,500 J |
| 2-Nitrophenol | 330 | -- | | 450 U | 450 U | 590 U |
| 3,3'-Dichlorobenzidine | -- | -- | | 450 U | 450 U | 590 U |
| 3-Nitroaniline | 500 | -- | | 1,100 U | 1,100 U | 1,500 J |
| 4-Chloro-3-methylphenol | 240 | -- | | 450 U | 450 U | 590 U |
| 4-Chloroaniline | 220 | -- | | 450 U | 450 U | 590 U |
| 4-Nitrophenol | 100 | -- | | 1,100 U | 1,100 U | 1,500 J |
| Acenaphthene | 50,000 | 20,000 | | 450 U | 450 U | 590 U |
| Acenaphthylene | 50,000 | 100,000 | | 450 U | 450 U | 590 U |
| Anthracene | 50,000 | 100,000 | | 450 U | 450 U | 590 U |
| Aniline | 100 | -- | | 450 U | 450 U | 590 U |
| Benzo[a]anthracene | 224 | 1,000 | | 140 J | 95 J | 200 J |
| Benzo[a]pyrene | 61 | 1,000 | | **170 J** | **120 J** | **230 J** |
| Benzo[b]fluoranthene | 220 | 1,000 | | **290 J** | 170 J | **370 J** |
| Benzo[g,h,i]perylene | 50,000 | 100,000 | | 450 U | 110 J | 610 |
| Benzo[k]fluoranthene | 220 | 800 | | 450 U | 450 U | 590 U |
| Bis(2-ethylhexyl) | 50,000 | -- | | 310 J | 450 U | 590 U |
| Butylbenzyl phthalate | 50,000 | -- | | 450 U | 450 U | 590 U |
| Chrysene | 400 | 1,000 | | 180 J | 120 J | 240 J |
| Dibenzo[a,h]anthracene | 14 | 330 | | 450 U | 450 U | 590 U |
| Dibenzofuran | 6,200 | 7,000 | | 450 U | 450 U | 590 U |
| Diethyl phthalate | 7,100 | -- | | 450 U | 450 U | 590 U |
| Dimethyl phthalate | 2,000 | -- | | 450 U | 450 U | 590 U |
| Di-n-butyl phthalate | 8,100 | -- | | 450 U | 450 U | 590 U |
| Di-n-octyl phthalate | 50,000 | -- | | 450 U | 450 U | 590 U |
| Fluoranthene | 50,000 | 100,000 | | 210 J | 160 J | 430 J |
| Fluorene | 50,000 | 30,000 | | 450 U | 450 U | 590 U |
| Hexachlorobenzene | 410 | 330 | | 450 U | 450 U | 590 U |
| Indeno[1,2,3-cd]pyrene | 3,200 | 500 | | 58 J | 93 J | 450 J |
| Isophorone | 4,400 | -- | | 450 U | 450 U | 590 U |
| Naphthalene | 13,000 | 12,000 | | 450 U | 450 U | 590 U |
| Nitrobenzene | 200 | -- | | 450 U | 450 U | 590 U |
| Pentachlorophenol | 1,000 | 800 | | 1,100 U | 1,100 U | 590 U |
| Phenanthrene | 50,000 | 100,000 | | 450 U | 450 U | 190 J |
| Phenol | 30 | 330 | | 450 U | 450 U | 590 U |
| Pyrene | 50,000 | 100,000 | | 200 J | 140 J | 250 J |

Notes:

B - Compound was found in the blank and sample
J - Estimated value
U - Analyte was not detected at or above the reporting limit
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- - No Standard available
ft bls - Feet below land surface
µg/kg - Micrograms per kilogram
SVOCs - Semivolatile Organic Compounds

# Table 4. Metal Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in mg/kg) | NYSDEC RSCOs | Part 375 Unrestricted | Off-Site Fill Material Type: | Almasi Company Site Common Fill Prequalification | Almasi Company Site Common Fill Post-Qualification No. 1 | Almasi Company Site Common Fill Post-Qualification No. 2 | Amboy Aggregates Sand Prequalification | Amboy Aggregates Sand Post-Qualification No. 1 |
|---|---|---|---|---|---|---|---|---|
| | | | **Sample Designation:** | PJP-001 | FM-17 | FM-18 | FM-02 | FM-05 |
| | | | **Sample Date:** | 01/09/07 | 05/07/07 | 05/07/07 | 10/31/06 | 01/11/07 |
| Aluminum | 33,000 | -- | | NA | 1,380 | 2,090 | 1,240 | 1,410 |
| Antimony | 4.3 (SB) | -- | | 0.62 U | 2.82 U | 2.81 U | 6.42 U | 0.609 J |
| Arsenic | 9.7 (SB) | 13 | | 1.70 | 2.18 | 1.82 | 2.89 | 2.40 |
| Barium | 300 | 350 | | 24 | 5.81 | 6.64 | 1.310 J | 2.06 J |
| Beryllium | 0.72 (SB) | 7.2 | | 0.4 | 0.132 J | 0.164 J | 0.114 J | 0.2 J |
| Cadmium | 1 | 2.5 | | 0.16 U | 0.334 J | 0.463 | 0.106 J | 0.541 U |
| Calcium | 35,000 | -- | | NA | 399 | 238 | 2,470 | 16,100 |
| Chromium | 15 (SB) | -- | | 11 | 15 | 11.5 | 5.65 | 8.32 |
| Cobalt | 30 | -- | | NA | 1.22 J | 1.560 J | 2.04 J | 1.18 J |
| Copper | 365 (SB) | 50 | | 7.3 | 5.44 | 5.45 | 1.24 J | 16.6 |
| Iron | 17,000 (SB) | -- | | NA | 10,300 | 6,860 | 5,400 | 4,980 |
| Lead | 500 | 63 | | 7.2 | 3.43 | 5.53 | 2.33 | 2.55 |
| Magnesium | 5,000 | -- | | NA | 133 | 99.1 J | 927 | 818 |
| Manganese | 5,000 | 1600 | | NA | 69.2 | 15.3 | 38.5 | 36.8 |
| Mercury | 0.3 (SB) | 0.18 | | 0.03 U | 0.005 J | 0.005 J | 0.011 U | 0.011 U |
| Nickel | 34.9 (SB) | 30 | | 4.9 | 1.28 J | 1.75 J | 4.48 | 3.09 J |
| Potassium | 43,000 | -- | | NA | 40.4 J | 78.5 J | 268 J | 1,130 |
| Selenium | 2 | 3.9 | | 0.94 U | 0.406 J | 0.433 J | 0.64 J | 2.16 U |
| Silver | -- | 2 | | 0.94 U | 0.543 J | 1.33 | 0.156 J | 0.7 J |
| Sodium | 8,000 | -- | | NA | 121 | 260 | 647 | 7,730 |
| Thallium | -- | -- | | 0.75 | 2.26 U | 2.25 U | 1.07 U | 2.2 |
| Vanadium | 150 | -- | | 18 | 27.5 | 28.2 | 7.97 | 9.19 |
| Zinc | 333 (SB) | 109 | | 18 | 11.1 | 10.8 | 12.1 | 13.1 |

Notes:

J - Reported value is less than the Reporting Limit but greater than the Instrument Detection Limit.
U - Analyte was not detected at or above the reporting limit
N - Presumptive evidence of a compound
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Concentration exceeds NYSDEC RSCO
Bold - Concentration exceeds Restricted Residential standard
-- No Standard available
mg/kg - Milligrams per kilogram
SB - Site Background
NA - Not Analyzed

# Table 4. Metal Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in mg/kg) | NYSDEC RSCOs | Part 375 Unrestricted | Off-Site Fill Material Type: | Amboy Aggregates Sand Post-Qualification No. 2 | Amboy Aggregates Sand Post-Qualification No. 3 | Amboy Aggregates Sand Post-Qualification No. 4 | Amboy Aggregates Sand Post-Qualification No. 5 | Amboy Aggregates Sand Post-Qualification No. 6 |
|---|---|---|---|---|---|---|---|---|
| | | | Sample Designation: | FM-09 | FM-13 | FM-23 | FM-37 | FM-48 |
| | | | Sample Date: | 03/01/07 | 03/27/07 | 05/23/07 | 06/28/07 | 08/02/07 |
| Aluminum | 33,000 | -- | | 1,310 | 1,360 | 1,160 | 820 | 1,080 |
| Antimony | 4.3 (SB) | -- | | **10.3** | 2.76 UN | 2.6 U | 2.7 U | 2.8 U |
| Arsenic | 9.7 (SB) | 13 | | 1.79 | 2.56 | 1.1 U | 1.1 U | 2.15 |
| Barium | 300 | 350 | | 6.36 U | 1.77 J | 5.3 U | 5.4 U | 2.64 J |
| Beryllium | 0.72 (SB) | 7.2 | | 0.154 J | 0.156 J | 0.16 J | 0.09 J | 0.149 J |
| Cadmium | 1 | 2.5 | | 0.228 J | 0.331 U | 0.32 U | 0.32 U | 0.432 J |
| Calcium | 35,000 | -- | | 2,320 | 2,220 | 1,590 | 1,960 | 1,860 |
| Chromium | 15 (SB) | -- | | 5.89 | 8.38 | 5.3 | 3.7 | 4.55 |
| Cobalt | 30 | -- | | 1.21 J | 0.961 J | 0.99 J | 1.3 J | 1.65 J |
| Copper | 365 (SB) | 50 | | 1.61 | 11.2 | 2.0 | 1.5 | 1.87 |
| Iron | 17,000 (SB) | -- | | 5,760 | 5,600 | 6,300 | 3,660 | 4,320 |
| Lead | 500 | 63 | | 1.7 | 5.55 | 9.2 | 6.5 | 2.56 |
| Magnesium | 5,000 | -- | | 855 | 864 | 662 | 528 | 684 |
| Manganese | 5,000 | 1600 | | 34.3 | 31.1 | 34.4 | 27.4 | 38.2 |
| Mercury | 0.3 (SB) | 0.18 | | 0.013 U | 0.007 J | 0.014 | 0.011 U | 0.011 U |
| Nickel | 34.9 (SB) | 30 | | 2.79 | 2.68 | 3.0 | 2.1 J | 2.76 |
| Potassium | 43,000 | -- | | 639 | 883 | 510 | 311 | 431 |
| Selenium | 2 | 3.9 | | 1.27 U | 0.364 J | 1.1 U | 0.019 J | 1.12 U |
| Silver | -- | 2 | | 1.17 | 0.552 U | 0.53 U | 0.54 U | 0.402 J |
| Sodium | 8,000 | -- | | 1,250 | 1,160 N | 441 | 1,820 | 1,060 |
| Thallium | -- | -- | | 2.54 U | 2.21 U | 2.1 U | 2.1 U | 2.24 U |
| Vanadium | 150 | -- | | 8.58 | 8.31 | 8.3 | 4.6 | 6.81 |
| Zinc | 333 (SB) | 109 | | 12.6 | 27.6 | 11.0 | 8.6 | 11.8 |

Notes:

J - Reported value is less than the Reporting Limit but greater than the Instrument Detection Limit.
U - Analyte was not detected at or above the reporting limit
N - Presumptive evidence of a compound
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Concentration exceeds NYSDEC RSCO
Bold - Concentration exceeds Restricted Residential standard
-- No Standard available
mg/kg - Milligrams per kilogram
SB - Site Background
NA - Not Analyzed

# Table 4. Metal Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in mg/kg) | NYSDEC RSCOs | Part 375 Unrestricted | Off-Site Fill Material Type: | Amboy Aggregates Sand Post-Qualification No. 7 | Amboy Aggregates Sand Post-Qualification No. 8 | Nature's Choice Site Topsoil Prequalification | Nature's Choice Site Topsoil Post-Qualification No. 1 | Nature's Choice Site Topsoil Post-Qualification No. 2 |
|---|---|---|---|---|---|---|---|---|
| | | | **Sample Designation:** | FM-56 | FM-58 | FM-19 | FM-25 | FM-47 |
| | | | **Sample Date:** | 09/05/07 | 09/24/09 | 05/08/07 | 06/07/07 | 07/20/07 |
| Aluminum | 33,000 | -- | | NA | 1,130 | 4,490 | 3,420 | 6,440 |
| Antimony | 4.3 (SB) | -- | | NA | 1.76 U | 3.45 U | 3.4 U | 4.46 U |
| Arsenic | 9.7 (SB) | 13 | | 2.73 | 1.31 | 5.38 | 3.60 | 6.22 |
| Barium | 300 | 350 | | 0.866 J | 0.819 J | 40.2 | 38.1 | 66.6 |
| Beryllium | 0.72 (SB) | 7.2 | | NA | 0.154 J | 0.288 J | 0.18 J | 0.479 J |
| Cadmium | 1 | 2.5 | | 0.321 J | 0.234 J | 0.719 | 0.41 U | 0.750 U |
| Calcium | 35,000 | -- | | NA | 1,890 | 11,300 | 3,760 | **35,100** |
| Chromium | 15 (SB) | -- | | 5.61 | 5.9 | 8.35 | 6.7 | 13.4 |
| Cobalt | 30 | -- | | NA | 1.38 | 5.26 | 4.3 | 6.26 |
| Copper | 365 (SB) | 50 | | NA | 1.62 | 18.4 | 33.7 | 35.1 |
| Iron | 17,000 (SB) | -- | | NA | 4,350 | 8,720 | 8,910 | 12,700 |
| Lead | 500 | 63 | | 2.37 | 2.14 | 27 | 53.4 | 43.6 |
| Magnesium | 5,000 | -- | | NA | 593 | 2,080 | 1,610 | **18,300** |
| Manganese | 5,000 | 1600 | | NA | 31 | 289 | 323 | 524 |
| Mercury | 0.3 (SB) | 0.18 | | 0.011 U | 0.004 JN | 0.03 | 0.012 | 0.031 |
| Nickel | 34.9 (SB) | 30 | | NA | 3.13 | 11.2 | 9.2 | 11.6 |
| Potassium | 43,000 | -- | | NA | 564 | 1,420 | 982 | 3,530 |
| Selenium | 2 | 3.9 | | 0.424 J | 0.225 J | 0.596 J | 0.73 J | 0.746 J |
| Silver | -- | 2 | | 0.354 U | 0.147 J | 0.330 J | 0.69 U | 0.557 J |
| Sodium | 8,000 | -- | | NA | 691 | 460 | 678 | 646 |
| Thallium | -- | -- | | NA | 1.41 U | 2.76 U | 2.8 U | 3.57 U |
| Vanadium | 150 | -- | | NA | 6.69 | 8.91 | 7.1 | 18.8 |
| Zinc | 333 (SB) | 109 | | NA | 10.8 | 62.6 | 55.8 | 102 |

Notes:

J - Reported value is less than the Reporting Limit but greater than the Instrument Detection Limit.
U - Analyte was not detected at or above the reporting limit
N - Presumptive evidence of a compound
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Concentration exceeds NYSDEC RSCO
Bold - Concentration exceeds Restricted Residential standard
-- No Standard available
mg/kg - Milligrams per kilogram
SB - Site Background
NA - Not Analyzed

# Table 5. Polychorinated Biphenyl Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Almasi Company Site Common Fill | Almasi Company Site Common Fill | Almasi Company Site Common Fill | Amboy Aggregates Sand | Amboy Aggregates Sand |
|---|---|---|---|---|---|---|---|---|
| | | | | Prequalification | Post-Qualification No. 1 | Post-Qualification No. 2 | Prequalification | Post-Qualification No. 1 |
| | | | **Sample Designation:** | PJP-001 | FM-17 | FM-18 | FM-02 | FM-05 |
| | | | **Sample Date:** | 01/09/07 | 05/07/07 | 05/07/07 | 10/31/06 | 01/11/07 |
| Aroclor-1016 | -- | -- | | 36 U | 19 U | 19 U | 18 U | 18 U |
| Aroclor-1221 | -- | -- | | 36 U | 19 U | 19 U | 18 U | 18 U |
| Aroclor-1232 | -- | -- | | 36 U | 19 U | 19 U | 18 U | 18 U |
| Aroclor-1242 | -- | -- | | 36 U | 19 U | 19 U | 18 U | 18 U |
| Aroclor-1248 | -- | -- | | 36 U | 19 U | 19 U | 18 U | 18 U |
| Aroclor-1254 | -- | -- | | 36 U | 19 U | 19 U | 18 U | 18 U |
| Aroclor-1260 | -- | -- | | 36 U | 19 U | 19 U | 18 U | 18 U |
| Aroclor-1262 | -- | -- | | 36 U | 19 U | 19 U | 18 U | 18 U |
| Total PCBs: | 10,000 | 1,000 | | 0 | 0 | 0 | 0 | 0 |

Notes:

U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- No Standard available
µg/kg - Micrograms per kilogram
PCBs - Polychlorinated Biphenyl Compounds

## Table 5. Polychorinated Biphenyl Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand |
|---|---|---|---|---|---|---|---|---|
| | | | | Post-Qualification No. 2 | Post-Qualification No. 3 | Post-Qualification No. 4 | Post-Qualification No. 5 | Post-Qualification No. 6 |
| | | | **Sample Designation:** | FM-09 | FM-13 | FM-23 | FM-37 | FM-48 |
| | | | **Sample Date:** | 03/01/07 | 03/27/07 | 05/23/07 | 06/28/07 | 08/02/07 |
| Aroclor-1016 | -- | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| Aroclor-1221 | -- | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| Aroclor-1232 | -- | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| Aroclor-1242 | -- | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| Aroclor-1248 | -- | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| Aroclor-1254 | -- | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| Aroclor-1260 | -- | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| Aroclor-1262 | -- | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| Total PCBs: | 10,000 | 1,000 | | 0 | 0 | 0 | 0 | 0 |

Notes:

U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- No Standard available
µg/kg - Micrograms per kilogram
PCBs - Polychlorinated Biphenyl Compounds

## Table 5. Polychorinated Biphenyl Compounds Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Amboy Aggregates Sand | Amboy Aggregates Sand | Nature's Choice Site Topsoil | Nature's Choice Site Topsoil | Nature's Choice Site Topsoil |
|---|---|---|---|---|---|---|---|---|
| | | | | Post-Qualification No. 7 | Post-Qualification No. 8 | Prequalification | Post-Qualification No. 1 | Post-Qualification No. 2 |
| | | | **Sample Designation:** | FM-56 | FM-58 | FM-19 | FM-25 | FM-47 |
| | | | **Sample Date:** | 09/05/07 | 09/24/09 | 05/08/07 | 06/07/07 | 07/20/07 |
| Aroclor-1016 | -- | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| Aroclor-1221 | -- | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| Aroclor-1232 | -- | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| Aroclor-1242 | -- | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| Aroclor-1248 | -- | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| Aroclor-1254 | -- | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| Aroclor-1260 | -- | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| Aroclor-1262 | -- | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| Total PCBs: | 10,000 | 1,000 | | 0 | 0 | 0 | 0 | 0 |

Notes:

U - Analyte was not detected at or above the reporting limit
NYSDEC - New York State Department of Environmental Conservation
RSCOs - Recommended Soil Cleanup Objectives
Bold - Concentration exceeds NYSDEC RSCO
-- No Standard available
µg/kg - Micrograms per kilogram
PCBs - Polychlorinated Biphenyl Compounds

# Table 6. Pesticides/ Herbicides Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | **Off-Site Fill Material Type:** | Almasi Company Site Common Fill | Almasi Company Site Common Fill | Almasi Company Site Common Fill | Amboy Aggregates Sand | Amboy Aggregates Sand |
|---|---|---|---|---|---|---|---|---|
| | | | | Prequalification | Post-Qualification No. 1 | Post-Qualification No. 2 | Prequalification | Post-Qualification No. 1 |
| | | | **Sample Designation:** | PJP-001 | FM-17 | FM-18 | FM-02 | FM-05 |
| | | | **Sample Date:** | 01/09/07 | 05/07/07 | 05/07/07 | 10/31/06 | 01/11/07 |
| Pesticides | | | | | | | | |
| 4,4'-DDD | 2,900 | 3.3 | | 3.6 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| 4,4'-DDE | 2,100 | 3.3 | | 3.6 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| 4,4'-DDT | 2,100 | 3.3 | | 3.6 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Aldrin | 41 | 5 | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| alpha-BHC | 110 | 20 | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Chlordane | 540 | -- | | 1.9 U | 19 U | 19 U | 18 U | 18 U |
| beta-BHC | 200 | 36 | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| delta-BHC | 300 | 40 | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Dieldrin | 44 | 94 | | 3.6 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Endosulfan I | 900 | 2,400 | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Endosulfan II | 900 | 2,400 | | 3.6 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Endosulfan sulfate | 1,000 | 2,400 | | 3.6 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Endrin | 100 | 14 | | 3.6 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| gamma-BHC (Lindane) | 60 | 100 | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| gamma-Chlordane | 540 | -- | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Heptachlor epoxide | 20 | -- | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Heptachlor | 100 | 42 | | 1.9 U | 3.3 U | 3.3 U | 3.1 U | 3.2 U |
| Herbicides | | | | | | | | |
| 2,4-D | 500 | -- | | NA | 78 U | 77 U | 73 U | 74 U |
| 2,4,5-TP (Silvex) | 700 | 3,800 | | NA | 78 U | 77 U | 73 U | 74 U |
| 2,4,5-T | 1,900 | -- | | NA | 78 U | 77 U | 73 U | 74 U |

Notes:

U - Analyte was not detected at or above the reporting limit

P - For dual colum analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

* - For dual colum analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NA - Not Analyzed

NYSDEC - New York State Department of Environmental Conservation

RSCOs - Recommended Soil Cleanup Objectives

-- No Standard available

ft bls - Feet below land surface

µg/kg - Micrograms per kilogram

PCBs - Polychlorinated Biphenyl Compounds

## Table 6. Pesticides/ Herbicides Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | **Off-Site Fill Material Type:** | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand | Amboy Aggregates Sand |
|---|---|---|---|---|---|---|---|---|
| | | | **Sample Designation:** | Post-Qualification No. 2 FM-09 | Post-Qualification No. 3 FM-13 | Post-Qualification No. 4 FM-23 | Post-Qualification No. 5 FM-37 | Post-Qualification No. 6 FM-48 |
| | | | **Sample Date:** | 03/01/07 | 03/27/07 | 05/23/07 | 06/28/07 | 08/02/07 |
| Pesticides | | | | | | | | |
| 4,4'-DDD | 2,900 | 3.3 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| 4,4'-DDE | 2,100 | 3.3 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| 4,4'-DDT | 2,100 | 3.3 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Aldrin | 41 | 5 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| alpha-BHC | 110 | 20 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Chlordane | 540 | -- | | 21 U | 18 U | 18 U | 18 U | 19 U |
| beta-BHC | 200 | 36 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| delta-BHC | 300 | 40 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Dieldrin | 44 | 94 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Endosulfan I | 900 | 2,400 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Endosulfan II | 900 | 2,400 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Endosulfan sulfate | 1,000 | 2,400 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Endrin | 100 | 14 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| gamma-BHC (Lindane) | 60 | 100 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| gamma-Chlordane | 540 | -- | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Heptachlor epoxide | 20 | -- | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Heptachlor | 100 | 42 | | 3.8 U | 3.3 U | 3.1 U | 3.2 U | 3.4 U |
| Herbicides | | | | | | | | |
| 2,4-D | 500 | -- | | 87 U | 75 U | 73 U | 74 U | 78 U |
| 2,4,5-TP (Silvex) | 700 | 3,800 | | 87 U | 75 U | 73 U | 74 U | 78 U |
| 2,4,5-T | 1,900 | -- | | 87 U | 75 U | 73 U | 74 U | 78 U |

Notes:

U - Analyte was not detected at or above the reporting limit

P - For dual colum analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

* - For dual colum analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NA - Not Analyzed

NYSDEC - New York State Department of Environmental Conservation

RSCOs - Recommended Soil Cleanup Objectives

-- No Standard available

ft bls - Feet below land surface

µg/kg - Micrograms per kilogram

PCBs - Polychlorinated Biphenyl Compounds

## Table 6. Pesticides/ Herbicides Detected in Off-Site Fill Materials
## Final Engineering Report for OU-2, Site No. V-00159-2
## Nassau Metals Corporation, Staten Island, New York

| Parameter (Concentrations in µg/kg) | NYSDEC RSCOs | Part 375 Unrestricted Use | Off-Site Fill Material Type: | Amboy Aggregates Sand | Amboy Aggregates Sand | Nature's Choice Site Topsoil | Nature's Choice Site Topsoil | Nature's Choice Site Topsoil |
|---|---|---|---|---|---|---|---|---|
| | | | | Post-Qualification No. 7 | Post-Qualification No. 8 | Prequalification | Post-Qualification No. 1 | Post-Qualification No. 2 |
| | | | **Sample Designation:** | FM-56 | FM-58 | FM-19 | FM-25 | FM-47 |
| | | | **Sample Date:** | 09/05/07 | 09/24/09 | 05/08/07 | 06/07/07 | 07/20/07 |
| Pesticides | | | | | | | | |
| 4,4'-DDD | 2,900 | 3.3 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| 4,4'-DDE | 2,100 | 3.3 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 8.7 P |
| 4,4'-DDT | 2,100 | 3.3 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Aldrin | 41 | 5 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| alpha-BHC | 110 | 20 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Chlordane | 540 | -- | | 18 U | 18 U | 23 U | 23 U | 30 U |
| beta-BHC | 200 | 36 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| delta-BHC | 300 | 40 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Dieldrin | 44 | 94 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Endosulfan I | 900 | 2,400 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Endosulfan II | 900 | 2,400 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Endosulfan sulfate | 1,000 | 2,400 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Endrin | 100 | 14 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| gamma-BHC (Lindane) | 60 | 100 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| gamma-Chlordane | 540 | -- | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 7.9 |
| Heptachlor epoxide | 20 | -- | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Heptachlor | 100 | 42 | | 3.1 U | 3.1 U | 4.0 U | 4.1 U | 5.3 U |
| Herbicides | | | | | | | | |
| 2,4-D | 500 | -- | | 73 U | 73 U | 95 U | 95 U | 120 U |
| 2,4,5-TP (Silvex) | 700 | 3,800 | | 73 U | 73 U | 95 U | 95 U | 120 U |
| 2,4,5-T | 1,900 | -- | | 73 U | 73 U | 95 U | 95 U | 120 U |

Notes:

U - Analyte was not detected at or above the reporting limit

P - For dual colum analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

* - For dual colum analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NA - Not Analyzed

NYSDEC - New York State Department of Environmental Conservation

RSCOs - Recommended Soil Cleanup Objectives

-- No Standard available

ft bls - Feet below land surface

µg/kg - Micrograms per kilogram

PCBs - Polychlorinated Biphenyl Compounds

**Table 7. Waste Disposal Summary for Construction and Demolition Debris and Bulky Waste**
**Final Engineering Report for OU-2, Site No. V-00159-2**
**Nassau Metals Corporation, Staten Island, New York**

| Date | Quantity (Cubic Yards) | Material Description |
|---|---|---|
| 04/02/07 | 30 | Scrap Metal |
| 05/18/07 | 30 | Scrap Metal |
| 07/18/07 | 30 | Rail Road Ties |
| 07/18/07 | 30 | Rail Road Ties |
| 07/20/07 | 30 | Rail Road Ties |
| 07/20/07 | 30 | Rail Road Ties |
| 07/26/07 | 30 | Vegetative Debris |
| 07/26/07 | 30 | Vegetative Debris |
| 07/26/07 | 30 | Vegetative Debris |
| 07/26/07 | 30 | Vegetative Debris |
| 07/26/07 | 30 | Rail Road Ties |
| 07/27/07 | 30 | Vegetative Debris |
| 07/27/07 | 30 | Vegetative Debris |
| 07/27/07 | 30 | Vegetative Debris |
| 07/27/07 | 30 | Site debris - trash |
| 07/27/07 | 30 | Site debris - trash |
| 07/27/07 | 30 | Scrap Metal |
| 07/30/07 | 30 | Rail Road Ties |
| 07/30/07 | 30 | Site debris - trash |
| 08/06/07 | 30 | Aqua Dam Debris |
| 08/06/07 | 30 | Aqua Dam Debris |
| 08/06/07 | 30 | Aqua Dam Debris |
| 08/06/07 | 30 | Scrap Metal |
| 08/07/07 | 30 | Aqua Dam Debris |
| 08/07/07 | 30 | Aqua Dam Debris |
| 08/07/07 | 30 | Aqua Dam Debris |
| 08/07/07 | 30 | Aqua Dam Debris |
| 08/08/07 | 30 | Aqua Dam Debris |
| 08/31/07 | Not Applicable | 50 Pieces RR Steel via Flat Bed Truck, No Ticket Provided |
| 08/31/07 | 30 | General Debris, No Ticket Provided |
| 09/12/07 | 30 | General Debris |
| 09/12/07 | 30 | General Debris |
| 09/26/07 | 30 | General Debris |
| 10/04/07 | 30 | General Debris |
| 10/04/08 | 30 | General Debris |
| 10/15/07 | 30 | General Debris |
| 10/15/07 | 30 | General Debris |
| 10/16/07 | 30 | General Debris |
| 10/26/07 | 30 | Concrete and rebar, No Ticket Provided |
| 10/30/07 | 30 | General Debris |
| 10/30/07 | 30 | Concrete and rebar |
| 11/01/07 | 30 | Concrete and rebar |
| 11/05/07 | 30 | Concrete and rebar |
| 11/05/07 | 30 | Concrete and rebar |
| 11/05/07 | 30 | Concrete and rebar |
| 11/09/07 | 30 | General Debris |
| 11/09/07 | 30 | General Debris |
| 11/13/07 | 30 | General Debris |
| 11/20/07 | 30 | General Debris |
| 11/20/07 | 30 | General Debris |
| 11/20/07 | 30 | General Debris |
| 11/21/07 | 30 | General Debris |
| 11/27/07 | 30 | General Debris |

**Table 8. Waste Disposal Summary for Non-Hazardous Treatment System Spent Media**
**Final Engineering Report for OU-2, Site No. V-00159-2**
**Nassau Metals Corporation, Staten Island, New York**

| Date | Disposal Facility | Manifest Number | Estimated Weight (lbs) |
|---|---|---|---|
| 08/20/07 | Cycle Chem's Facility | 000310415 FLE | 21,000 |
| 10/17/07 | Elizabeth, New Jersey | NAU01 | 6,000 |
| 10/18/07 | | NAU02 | 5,000 |
| | | Total | 32,000 |


QUADRANGLE LOCATION


SOURCE:
USGS; 1966, ARTHUR KILL, NY-NJ
7.5 Minute Topographic Quadrangle

N

0 2000'

Title:

# SITE LOCATION MAP

FINAL ENGINEERING REPORT FOR OU-2

Prepared for:

NASSAU METALS CORPORATION
STATEN ISLAND, NEW YORK

ROUX
ROUX ASSOCIATES, INC.
*Environmental Consulting & Management*

| | | |
|---|---|---|
| Compiled by: O.R. | Date: 01FEB11 | FIGURE |
| Prepared by: J.A.D. | Scale: AS SHOWN | 1 |
| Project Mgr.: O.R. | Project No.: 0770.0002Y011 | |
| File: 0770.0002Y447.01 | | |

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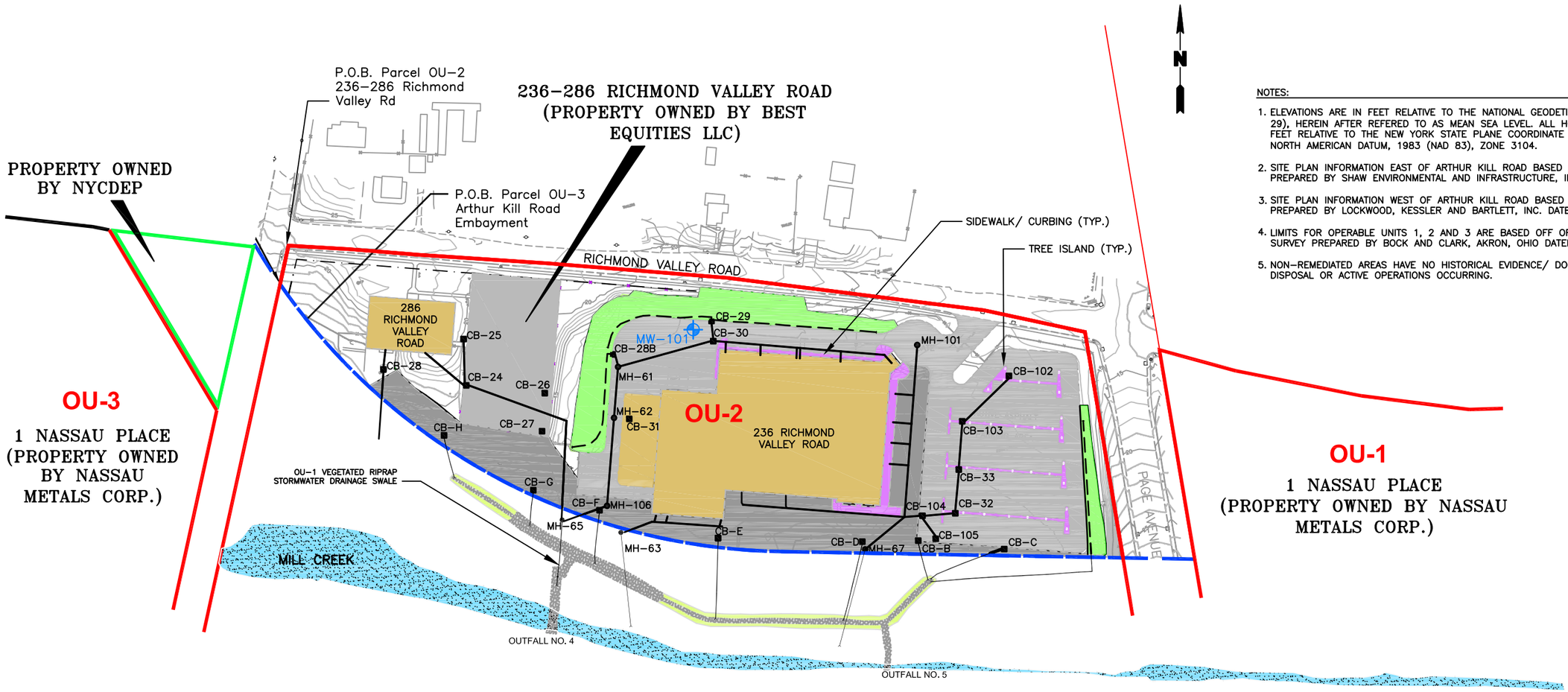


NOTES:

1. ELEVATIONS ARE IN FEET RELATIVE TO THE NATIONAL GEODETIC VERTICAL DATUM, 1929 (NGVD 29), HEREIN AFTER REFERED TO AS MEAN SEA LEVEL. ALL HORIZONTAL LOCATIONS ARE IN FEET RELATIVE TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, LONG ISLAND ZONE, NORTH AMERICAN DATUM, 1983 (NAD 83), ZONE 3104.
2. SITE PLAN INFORMATION EAST OF ARTHUR KILL ROAD BASED ON FINAL AS-BUILT PLANS PREPARED BY SHAW ENVIRONMENTAL AND INFRASTRUCTURE, INC. DATED JUNE 16, 2008.
3. SITE PLAN INFORMATION WEST OF ARTHUR KILL ROAD BASED ON FINAL AS-BUILT PLANS PREPARED BY LOCKWOOD, KESSLER AND BARTLETT, INC. DATED APRIL 25, 2009.
4. LIMITS FOR OPERABLE UNITS 1, 2 AND 3 ARE BASED OFF OF ALTA/ ASCM LAND TITLE SURVEY PREPARED BY BOCK AND CLARK, AKRON, OHIO DATED MAY 12, 2009.
5. NON-REMEDIATED AREAS HAVE NO HISTORICAL EVIDENCE/ DOCUMENTATION OF FILLING, WASTE DISPOSAL OR ACTIVE OPERATIONS OCCURRING.

**OU-1**

1 NASSAU PLACE
(PROPERTY OWNED BY NASSAU METALS CORP.)

LEGEND

- EXISTING BUILDING/STRUCTURE
- MINOR CONTOUR ELEVATION (DASHED WHERE INFERRED) – CONTOUR INTERVAL 1 FOOT (FEET ABOVE MEAN SEA LEVEL). CONTOURS NOT SHOWN WITHIN LIMITS OF CAPPED AREAS FOR CLARITY.
- 5 INDEX CONTOUR ELEVATION (DASHED WHERE INFERRED) – CONTOUR INTERVAL 1 FOOT (FEET ABOVE MEAN SEA LEVEL) CONTOURS NOT SHOWN WITHIN LIMITS OF CAPPED AREAS FOR CLARITY.
- EXISTING FENCELINE
- LIGHT POLE
- EXISTING RAILROAD TRACKS
- ELECTRIC POLE
- NEW FENCE GATE
- VCA SITE BOUNDARY/ OPERABLE UNIT LIMITS
- BOUNDARY BETWEEN OU-1 AND OU-2
- NEW FENCING
- MW-101 LOCATION AND DESIGNATION OF MONITORING WELL
- OU-2 OPERABLE UNIT DESIGNATION
- PRE-CONSTRUCTION BUILDING CAP
- PRE-CONSTRUCTION ASPHALT CAP
- POST-CONSTRUCTION COMPOSITE GCL CAP
- POST-CONSTRUCTION ASPHALT CAP
- POST-CONSTRUCTION CONCRETE CAP (SIDEWALK/ CURBING AND TREE ISLANDS)
- MH-67 MANHOLE LOCATION AND DESIGNATION AND ASSOCIATED SUBSURFACE PIPING
- CB-E CATCH BASIN LOCATION AND DESIGNATION AND ASSOCIATED SUBSURFACE PIPING
- OUTFALL LOCATION AND ASSOCIATED SUBSURFACE PIPING
- SUBSURFACE PERFORATED PIPING AND CLEANOUT

160' 0 160'

Title:

# OU-2 SITE PLAN

FINAL ENGINEERING FOR OU-2

Prepared For:
NASSAU METALS CORPORATION
STATEN ISLAND, NEW YORK

ROUX ASSOCIATES, INC.
Environmental Consulting and Management

| | | |
|---|---|---|
| Compiled by: O.R. | Date: 01FEB11 | FIGURE |
| Prepared by: O.R. | Scale: AS SHOWN | 2 |
| Project Mgr: O.R. | Project: 0770.0002Y011 | |
| File: 0770.0002Y447.02 | | |

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