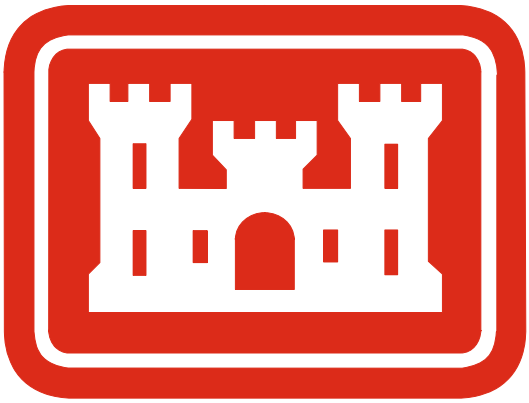
REVISED FINAL

SOIL and DRY WELL REMOVAL DOCUMENTATION REPORT SCOTIA DEPOT Scotia, New York

PREPARED FOR:



U.S. Army Corps of Engineers
Huntsville Center

Contract No. DACA87-02-D-0005

PREPARED BY:

PARSONS

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1.0 PURPOSE OF DOCUMENT

The purpose of this report is to document the objectives and procedures for conducting the soil and dry well removals at the Defense National Stockpile Center's (DNSC's) Scotia Depot, and to present the results of confirmatory sampling conducted after the soil and dry well removals. The following sections describe the objective of the removals (Section 2), site history (Section 3), site setting (Section 4), previous environmental studies (Section 5), the soil removal action (Section 6), and the dry well removal action (Section 7). The tables and figures referenced in the report are grouped at the end of the Section 6 text.

2.0 PROJECT OBJECTIVE

2.0.1 The DNSC Scotia Depot stores metals, ores and other natural commodities necessary for national defense. A parcel of land located north of the Scotia Depot was formerly part of the depot operational area. That northern parcel was no longer needed for the mission of the DNSC Scotia Depot, and has been turned over to the property owner, the General Service Administration (GSA). Figure 1 shows the location of the Scotia Depot, and indicates the northern parcel that has been returned to GSA.

2.0.2 In anticipation of releasing the property back to GSA, the DNSC began conducting a series of environmental assessments of the Scotia Depot beginning in 1998. Those assessments included characterization of soil quality around two outdoor open storage areas - the former ferrochrome storage pad, and the former lead/zinc storage pad (Figure 2). The soils around these two storage areas were characterized as having concentrations of metals that were above local background soil concentrations; however, the metals concentrations were not an imminent threat to human health or the environment. In a good-faith effort to improve the soil quality and attempt to return the property to approximately its natural condition, DNSC decided to voluntarily remove the soil around the two storage pads and replace it with native soil from elsewhere on the depot (see "location of backfill soil source" on Figure 2). The soil removed from around the storage pads was disposed as nonhazardous solid waste and used as daily cover at Colonie Town Landfill, a local municipal sanitary landfill.

2.0.3 DNSC's environmental assessments also characterized soil/sediment found in certain storm water catch basins around the former lead/zinc storage pad. Those sediments were found to contain concentrations of metals above local soil background concentrations. Seven of these catch basins were connected to two dry wells. Dry wells are subsurface structures, often constructed with metal or concrete conduit, that act as a basin where surface water can collect and infiltrate into the ground. Dry wells in New York State are regulated by the United States Environmental Protection Agency (USEPA). After consultation with USEPA, DNSC chose to remove the two dry wells located around the perimeter of the former lead/zinc storage area. The seven catch basins that drained to these dry wells were backfilled or removed. The dry well and catch basin

materials, and associated soils, were disposed as nonhazardous solid waste at the City of Albany Landfill solid waste management facility.

2.0.4 The northern property has been returned to GSA. GSA will attempt to sell or "excess" the property, and it is expected that the property will remain available for industrial/commercial use, in keeping with the use of the adjacent industrial park properties.

3.0 SITE HISTORY

3.0.1 The Scotia Depot was commissioned on March 30, 1943 and was constructed in 10 months. The mission of the Depot was, and still is, storage of ores, metals and other raw materials necessary for national defense. These commodities are stockpiled in Scotia and other areas around the country in the event that a national emergency makes it impossible to obtain these commodities from their foreign sources. After World War II ended, portions of the Depot were sold and converted to commercial/industrial business parks. The remaining, active portion of the Depot is owned by the GSA and operated by the DNSC. With the end of the Cold War, Congress has decided that the national stockpile is no longer necessary, and the commodities are being sold off. Once all commodities at the Scotia Depot are sold, the depot will be closed and the property returned to GSA.

3.0.2 Several types of metals and ores at the Scotia Depot have been stored in piles, either on concrete pads (e.g. ferrochrome ore) or on an asphalt surface (e.g. zinc and lead ingots). Other materials have been stored in warehouses in drums, boxes, bags, etc. Figure 2 provides a current diagram of the facility, including the locations of the former ferrochrome and lead/zinc open storage areas.

3.0.3 Operations at the Scotia Depot have historically been related to the maintenance and movement of the stockpiled materials from one depot to another. Hazardous waste materials are not routinely generated during site operations, and no on-site hazardous waste disposal has been documented. Fewer than ten people are typically on-site as permanent-duty personnel assigned to Depot operations, exclusive of contracted security personnel.

4.0 SITE SETTING

4.0.1 The Scotia Depot is located off Route 5, just west of the Village of Scotia, New York. The geographic coordinates are 45° 50' 29" north latitude and 73° 59' 15" west longitude. Figure 1 shows the location of the site, and the surrounding natural and manmade features.

4.0.2 The current Depot property consists of warehouses, outdoor open storage areas, and support buildings used primarily for vehicle/equipment maintenance and repair, security, and administration (Figure 2).

4.0.3 The current Depot property is between two commercial business parks, which were originally part of the former 337-acre Scotia Navy Depot. The adjacent land use to the east and west of the Depot is commercial/industrial. Further to the east and west, the land use is mixed residential/commercial. Land use to the south of the Depot is a mixture of residential, commercial, recreational and agricultural. The Erie Canal/Mohawk River is about 2,000 feet south of the Depot. To the north of the Depot is a large sand and gravel quarry; north of the quarry the land use is primarily residential.

4.0.4 A high school and elementary school are located about 3,000 feet east of the Depot, and the nearest residence is more than 1,000 feet south of the Depot, across Route 5. A completely-encircling fence and 24-hour security personnel control access to the Depot. The Depot is also separated from the nearest residents and schools by the commercial/industrial business park and the quarry. Those land uses, along with Route 5, create a buffer zone around the Depot.

5.0 SUMMARY OF SOIL CHARACTERIZATION STUDIES AT SCOTIA DEPOT

5.0.1 A Preliminary Assessment (PA) Report was completed on behalf of DNSC by Parsons in December 1998 to determine what hazardous substances have been or are currently stored at the Depot, the threat posed to human health and the environment, and the need for further investigation. A Focused Site Investigation (SI) was recommended.

5.0.2 A Phase II Site Assessment Report was completed in July 1999 by PMK Group, and Edwards and Kelcey. The Phase II Site Assessment was commissioned by the GSA, owner of the Scotia Depot property. The assessment conducted by PMK Group included many of the same sampling activities originally proposed for the Focused SI by Parsons. As a result, Parsons modified the Focused SI Sampling Plan to complement the PMK Group's Phase II Site Assessment data. The Focused SI field work was completed in 1999, and a Final Focused SI Report was issued in March 2001. The Focused SI Report combined the data from the Phase II Site Assessment and the Focused SI to delineate the presence and extent of site-related impacts.

5.1 Soil Exposure Pathway Assessment

5.1.1 Focused SI and Phase II Site Assessment Scope of Work and Results

5.1.1.1 It was hypothesized in the Focused SI and Phase II Site Assessment reports that low concentrations of metals could have leached from the current and former outdoor metals and ore storage areas by exposure to precipitation, and entered the surrounding soil via infiltration.

5.1.1.2 To test the hypotheses of metal releases to the soil, the Focused SI included a surface and subsurface soil sampling and analysis program. In general, surface soil samples were collected at depths of 0 to 0.5 feet below ground surface (BGS) and analyzed to assess the direct contact exposure pathway. At most locations, subsurface soil samples were also collected at depths of 1 to 2 feet and analyzed to assess whether metals were migrating downward through the soil column.

5.1.1.3 In addition to samples collected around the two open storage areas, soil samples were also collected during the Focused SI to assess "background" soil quality. Nine soil samples were collected at 8 locations and analyzed for Target Analyte List (TAL) metals to assess background soil quality in the site vicinity. Figure 3 shows the locations of the background samples, and Table 1 presents a summary of the background sample results. Background soil sample data provide an indication of the soil quality in the site vicinity, independent of impacts from the Depot. The presence of metal concentrations in soil at the Depot that were above the range of background concentrations indicated there may have been impacts on soil quality due to Depot operations. However, concentrations above background do not necessarily indicate threats to human or health or the environment.

5.1.2 Lead and Zinc Open Storage Area

5.1.2.1 Studies conducted at other depots by the DNSC suggest very low concentrations of metals may leach from the zinc and lead outdoor stockpiles. Based on those studies, it was hypothesized that the former lead and zinc stockpiles at the Scotia Depot could have leached very low concentrations metals to the surrounding soils. Sampling was conducted to test this hypothesis. Materials historically stored in this open area were: zinc in slab form and in galvanized drums; lead in ingot form; copper in wire coils, billets and cathode form; aluminum in pig form; and columbium and tantalum natural minerals in galvanized drums.

5.1.2.2 Fourteen soil samples (MS-1 through MS-12 and SS-3A and 3B) were collected at depths ranging from 0.5 to 2.0 feet BGS within and around the open storage area. The samples were analyzed for Target Analyte List (TAL) metals to assess the impacts of runoff from the open storage area (Figure 4). Most of the soil samples were collected from the edge of, or beneath, the asphalt pad which extends outside the fence that encloses the open storage area. Samples SS-1 and SS-2 contained fragments of the asphalt pad and were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals to assess whether constituents from the stockpiles had leached into the asphalt at levels that would constitute a hazardous waste. Sample SCZP was a composite soil sample collected from around the perimeter of the former lead/zinc storage pad and analyzed for regulated compounds and metals by TCLP for waste disposal characterization purposes.

5.1.2.3 The soil results for the lead/zinc open storage area did not indicate a significant impact on soil quality due to leaching or runoff of lead and zinc from the stockpile (Table 2). Of the 14 soil samples analyzed for TAL metals, each had at least one metal at a concentration above the background range. It is noteworthy that zinc concentrations were above the background range in only 5 of the 14 samples, and lead was not above the background range in any samples.

5.1.2.4 The three samples analyzed by TCLP for metals (SS-1 and SS-2) and for regulated compounds (SCZP) all had concentrations far below the hazardous waste criteria (Table 3). These results indicated the soils could be disposed as solid waste in a local municipal landfill.

5.1.3 Outdoor Ferrochrome Stockpile

5.1.3.1 Based on previous DNSC studies on leaching of metals from outdoor stockpiles, it was hypothesized that the ferrochrome stockpile at the Scotia Depot could have leached very low concentrations of metals to the surrounding soils. Ferrochrome ore is approximately 70 percent chromium. Chromium and other trace metals within the ferrochrome stockpile may have migrated to, or been deposited in, the soil surrounding the concrete pad. During the Phase II Site Assessment, ten soil samples were collected around the perimeter of the concrete pad to determine if runoff from the ferrochrome stockpile increased metals concentrations in the soil adjacent to the pad (Figure 5). Those samples were analyzed for TAL metals. Sample SCFP was a composite soil sample collected from around the perimeter of the former ferrochrome pad. That sample was analyzed for regulated compounds and metals by TCLP for waste disposal characterization purposes.

5.1.3.2 The sample results showed several metals were present at concentrations above background (Table 4). Chromium exceeded the background range in 7 of the 10 samples. Sample SCFP had concentrations far below the hazardous waste criteria (Table 3). These results indicated the soils could be disposed as solid waste in a local municipal landfill.

6.0 SOIL REMOVAL ACTION

6.0.1 This section describes the procedures for the soil removal action at the former lead/zinc and ferrochrome open storage areas at Scotia Depot. DNSC chose to voluntarily remove the soils immediately adjacent to the two storage pads as a good-faith effort to improve soil quality and to return the property to approximately its original soil-quality condition.

6.0.2 In the former lead/zinc storage area, the metals concentrations in soils around and beneath the asphalt pad were slightly above background concentrations. The soil quality did not pose a threat to human health or the environment. In addition, the asphalt pad acts as a cover over the soil, restricting the possibility of direct contact with, or migration of the soil. The removal action at the former lead/zinc storage area consisted of scraping a layer of soil/sediment off the top of the asphalt surface from around the outside perimeter of the fenced storage area. At the east end of the storage area, the edge of the asphalt pad is closer to the fence line. In that area the top two feet of soil was removed, extending out about five feet from the edge of the pad (Figure 6).

Excavating on north side of former ferrochrome pad.

6.0.3 In the former ferrochrome storage area, the soils adjacent to the concrete pad had metals concentrations slightly above background concentrations. The soil quality did not pose a threat to human health or the environment. However, DNSC chose to voluntarily remove the soil in a good-faith effort to improve soil quality and to return the property to approximately its original soil-quality condition. The top two feet of soil, extending five feet out from the perimeter of the concrete pad, were removed (Figure 6).

6.0.4 The removal action at Scotia Depot involved excavation of approximately 560 tons of soil. Excavated soil was deposited directly into trucks for transportation to the Colonie Landfill. The soil was excavated with a backhoe by depot employees. Around much of the lead/zinc storage area, there was a layer of soil on top of the asphalt pad. That soil was scraped up and disposed with the other excavated soils (Figure 6). To the extent possible, operators were careful to not excavate asphalt with the soil. Given the shallow excavation depths, groundwater was not encountered during the removal action.

Loading excavated soils prior to disposal at Colonie Town Landfill.

6.0.5 The soil removed from both areas was disposed as nonhazardous solid waste in Colonie Landfill, a local municipal sanitary landfill. The removal areas were regraded using native backfill soils, as needed. The source of the native backfill soils was an undisturbed area of the Depot, which is located east of the former lead/zinc open storage area (Figure 2). This soil source was subsequently sampled and analyzed for TAL metals as part of the dry well removal; results for the soil backfill sampling are discussed in Section 7.

North side of former ferrochrome pad.

6.0.6 The removal actions were conducted in areas which are more than 300 feet from any occupied buildings or work areas. Nuisance dust was not a problem during the work, and no special health protection or perimeter air monitoring were indicated to be necessary, in accordance with provisions defined in the soil removal work plan.

6.1 Post-Removal Soil Sampling Program

6.1.1 The post-removal soil sampling was originally conducted in October 2002 in accordance with the Soil Removal Work Plan, which NYSDEC had been provided for their review. The Work Plan specified a sampling scheme that included compositing the confirmatory soil samples. Upon review of the Draft Soil Removal Documentation Report dated March 2003, NYSDEC visited the site on August 27, 2003 and requested that the samples be recollected without compositing, using the sampling scheme described below. Those samples were collected on April 29, 2004 and were sent to Severn Trent Laboratories, Inc (STL). STL has the required New York State Department of Health Environmental Laboratory Approval Program CLP-tier accreditation. Upon receipt of the laboratory analytical results, a Parsons chemist validated the data in accordance with the NYSDEC's "Guidance for the Development of Data Usability Summary Reports". A copy of the data validation report is presented in Appendix A.

6.1.2 The post-removal soil quality was documented by collecting soil samples from the bottom of the excavations and from the backfilled soil and analyzing them for TAL metals. The analytical results for soil samples are reported in Tables 5 and 6. The soil that was removed was not highly impacted, so the post-removal sampling results are only used to document the remaining soil quality, and not used to determine whether additional removal is needed. Eight soil samples were collected from four locations around the former ferrochrome storage area. Four surface soil samples were collected from the backfilled trenches (representing the quality of the backfilled soils), and four subsurface samples were collected from the bottom of the excavation trench (representing the quality of the soils that were not excavated or removed). The four subsurface soil samples were collected at a depth of about 2.5 feet below ground surface, corresponding to the bottom of the excavation trench. The four soil sample locations were located at about the mid-point of each of the four sides of the pad (see sample identification descriptions below). These eight samples were submitted to STL. The samples were analyzed for TAL metals, using the NYSDEC Analytical Services Protocol methods and Category B reporting procedures.

6.1.3 The same sampling scheme was applied at the former lead/zinc storage area. However, sampling only took place at the northeastern corner of the pad where soil excavation occurred. On the other three sides of the pad, the soils/sediment were scraped off the asphalt surface, and no post-removal sampling was necessary. Therefore, only two soil samples (one surface and one subsurface) were collected at the former lead/zinc open storage area.

CONFIRMATORY SOIL SAMPLE IDENTIFICATION SCHEME

SFP-E Surface of backfill soils, Ferrochrome Pad – East side

SFP-W Surface of backfill soils, Ferrochrome Pad – West side

SFP-N Surface of backfill soils, Ferrochrome Pad – North side

SFP-S Surface of backfill soils, Ferrochrome Pad – South side

CFP-E Bottom of excavation trench, Ferrochrome Pad – East side

CFP-W Bottom of excavation trench, Ferrochrome Pad – West side

CFP-N Bottom of excavation trench, Ferrochrome Pad – North side

CFP-S Bottom of excavation trench, Ferrochrome Pad – South side

SZP-NE Surface of backfill soils, Zinc Pad – NorthEast side

CZP-NE Bottom of excavation trench, Zinc Pad – NorthEast side

6.2 Confirmatory Soil Sample Results and Conclusions

6.2.1 The primary objectives of the soil removal were to improve soil quality and to make a good-faith effort to return the site to its original soil quality condition. To assess the confirmatory soil sample results, the sample concentrations have been compared to the background soil ranges (to compare soil quality to original conditions) and to the soil concentration ranges detected at the two areas during the previous FSI (to assess whether soil quality was improved by the removal action). The soil that was removed was not highly impacted, so the post-removal sampling results are only used to document the remaining soil quality, and not used to determine whether additional removal is needed.

6.2.2 Table 5 presents a summary of the confirmatory soil sample results for the former ferrochrome pad area. With a few exceptions, the soil concentrations in the confirmatory samples are below the FSI sample ranges, indicating the removal action improved soil quality. In general, most soil concentrations are within the background ranges, meaning soil quality is generally consistent with background soil quality.

6.2.3 Table 6 presents a summary of the confirmatory soil sample results for the former lead/zinc open storage area. With a few exceptions, the soil concentrations in the confirmatory samples are below the FSI sample ranges, indicating the removal action improved soil quality. In general, most soil concentrations are within the background ranges, meaning soil quality is generally consistent with background soil quality.

6.2.4 In summary, the soil removal around the former ferrochrome and lead/zinc storage pads was conducted in accordance with the Soil Removal Work Plan dated August 2002. Soil around the two former open storage areas was removed and disposed at Colonie Landfill, a local municipal sanitary landfill. The excavation trenches were backfilled with undisturbed soil from elsewhere on the depot property. In general, the resulting confirmatory sample metals concentrations are less than concentrations present prior to the soil removal action. The soil removal succeeded in improving soil quality, which is now generally consistent with background soil quality. No further remedial action is planned for these areas.

7.0 DRY WELL REMOVAL ACTION

7.0.1 As part of DNSC's plan to return this portion of the property back to GSA, DNSC has conducted environmental assessments to assess the environmental impacts, if any, of DNSC's operations over the years. Those assessments have included sampling the residual soil/sediment found in several catch basins around the former outdoor lead/zinc storage area. A series of storm water catch basins, seven of which drain to two dry wells, were in place in the vicinity of the former lead/zinc open storage area. Most of this drainage system was in place since the depot was built in the early 1940s. Dry wells are subsurface structures, often constructed with wood, metal or concrete conduit, that act as a basin where surface water can collect and infiltrate into the ground.

7.0.2 Figure 7 shows the locations of two dry wells and the associated catch basins around the former lead/zinc storage area. In April 2004, samples of the soil/sediment in three catch basins (SD-1, SD-2 and SD-3) and one dry well (DRY WELL) were collected (Figure 7). On the basis of DNSC's historical metals storage, the samples were analyzed for TAL metals. Table 7 presents the sample concentrations in comparison to local background soil concentrations. The catch basin and dry well sample concentrations are above the background range for most metals.

7.0.3 Dry wells in New York State that are in areas where groundwater is a drinking water source are regulated by the United States Environmental Protection Agency (USEPA), and are considered underground injection points. Scotia Depot is located over a sole-source drinking water aquifer. After consultation with NYSDEC and USEPA, DNSC chose to decommission and remove the two dry wells located around the perimeter of the former lead/zinc storage area. DNSC also chose to remove or backfill the seven catch basins that drain to the two dry wells.

Excavating dry well DW-1: catch basin is in foreground.

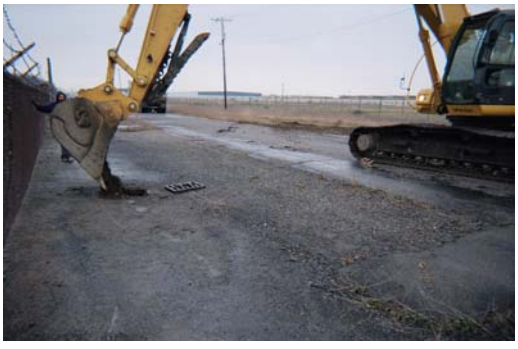
7.0.4 On October 6, 2005 Parsons collected one soil sample from each of the two dry well locations for waste characterization (disposal) purposes. The two samples (DW-1 and DW-2) were analyzed by STL for TCLP volatiles, semivolatiles, herbicides, pesticides and metals, ignitability, corrosivity, reactivity and TCL PCBs. The locations are shown on Figure 8. The dry well samples were found to be nonhazardous. Results for the dry well waste characterization samples can be found on Table 3. In addition, one soil sample ("Backfill") was collected from the native soil backfill source area that had been used to backfill around the former lead/zinc and ferrochrome storage areas. This backfill soil source was also planned to be used to backfill the dry well excavations. The sample location is shown on Figure 8. This sample was analyzed for TAL metals by STL. The results for the soil backfill source sample can be found on Table 8.

7.0.5 On November 28, 2005, World Environmental, Inc. (World), a contractor for DNSC, excavated the two dry wells (DW-1 and DW-2) and one catch basin (Figure 8). The excavated soil and dry well/catch basin materials were disposed as solid waste at the City of Albany Landfill. Prior to being backfilled, the dry well excavations were sampled as noted below. The dry well/catch basin excavations were then backfilled with soil from the nearby source on the depot (Figure 8). Four catch basins were also backfilled by World, and two catch basins were subsequently backfilled by depot employees.

7.1 Confirmatory Dry Well Sample Results and Conclusions

7.1.1 The objective of the dry well removal was to decommission the dry wells and the associated catch basins leading to them. A Work Plan for the dry well removal and confirmatory sampling was submitted to NYSDEC and USEPA for review. After the two dry wells were removed, one confirmatory soil sample was collected from the bottom of each excavation. The purpose for sampling the soil after the dry wells were removed was to document the soil quality in the excavation. The soil samples were analyzed for TAL metals; NYSDEC also requested analysis for Target Compound List volatile organic compounds (VOCs). This request was specifically made due to the presence of carbon tetrachloride (CCl4) in an earlier soil/sediment sample collected by NYSDEC from the dry well. During a separate investigation by NYSDEC in the vicinity of Scotia Depot, CC14 was also present in groundwater collected from monitoring wells directly hydraulically downgradient of the dry well, and CCl4 was detected in subslab and indoor air samples collected from homes directly above the CCl4 groundwater plume.

Backfilling dry well DW-1 excavation with native soil.



Backfilling catch basin with native soil.

7.1.2 The confirmatory samples were collected on November 28, 2005 and were sent to Severn Trent Laboratories, Inc (STL). STL has the required New York State Department of Health Environmental Laboratory Approval Program CLP-tier accreditation. Upon receipt of the laboratory analytical results, a Parsons chemist validated the data in accordance with the NYSDEC's "Guidance for the Development of Data Usability Summary Reports". A copy of the data validation report is presented in Appendix A.

Excavating dry well DW-2.

Excavating conduit leading to DW-2. This catch basin was also excavated and removed.

7.1.3 The confirmatory sample results for the dry well excavation samples are summarized on Table 8. VOCs were not detected in the confirmatory samples. The confirmatory sample metals concentrations are far less than concentrations present in the catch basins prior to the dry well/catch basin decommissioning (the catch basin sample results are shown on Table 7). The dry well and catch basin removals succeeded in improving soil quality through placement of backfill soils having concentrations consistent with background soil quality. No further remedial action is planned for these areas.

8.0 SUMMARY

The DNSC has completed two removal projects aimed at returning the site to its original soil quality condition. Soils were removed from around the former ferrochrome and lead/zinc open storage areas. The excavated soils were disposed as nonhazardous solid waste, and the excavations were backfilled with native soil that was shown to be

consistent with background soil quality. Two dry wells and a storm water catch basin were removed from the vicinity of the former lead/zinc open storage area. The excavated materials were disposed as nonhazardous solid waste, and the excavations were backfilled with native soil that was shown to be consistent with background soil quality. Six other catch basins were decommissioned and backfilled with native soil. All work was conducted in consultation with NYSDEC and USEPA. Control of the parcel in which these former open storage areas are located has been returned to the property owner, the GSA.

Backfilling DW-2 dry well excavation.

TABLE 1
Background Soil Analytical Data Set
Scotia Depot

CAS NO.	COMPOUND	Range of Background Soil Concentrations	UNITS:	SAMPLE ID:	SS-9	SS-10	SS-17 (Dup of SC-SS-10)	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16
				LAB ID:	C9L160246-001	C9L160246-002	C9L160246-004	C9L160246-003	C9L1670138-009	C9L1670138-010	C9L1670138-011	C9L1670138-012	C9L1670138-013
				DEPTH:	0.2'	0.2'	0.2'	0.2'	0.2'	0.2'	0.2'	0.2'	0.2'
				SOURCE:	Quanterra	Quanterra	Quanterra	Quanterra	Quanterra	Quanterra	Quanterra	Quanterra	Quanterra
				SDG:	D6F6D	D6F6K	D6F6Q	D6F6P	D6GM8	D6GM9	D6GMA	D6GMF	D6GMT
				MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				SAMPLED:	12/14/1999	12/14/1999	12/14/1999	12/14/1999	12/16/1999	12/16/1999	12/16/1999	12/16/1999	12/16/1999
				VALIDATED:	1/30/2000	1/30/2000	1/30/2000	1/30/2000	1/30/2000	1/30/2000	1/30/2000	1/30/2000	1/30/2000
	METALS												
7429-90-5	Aluminum	4650 - 9600	mg/Kg		8820	4650	4900	6440	6730	9600	7900	6770	7150
7440-36-0	Antimony	0.29 - 0.49	mg/Kg		0.49 J	0.43 J	0.36 J	0.44 J	0.47 J	0.29 J	0.4 J	0.4 J	0.43 J
7440-38-2	Arsenic	2.7 - 6.5	mg/Kg		6.5	2.8	2.7	5.1	4.1	4.1	3.8	3.3	3.6
7440-39-3	Barium	21.7 - 75.4	mg/Kg		46.4	21.7 J	22.5 J	31.1	46	75.4	66.9	57.1	49.1
7440-41-7	Beryllium	0.26 - 0.58	mg/Kg		0.58	0.27 J	0.26 J	0.42 J	0.41 J	0.56 J	0.48 J	0.43 J	0.45 J
7440-43-9	Cadmium	0.14 - 0.29	mg/Kg		0.2 J	0.14 J	0.19 J	0.22 J	0.28 J	0.29 J	0.19 J	0.24 J	0.29 J
7440-70-2	Calcium	864 - 21500	mg/Kg		7410 J	17400 J	10900 J	21500 J	4440 J	1430 J	882 J	864 J	1150 J
7440-47-3	Chromium	5.5 - 12.3	mg/Kg		12 J	6.2 J	5.5 J	9 J	12.3 J	12 J	9.9 J	9.3 J	10.1 J
7440-48-4	Cobalt	3.5 - 8.9	mg/Kg		7.9	3.9 J	3.5 J	5.9	7.6	8.9	7.8	7.1	7.2
7440-50-8	Copper	9.3 - 18.7	mg/Kg		18.7	9.7	11.1	13.7	13.1	13.2	10.1	9.3	10.2
7439-89-6	Iron	11000 - 21400	mg/Kg		21400	11200	11000	16600	15900	18800	16500	14900	15500
7439-92-1	Lead	8.9 - 31.6	mg/Kg		10.8 J	9.7 J	8.9 J	11.9 J	12.5 J	16.6 J	31.6 J	13.5 J	12.5 J
7439-95-4	Magnesium	1940 - 7360	mg/Kg		4310	3210	4760	7360	3370	2680	2140	1940	2090
7439-96-5	Manganese	225 - 619	mg/Kg		599 J	225 J	279 J	463 J	401 J	619 J	497 J	428 J	342 J
7439-97-6	Mercury	0.027 - 0.057	mg/Kg		0.042	0.027 J	0.041	0.027 J	0.043	0.057	0.037 J	0.045	0.04 J
7440-02-0	Nickel	6.8 - 15.8	mg/Kg		13	7.9	6.8	9.5	14.3	15.8	12.5	10.6	12.3
7440-09-7	Potassium	400 - 1230	mg/Kg		688	709	400 J	762	947	1230	830	700	950
7782-49-2	Selenium	0.21 - 0.25	mg/Kg		-	-	-	-	-	0.25 J	-	0.21 J	-
7440-22-4	Silver	0.25	mg/Kg		-	-	-	-	-	0.25 J	-	-	-
7440-23-5	Sodium	59.9 - 82.4	mg/Kg		82.4 J	81.9 J	71.5 J	77.6 J	71.7 J	59.9 J	68.2 J	65.8 J	61.7 J
7440-62-2	Vanadium	12.3 - 22.7	mg/Kg		22.7	12.3	12.8	18.7	17.5	19.3	16.1	14.2	14.7
7440-66-6	Zinc	31.1 - 64.1	mg/Kg		64.1 J	31.1	43	34.7	60.9	60.7 J	41.3	37.2	36.2
57-12-5	Total Cyanide	***	mg/Kg		NA	NA	NA	NA	NA	NA	NA	NA	NA

- Not Detected
J - Estimated Value
NA - Not analyzed

TABLE 2
Combined Soil Analytical Data Set
Scotia Depot
Focused SI and Phase II Site Assessment

				Lead/Zinc Open Storage Area													
			SAMPLE ID:	MS-1	MS-2	MS-3	MS-4	MS-5	MS-6	MS-7	MS-8	MS-9	MS-10	MS-11	MS-12	SS-3A	SS-3B
			LAB ID:	100495	100496	100497	100498	100499	100500	100501	100502	100503	100504	100505	100506	C9L160246-016	C9L160246-017
		Range of	DEPTH:	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	0.5-1.0	1.0-1.5	1.0-1.5	1.0-1.5	0.5-1.0	0.5-1.0	0.5-1.0	1'	2'
		Background	SAMPLED:	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/15/1999	12/15/1999
CAS NO.	COMPOUND	Soil Concentrations	Validated on:													1/30/2000	1/30/2000
	METALS		UNITS:														
7429-90-5	Aluminum	4650 - 9600	mg/Kg	7400	6610	4740	10600	6260	7080	12700	7780	8300	7610	6360	6660	6800	8490
7440-36-0	Antimony	0.29 - 0.49	mg/Kg	1.7	1.1	-	1.7	0.94	-	NA	NA	NA	NA	NA	NA	0.31 J	7.8 J
7440-38-2	Arsenic	2.7 - 6.5	mg/Kg	18.9	5.9	19.4	21.4	18.9	8.5	5.2	4.8	5.4	5.9	19.4	5.7	5.5	5.4
7440-39-3	Barium	21.7 - 75.4	mg/Kg	33.6	34.6	23.1	39.5	25.5	29.4	32.4	36.1	32	30.6	24.5	29.3	26.5	35.5
7440-41-7	Beryllium	0.26 - 0.58	mg/Kg	0.51	0.47	0.32	0.71	0.49	0.53	0.61	0.52	0.59	0.54	0.73	0.55	0.49 J	0.49 J
7440-43-9	Cadmium	0.14 - 0.29	mg/Kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.23 J	0.52 J
7440-70-2	Calcium	864 - 21500	mg/Kg	9800	41600	60300	7040	31900	13600	10500	15900	9470	5090	30100	16800	16800 J	13900 J
7440-47-3	Chromium	5.5 - 12.3	mg/Kg	10.7	11.5	7.4	14.5	8.8	10.9	14	11	12	11.3	11.1	11	9 J	23.4 J
7440-48-4	Cobalt	3.5 - 8.9	mg/Kg	6.2	5.3	4.5	7.2	4.8	5.4	8.3	5.9	6	6.8	5.8	5.3	6.4	6.7
7440-50-8	Copper	9.3 - 18.7	mg/Kg	58.8	103	56.8	30.3	19.8	25.5	16.5	46.4	55.8	17.6	21.3	35.1	21.1	15.6
7439-89-6	Iron	11000 - 21400	mg/Kg	18400	17400	13700	23000	16100	18800	22000	17200	19200	20600	21900	18400	18100	19600
7439-92-1	Lead	8.9 - 31.6	mg/Kg	23.7	16.9	7.5	17.1	10.7	12.5	13.1	12.4	12.4	7	8.8	15.4	6.9 J	8 J
7439-95-4	Magnesium	1940 - 7360	mg/Kg	5650	20000	12900	4770	6550	7310	5020	6640	4800	3500	4420	8840	7570	6520
7439-96-5	Manganese	225 - 619	mg/Kg	502	672	424	427	467	503	512	422	464	655	677	565	551 J	541 J
7439-97-6	Mercury	0.027 - 0.057	mg/Kg	0.06	0.04	0.02	0.02	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.02	0.036 J	0.039
7440-02-0	Nickel	6.8 - 15.8	mg/Kg	13.4	13.6	11.5	16.6	10.2	12.5	16.5	15.1	13.8	13.2	15.2	13.2	11.7	18
7440-09-7	Potassium	400 - 1230	mg/Kg	406	428	514	608	404	485	480	502	471	452	566	521	758	691
7782-49-2	Selenium	0.21 - 0.25	mg/Kg	NA	NA	NA	NA	NA	NA	-	-	-	-	0.94	-	-	-
7440-22-4	Silver	0.25	mg/Kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-23-5	Sodium	59.9 - 82.4	mg/Kg	-	-	-	-	-	-	252	-	-	-	-	-	63.4 J	83.1 J
7440-62-2	Vanadium	12.3 - 22.7	mg/Kg	21.6	21.1	13.9	33.6	18.5	22.8	31.6	27	22.7	24.5	21	24.6	25.7	22.7
7440-66-6	Zinc	31.1 - 64.1	mg/Kg	111	59.3	64.6	137	50.8	79.5	48	56.7	53.4	43.8	51.7	55	63.3 J	117 J

Sample concentrations that exceed the criteria and background range are shaded.

- Not Detected

NA - Not analyzed or Not Reported

TABLE 3
WASTE CHARACTERIZATION SAMPLE RESULTS
SCOTIA DEPOT

		Ferrochrome Pad	Lead/Zinc Storage Area			Dry Wells	
Analyte	**Units**	**SCFP**	**SCZP**	**SS-1**	**SS-2**	**DW-1**	**DW-2**
Benzene	mg/L	ND	ND	NA	NA	ND	ND
Carbon Tetrachloride	mg/L	ND	ND	NA	NA	ND	ND
Chlorobenzene	mg/L	ND	ND	NA	NA	ND	ND
Chloroform	mg/L	ND	ND	NA	NA	ND	ND
1,2-Dichloroethane	mg/L	ND	ND	NA	NA	ND	ND
1,1-Dichloroethylene	mg/L	ND	ND	NA	NA	ND	ND
Methyl ethyl ketone (2-Butanone) (200)	mg/L	ND	ND	NA	NA	NA	0.2
Tetrachloroethylene (0.7)	mg/L	ND	ND	NA	NA	NA	0.36
Trichloroethylene	mg/L	ND	ND	NA	NA	ND	ND
Vinyl chloride	mg/L	ND	ND	NA	NA	ND	ND
o-Cresol	mg/L	ND	ND	NA	NA	ND	ND
m-Cresol & p-Cresol	mg/L	ND	ND	NA	NA	ND	ND
1,4-Dichlorobenzene	mg/L	ND	ND	NA	NA	ND	ND
2,4-Dinitrotoluene	mg/L	ND	ND	NA	NA	ND	ND
Hexachlorobenzene	mg/L	ND	ND	NA	NA	ND	ND
Hexachlorobutadiene	mg/L	ND	ND	NA	NA	ND	ND
Hexachloroethane	mg/L	ND	ND	NA	NA	ND	ND
Nitrobenzene	mg/L	ND	ND	NA	NA	ND	ND
Pentachlorophenol	mg/L	ND	ND	NA	NA	ND	ND
Pyridine	mg/L	ND	ND	NA	NA	ND	ND
2,4,5-Trichlorophenol	mg/L	ND	ND	NA	NA	ND	ND
2,4,6-Trichlorophenol	mg/L	ND	ND	NA	NA	ND	ND
Chlordane	mg/L	ND	ND	NA	NA	ND	ND
Endrin	mg/L	ND	ND	NA	NA	ND	ND
Heptachlor	mg/L	ND	ND	NA	NA	ND	ND
Heptachlor epoxide	mg/L	ND	ND	NA	NA	ND	ND
Lindane	mg/L	ND	ND	NA	NA	ND	ND
Methoxychlor	mg/L	ND	ND	NA	NA	ND	ND
Toxaphene	mg/L	ND	ND	NA	NA	ND	ND
2,4-D	mg/L	ND	ND	NA	NA	ND	ND
2,4,5-TP or Silvex (1.0)	mg/L	ND	ND	NA	NA	0.0036	ND
Arsenic (5.0)	mg/L	0.0027	ND	0.094	0.096	0.21	0.21
Barium (100.0)	mg/L	0.27	0.39	0.25	0.22	0.13	0.21
Cadmium (1.0)	mg/L	0.018	0.00052	0.0066	0.017	ND	ND
Chromium (5.0)	mg/L	0.0049	0.0074	0.053	ND	ND	ND
Lead (5.0)	mg/L	0.083	ND	ND	ND	ND	ND
Selenium (1.0)	mg/L	0.0052	0.0078	ND	ND	ND	ND
Silver (5.0)	mg/L	0.0016	ND	ND	ND	ND	ND
Mercury (0.2)	mg/L	ND	ND	ND	ND	ND	0.00013
Corrosivity	No Units	7.7	8.5	NA	NA	8.3	8.4
Ignitability	No Units	NO	NO	NA	NA	NO	NO
Reactive Cyanide	mg/kg	ND	ND	NA	NA	ND	ND
Reactive Sulfide	mg/kg	ND	ND	NA	NA	ND	ND
TCL PCB Aroclors	ug/kg	NA	NA	NA	NA	ND	ND

( ) – Regulatory criteria for classification as hazardous waste

TABLE 4
Combined Soil Analytical Data Set
Scotia Depot
Focused SI and Phase II Site Assessment

				Ferrochrome Open Storage Area									
			SAMPLE ID:	MS-13	MS-14	MS-15	MS-16	MS-17	MS-18	MS-19	MS-20	MS-21	MS-22
			LAB ID:	100507	100508	100509	100510	100511	100512	100513	100514	100515	100516
		Range of	DEPTH:	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5
		Background	SAMPLED:	12/3/1998	12/3/1998	12/3/1998	12/3/1998	12/3/1998	12/3/1998	12/3/1998	12/3/1998	12/3/1998	12/3/1998
CAS NO.	COMPOUND	Soil Concentrations	UNITS:										
	METALS												
7429-90-5	Aluminum	4650 - 9600	mg/Kg	4750	8960	8270	7080	7220	7850	8060	9100	8690	9470
7440-36-0	Antimony	0.29 - 0.49	mg/Kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-38-2	Arsenic	2.7 - 6.5	mg/Kg	3.2	4.7	4.4	3.8	3.6	4.2	4.8	5.5	5.4	4.8
7440-39-3	Barium	21.7 - 75.4	mg/Kg	21.2	38.3	36.8	43.4	34.9	21.5	43.6	25	22.7	46.2
7440-41-7	Beryllium	0.26 - 0.58	mg/Kg	0.31	0.47	0.47	0.41	0.41	0.51	0.44	0.62	0.57	0.47
7440-43-9	Cadmium	0.14 - 0.29	mg/Kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-70-2	Calcium	864 - 21500	mg/Kg	33400	4530	6260	2540	15800	951	3830	832	1100	2500
7440-47-3	Chromium	5.5 - 12.3	mg/Kg	6.8	12.5	20.3	42.4	17.7	14	17.8	13.3	11.1	10.8
7440-48-4	Cobalt	3.5 - 8.9	mg/Kg	4.4	6.6	5.1	4.2	5.5	5.3	4.4	6.4	6.1	4.6
7440-50-8	Copper	9.3 - 18.7	mg/Kg	12.5	13	12.5	9.9	14.6	12.2	10.3	15.4	18.8	10.2
7439-89-6	Iron	11000 - 21400	mg/Kg	12000	18000	16900	14400	16000	16400	15100	21600	20700	17600
7439-92-1	Lead	8.9 - 31.6	mg/Kg	4.7	13.2	13	17.8	10.3	6.9	8.7	7.2	6.4	9.3
7439-95-4	Magnesium	1940 - 7360	mg/Kg	3390	2670	2590	1850	4790	1980	1950	2310	2460	1880
7439-96-5	Manganese	225 - 619	mg/Kg	288	415	429	539	444	258	650	283	387	635
7439-97-6	Mercury	0.027 - 0.057	mg/Kg	-	0.08	0.08	0.06	-	0.03	0.06	0.03	0.02	0.03
7440-02-0	Nickel	6.8 - 15.8	mg/Kg	10	14	11	9.5	12	11.2	9.9	13.8	13.2	9.9
7440-09-7	Potassium	400 - 1230	mg/Kg	497	447	432	286	505	453	381	446	487	240
7782-49-2	Selenium	0.21 - 0.25	mg/Kg	-	-	-	1.2	-	-	-	-	-	1.1
7440-22-4	Silver	0.25	mg/Kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-23-5	Sodium	59.9 - 82.4	mg/Kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-62-2	Vanadium	12.3 - 22.7	mg/Kg	11.3	21.6	19.7	18.7	17.2	18.5	17.4	23.7	19.7	20.3
7440-66-6	Zinc	31.1 - 64.1	mg/Kg	31.6	44.2	40.3	40.2	40.5	31.8	38.2	38.7	47.1	44.1

Sample concentrations that exceed the background range are shaded.

- Not Detected

NA - Not analyzed or Not Reported

TABLE 5
Confirmatory Soil Sample Results
Former Ferrochrome Pad
Scotia Depot

					Bottom of Excavation Trench - Ferrochrome Pad				Surface of Backfilled Soil - Ferrochrome Pad			
		Range of Background Soil Concentrations	Range of FSI Soil Concentrations	Sample ID:	CFP-E	CFP-N	CFP-S	CFP-W	SFP-E	SFP-N	SFP-S	SFP-W
				Lab Sample Id:	C4E040331009	C4E040331007	C4E040331008	C4E040331010	C4E040331005	C4E040331003	C4E040331004	C4E040331006
				Depth:	2.5'	2.5'	2.5'	2.5'	0 - 0.2'	0 - 0.2'	0 - 0.2'	0 - 0.2'
				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sampled:	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
				Validated on:	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004
	COMPOUND			UNITS:								
	METALS											
7429-90-5	Aluminum	4650 - 9600	4740 - 12700	mg/kg	8780 J	9070 J	8790 J	10300 J	7530 J	5630 J	6560 J	10100 J
7440-36-0	Antimony	0.29 - 0.49	ND - 1.7	mg/kg	0.36 UJ	0.41 UJ	0.36 UJ	0.35 UJ	0.34 UJ	0.33 UJ	0.42 J	0.35 UJ
7440-38-2	Arsenic	2.7 - 6.5	5.9 - 21.4	mg/kg	4.6	15	7.9	5	13.6	**31.6**	11.8	**45.3**
7440-39-3	Barium	21.7 - 75.4	23.1 - 39.5	mg/kg	27.1	36.4	23.8	36.3	27.4	26.7	31.5	34
7440-41-7	Beryllium	0.26 - 0.58	0.32 - 0.73	mg/kg	0.65	0.63	**0.79**	**0.8**	0.71	0.46	0.54	**0.8**
7440-43-9	Cadmium	0.14 - 0.29	NA	mg/kg	0.077 U	0.088 U	0.078 U	0.077 U	0.074 U	0.072 U	0.075 U	0.075 U
7440-70-2	Calcium	864 - 21500	5090 - 60300	mg/kg	1710 J	16200 J	1360 J	928 J	13900 J	34800 J	29100 J	8550 J
7440-47-3	Chromium	5.5 - 12.3	7.4 - 14.5	mg/kg	9.7 J	13.2 J	10.9 J	11.4 J	10.7 J	9.1 J	10.6 J	12.4 J
7440-48-4	Cobalt	3.5 - 8.9	4.5 - 8.3	mg/kg	4.7 J	5.7 J	5.7	6.2	5 J	4.4 J	4.9 J	7
7440-50-8	Copper	9.3 - 18.7	16.5 - 103	mg/kg	12.5	13.9	18.4	15.4	17.1	16.7	20.8	23.8
7439-89-6	Iron	11000 - 21400	13700 - 23000	mg/kg	15900 J	18800 J	19700 J	19800 J	16400 J	13000 J	15000 J	21300 J
7439-92-1	Lead	8.9 - 31.6	7 - 23.7	mg/kg	5.8	11.3	7.6	7.4	8.1	8.4	14.7	9
7439-95-4	Magnesium	1940 - 7360	3500 - 20000	mg/kg	2330	6360	2830	2420	6100	7940	11400	4820
7439-96-5	Manganese	225 - 619	422 - 677	mg/kg	263	455	383	308	464	371	483	463
7439-97-6	Mercury	0.027 - 0.057	0.02 - 0.06	mg/kg	0.028 J	**0.069**	0.041	0.013 U	0.013 U	0.028 J	0.019 J	0.037
7440-02-0	Nickel	6.8 - 15.8	10.2 - 16.6	mg/kg	10.7 J	11.7 J	13.4 J	15.4 J	11.3 J	9.4 J	10.8 J	13.3 J
7440-09-7	Potassium	400 - 1230	404 - 608	mg/kg	492 J	526 J	737 J	681 J	713 J	710 J	699 J	693 J
7782-49-2	Selenium	0.21 - 0.25	ND - 0.94	mg/kg	0.29 U	0.33 U	0.29 J	0.3 J	0.28 U	0.27 J	0.28 U	0.28 U
7440-22-4	Silver	ND - 0.25	NA	mg/kg	0.033 U	0.038 U	0.033 U	0.033 U	0.047 J	0.031 U	0.04 J	0.032 U
7440-23-5	Sodium	59.9 - 82.4	ND - 252	mg/kg	17.4 U	19.9 U	17.5 U	17.4 U	16.7 U	16.1 U	16.8 U	16.9 U
7440-28-0	Thallium	ND	ND	mg/kg	**0.51 J**	0.58 U	**0.69 J**	**0.67 J**	**0.49 J**	0.47 U	**0.58 J**	**0.59 J**
7440-62-2	Vanadium	12.3 - 22.7	13.9 - 33.6	mg/kg	18.6	23.7	19.9	21.6	19.4	15.1	17.4	23.8
7440-66-6	Zinc	31.1 - 64.1	43.8 - 137	mg/kg	33.1	44.9	49.7	47.7	50.2	44	59.4	46.9

U - Analyte analyzed for but not detected above the reporting limit.
J - Analyte concentration considered estimated.

31.5 Sample concentration exceeds previous FSI sample concentration range and background range

0.29 Sample concentration exceeds background sample concentration range

TABLE 6
Confirmatory Soil Sample Results
Former Lead/Zinc Open Storage Area
Scotia Depot

					Former Lead/Zinc Pad	
		Range of Background Soil Concentrations	Range of FSI Soil Concentrations	Sample ID:	CZP-NE	SZP-NE
				Lab Sample Id:	C4E040331002	C4E040331001
				Depth:	2.5'	0-0.2'
				Source:	STL Pittsburgh	STL Pittsburgh
				SDG:	C4E040331	C4E040331
				Matrix:	SOIL	SOIL
				Sampled:	4/29/2004	4/29/2004
				Validated on:	6/8/2004	6/8/2004
	COMPOUND			UNITS:		
	METALS					
7429-90-5	Aluminum	4650 - 9600	4740 - 12700	mg/kg	9910 J	8000 J
7440-36-0	Antimony	0.29 - 0.49	ND - 1.7	mg/kg	0.42 UJ	0.35 UJ
7440-38-2	Arsenic	2.7 - 6.5	5.9 - 21.4	mg/kg	4.6	9.9
7440-39-3	Barium	21.7 - 75.4	23.1 - 39.5	mg/kg	71.1	28.7
7440-41-7	Beryllium	0.26 - 0.58	0.32 - 0.73	mg/kg	0.48 J	0.73
7440-43-9	Cadmium	0.14 - 0.29	NA	mg/kg	0.092 U	0.33 J
7440-70-2	Calcium	864 - 21500	5090 - 60300	mg/kg	832 J	25500 J
7440-47-3	Chromium	5.5 - 12.3	7.4 - 14.5	mg/kg	9.9 J	10.9 J
7440-48-4	Cobalt	3.5 - 8.9	4.5 - 8.3	mg/kg	3.9 J	5 J
7440-50-8	Copper	9.3 - 18.7	16.5 - 103	mg/kg	8.7	18.6
7439-89-6	Iron	11000 - 21400	13700 - 23000	mg/kg	13700 J	17200 J
7439-92-1	Lead	8.9 - 31.6	7 - 23.7	mg/kg	11.7	7.5
7439-95-4	Magnesium	1940 - 7360	3500 - 20000	mg/kg	1490	10700
7439-96-5	Manganese	225 - 619	422 - 677	mg/kg	**1580**	592
7439-97-6	Mercury	0.027 - 0.057	0.02 - 0.06	mg/kg	**0.097**	0.032 J
7440-02-0	Nickel	6.8 - 15.8	10.2 - 16.6	mg/kg	8 J	11.5 J
7440-09-7	Potassium	400 - 1230	404 - 608	mg/kg	460 J	779 J
7782-49-2	Selenium	0.21 - 0.25	ND - 0.94	mg/kg	0.55 J	0.28 U
7440-22-4	Silver	ND - 0.25	NA	mg/kg	0.22 J	0.037 J
7440-23-5	Sodium	59.9 - 82.4	ND - 252	mg/kg	20.6 U	17 U
7440-28-0	Thallium	ND	ND	mg/kg	0.6 U	**1.1 J**
7440-62-2	Vanadium	12.3 - 22.7	13.9 - 33.6	mg/kg	18.4	21.1
7440-66-6	Zinc	31.1 - 64.1	43.8 - 137	mg/kg	50.5	64.9

U - Analyte analyzed for but not detected above the reporting limit.
J - Analyte concentration considered estimated.

33.6 Sample concentration exceeds previous FSI sample concentration range and background range

12.1 Sample concentration exceeds background sample concentration range

TABLE 7
Catch Basin/Dry Well Sample Results
Former Lead/Zinc Open Storage Area
Scotia Depot

				Catch Basins and Dry Well			
		Range of Background Soil Concentrations	Sample ID:	SD-1	SD-2	SD-3	DRY WELL
			Lab Sample Id:	C4E040331011	C4E040331012	C4E040331013	C4E040331014
			Depth:	2.5'	2.5'	2.5'	4.0'
			Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
			SDG:	C4E040331	C4E040331	C4E040331	C4E040331
			Matrix:	SOIL	SOIL	SOIL	SOIL
			Sampled:	4/29/2004	4/29/2004	4/29/2004	4/29/2004
			Validated on:	6/8/2004	6/8/2004	6/8/2004	6/8/2004
	COMPOUND		UNITS:				
	METALS						
7429-90-5	Aluminum	4650 - 9600	mg/kg	4500 J	3600 J	4180 J	4100 J
7440-36-0	Antimony	0.29 - 0.49	mg/kg	0.68 J	4.6 J	8 J	2.5 J
7440-38-2	Arsenic	2.7 - 6.5	mg/kg	19.9	57.7	224	8.9
7440-39-3	Barium	21.7 - 75.4	mg/kg	23.6 J	44.4	75.6	32.3
7440-41-7	Beryllium	0.26 - 0.58	mg/kg	0.45 J	0.49 J	0.57 J	0.46
7440-43-9	Cadmium	0.14 - 0.29	mg/kg	0.13 J	4.3	13	0.4 J
7440-70-2	Calcium	864 - 21500	mg/kg	40200 J	64900 J	39000 J	48200 J
7440-47-3	Chromium	5.5 - 12.3	mg/kg	7.9 J	21 J	53.8 J	9.1 J
7440-48-4	Cobalt	3.5 - 8.9	mg/kg	3.5 J	51.3	201	6.2
7440-50-8	Copper	9.3 - 18.7	mg/kg	37.6	263	484	33.7
7439-89-6	Iron	11000 - 21400	mg/kg	12100 J	17400 J	34700 J	10400 J
7439-92-1	Lead	8.9 - 31.6	mg/kg	23.9	377	918	117
7439-95-4	Magnesium	1940 - 7360	mg/kg	18900	25400	21000	18000
7439-96-5	Manganese	225 - 619	mg/kg	585	354	412	273
7439-97-6	Mercury	0.027 - 0.057	mg/kg	0.026 J	0.34	3.1	0.15
7440-02-0	Nickel	6.8 - 15.8	mg/kg	8.8 J	22.8 J	47.6 J	9.3 J
7440-09-7	Potassium	400 - 1230	mg/kg	466 J	604 J	736 J	639 J
7782-49-2	Selenium	0.21 - 0.25	mg/kg	0.32 U	0.6 J	1.2 J	0.29 U
7440-22-4	Silver	ND - 0.25	mg/kg	0.12 J	0.6 J	1.9	0.073 J
7440-23-5	Sodium	59.9 - 82.4	mg/kg	19.1 U	20.5 U	46.2 U	17.1 U
7440-28-0	Thallium	ND	mg/kg	0.56 U	0.8 J	1.2 J	0.5 U
7440-62-2	Vanadium	12.3 - 22.7	mg/kg	13.8	33.2	62	15
7440-66-6	Zinc	31.1 - 64.1	mg/kg	222	502	1070	89.6

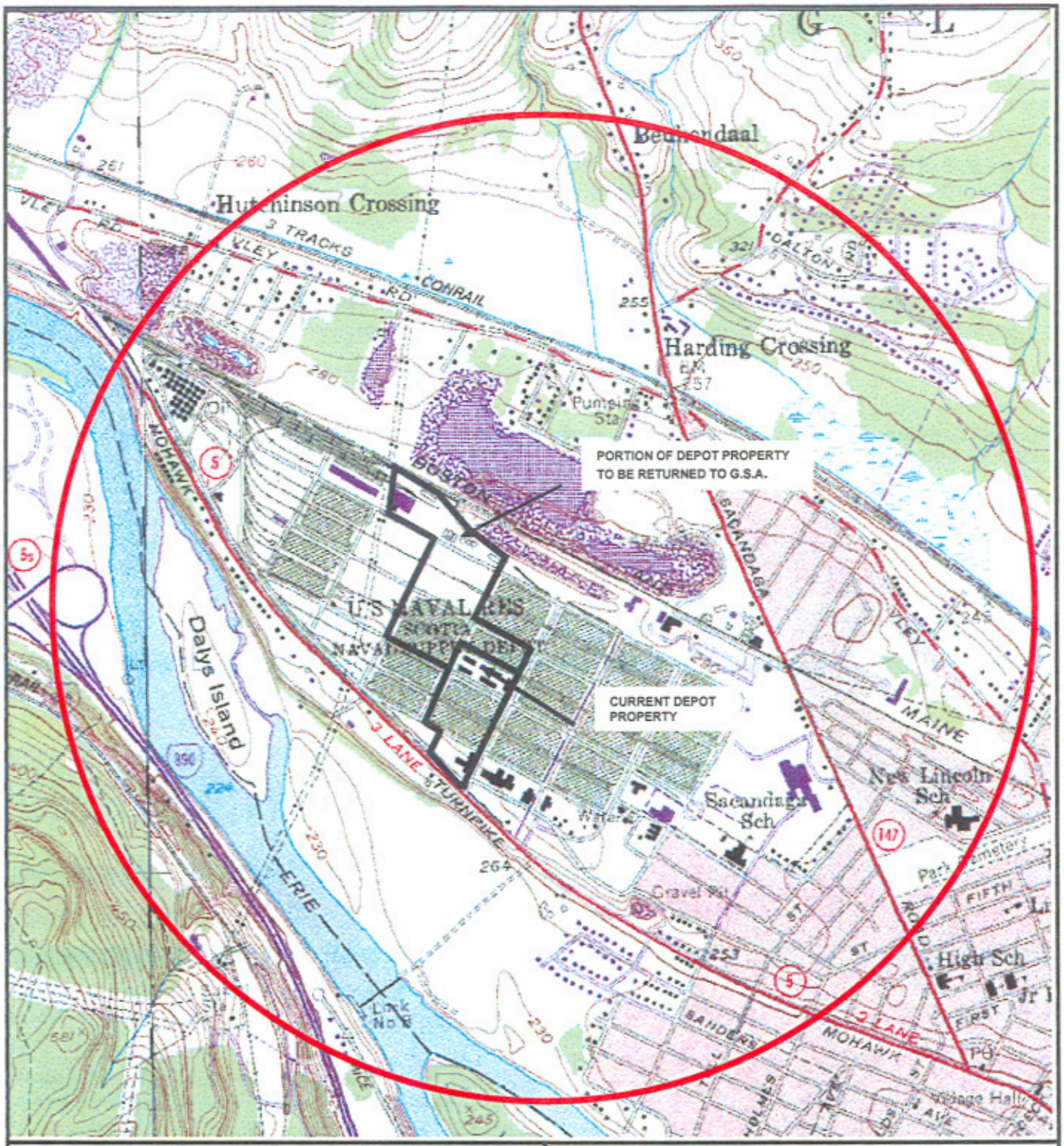
U - Analyte analyzed for but not detected above the reporting limit.
J - Analyte concentration considered estimated.
12.1 Sample concentration exceeds background sample concentration range

TABLE 8
Soil Backfill Source and Dry Well Confirmation Sample Results
Scotia Depot

				Dry Wells		Backfill Source
		Range of Background Soil Concentrations	Sample ID:	DW-1	DW-2	BACKFILL
			Lab Sample ID:	C5K290318-001	C5K290318-002	C5J080102-003
			Depth:	12 Feet	10 Feet	0-0.5 Feet
			Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
			SDG:	C5K290318	C5K290318	C5J080102
			Matrix:	SOIL	SOIL	SOIL
			Sampled:	11/28/2005	11/28/2005	10/6/2005
			Validated on:	12/28/2005	12/28/2005	
	COMPOUND		UNITS:			
	VOLATILES					
	None Detected		ug/kg	ND	ND	NA
	METALS					
7429-90-5	Aluminum	4650 - 9600	mg/kg	4370	5720	4450
7440-36-0	Antimony	0.29 - 0.49	mg/kg	0.34 U	3.2	0.33 U
7440-38-2	Arsenic	2.7 - 6.5	mg/kg	3.1	12.7	4.8
7440-39-3	Barium	21.7 - 75.4	mg/kg	24	36	25.2
7440-41-7	Beryllium	0.26 - 0.58	mg/kg	0.32 J	0.47	0.38 B
7440-43-9	Cadmium	0.14 - 0.29	mg/kg	0.074 U	2.4	0.072 U
7440-70-2	Calcium	864 - 21500	mg/kg	80900	52800	56400 E
7440-47-3	Chromium	5.5 - 12.3	mg/kg	6.7 J	12.3 J	12.2
7440-48-4	Cobalt	3.5 - 8.9	mg/kg	3.6 J	7.8	4.5 B,E
7440-50-8	Copper	9.3 - 18.7	mg/kg	18.2	67.3	14.4
7439-89-6	Iron	11000 - 21400	mg/kg	11500	13700	12000 J
7439-92-1	Lead	8.9 - 31.6	mg/kg	7.4	104	39.4
7439-95-4	Magnesium	1940 - 7360	mg/kg	11000 J	19600 J	13200
7439-96-5	Manganese	225 - 619	mg/kg	330	393	317
7439-97-6	Mercury	0.027 - 0.057	mg/kg	0.021 J	0.12	0.032 B
7440-02-0	Nickel	6.8 - 15.8	mg/kg	8.3 J	14.3 J	10.4 E
7440-09-7	Potassium	400 - 1230	mg/kg	725 J	1040 J	524 J
7782-49-2	Selenium	0.21 - 0.25	mg/kg	0.28 U	0.34 J	0.27 U
7440-22-4	Silver	ND - 0.25	mg/kg	0.074 J	0.23 J	0.036 B,J
7440-23-5	Sodium	59.9 - 82.4	mg/kg	97.8 J	55.2 J	76.2 B
7440-28-0	Thallium	ND	mg/kg	0.51 J	0.5 U	0.47 U
7440-62-2	Vanadium	12.3 - 22.7	mg/kg	13.2 J	19.9 J	13
7440-66-6	Zinc	31.1 - 64.1	mg/kg	34 J	362 J	53.1 J,E

U - Analyte analyzed for but not detected above the reporting limit.
J - Analyte concentration considered estimated.
E - Matrix interference; concentration is estimated.

12.1 Sample concentration exceeds background sample concentration range



New York Quadrangle

LATITUDE: N42° 50' 24"
LONGITUDE: W73° 59' 06"

SOURCE: DeLORME 3-D TOPOQUAD PROGRAM

0 500 1000

Approximate Scale in Feet

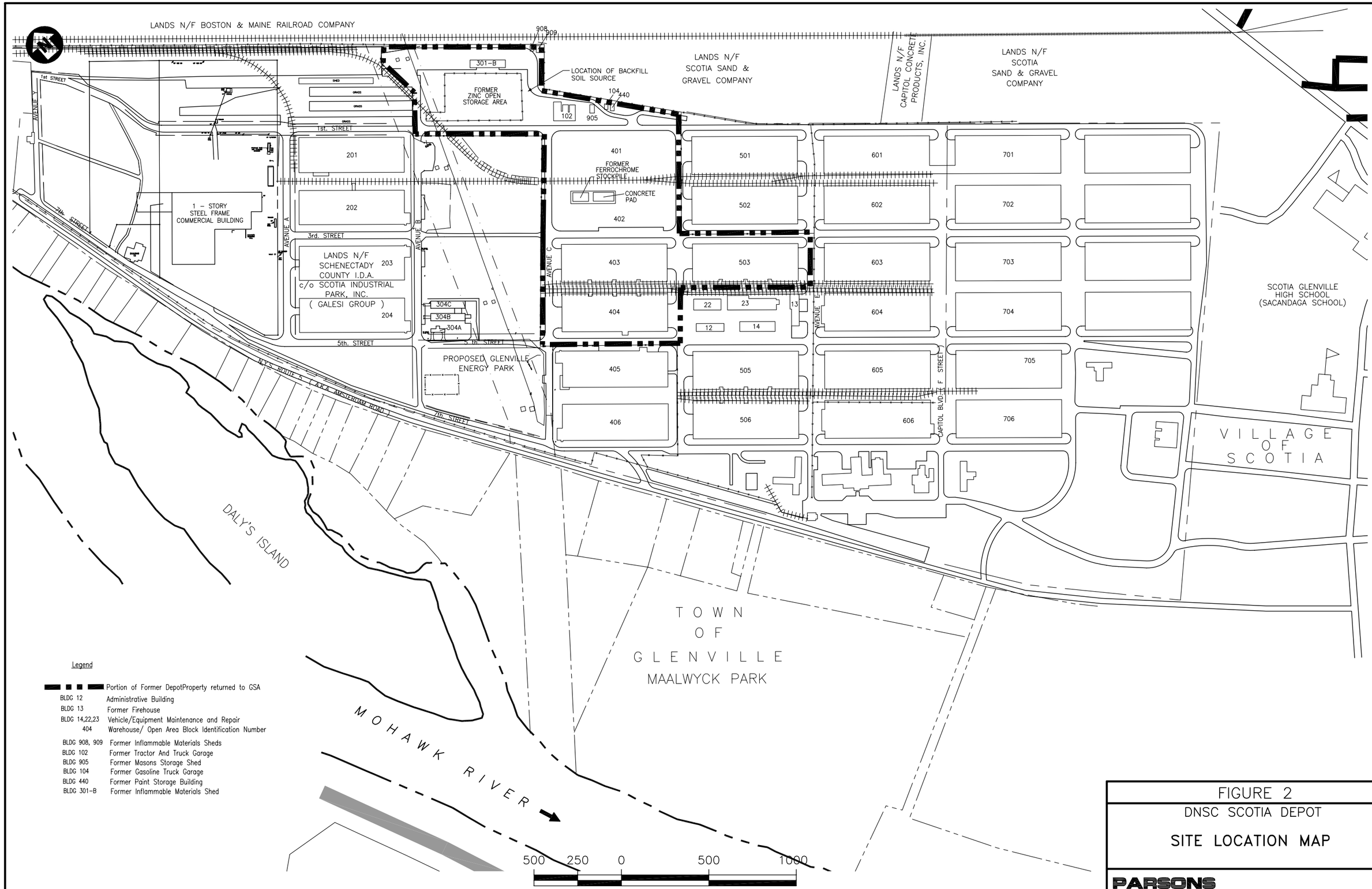
FIGURE 1

DNSC SCOTIA DEPOT
SCOTIA, NEW YORK

SITE VICINITY MAP

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088 PHONE: (315) 451-9560

P:\735141\cad\scotia\scotiasitemap.ppt



Legend

▬ ▪ ▬ ▪ ▬	Portion of Former DepotProperty returned to GSA
BLDG 12	Administrative Building
BLDG 13	Former Firehouse
BLDG 14,22,23	Vehicle/Equipment Maintenance and Repair
404	Warehouse/ Open Area Block Identification Number
BLDG 908, 909	Former Inflammable Materials Sheds
BLDG 102	Former Tractor And Truck Garage
BLDG 905	Former Masons Storage Shed
BLDG 104	Former Gasoline Truck Garage
BLDG 440	Former Paint Storage Building
BLDG 301-B	Former Inflammable Materials Shed

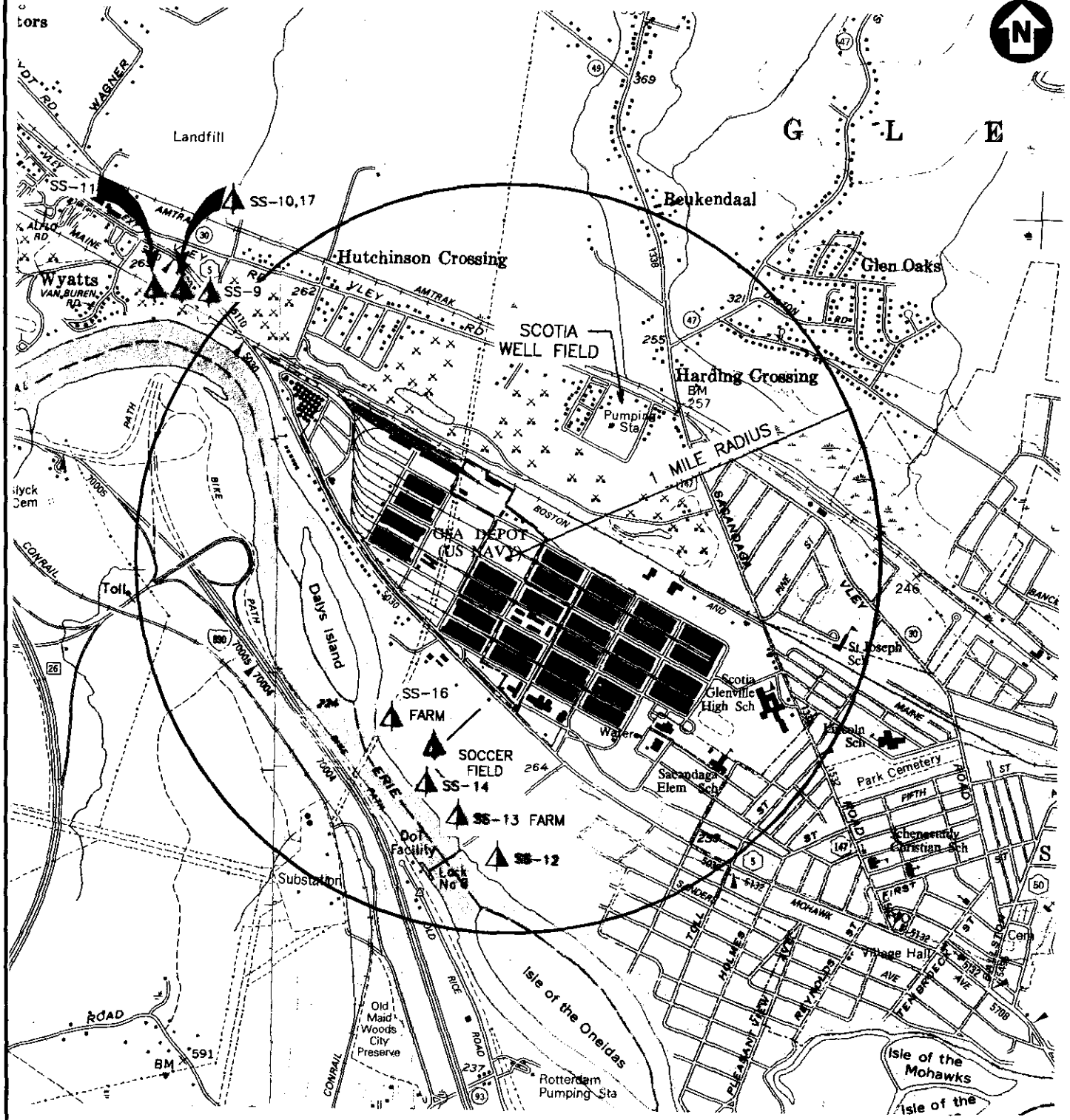
FIGURE 2

DNSC SCOTIA DEPOT

SITE LOCATION MAP

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

No XREFs
P:\742685\SCOTIA\685c001.dwg, 8/12/04 at 9:23, CLW, 1/1



LEGEND:

CURRENT DEPOT PROERTY

2000 1000 0 2000 4000

APPROXIMATE SCALE IN FEET

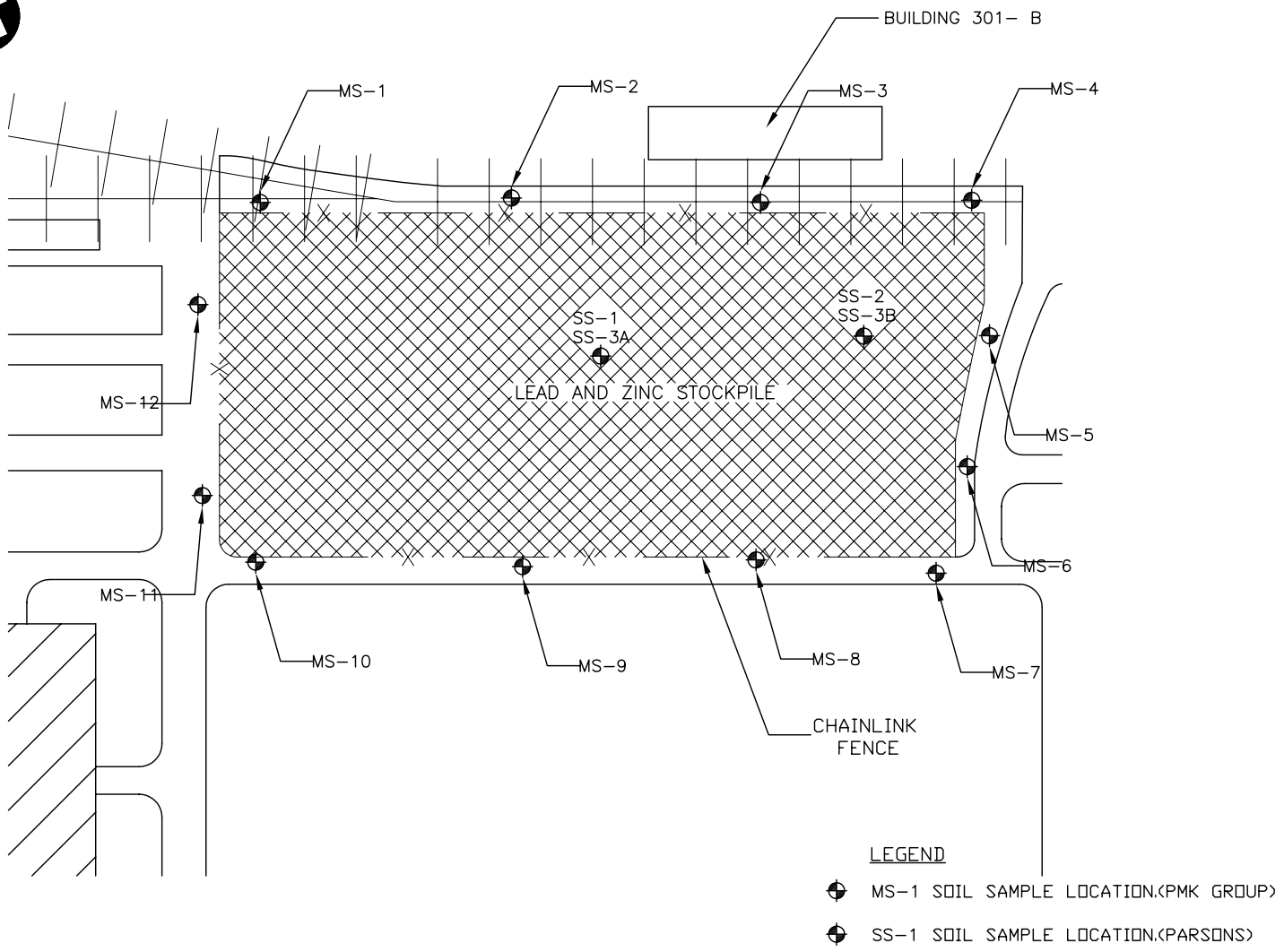
DATE: 06/25/98 (SEH)
FILE: P:\CAD\733496\33496G01.DWG
SCALE: MODEL SCALE, 1=1
XREF'S: NONE

FIGURE 3

DLA/DNSC SCOTIA DEPOT

BACKGROUND SOIL SAMPLE LOCATIONS

PARSONS ENGINEERING SCIENCE, INC.
DESIGN * RESEARCH * PLANNING
290 ELWOOD DAVIS ROAD * SUITE 312 * LIVERPOOL, N.Y. 13088 * 315/451-9560
OFFICES IN PRINCIPAL CITIES



SOURCE: PMK GROUP, 1999

NOT TO SCALE

FIGURE 4

DNSC SCOTIA DEPOT
LEAD/ZINC OPEN STORAGE AREA
SOIL SAMPLING LOCATIONS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315–451–9560

No XREFs
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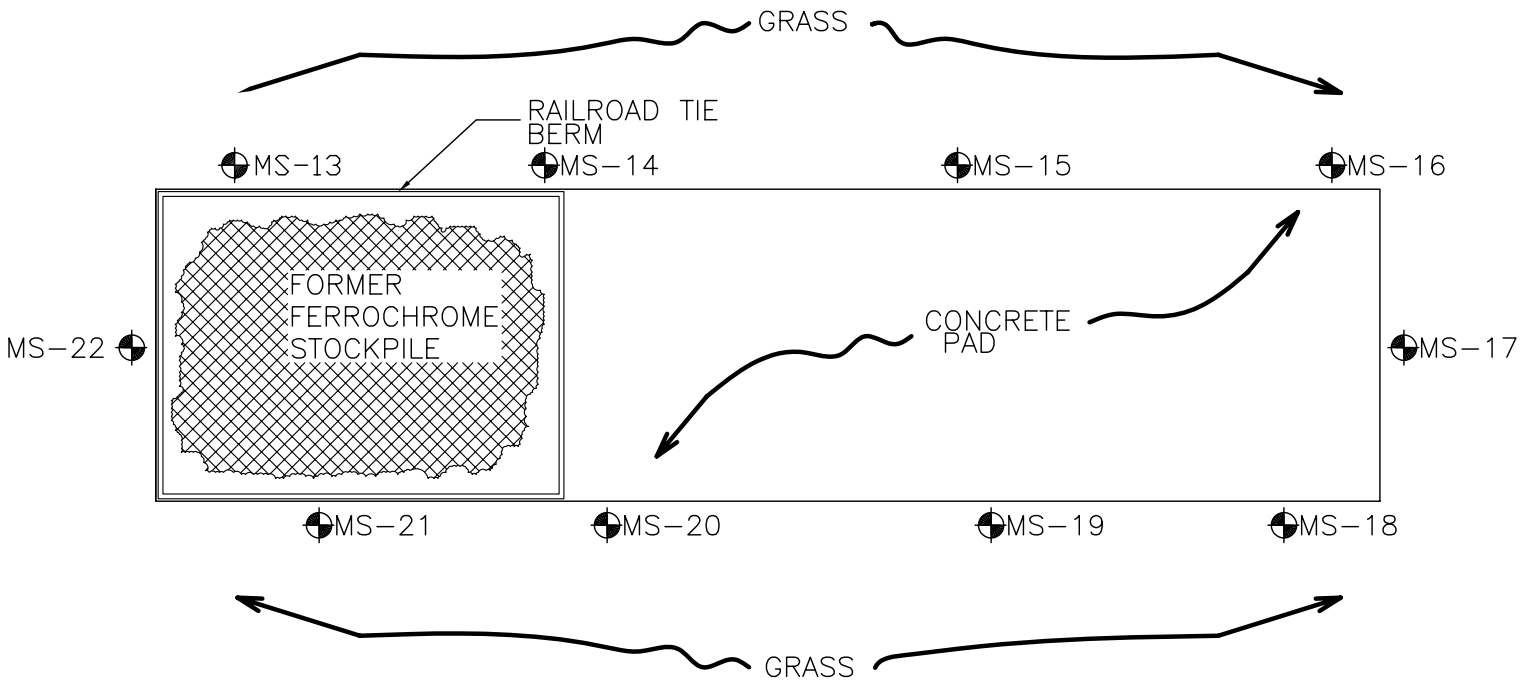

LEGEND

MS-21 SOIL SAMPLE LOCATION

SOURCE:PMK GROUP,1999

40 20 0 40 80

APPROXIMATE SCALE IN FEET

FIGURE 5

DNSC SCOTIA DEPOT
OUTDOOR FERROCHROME STOCKPILE
SOIL SAMPLING LOCATIONS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

No XREFs
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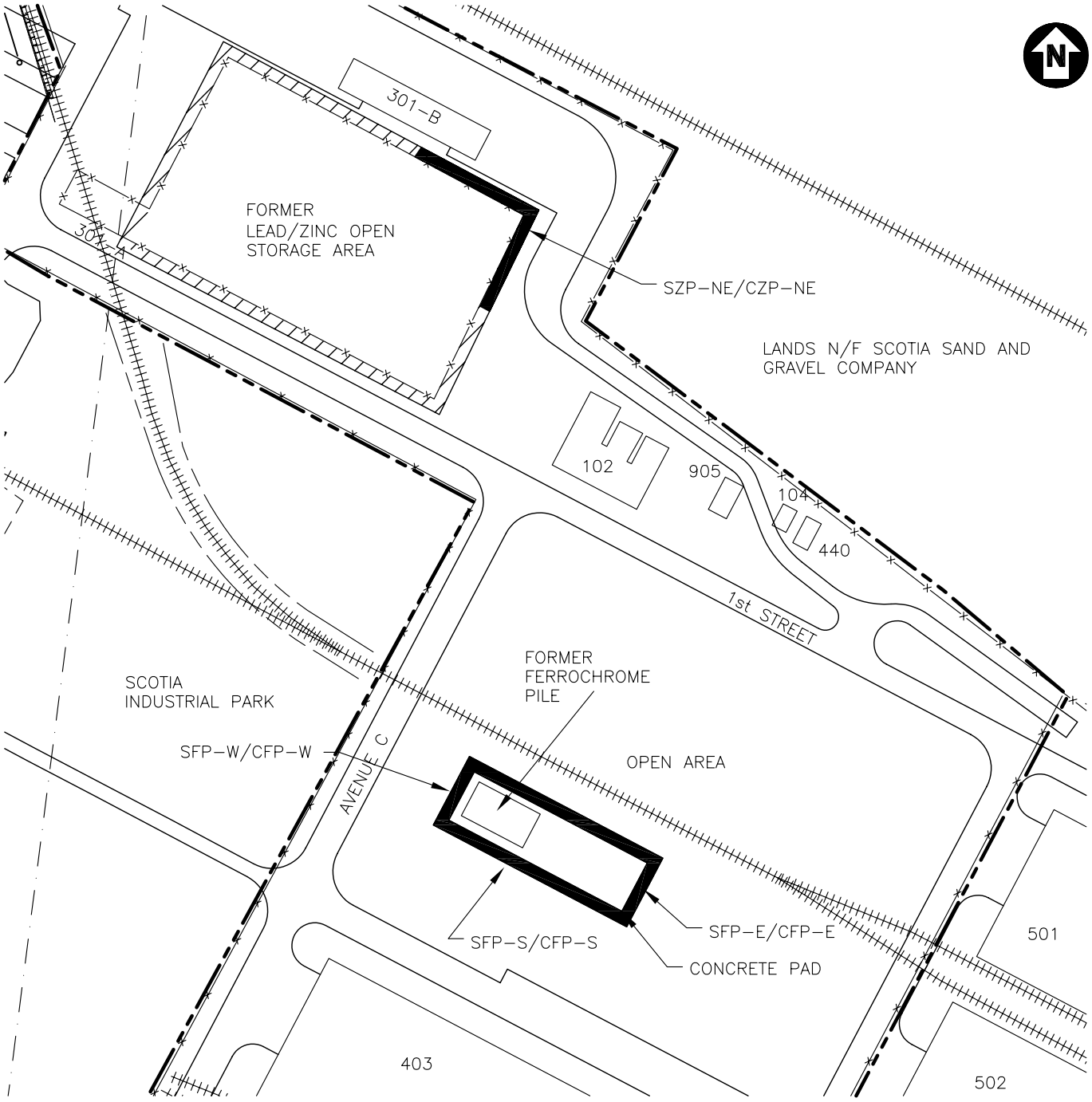


BASE MAP SOURCE: EARTH TECH

LEGEND:

SOIL REMOVED FROM ASPHALT SURFACE

SCOTIA DEPOT PROPERTY LINE

SOIL REMOVED TO DEPTH OF 2 FT

SFP-W/CFP-W CONFIRMATORY SOIL SAMPLE LOCATION

200 100 0 200 400

APPROXIMATE SCALE IN FEET

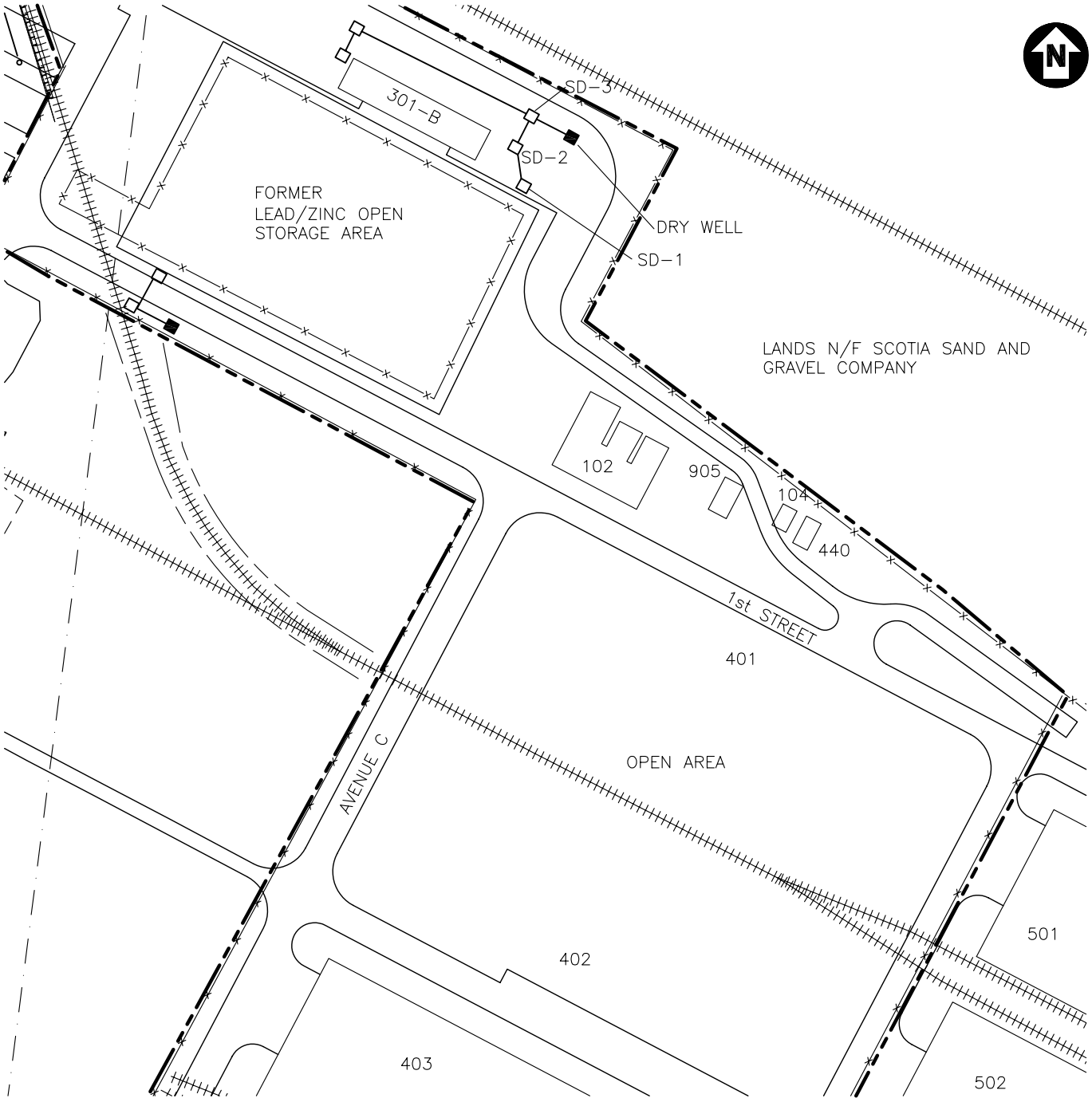
No XREFs
P:\740015\CAD\015C004(FIGURE 6).dwg, 1/26/06, CLW, 1=1

FIGURE 6

DLA/DNSC
SCOTIA DEPOT

SOIL REMOVAL AREAS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560



LEGEND:

SCOTIA DEPOT PROPERTY LINE

SD-1 CATCH BASIN AND SAMPLE LOCATION

DRY WELL DRY WELL AND SAMPLE LOCATION

200 100 0 200 400

APPROXIMATE SCALE IN FEET

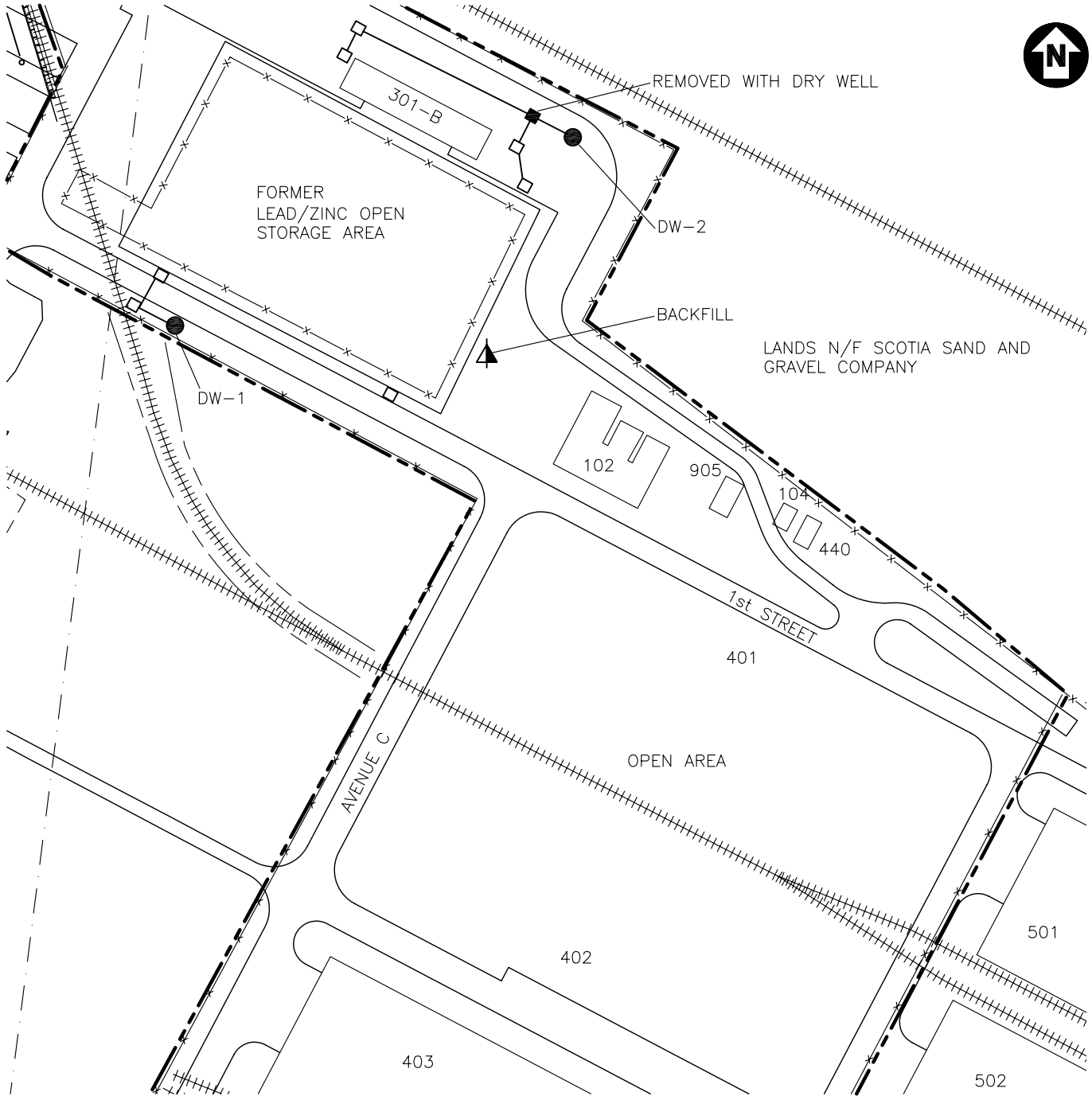
No XREFs
P:\742466\CAD\FIGURE 7.dwg, 1/26/06, CLW, 1=1

FIGURE 7

DLA/DNSC
SCOTIA DEPOT

CATCH BASIN AND DRY WELL LOCATIONS FORMER LEAD/ZINC STORAGE AREA

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560



LEGEND:

- SCOTIA DEPOT PROPERTY LINE
- CATCH BASIN (BACKFILLED)
- CATCH BASIN (REMOVED)
- DW-1 DRY WELL (REMOVED) AND CONFIRMATORY SOIL SAMPLE LOCATION
- BACKFILL SAMPLE OF SOIL BACKFILL SOURCE

200 100 0 200 400

APPROXIMATE SCALE IN FEET

No XREFs
P:\742466\CAD\FIGURE 8.dwg, 5/31/06 , CLW

FIGURE 8

DLA/DNSC
SCOTIA DEPOT

DRY WELL WASTE AND BACKFILL SOIL CHARACTERIZATION AND POST-REMOVAL SAMPLE LOCATIONS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

APPENDIX A

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT

FORMER SCOTIA ARMY DEPOT

Prepared For:

U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE CENTER

Prepared By:

PARSONS

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Suite 312
Liverpool, NY 13088
Phone: (315) 451-9560
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JANUARY 2006

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SECTION 1

DATA USABILITY SUMMARY

Soil samples were collected from the former Scotia Army Depot site in Scotia, New York on November 28, 2005. Analytical results from these samples were validated and reviewed by Parsons for usability with respect to the following requirements:

- Work Plan,
- NYSDEC Analytical Services Protocol (ASP), and
- USEPA Region II Standard Operating Procedures (SOPs).

The analytical laboratory for this project was Severn Trent Laboratories (STL) in Pittsburgh, Pennsylvania.

1.1 LABORATORY DATA PACKAGES

The laboratory data package turnaround time, defined as the time from sample receipt by the laboratory to receipt of the analytical data packages by Parsons, was 23 days on average for the samples.

The data packages received from STL were paginated, complete, and overall were of good quality. Comments on specific quality control (QC) and other requirements are discussed in detail in the attached data validation reports which are summarized by sample media in Section 2.

1.2 SAMPLING AND CHAIN-OF-CUSTODY

The samples were collected, properly preserved, shipped under a COC record, and received at STL within one day of sampling. All samples were received intact and in good condition at STL.

1.3 LABORATORY ANALYTICAL METHODS

The soil samples were collected from the site and analyzed for volatile organic compounds (VOCs) and metals. Summaries of issues concerning these laboratory analyses are presented in Subsections 1.3.1 through 1.3.2. The data qualifications resulting from the data validation review and statements on the laboratory analytical precision, accuracy, representativeness, completeness, and comparability (PARCC) are discussed for each analytical method in Section 2. The laboratory data were reviewed and may be qualified with the following validation flags:

"U" - not detected at the value given,

"UJ" - estimated and not detected at the value given,

"J" - estimated at the value given,

"N" - presumptive evidence at the value given, and

"R" - unusable value.

The validated laboratory data were tabulated and are presented by media in Attachment A.

1.3.1 Volatile Organic Analysis

Soil samples collected from the site were analyzed by STL for target compound list (TCL) VOCs using the USEPA SW-846 8260B analytical method. Certain reported results for the VOC samples were qualified as estimated due to noncompliant instrument calibrations. Therefore, the reported VOC analytical results were 100% complete (i.e., usable) for the soil data presented by STL. PARCC requirements were met overall.

1.3.2 Metals Analysis

Soil samples collected from the site were analyzed by STL for target analyte list (TAL) metals using the USEPA SW-846 6010B/7471A analytical methods. Certain reported results for the metals samples were qualified as estimated due to noncompliant matrix spike recoveries and serial dilutions. Therefore, the reported metals data were considered 100% complete (i.e., usable) for the soil data presented by STL. PARCC requirements were met overall.

SECTION 2

DATA VALIDATION REPORTS

2.1 SOIL

Data review has been completed for data packages generated by STL containing soil samples collected from the site. The specific samples contained in these data packages, the analyses performed, and a usability summary are presented in Table 2.1-1. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory. The validated laboratory data are presented in Attachment A.

Data validation was performed for all samples in accordance with the most current editions of the USEPA Region II SOPs and the NYSDEC ASP for organic and inorganic data review. This data validation and usability report is presented by analysis type.

2.1.1 Volatiles

The following items were reviewed for compliancy in the volatile analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicates (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries
- Laboratory method blank contamination
- GC/MS instrument performance
- Sample result verification and identification
- Initial and continuing calibrations
- Internal standard area counts and retention times
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of blank contamination and continuing calibrations.

Blank Contamination

The laboratory method blank HRC771AA associated with all samples contained methylene chloride at a concentration of 7.3 μg/Kg. Therefore, positive methylene chloride sample results less than the validation action concentration of 73 μg/Kg were considered not detected and qualified "U".

Continuing Calibrations

All continuing calibration compounds were complaint with a minimum RRF of 0.05 and a maximum percent difference (%D) of ± 25%, with the exception of bromomethane (-34.1%D) and carbon tetrachloride (-26.5%D) in the continuing calibration associated with all samples. The sample results for bromomethane and carbon tetrachloride were considered estimated with positive results qualified "J" and nondetected results qualified "UJ" for the affected samples.

Usability

All volatile sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness and comparability. The volatile soil data presented by STL were 100% complete (i.e., usable). The validated volatile laboratory soil data are tabulated and presented in Attachment A.

2.1.2 Metals

The following items were reviewed for compliancy in the metals analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration, and laboratory preparation blank contamination
- Inductively coupled plasma (ICP) interference check sample (ICS)
- Matrix spike recoveries
- Laboratory duplicate precision
- Laboratory control sample
- ICP serial dilution
- Post digestion spike recoveries
- Sample result verification and identification

- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of matrix spike recoveries, blank contamination, and serial dilutions.

Matrix Spike Recoveries

All the MS recoveries were within the 75-125% control limits and have concentrations less than four times the spiking concentration, with the exception of the recoveries for magnesium (34%R, 157%R) associated with all samples. All sample results for magnesium were considered estimated, possibly biased low, with positive results qualified "J" and nondetected results qualified "UJ".

Blank Contamination

It was noted that the continuing calibration blanks associated with these samples contained zinc at a concentration of 1.9 μg/L = 0.19 mg/Kg. Validation qualification of these samples was not warranted since this laboratory contamination did not affect sample results.

ICP Serial Dilution

All ICP serial dilution results were compliant and within the 10%D QC limit with the exception of chromium, nickel, potassium, vanadium, and zinc. Therefore, positive results for these analytes greater than ten times the instrument detection limit were considered estimated and qualified “J”.

Usability

All metals sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The metals soil data presented by STL were 100% complete (i.e., usable). The validated soil metals laboratory data are tabulated and presented in Attachment A.

TABLE 2.1-1

SUMMARY OF SAMPLE ANALYSES AND USABILITY
SCOTIA DEPOT - SOIL

SAMPLE ID	MATRIX	SAMPLE DATE	TCL VOCs	METALS
DW-1	SOIL	11/28/05	OK	OK
DW-2	SOIL	11/28/05	OK	OK
TOTAL SAMPLES:			2	2

NOTES: OK - Sample analysis considered valid and usable.

ATTACHMENT A

VALIDATED LABORATORY DATA

Validated Analytical Laboratory Results
Scotia Depot

		Sample ID:	DW-1	DW-2
		Lab Sample Id	C5K290318-001	C5K290318-002
		Depth:		
		Source:	STL Pittsburgh	STL Pittsburgh
		SDG:	C5K290318	C5K290318
		Matrix:	SOIL	SOIL
		Sampled:	11/28/2005	11/28/2005
		Validated on:	12/28/2005	12/28/2005
CAS NO.	COMPOUND	UNITS:		
	VOLATILES			
67-64-1	Acetone	ug/kg	21 U	22 U
71-43-2	Benzene	ug/kg	5.3 U	5.3 U
75-27-4	Bromodichloromethane	ug/kg	5.3 U	5.3 U
75-25-2	Bromoform	ug/kg	5.3 U	5.3 U
74-83-9	Bromomethane	ug/kg	5.3 UJ	5.3 UJ
78-93-3	2-Butanone	ug/kg	5.3 U	5.3 U
75-15-0	Carbon disulfide	ug/kg	5.3 U	5.3 U
56-23-5	Carbon tetrachloride	ug/kg	5.3 UJ	5.3 UJ
108-90-7	Chlorobenzene	ug/kg	5.3 U	5.3 U
124-48-1	Dibromochloromethane	ug/kg	5.3 U	5.3 U
75-00-3	Chloroethane	ug/kg	5.3 U	5.3 U
67-66-3	Chloroform	ug/kg	5.3 U	5.3 U
74-87-3	Chloromethane	ug/kg	5.3 U	5.3 U
75-34-3	1,1-Dichloroethane	ug/kg	5.3 U	5.3 U
107-06-2	1,2-Dichloroethane	ug/kg	5.3 U	5.3 U
75-35-4	1,1-Dichloroethene	ug/kg	5.3 U	5.3 U
540-59-0	1,2-Dichloroethene (total)	ug/kg	5.3 U	5.3 U
78-87-5	1,2-Dichloropropane	ug/kg	5.3 U	5.3 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.3 U	5.3 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.3 U	5.3 U
100-41-4	Ethylbenzene	ug/kg	5.3 U	5.3 U
591-78-6	2-Hexanone	ug/kg	5.3 U	5.3 U
75-09-2	Methylene chloride	ug/kg	7.7 U	8.1 U
108-10-1	4-Methyl-2-pentanone	ug/kg	5.3 U	5.3 U
100-42-5	Styrene	ug/kg	5.3 U	5.3 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.3 U	5.3 U
127-18-4	Tetrachloroethene	ug/kg	5.3 U	5.3 U
108-88-3	Toluene	ug/kg	5.3 U	5.3 U
71-55-6	1,1,1-Trichloroethane	ug/kg	5.3 U	5.3 U
79-00-5	1,1,2-Trichloroethane	ug/kg	5.3 U	5.3 U
79-01-6	Trichloroethene	ug/kg	5.3 U	5.3 U
75-01-4	Vinyl chloride	ug/kg	5.3 U	5.3 U
1330-20-7	Xylenes (total)	ug/kg	16 U	16 U
	METALS			
7429-90-5	Aluminum	mg/kg	4370	5720
7440-36-0	Antimony	mg/kg	0.34 U	3.2
7440-38-2	Arsenic	mg/kg	3.1	12.7
7440-39-3	Barium	mg/kg	24	36
7440-41-7	Beryllium	mg/kg	0.32 J	0.47
7440-43-9	Cadmium	mg/kg	0.074 U	2.4
7440-70-2	Calcium	mg/kg	80900	52800
7440-47-3	Chromium	mg/kg	6.7 J	12.3 J
7440-48-4	Cobalt	mg/kg	3.6 J	7.8
7440-50-8	Copper	mg/kg	18.2	67.3
7439-89-6	Iron	mg/kg	11500	13700
7439-92-1	Lead	mg/kg	7.4	104
7439-95-4	Magnesium	mg/kg	11000 J	19600 J
7439-96-5	Manganese	mg/kg	330	393
7439-97-6	Mercury	mg/kg	0.021 J	0.12
7440-02-0	Nickel	mg/kg	8.3 J	14.3 J
7440-09-7	Potassium	mg/kg	725 J	1040 J
7782-49-2	Selenium	mg/kg	0.28 U	0.34 J
7440-22-4	Silver	mg/kg	0.074 J	0.23 J
7440-23-5	Sodium	mg/kg	97.8 J	55.2 J
7440-28-0	Thallium	mg/kg	0.51 J	0.5 U
7440-62-2	Vanadium	mg/kg	13.2 J	19.9 J
7440-66-6	Zinc	mg/kg	34 J	362 J
	OTHER			
Q1082	Percent Solids	%	93.6	91.4

DATA USABILITY SUMMARY REPORT

Prepared For:

U. S. ARMY CORPS OF ENGINEERS

Scotia Depot
Scotia, New York

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JUNE 2004

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SECTION 1

DATA USABILITY SUMMARY

Soil and surface water samples were collected from the Scotia Depot site in Scotia, New York on April 29, 2004. Analytical results from these samples were validated and reviewed by Parsons for usability with respect to the following requirements:

- Work Plan,
- USEPA SW-846 analytical methodologies, and
- USEPA Region II SOPs.

The analytical laboratory for this project was Severn Trent Laboratories (STL).

1.1 LABORATORY DATA PACKAGES

The laboratory data package turnaround time, defined as the time from sample receipt by the laboratory to receipt of the analytical data packages by Parsons, was 23 days on average for the soil and surface water samples.

The data packages received from STL were paginated, complete, and overall were of good quality. Comments on specific quality control (QC) and other requirements are discussed in detail in the attached data validation report, which is summarized by sample media in Section 2.

1.2 SAMPLING AND CHAIN-OF-CUSTODY

Soil and surface water samples were collected, properly preserved, shipped under a chain of custody (COC) record, and received at STL within one day of sampling. All samples were received intact and in good condition at STL.

1.3 LABORATORY ANALYTICAL METHODS

Soil and surface water samples were collected from the Scotia site and analyzed for metals. Summaries of issues concerning these laboratory analyses are presented in Subsection 1.3.1. The data qualifications resulting from the data validation review and statements on the laboratory analytical precision, accuracy, representativeness, completeness, and comparability (PARCC) are discussed for each analytical method in Section 2. The laboratory data were reviewed and may be qualified with the following validation flags:

"U" - not detected at the value given,

"UJ" - estimated and not detected at the value given,

"J" - estimated at the value given,

"N" - presumptive evidence at the value given, and

"R" - unusable value.

The validated laboratory data were tabulated and are presented by media in Attachment A.

1.3.1 Metals Analysis

The soil and surface water samples collected from the site were analyzed by STL for target analyte list (TAL) metals using the USEPA SW-846 6010B/7471A/7470A analytical methods. The reported results for the metals samples were qualified as estimated due to noncompliant matrix spike recoveries and serial dilutions. Therefore, the metals data were considered 100% complete (i.e., usable) for the data presented by STL. PARCC requirements were met overall.

SECTION 2

DATA VALIDATION REPORTS

2.1 SOIL

Data review has been completed for data packages generated by STL containing soil samples collected from the Scotia site. The specific samples contained in these data packages, the analyses performed, and a usability summary are presented in Table 2.1-1. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory. The validated laboratory data are presented in Attachment A-1.

Data validation was performed for all samples in accordance with the most current editions of the USEPA Region II SOPs for organic and inorganic data review and the USEPA SW-846. This data validation and usability report is presented by analysis type.

2.1.1 Metals

The following items were reviewed for compliancy in the metals analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration, and laboratory preparation blank contamination
- Inductively coupled plasma (ICP) interference check sample (ICS)
- Matrix spike recoveries
- Laboratory duplicate precision
- Laboratory control sample
- ICP serial dilution
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of matrix spike recoveries and serial dilutions.

Matrix Spike Recoveries

All MS recoveries were within the 75-125%R control limit and had concentrations less than four times the spiking concentrations with the exception of antimony (45%R, 40%R) associated with all samples. Therefore, all soil antimony results were considered estimated, possibly biased low, with positive results qualified "J" and nondetected results qualified "UJ".

ICP Serial Dilution

All serial dilution results were considered compliant with percent differences (%D) less than 10% with the exception of aluminum (10.7%D), iron (10.1%D), calcium (10.1%D), chromium (10.1%D), nickel (10.1%D), and potassium (15.2%D) associated with all soil samples. Therefore, positive results for these analytes greater than ten times the instrument detection limit were considered estimated and qualified "J" for the affected samples.

Usability

All soil metals sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The soil metals data presented by STL were 100% complete (i.e., usable). The validated metals laboratory data are tabulated and presented in Attachment A-1.

2.2 SURFACE WATER

Data review has been completed for data packages generated by STL containing surface water samples collected from the Scotia site. The specific samples contained in these data packages, the analyses performed, and a usability summary are presented in Table 2.1-1. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory. The validated laboratory data are presented in Attachment A-2.

Data validation was performed for all samples in accordance with the most current editions of the USEPA Region II SOPs for organic and inorganic data review and the USEPA SW-846. This data validation and usability report is presented by analysis type.

2.2.1 Metals

The following items were reviewed for compliancy in the metals analysis:

- Custody documentation
- Holding times

- Initial and continuing calibration verifications
- Initial and continuing calibration, and laboratory preparation blank contamination
- Inductively coupled plasma (ICP) interference check sample (ICS)
- Matrix spike recoveries
- Laboratory duplicate precision
- Laboratory control sample
- ICP serial dilution
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols.

Usability

All surface water metals sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The surface water metals data presented by STL were 100% complete (i.e., usable). The validated metals laboratory data are tabulated and presented in Attachment A-2.

TABLE 2.1-1

SUMMARY OF SAMPLE ANALYSES AND USABILITY
SOIL – SCOTIA

SAMPLE ID	MATRIX	SAMPLE DATE	METALS
SFP-N	SOIL	4/29/04	OK
SFP-S	SOIL	4/29/04	OK
SFP-E	SOIL	4/29/04	OK
SFP-W	SOIL	4/29/04	OK
CFP-N	SOIL	4/29/04	OK
CFP-S	SOIL	4/29/04	OK
CFP-E	SOIL	4/29/04	OK
CFP-W	SOIL	4/29/04	OK
CZP-NE	SOIL	4/29/04	OK
SZP-NE	SOIL	4/29/04	OK
DRY WELL	SOIL	4/29/04	OK
SD-1	SOIL	4/29/04	OK
SD-2	SOIL	4/29/04	OK
SD-3	SOIL	4/29/04	OK
TOTAL SAMPLES			**14**

NOTES: OK - Sample analysis considered valid and usable.

TABLE 2.2-1

SUMMARY OF SAMPLE ANALYSES AND USABILITY
SURFACE WATER – SCOTIA

SAMPLE ID	MATRIX	SAMPLE DATE	METALS
SW-1F	WATER	4/29/04	OK
TOTAL SAMPLES			**1**

NOTES: OK - Sample analysis considered valid and usable.

ATTACHMENT A

VALIDATED LABORATORY DATA

ATTACHMENT A-1

VALIDATED LABORATORY DATA FOR SOIL

Validated Soil Sample Results
April 2004
Scotia Depot

		Range of Background Soil Concentrations		Range of FSI Soil Concentrations		Sample ID:	CFP-E	CFP-N	CFP-S	CFP-W	CZP-NE	DRY WELL	SD-1	SD-2	SD-3	SFP-E
						Lab Sample Id:	C4E040331009	C4E040331007	C4E040331008	C4E040331010	C4E040331002	C4E040331014	C4E040331011	C4E040331012	C4E040331013	C4E040331005
						Depth:										
						Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
						SDG:	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331	C4E040331
						Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Sampled:	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
							6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004	6/8/2004
	COMPOUND					UNITS:										
	METALS															
7429-90-5	Aluminum	4650 - 9600		4740 - 12700		mg/kg	8780 J	9070 J	8790 J	10300 J	9910 J	4100 J	4500 J	3600 J	4180 J	7530 J
7440-36-0	Antimony	0.29 - 0.49		ND - 1.7		mg/kg	0.36 UJ	0.41 UJ	0.36 UJ	0.35 UJ	0.42 UJ	2.5 J	0.68 J	4.6 J	8 J	0.34 UJ
7440-38-2	Arsenic	2.7 - 6.5		5.9 - 21.4		mg/kg	4.6	15	7.9	5	4.6	8.9	19.9	57.7	224	13.6
7440-39-3	Barium	21.7 - 75.4		23.1 - 39.5		mg/kg	27.1	36.4	23.8	36.3	71.1	32.3	23.6 J	44.4	75.6	27.4
7440-41-7	Beryllium	0.26 - 0.58		0.32 - 0.73		mg/kg	0.65	0.63	0.79	0.8	0.48 J	0.46	0.45 J	0.49 J	0.57 J	0.71
7440-43-9	Cadmium	0.14 - 0.29		NA		mg/kg	0.077 U	0.088 U	0.078 U	0.077 U	0.092 U	0.4 J	0.13 J	4.3	13	0.074 U
7440-70-2	Calcium	864 - 21500		5090 - 60300		mg/kg	1710 J	16200 J	1360 J	928 J	832 J	48200 J	40200 J	64900 J	39000 J	13900 J
7440-47-3	Chromium	5.5 - 12.3		7.4 - 14.5		mg/kg	9.7 J	13.2 J	10.9 J	11.4 J	9.9 J	9.1 J	7.9 J	21 J	53.8 J	10.7 J
7440-48-4	Cobalt	3.5 - 8.9		4.5 - 8.3		mg/kg	4.7 J	5.7 J	5.7	6.2	3.9 J	6.2	3.5 J	51.3	201	5 J
7440-50-8	Copper	9.3 - 18.7		16.5 - 103		mg/kg	12.5	13.9	18.4	15.4	8.7	33.7	37.6	263	484	17.1
7439-89-6	Iron	11000 - 21400		13700 - 23000		mg/kg	15900 J	18800 J	19700 J	19800 J	13700 J	10400 J	12100 J	17400 J	34700 J	16400 J
7439-92-1	Lead	8.9 - 31.6		7 - 23.7		mg/kg	5.8	11.3	7.6	7.4	11.7	117	23.9	377	918	8.1
7439-95-4	Magnesium	1940 - 7360		3500 - 20000		mg/kg	2330	6360	2830	2420	1490	18000	18900	25400	21000	6100
7439-96-5	Manganese	225 - 619		422 - 677		mg/kg	263	455	383	308	1580	273	585	354	412	464
7439-97-6	Mercury	0.027 - 0.057		0.02 - 0.06		mg/kg	0.028 J	0.069	0.041	0.013 U	0.097	0.15	0.026 J	0.34	3.1	0.013 U
7440-02-0	Nickel	6.8 - 15.8		10.2 - 16.6		mg/kg	10.7 J	11.7 J	13.4 J	15.4 J	8 J	9.3 J	8.8 J	22.8 J	47.6 J	11.3 J
7440-09-7	Potassium	400 - 1230		404 - 608		mg/kg	492 J	526 J	737 J	681 J	460 J	639 J	466 J	604 J	736 J	713 J
7782-49-2	Selenium	0.21 - 0.25		ND - 0.94		mg/kg	0.29 U	0.33 U	0.29 J	0.3 J	0.55 J	0.29 U	0.32 U	0.6 J	1.2 J	0.28 U
7440-22-4	Silver	ND - 0.25		NA		mg/kg	0.033 U	0.038 U	0.033 U	0.033 U	0.22 J	0.073 J	0.12 J	0.6 J	1.9	0.047 J
7440-23-5	Sodium	59.9 - 82.4		ND - 252		mg/kg	17.4 U	19.9 U	17.5 U	17.4 U	20.6 U	17.1 U	19.1 U	20.5 U	46.2 U	16.7 U
7440-28-0	Thallium	ND		ND		mg/kg	0.51 J	0.58 U	0.69 J	0.67 J	0.6 U	0.5 U	0.56 U	0.8 J	1.2 J	0.49 J
7440-62-2	Vanadium	12.3 - 22.7		13.9 - 33.6		mg/kg	18.6	23.7	19.9	21.6	18.4	15	13.8	33.2	62	19.4
7440-66-6	Zinc	31.1 - 64.1		43.8 - 137		mg/kg	33.1	44.9	49.7	47.7	50.5	89.6	222	502	1070	50.2
	OTHER															
Q1082	Percent Solids					%	90	78.8	89.2	90.1	76.1	91.5	82	76.4	67.8	93.7

Validated Soil Sample Results
April 2004
Scotia Depot

		Range of Background Soil Concentrations		Range of FSI Soil Concentrations		Sample ID:	SFP-N	SFP-S	SFP-W	SZP-NE
						Lab Sample Id:	C4E040331003	C4E040331004	C4E040331006	C4E040331001
						Depth:				
						Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
						SDG:	C4E040331	C4E040331	C4E040331	C4E040331
						Matrix:	SOIL	SOIL	SOIL	SOIL
						Sampled:	4/29/2004	4/29/2004	4/29/2004	4/29/2004
							6/8/2004	6/8/2004	6/8/2004	6/8/2004
	COMPOUND					UNITS:				
	METALS									
7429-90-5	Aluminum	4650 - 9600		4740 - 12700		mg/kg	5630 J	6560 J	10100 J	8000 J
7440-36-0	Antimony	0.29 - 0.49		ND - 1.7		mg/kg	0.33 UJ	0.42 J	0.35 UJ	0.35 UJ
7440-38-2	Arsenic	2.7 - 6.5		5.9 - 21.4		mg/kg	31.6	11.8	45.3	9.9
7440-39-3	Barium	21.7 - 75.4		23.1 - 39.5		mg/kg	26.7	31.5	34	28.7
7440-41-7	Beryllium	0.26 - 0.58		0.32 - 0.73		mg/kg	0.46	0.54	0.8	0.73
7440-43-9	Cadmium	0.14 - 0.29		NA		mg/kg	0.072 U	0.075 U	0.075 U	0.33 J
7440-70-2	Calcium	864 - 21500		5090 - 60300		mg/kg	34800 J	29100 J	8550 J	25500 J
7440-47-3	Chromium	5.5 - 12.3		7.4 - 14.5		mg/kg	9.1 J	10.6 J	12.4 J	10.9 J
7440-48-4	Cobalt	3.5 - 8.9		4.5 - 8.3		mg/kg	4.4 J	4.9 J	7	5 J
7440-50-8	Copper	9.3 - 18.7		16.5 - 103		mg/kg	16.7	20.8	23.8	18.6
7439-89-6	Iron	11000 - 21400		13700 - 23000		mg/kg	13000 J	15000 J	21300 J	17200 J
7439-92-1	Lead	8.9 - 31.6		7 - 23.7		mg/kg	8.4	14.7	9	7.5
7439-95-4	Magnesium	1940 - 7360		3500 - 20000		mg/kg	7940	11400	4820	10700
7439-96-5	Manganese	225 - 619		422 - 677		mg/kg	371	483	463	592
7439-97-6	Mercury	0.027 - 0.057		0.02 - 0.06		mg/kg	0.028 J	0.019 J	0.037	0.032 J
7440-02-0	Nickel	6.8 - 15.8		10.2 - 16.6		mg/kg	9.4 J	10.8 J	13.3 J	11.5 J
7440-09-7	Potassium	400 - 1230		404 - 608		mg/kg	710 J	699 J	693 J	779 J
7782-49-2	Selenium	0.21 - 0.25		ND - 0.94		mg/kg	0.27 J	0.28 U	0.28 U	0.28 U
7440-22-4	Silver	ND - 0.25		NA		mg/kg	0.031 U	0.04 J	0.032 U	0.037 J
7440-23-5	Sodium	59.9 - 82.4		ND - 252		mg/kg	16.1 U	16.8 U	16.9 U	17 U
7440-28-0	Thallium	ND		ND		mg/kg	0.47 U	0.58 J	0.59 J	1.1 J
7440-62-2	Vanadium	12.3 - 22.7		13.9 - 33.6		mg/kg	15.1	17.4	23.8	21.1
7440-66-6	Zinc	31.1 - 64.1		43.8 - 137		mg/kg	44	59.4	46.9	64.9
	OTHER									
Q1082	Percent Solids					%	97.4	93.4	92.6	91.9

ATTACHMENT A-2

VALIDATED LABORATORY DATA FOR SURFACE WATER

Validated Surface Water Sample Results
April 2004
Scotia Depot

USACE Scotia Depot Validated Surface Water Analytical Data April 2004 Sampling		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	SW-1F C4E040331015 STL Pittsburgh C4E040331 Water 4/29/2004 6/8/2004
CAS NO.	COMPOUND	UNITS:	
	METALS		
7429-90-5	Aluminum	ug/L	307
7440-36-0	Antimony	ug/L	3.2 U
7440-38-2	Arsenic	ug/L	3.3 U
7440-39-3	Barium	ug/L	17.7 J
7440-41-7	Beryllium	ug/L	0.42 U
7440-43-9	Cadmium	ug/L	0.7 U
7440-70-2	Calcium	ug/L	18100
7440-47-3	Chromium	ug/L	2 J
7440-48-4	Cobalt	ug/L	0.53 U
7440-50-8	Copper	ug/L	169
7439-89-6	Iron	ug/L	435
7439-92-1	Lead	ug/L	52.1
7439-95-4	Magnesium	ug/L	1400 J
7439-96-5	Manganese	ug/L	17.8
7439-97-6	Mercury	ug/L	0.071 U
7440-02-0	Nickel	ug/L	1.2 U
7440-09-7	Potassium	ug/L	464 J
7782-49-2	Selenium	ug/L	2.6 U
7440-22-4	Silver	ug/L	0.3 U
7440-23-5	Sodium	ug/L	433 J
7440-28-0	Thallium	ug/L	4.6 U
7440-62-2	Vanadium	ug/L	1 U
7440-66-6	Zinc	ug/L	615